



DEVELOPMENT OF A COMMUNICATING PARTNER CURRICULUM FOR ENHANCING
PARENT-CHILD COMMUNICATING ABILITY OF AUTISTIC CHILDREN'S PARENTS



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การพัฒนาหลักสูตรคู่มือสารสำหรับการเสริมสร้างความสามารถในการสื่อสารระหว่างผู้ปกครอง
และเด็กที่มีภาวะออทิสติก



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DEVELOPMENT OF A COMMUNICATING PARTNER CURRICULUM FOR ENHANCING
PARENT-CHILD COMMUNICATING ABILITY OF AUTISTIC CHILDREN'S PARENTS



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THE DISSERTATION TITLED
DEVELOPMENT OF A COMMUNICATING PARTNER CURRICULUM FOR ENHANCING PARENT-
CHILD COMMUNICATING ABILITY OF AUTISTIC CHILDREN'S PARENTS

BY
JING XU

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The objectives of the study are as follows: (1) to study the elements and characteristics of parent-child communication abilities of parents of autistic children; (2) to design and develop a curriculum to improve the parent-child communication abilities of participants; and (3) to evaluate the effectiveness of the curriculum. This research was divided into five phases: first, through analyzed literature and interviewed professionals, identified the elements and characteristics of parent-child communication abilities of the parents of autistic children. Second, through literature analysis and interviewed professionals, and determined the basic information for curriculum design. Third, through analyzed foundational data, a pilot study, and expert reviews, drafted the training curriculum; (3) 15 parents were implemented in the curriculum; (5) curriculum evaluation and revision. The findings were as follows: (1) the parent-child communication abilities of parents of autistic children and consisted of four elements: constructing a good communication environment, eliciting communication behaviors in children, understanding the communication messages expressed by the child, and assisting children in understanding communication messages; (2) the curriculum was comprised of 25 hours, consisting of three modules and nine learning units. Each unit includes four steps: Trigger, Reflection, Architecting the New Experience, and Integration; and (3) all participating parents showed significant improvement in their communication abilities, with a significance level of 0.05, and they all expressed high satisfaction with the curriculum.

Keyword : Communicating Partner Curriculum, Parent-Child Communication Ability, Parents of Autistic Children

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CHAPTER 1

INTRODUCTION

This chapter mainly introduces the background and context of the research topic, as well as the motivation, purpose, and importance of the research. The main contents are as follows.

1. Background of the Research

Due to the development of the theory of Interpersonal Neurobiology, it is recognized that parents' communication abilities have a significant impact on improving their children's communication abilities (Suskind, Suskind & Suskind, 2017). For autistic children, who lack social communication abilities, this influence is particularly important (Green et al., 2010). Parental intervention plays a pivotal role in addressing the fundamental challenges of communication difficulties in autistic children (Brooke & Anna, 2018; Deb et al., 2020; Kaiser & Roberts, 2013; Pickles et al., 2016; Shi, 2017; Wei et al., 2021). Training parents to enhance communication abilities with their autistic children (Pickles et al., 2016) and fostering their role as communicating partner in natural and everyday situations have been recognized as effective approaches (MacDonald & Wilkening, 1994; Macdonald, 2011). However, there are still many issues that need to be addressed in improving the communication abilities of parents of children with autism.

Firstly, the concept of communicating partner is relatively used in education and rehabilitation for children with autism. It is primarily utilized in the field of Augmentative and Alternative Communication (AAC) and among individuals with various types of communication disabilities. Such as, Aphasia, traumatic brain injury, Post-Traumatic Confusional State, hearing loss, Rett syndrome (Henderson et al., 2023; Effects of Communication Partner Instruction on the Communication of Individuals using AAC (Kent-Walsh et al., 2015; Jill & Christopher, 2012; Rietdijk, 2013; Simmons-Mackie et al., 2016). In China, Cai et al. (2023) mentioned the concept of communication partner rehabilitation training for stroke patients. Related research primarily focuses on the

introduction of concept, few researchers have systematically explored the elements of abilities as communicating partner (Kaiser & Roberts,2013).

Secondly, there is a lack of curriculum or programs aimed at training parents of children with autism to become communicating partner. Even if there are other parent training programs available as references, these programs still have some issues that can impact the effectiveness of the training in China (Guo et al.,2018; Wei et al.,2021). Regarding training content, current programs for parents of children with autism face two primary issues.

(1) limited by economic and information factors, some trainings are specialized and newer concepts, while parents have limited knowledge, making it difficult to apply the relevant theories to practice (Liu, 2019).

(2) The relevant theories are more fragmented, and there is no unanimous consensus about strategies (Kathleen,2015). Some parents learn the relevant knowledge by searching information on the Internet, but the fragmented presentation of online resources makes the knowledge acquired by parents not systematic enough and difficult to be analogized (Duan, 2017). Parents often have some troubles in the process of specific application as it is difficult to balance and flexibly apply these methods (Guo et al.,2018).

(3) Some trainings only teach parents specific operational strategies to let them know what they can or cannot do, and they have little understanding of the theory involved in these methods, making it difficult to flexibly adapt and apply them in different contexts (Green et al., 2010).

(4) Some trainings are based on foreign cultural and research backgrounds and lack systematic and localized curriculum and operational methods (Wang & Mo, 2022).

At last, parents of children with autism have accumulated substantial experience in communicating with their children over the years. They have developed their own methods and strategies for interaction (Kathleen, 2015; Yang, 2022). When training them, their old experiences need to be reflected upon and if they are done

correctly, they need to be continued and developed; if they are done incorrectly, they need to be adjusted. The latter has greater difficulties for adults (Yang, 2022). Current training programs for parents of children with autism primarily focus on educating them about effective strategies, while few curriculums incorporate parents' old experiences and guide them to reflect and then make self-adjustments to form new experiences of parent-child communication.

Therefore, there is a need to systematically organize, analyze, and discuss the elements and characteristics of communicating partner and use the results to provide guidance and training to parents. The problem of training content is solved by establishing a systematic curriculum content by combining the characteristics of communicating partner. This study developed a communicating partner curriculum to enhancing parent-child communicating ability of autistic children's parents. The curriculum addressed the problems faced by parents of children with autism when communicating with their children, as well as improve their own parent-child communication abilities, through the following approach.

Firstly, utilizing the Transactional model of communication, a systematic curriculum content is constructed. Since this theory approaches communication from the perspective of information exchange, it clearly delineates the elements of communication as the sender, receiver, communication symbols, and communication situation (Cerrone & Maekivi, 2021; Meng, 2010). Building on this, the research explored and analyzed the elements and characteristics of parent-child communication abilities for parents of children with autism, considering the specific traits of these children.

Secondly, the utilization of Behavioral learning theory and Relation-based developmental theory are significant. These two theories are currently crucial in understanding the development of children's language and communication abilities. Among them Behavioral learning theory can explain almost any learned behavior (Liu, 2019). The communication abilities of individuals can also be regarded as a series of learnable behaviors (Rietdijk, 2013). The basic idea of behavioral learning theory is that if an individual's behavior is reinforced, then this behavior may be reinforced and become

a stable behavioral expression for the individual (Matthew & Hergenbahn, 2015; Xu et al. 2020; Yang, 2015); while if a behavior is not wanted or welcomed, the frequency of this behavior can be reduced or even made to disappear by ignoring it (Dale, 2012). For children's language learning, there is a similar process: parents model language, children with autism imitate it, and parental feedback enhances these behaviors (Robert, 2020; Harley, 2014). Relation-based developmental theory is derived from social constructivist learning theory, which considers social interaction as the basis for children's language and cognitive development (Elizabeth, 2015). Children encode and decode the form and content of language through the structure provided by social interactions, and strengthen their communication abilities through repeated interactions (Purnomo, 2023; Robert, 2020). The core idea of Relation-based development theory is the support of communication objects, and the adjustment of the communication environment can enable children with autism to have more communication opportunities, promote more motivation to communicate, enrich their social experiences, and help children recognize and adjust their behaviors through constant explanation and feedback from adults, which in turn enhance their communication abilities (Purnomo, 2023; Kathleen, 2015).

At last, Transformative learning theory has greatly influenced the construction of parental learning curriculum for children with autism. Given that the Communicating Partner Curriculum targets parents of children with autism who come from diverse cultural backgrounds, possess varied professional experiences, and have unique learning journeys, it is crucial for them to engage in reflective thinking and adapt their prior experiences to effectively incorporate the concepts and methods of Communicating Partner into their everyday interactions with their children. By doing so, they can seamlessly integrate new experiences into practical application. (Rodríguez & Barth, 2020; Yang, 2022).

In the study, the research combined those theories. The concept of a communicating partner was used to develop relevant curriculum. To address the systematicity and operational issues of the curriculum content, this study employed the

Transactional Model of Communication to develop the curriculum's knowledge framework. The content was shaped by Behavioral Learning Theory and Relation-Based Developmental Theory, while the curriculum's implementation was guided by Transformative Learning Theory.

2. Objectives of the Research

In the research, the objectives were as follows:

- 1). To examine the elements and characteristics of parent-child communication abilities in parents of children with autism as communicating partners.
- 2). Design and develop Communicating Partner Curriculum to improve the parent-child communication abilities of research participants.
- 3). Evaluate the effectiveness of Communicating Partner Curriculum.

3. Significance of the Research

The significance of the research as following:

- 1). Conducting systematic research allows for a profound understanding of the elements and characteristics that contribute to the parent-child communication abilities of parents of children with autism.
- 2). Developing a comprehensive training curriculum specifically designed for parents of children with autism emphasizes the role of communicating partner. This innovative curriculum enhances parents' communication abilities, equipping them with effective tools and strategies.
- 3). This curriculum places significant emphasis on the crucial role of communicating partner in the lives of parents with autistic children. By improving their abilities to communicate with their children, it seeks to foster positive attitudes and perspectives towards autism. Additionally, it assists parents in adjusting their communication roles, enabling them to better understand, accept, and effectively connect with their children.
- 4). Professionals specializing in special education and speech therapy, with expertise in communication education for children with autism, utilize this curriculum to

provide valuable guidance and support to parents. By offering this structured resource, the aim is to alleviate the challenges parents often face when seeking relevant information independently. This initiative promotes the adoption of more effective and accurate methods for parents to engage and establish meaningful connections with their children.

5). Teaching communication methods to parents of children with autism in their daily lives and interaction processes aims to reduce the pressure on parents to deliberately train their children at home. This approach allows parents to resume their roles as caregivers rather than taking on the roles of therapists or special education teachers.

4 Scope of the Study

4.1 Population

Parents of autistic children aged 2-8 years old in Rehabilitation Center for Autistic Children in Chongqing, China. Chongqing is in southwest China and is the largest of the four municipalities directly under the Central Government. As of March 2022, there were 105 Rehabilitation Center for Autistic Children in Chongqing. Children of these parents are studying in these centers.

4.2 Sample

This study aims to develop a communicating partner curriculum. To improve the effectiveness of the program and to facilitate its dissemination, a representative sample of rehabilitation centers was selected for this study that provided the greatest amount of information possible. Used purposive sampling method to select the Education and Rehabilitation Center of Chongqing Normal University. A total of 15 volunteers who met the research conditions were recruited from the center.

4.3 Variables

Independent Variable: Communicating Partner Curriculum.

Dependent Variables: Parent-child communication abilities of Autistic Children's Parents.

5 Definition of Terms

Based on relevant literature and research needs, the researcher has defined specific terminology for this study, which may differ from other studies.

5.1 Parents of Children with Autism

Parents of children with autism are defined as the primary caregivers, including biological parents, adoptive parents, step-parents, grandparents, other guardians, or long-term babysitters. These caregivers reside in Chongqing, China, and their children, aged 2 to 8 years, are undergoing rehabilitation training at an autism rehabilitation center.

5.2 Parent-Child Communication abilities

Parent-child communication abilities refer to the capability of parents of autistic children to employ strategies that encourage children's participation in communication, foster mutual understanding, promote the appropriate and effective exchange of messages during interactions. In this study, parent-child communication abilities include 4 elements, constructing a good communication environment, eliciting communication behaviors in children, assisting the child to understand adult communication information, understanding communication information expressed by children.

Element 1: Constructing a Good Communication Environment

Constructing a good communication environment involves parents of children with autism optimizing the physical environment, psychological atmosphere, and communication channels according to the child's characteristics and communication abilities, ensuring that information is accurately transmitted and understood. This element contains seven characteristics are embracing children, embracing themselves, equality, empathetic children, playfully engaging with children, flexibility in adjustments and arranging a suitable physical environment for communication.

Element 2: Eliciting Communication Behaviors in Children

Eliciting communication behaviors in children refers to the ability to induce their communication behaviors to help them communicate better. This element includes 10 characteristics: interest induction, exaggerating to amplify communication cues, pausing and waiting, imitating, following, and joining, breaking routines, intentionally playing dumb, observing, responding, and persistent pursuit.

Element 3: Assist Children Understanding Communication Information

Assisting children understanding communication information refers to the ability of parents of children with autism to effectively encode and convey their own feelings and thoughts, etc. in the brain, and choose an appropriate method to pass them on based on the child's ability, experience, etc., so that the child can understand their own thoughts. This element includes six characteristics: staying curious, listening, speculating about children's expressions, expanding children's language, demonstrating language, and assisting children in expression.

Element 4: Understand Communication Information Expressed

Understanding communication information expressed by the child refers to the ability of parents of children with autism to receive information conveyed by their children through verbal and non-verbal forms, decode it, and analyze the decoded information based on their own experience and abilities to comprehend the child's intended meaning. This element includes four characteristics: Utilizing various forms and degrees of communication cues, adjusting adult communication style, structured activities and providing support.

5.3 Communicating Partner Curriculum

A Curriculum is an organized educational program that provides instruction and learning opportunities on a specific subject or topic. It consists of a series of lessons, activities, and assessments designed to help learners acquire knowledge, develop abilities, and achieve specific learning outcomes. The aims of a curriculum are to facilitate the acquisition of knowledge, foster the development of abilities, and enable learners to achieve predetermined educational goals.

The Communicating Partner Curriculum is built upon the foundation of the Transactional model of communication, Behavioral learning theory, Relation-based developmental theory, and Transformative learning theory. Its objective is to enhance the parent-child communication abilities of parents of autistic children.

The curriculum consists of ten learning units: Building a Bridge for Communication with Children; Most Familiar Strangers; What is Suitable is the Best; This way we can communicate better; Why Children Communicate; Child, let me better understand you; Child, Help You Better Understand Me; Play Communication: Developing and Applying Individualized Family Communication Plans. Communication is Everywhere: Application of communication strategies in daily life activities. Communication is Everywhere: Application of communication strategies in family social communication games.

The curriculum implementation time is 25 hours. The effectiveness of the curriculum is assessed using the Parent-Child Communication Abilities Assessment Form for Parents of Children with Autism.

6 Theoretical Framework

The theoretical structure of this study is shown in the following figure:

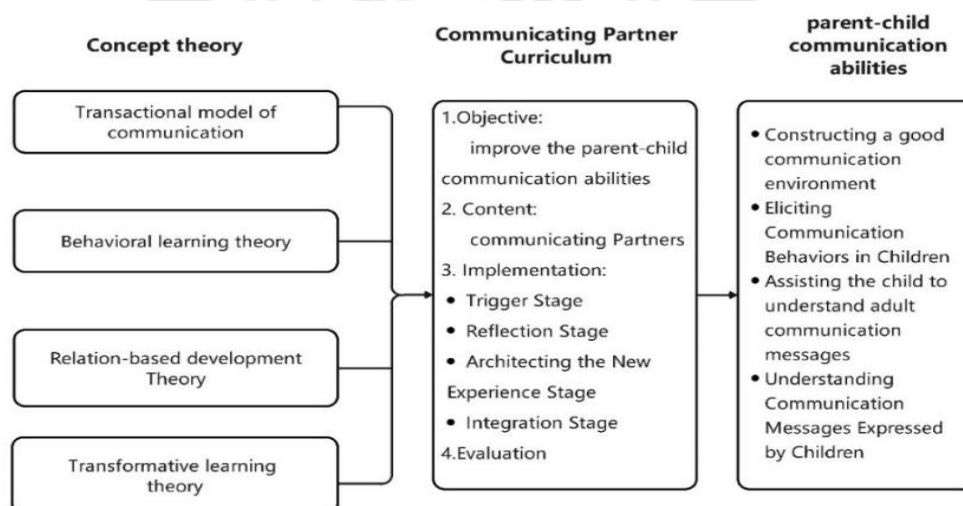


FIGURE 1 Theoretical framework diagram

7 Hypothesis of the Study

The researcher conducted an experiment with 15 parents of children with autism who voluntarily participated in the Communicating Partner Curriculum.

The researcher hypothesized that after the parents participate the curriculum through 30 hours, their parent-child communication abilities are higher than before.



CHAPTER 2

REVIEW OF THE LITERATURE

The primary purpose of this study is to develop a training curriculum for parents of children with autism, focusing on the Communicating Partner concept. To contextualize this study, relevant literature was reviewed to gather knowledge and insights necessary for curriculum development. The researcher examined literature related to the development of parent-child communication abilities, the Communicating Partner curriculum, and training programs for parents of children with autism. The content outline is organized as follows.

1 Communicating Partner

1.1 The Meaning of Communicating Partner

1.2 The Theoretical Basis of Communicating Partner

1.3 Principles of Communicating Partner

1.4 The Training Path of Communicating Partner

1.5 Confusion of Communicating Partner

2 Parent-Child Communication Abilities of Parents of Children with Autism

2.1 Communication Abilities

2.2 Parent-Child Communication Abilities

2.3 Parent-Child Communication Abilities of Parents of Autistic Children

3 Research on Parent-Child Communication Abilities of Autistic Children'

Parents

3.1 Difficulties in Parent-Child Communication of Parents of Autistic Children' Parents

3.2 Distress in Developing Parent-Child Communication Ability for Autistic Children' Parents

3.3 The Importance of Parental Participation in Training of Children with Autism

3.4 Researches on Parents' Participation in Promoting Development of Communication Abilities in Children with Autism

3.5 Methods for Evaluating Parent-Child Communication Abilities of Autistic's Parents

4 Research on Parent-Child Communication Abilities Training of Autistic Children' Parents

4.1 Learning Contents of Training for Parents of Children with Autism

4.2 Learning Processes of Training for Parents of Children with Autism

4.3 Learning Methods of Training for Parents of Children with Autism

4.4 Learning Strategies of Training for Parents of Children with Autism

4.5 Learning Organization of Training for Parents of Children with Autism

5 Theory of Transactional Model of Communication

5.1 The Meaning of Communication within Transactional Model of Communication

5.2 The Meaning of Communication Abilities within Transactional Model of Communication

5.3 The Elements of Communication Abilities within Transactional Model of Communication

6 Behavioral Learning Theory

6.1 The Role of Behavioral Learning Theory in Education of Autistic Children

6.2 The Development of Behavioral Learning Theory in Education of Autistic Children

6.3 The Application of Behavioral Learning Theory in Education of Autistic Children

7 Relationship-Based Development Theory

7.1 The Theoretical Foundation of Relationship-Based Development Theory

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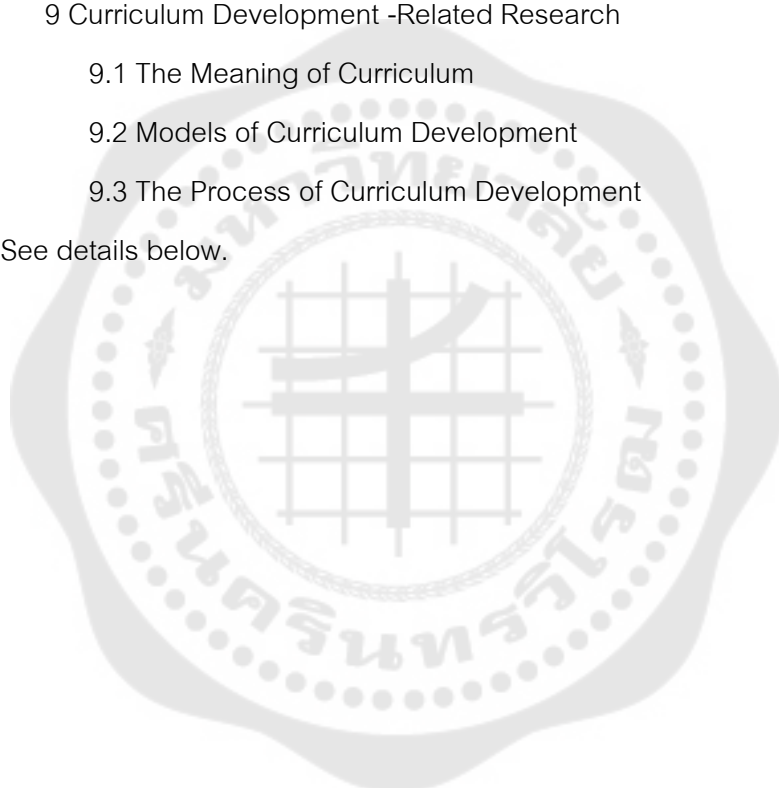
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1 Communicating Partner

1.1 Research on the Meaning of Communicating Partner

Communicating partner has a broad and narrow sense. Some researchers define communicating partner from a broad perspective and believe that communicating partner are the object in the environment where the individual interacts (Cai et al., 2023; Kent-Walsh et al., 2015). Some researchers define communicating partner from the perspective of people with communication disabilities. They believe that for people with communication disabilities, if the person they interact with can receive training on communication abilities and master some special strategies and methods, enhancing the communication intentions of individuals with communication disabilities and enriching their means of communication are crucial aids in improving their overall communication abilities. (Cai et al., 2023; Kent-Walsh et al., 2015).

Researchers suggest that the scope of potential communicating partner is extensive. Parents, siblings, peers, friends, colleagues, teachers, healthcare professionals, personal care attendants, residential facility staff, and other relevant individuals can undergo training to serve as communicating partner for individuals with communication disabilities (Kent-Walsh et al., 2015). Some researchers called such trained communication objects with certain communication strategies and methods as communication teacher (Pickles et al., 2016; Brooke & Anna, 2018; Brooke & Anna, 2020), which is the meaning of communicating partner in a narrow sense.

Some researchers call Communicating partner “communication partner” (Kent-Walsh et al., 2015; Simmons-Mackie et al., 2016). The terms communication partner and communicating partner are similar. But communication partner highlights the relational aspect of the person or entity with whom we communicate, while communicating partner places more emphasis on the active role of engaging in the act of communication. So, in this study, communicating partner is utilized.

Considering the characteristics of autistic children, some researchers believe that adults who communicate with them may be overprotective or anxious to instruct or correct their children’s mistakes, which may reduce their opportunities to think, try and make mistakes in the communication process, thus hindering the

improvement of their communication abilities. Therefore, adults should adjust their roles to communicate with children with autism as equals (Xu et al. 2020). Some researchers believe that adults should assist children with autism in communicating from a supportive perspective (Beukelman & Mirenda, 2020). Some researchers believe as communicating partner, adults should not guide or teaching them to communicate (Fumi & Junichi, 2019).

1.2 The Theoretical Basis of Communicating Partner

1.2.1 Changing Views on Disability

With the development of society, people's views on the disabled are constantly changing. In the past, when people looked at people with disabilities from a medical perspective, the general view was that deficits, or impairments in the psychophysical functioning of individuals were commonly construed as intrinsic matters, particularly in the context of persons with disabilities. However, in tandem with the evolution of society, People with disabilities are increasingly viewed sociologically. There is a growing recognition that the impediments encountered by individuals with disabilities are intricately linked not only to their personal attributes but also to the milieu in which they are situated (Kent-Walsh et al., 2015).

For people with communication disabilities, more and more studies hold this view. They believe that the communication difficulties of people with communication disabilities are not only related to their own characteristics, but also related to their communication environment (Finch et al. ,2018).

1.2.2 The Formation of Two-Way Communication Concept

In the past, people thought that communication was the unilateral transmission of information by the communicator. However, more and more researchers realize Communication is a two-way interactive, back-and-forth, and constantly changing process that occurs between two parties (Kent-Walsh et al., 2015; Shrubsole et al.,2023; Kathleen, 2015). In this process, it is not only necessary for the message transmitter to better deliver the message, but also for the message receiver to understand the received message, and it is necessary for both sides of the communication to make dynamic adjustments, because of the object, environment,

timing, and other elements to promote a smoother transmission of the communication message (Gong, 2022).

Based on this, researchers proposed that both parties in the communication have some prior experience to be able to understand the ideas of the communication object, to be able to pass on their ideas, and to be able to make judgments and adjustments according to the communication situation (Shrubsole et al.,2023). Some researchers have found that if one of the parties has difficulties, they can promote motivation and improve their communication abilities by changing the communication environment, providing communication opportunities, and increasing the sense of control over the communication interaction process (Beukelman & Mirenda, 2020; Rietdijk, 2013). Some researchers point out that children can only grow as a communicator when they are treated as communicators (Robert & Kimberly,2019) From this perspective, some researchers point out children's communication abilities are acquired in the interaction with the environment, and communication disabilities are barriers that arise during the interaction of communication, not just one individual's disorder (Fumi & Junichi, 2019).

Some researchers point out that for adults with communication disabilities, providing more communication opportunities can help them adjust their communication methods, thereby developing more communication methods, improving their communication difficulties, and improving their communication abilities (Jill & Christopher,2012).

1.2.3 The Development of Theory of Interpersonal Neurobiology

Some researchers construct the theoretical basis of communicating partners from the perspective of the theory of Interpersonal Neurobiology. The interaction between people can have an impact on the brain nerves, making the brain neurons produce new connections, to improve children's mood, behavior, and various abilities. Many children with language retardation have damage about brain nerves. Improve the interaction between parent and child maybe improve the language ability of them(Green,et al.,2010).Based on this background, the researchers proposed floor time,

Relationship Development Intervention (RDI), Parent - mediated communication - focused treatment (PACT), which aims to enrich the interpersonal experiences of children with autism, improve the way adults interact with children with autism, and creating additional opportunities for children with autism to engage in communication and interaction can effectively enhance their social communication abilities (Green et al. 2010; Liu & Feng, 2018; Liu, 2019; Brooke & Anna, 2020; Wang & Mo, 2022; Kathleen, 2015). The enhancement of these abilities can help children with autism to be more proactive in self-expression and is not a bad strategy to promote their communication abilities.

Some researchers point out that for adults with communication disabilities, successful communication experience may enhance neuroplasticity by establishing a rich communication environment, thereby promoting the improvement of their language communication function. On the other hand, it can lead to higher well-being of family caregivers, so that they can maintain their caregiver roles in the long-term, and support family and community participation of people with communication disabilities (Shrubsole et al.,2023).

1.2.4 Changes in the Treatment of Communication Disabilities

Communicating partner is not a new concept. Many researchers have mentioned this concept. It is a fundamental role that professionals such as clinicians, caregivers, therapists, special education teachers, and even family members play when interacting with people with communication disabilities (Hopper et al. 2002). Some researchers find that, to better transmit information to and from individuals with communication disabilities, people communicating with them consciously or unconsciously take special measures, such as using gestures to complement language, slowing down their speaking speed, and so on. The basic ideas and methods are often mentioned in the training for caregivers of stroke patients, aphasia patients and AAC users (Simmons-Mackie et al.,2016). However, the clear introduction of this concept means a change in the treatment of communication disabilities. There has been a shift from solely focusing on restoring or improving the communication abilities of individuals

with communication disabilities to emphasizing the communication environment of these individuals. (Jill & Christopher,2012).

Therefore, in recent years, communicating partner have begun to emerge in the fields of speech therapy and autism education and rehabilitation. They consider the social interaction perspective and argue that adults can increase the opportunities for individuals with communication impairments to interact through their assistance in communication interactions. Individuals with communication disabilities develop their communication abilities by continuously participating in social interactions to accumulate and enrich relevant experiences (Robert, 2020).

For example, parents can actively communicate with children in different ways, guide children to answer questions, and facilitate children's understanding of the rules of language through eagle-frame support during interactions (Fumi & Junichi, 2019). In this process, elements such as the adjustment of communication attitudes, the use of communication abilities, the timing of communication are very important for the target of communication (Kathleen, 2015).

1.3 Principles of Communicating Partner

Communicating partner is facilitator with certain communication strategies, and they are partners in the process of communication with communication barriers. Therefore, their roles are different from those of special education teachers, therapists, and other professionals. Understanding the basic principles of communicating partners is helpful for the construction of communicating partner curriculums. By analyzing some researches, some basic principles of communicating partners can be discovered.

1.3.1 Balance Communication Dominance

In the process of communication between individuals without disabilities and those with communication disabilities, the difference in communication abilities often places the former in a stronger position, thereby reducing opportunities for individuals with communication disabilities to participate. To promote the improvement of communication abilities in individuals with communication disabilities, communication partners need to balance the dominance in the communication process. (Macdonald, 2011), Attention to the abilities, needs, and messages of individuals with communication

disabilities is crucial to promoting their participation in the communication process. (Isaksen et al.,2023), make them get more positive communication experience (Simon &Carole, 2018).

1.3.2 Relationship Priority

Partners are a crucial element in the concept of communicating partner. Under this framework, some researchers argue that the relationship between communicating partner and individual with communication barriers is vital in the communication process. (Simon & Carole, 2018). In the process of communication and interaction, the communicating partner not only facilitates effective information transmission by adjusting the communication methods used with individuals with communication barriers but also provides opportunities to trigger and promote their communication behaviors, thereby improving their communication abilities. Therefore, the focus of the communicating partner should be on strengthening the communication relationship, rather than solely on training goals such as daily self-care, cognition, or language expression (Xu et al., 2020). Some researchers believe that the communicating partner should go through the communication process with the communication barrier with a relaxed and happy mood (Henderson et al.,2022; Xu et al., 2020).

1.3.3 Supporting Principles

Within the theoretical framework of the International Classification of Functioning, Disability, and Health (ICF), some researchers have suggested that communicating partners should not only focus on the deficits and shortcomings of individuals with disabilities but rather emphasize their environment (Nielsen et al.,2019). Some researchers analyze that communicating partner not only teach communication abilities to people with communication disabilities but, more importantly, use various strategies to provide support, stimulate their motivation, and encourage active communication behaviors. (Henderson et al.,2022; Kushner et al.,2023).

1.4 The Training Path of Communicating Partner

Like research on parent-child communication abilities in children with autism, although communicating partners have shown positive effects in enhancing the

communication abilities of individuals with communication disabilities, there are limited curricula or training programs specifically designed for communicating partner, and they are inconsistently available (Kent-Walsh et al., 2015).

1.4.1 Learning Contents for Communicating Partner

Researchers believed different types of communication barriers have different difficulties in communication, there were also different requirements for communicating partners (Kent-Walsh et al., 2015). Therefore, researchers also differed in the content of learning provided for communicating partner. Simon and Carole (2018) proposed that the learning content of communicating partner should encompass three parts: enhancing one's own awareness as a communicating partner, mastering knowledge related to communication strategies, and improving communication behaviors for people with communication disabilities. The researcher used the figure below to organize these three elements.

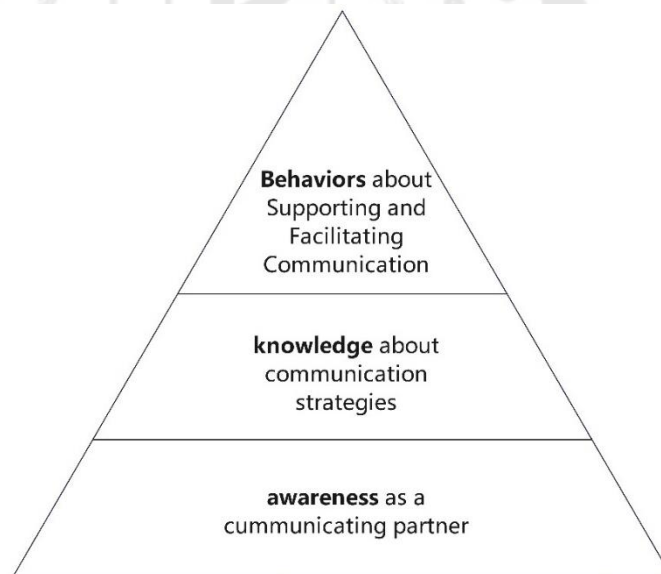


FIGURE 2 Communicating partner learning content structure

In the awareness component of communicating partners, researchers have focused on various perspectives and opinions regarding communication barriers and communication itself. For instance, some researchers have emphasized that communicating partner can effectively communicate with individuals facing

communication barriers and accept challenges. (Jill & Christopher,2012; Cameron et al.,2019) Some researchers emphasize that the transfer of communication power should not be dominated by communicating partners, but more attention should be paid to the preferences, needs and various information they want to express (Simon &Carole,2018). Some researchers suggest that communicating partner can learn how parents feel when they get along with children with communication disabilities, such as warmth, acceptance, and enjoyment of the communication process, instead of just seeing it as a training process (Henderson et al.,2023).

From the existing literature, the researchers believed that communicating partner should understand the following knowledge: (1) Difficulties in communication of communication barriers (Cameron et al.,2019; Jill & Christopher, 2012). (2) Characteristics of communication disabilities (Cameron et al.,2019; Jill & Christopher, 2012) ;(3) knowledge about communication strategies (Finch et al. ,2018).

Researchers had done more research on specific communication behavior strategies, summarizing, and sorting out many strategies. mainly include:

(1) To assist people with communication disabilities to express, the specific strategies include patient listening, ask main idea first, give time to respond, eye contact etc. (Finch et al. ,2018; Hopper et al. ,2002).

(2) Help yourself to better understand the content expressed by people with communication disabilities, and get accurate information through clarification with them. The specific strategies are as follows: Write down information (or questions or confirm yes/no on paper), Summarize (Hopper et al. ,2002).

(3) Helping people with communication disabilities to understand what the communicating partner is expressing, the specific strategies include using gestures, drawing pictures, using simple words or sentences, slowing down the speech rate, and speaking only one idea at a time, etc. (Cameron et al.,2019; Finch et al. ,2018).

(4) Responsive. Researchers believed that responsive was also a very important strategy. This strategy requires the communicating partner to pay attention to the behavior of the attention focus of the communication disabilities, give this

behavior the meaning of communication, and give a communication response, to improve the attention and participation of the communication disabilities (Henderson et al.,2023).

(5) Strategies for building language models for people with communication disabilities. These strategies can not only help communicating partner and people with communication disabilities to communicate better, but also help to improve the communication abilities of the latter. Specific strategies include: Labeling (or linguistic mapping), Expansions, Recasts et al., (Henderson et al.,2023).

(6) Create a good communication environment. Some researchers have proposed strategies such as patience (Finch et al. ,2018), lively (Kushner et al.,2023).

Due to the nature of Augmentative and Alternative Communication (AAC), communicating partner need to know how to use AAC effectively, which creates specific requirements for them. Some researchers have identified three types of communication abilities that a communicating partner needs to possess when using AAC systems: (a) prolonging the pause in the dialogue to give individuals with communication barriers more time and opportunity to respond; (b) using open-ended questions in the communication; (c) using AAC (Kent-Walsh et al., 2015). The first strategy is like those used by other communication partners. The latter two strategies are specifically related to the use of assistive communication systems. The strategy of using open-ended questions helps individuals with communication disabilities express more when using AAC. The use of AAC is essential because communicating partner need certain abilities to effectively assist individuals with communication barriers in using AAC (Beukelman & Mirenda, 2020).

1.4.2 Learning Methods of Communicating Partner

In most communicating partner training programs and research papers, the communicating partner are adults. To better promote the training effect, researchers usually adopted some adult learning theories or methods (Simon & Carole. 2018). Its core idea was learners' participation and experience in learning, and reflection on this

basis, to establish a new communication model. Based on this, the researcher put forward the application of some learning theories or methods in the learning of communicating partners as follows.

Some researchers found that experimental learning was an effective learning method (Simon & Carole,2018). This method selected some common communication situations, and the communicating partner and trainer adopt methods such as role-playing and situational dialogue, and the communicating partner act as communication barriers (Cameron et al.,2019). Research found that led them to experience the difficulties faced by individuals with communication barriers during the process, prompting them to reflect on their existing communication methods and establish new communication patterns, thereby providing support for individuals with communication disabilities. (Isaksen et al.,2023; Simon & Carole,2018). In addition to simulated experiential learning, some researchers suggested that by allowing communicating partner to interact directly with people with disabilities, establish communication experiences with people with disabilities, and guide them to reflect on these, increase their understanding of people with disabilities, thereby reducing their anxiety when communicating with people with disabilities, increasing their confidence (Finch et al. ,2018).

Some researchers found that expansive learning is another effective learning method (Simon & Carole,2018). There may be many uncertain and unpredictable situations in the communication between the person with communication disabilities and his communicating partner. Therefore, in addition to some basic principles and strategies, communicating partner also need to have some responsiveness to deal with these complex and changeable situations. Some researchers proposed that relevant theories and methods of expansive learning can be used to solve this problem (Simon & Carole, 2018). This approach emphasized placing learning in social situations and practical problem solving, and encourages learners to continuously expand their cognitive boundaries and find solutions to problems through collaboration, circular reflection, and innovation (Alfrey, 2023).

Some researchers found that conversation coaching is also a method commonly used by researchers in the training process of communicating partner (Hopper et al. ,2002). During this process, professionals conduct timely analysis based on the interaction between the communicating partner and the communication disabilities, and make suggestions to help the communicating partner master communication strategies more accurately. In addition, the method of dialogue consultation also helps the interaction between trainer and communicating partner, builds a learning community, promotes the generation of new knowledge, and thus breaks the linear learning content (Simon & Carole, 2018). With the development of distance tutoring technology, researchers have also begun to explore the use of distance teaching to train communicating partner (Cameron et al.,2019).

1.4.3 Learning Organization of Communicating Partner

In some studies, the training of communicating partner was a part of pre-job training for professionals, so the training time is relatively short, ranging from 1 hour to 3 hours, mainly to help communicating partner understand the difficulties of communication disabilities and some common communication strategies (Cameron et al.,2019). However, it has also achieved certain results, enabling communicating partner to transfer the mastery of general concepts, such as structuring the communication environment, into more specific strategies, such as using written language to provide support for people with communication disabilities (Nielsen et al.,2019; Shrubsole et al.,2023).

1.5 Confusion of Communicating Partner

Although many studies have confirmed the important role of communication partners in enhancing the communication abilities of individuals with communication disabilities, some confusion remains in the actual implementation process.

(1) The clinical application of communicating partner in speech therapy is not popular enough. According to a survey of 72 speech therapists by Barberis and Vandermosten (2023), 73% of speech therapists had received training on communication partner strategies, but only 43% used this strategy in clinical practice.

(2) The training of communicating partner need to be strengthened. Compared with other training content, the time for communicating partner to learn strategies is relatively short (Shrubsole et al.,2023), and professionals were not proficient in related content, for example, they did not know how to test communicating partner' strategic interventions effect; inexperienced speech therapists were relatively blunt in the application of communicating partner strategies, and not used this strategy in natural situations (Barberis & Vandermosten, 2023).

(3) The training content of communicating partner needs to be improved. Due to the great diversity of people with communication disabilities, the needs of communicating partner are different, and many strategies related to communicating partner came from the clinical experience of professionals, so the learning content was not systematic enough, and therapists often chose it according to their personal interests Whether to use this method or how to use it (Shrubsole et al.,2023). At the same time, communication also has cultural differences, and the training content of communicating partner needs to be adjusted and revised in different cultural backgrounds (Isaksen et al.,2023).

Summary: The concept of communicating partner and their strategies have been widely used to assist communication barriers and have achieved significant results. Ordinary people can grow into communicating partner through systematic and organized learning. Parents of children with autism serve as essential communicating partners in developing their children's communication abilities, yet there is presently a scarcity of comprehensive training opportunities for them in this role.

2 Parent-child Communication Abilities of Parents of Children with Autism

2.1 Communication Abilities

2.1.1 The Meaning of Communication Abilities

Communication abilities hold significant importance in contemporary society, with varying definitions and connotations proposed by different researchers. For instance, some research suggests that communication abilities involve an individual's proficiency in employing suitable methods to effectively communicate within specific

contexts. This proficiency entails making judgments across various aspects, including grammatical accuracy, psychological appropriateness, social and cultural relevance, and practical feasibility (Hymes, 1972). From the perspective of information transmission, other researchers argue that communication abilities refer to the communicator's capacity to deliver appropriate and effective information. Communicators with strong communication abilities can conceive, operate, and adjust the thoughts or ideas they wish to express. They can encode these ideas in appropriate ways, convey them accurately to the other party, and determine whether their communication intentions have been successfully conveyed. (Robert, 2020).

2.1.2 The Elements and Characteristics of Communication Abilities

There are currently many studies on communication abilities. Regarding the elements and characteristics of communication abilities, different researchers have provided varying views. For example, based on the characteristics of doctor-patient communication, some researchers believe that medical students' communication abilities include three elements: communication attitude, communication content, and communication effect, along with 18 corresponding details (Liu et al., 2022). Some research divided the communication abilities of rural teachers into four elements based on the differences in communication objects: the capacity to communicate effectively with students, colleagues, parents, and the community entails twelve corresponding characteristics. (Zhang & Duan, 2018). Based on the characteristics of business work, Jiao (2018) believed that Intercultural Business Communication abilities comprise three elements: English linguistic competence, communication contextual awareness and cross-cultural business communication abilities.

2.1.3 Research Methods on Elements and Characteristics of Communication Abilities

Since the essence of ability lies in the unique psychological characteristics of an individual, possessing a certain ability means that the individual can perform specific tasks "efficiently" and "fluently." Given the diversity of communication environments, the activities that communicators need to complete in different contexts vary, and the required knowledge, qualities, and ability systems also

present completely different aspects. Therefore, an in-depth analysis of different communication activities is required based on the unique characteristics of the communication objects to ensure the effectiveness and smoothness of communication (Jiao, 2018). Current researchers mainly constructed the elements and characteristics required for communication abilities in different activities through the following two approaches (Liu et al., 2022; Zhang & Duan, 2018; Jiao, 2018): 1) Qualitative research methods mainly include literature review, interviews, and behavioral event interviews to collect data related to communication abilities. On this basis, combined with professional thinking and logical analysis, the elements of communication abilities are summarized. 2) Quantitative research methods primarily use statistical analysis to collect data on the communication abilities performance of relevant personnel during activities. Both exploratory factor analysis and confirmatory factor analysis are employed to identify the components of communication abilities.

2.2 Parent-Child Communication Abilities

2.2.1 The Meaning of Parent-Child Communication Abilities

Parent-child communication is a specialized form of interpersonal communication (Duan, 2017). It refers to the interactions that take place between parents and their children, that is, the process in which they exchange information, opinions, thoughts, perspectives, emotions, attitudes (Munz, 2015), etc., to achieve mutual understanding, solve problems, strengthen emotions, and cooperate (Wang. et al.,2009). This is a process in which parents and children influence and promote each other. The interaction styles and communication methods of parents significantly influence the development of children's communication abilities. Simultaneously, children's interactive behaviors and communication abilities also impact their parents' interaction styles and communication methods (Dai &Sun, 2020). Therefore, the subject of parent-child communication abilities should include both parties in this communication relationship, namely adults and children.

2.2.2 Researches about Parent-Child Communication

The concept of parent-child communication is commonly discussed and utilized in the domain of typical family education for children. Current research on

parent-child communication predominantly centers on four key areas. 1) Explore the current situation of parent-child communication from the perspectives of children's cognition, communication topics, content, methods, frequency, initiative, and satisfaction (Li & Xu, 2016; Orm et al., 2022), especially special groups such as left-behind children (Guo, 2023), families of ocean-going sailors (Yang, 2021), families of drug addicts (Tian, 2023), and other current situations of parent-child communication. 2) Examine the influencing factors of parent-child communication through the lenses of family structure, family environment, parental gender, age, and educational level (Lu & Feng, 2022; Cameron et al., 2018). 3) Explore the impact of parent-child communication relationship, especially focusing on mental health (Zapf et al., 2023), social adaptation (Peng & Dai, 2019), academic achievement (Yue, 2020) and other aspects. 4) Explore ways and strategies to improve parent-child communication relationships in different contexts (Yan, 2023), including promoting the importance of parent-child communication, changing parents' concepts of parent-child communication, improving communication language abilities, seizing the opportunity to communicate, and choosing appropriate communication methods (Chen, 2017), and so on.

2.2.3 The Elements and Characteristics of Parent-Child Communication Abilities

To enhance the development of children's communication, language, and social psychology, researchers have started to address issues concerning parent-child communication abilities, and explore their elements and characteristics to develop parents' parent-child communication abilities (Hanne et al., 2022). Different researchers have different elements and characteristics of parent-child communication abilities from different perspectives.

Some researchers mainly defined it from the content of information transmission. They argued that parent-child communication abilities refer to the interaction between parents and children (Munz, 2015), encompassing the exchange of information, opinions, ideas, perspectives, emotions, and attitudes. This process aims to

foster mutual understanding, problem-solving, emotional bonding, and collaboration. (Elizabeth,2015; Wang et al.,2009).

Some researchers defined it from the ability that parents should have(Munz, 2015). There are some differences in this part of the research on this issue. They believed that parent-child communication abilities are mainly parent-child expression ability, parents need to judge the ability of communication The specific situation in the process, clearly expressing the current situation, the child's feelings, and requirements for the child (Peng, 2022). Some researchers believed that in addition to parent-child expression abilities, parent-child listening abilities should also be included (Chi, 2011; Huang, 2022), These abilities are related to elements such as conceptual clarification and problem solving, focusing on cognitive aspects related to communication (Elizabeth,2015; Lippe & Moller, 2000).

On this basis, some researchers believe that respond consistently and sensitively to child's nonverbal cues, mother's touch and nonverbal vocalizing, facial expressions, Non-verbal abilities such as voice are also an important part of parent-child communication abilities (Colegrove & Havighurst,2017; Elizabeth,2015; Hanne et al., 2022; Luan,2019; Vivienne & Sophie, 2017).

In addition to these basic communication abilities, some researchers believe that emotional factors such as acceptance (Colegrove & Havighurst,2017), understanding, and respect also play an important role in parent-child communication (Chi,2011; Lippe& Moller,2000; Peng, 2022; Yu, 2023).

Use the table below to organize the content.

TABLE 1 Elements of parent-child communication abilities of parents by researchers

Researcher	Elements			
	expression ability	listening ability	non-verbal communication abilities	emotional abilities
Lippe & Moller (2000)	√	√		√
Chi (2011)	√	√		√
Elizabeth (2015)	√	√	√	
Vivienne & Sophie (2016)			√	
Luan (2019)			√	
Hanne et al., (2022)			√	
Huang, (2022)	√	√		
Peng, (2022)	√			√
Yu. (2023)			√	√

As can be seen from the above table, as far as parents are concerned, their parent-child communication abilities mainly include the four elements of expressive ability, listening ability, non-verbal communication abilities, emotion, and emotional ability.

2.2.4 Research Methods on Elements and Characteristics of Parent-Child Communication Abilities

A few researchers have employed various methods to explore the elements and characteristics of parent-child communication abilities from different perspectives. For example, some researchers used literature analysis and statistical methods to categorize parent-child communication abilities into cognitive and emotional components. The cognitive component primarily includes abilities such as explanation, curiosity, focused discussion, and problem-solving skills between the two parties. The emotional component mainly involves abilities like acceptance and active understanding. (Lippe & Moller, 2000). Some researchers used literature analysis to

study the theory of parent-child communication among primary school students and their parents. They divided parent-child communication abilities into two dimensions: listening ability and expression ability. Listening ability primarily refers to the openness and sensitivity of the communicator, while expression ability encompasses the communicator's active and clear expression during communication and the strategic and skillful expression of specific topics (Chi,2011).

In addition, some parent-child communication abilities questionnaires or evaluation forms involved different elements and details, which also provided some inspiration for our study of the elements and characteristics of parent-child communication abilities (Colegrove & Havighurst,2017). For example, in Jiao's research, the main areas of assessment for the parent questionnaire include: open expression and communication, listening and responding, cross-examination and questioning, disagreement and conflict resolution, understandability and other elements (Jiao, 2019). In the Dyadic Parent-Child Interaction Coding System, an assessment tool, the researchers divided parents' parent-child communication abilities into elements such as guidance, questions, instructions, and responses to children (Sheila & Elizabeth, 2000).

2.3 Parent-Child Communication Abilities of Parents of Autistic Children

2.3.1 The Meaning of Parent-Child Communication Abilities of Parents of Autistic Children

Although parent-child communication involves both parents and children, children with autism often find themselves in a disadvantaged position due to factors such as their communication characteristics, experiences, and abilities. They frequently encounter persistent challenges in communicating with adults (Kushner et al.,2023). Therefore, adults, who typically hold a stronger position in communication, need to possess specific communication abilities, understand and employ certain strategies, facilitate mutual understanding with children, ensure the appropriate and effective transmission of communication information, and thereby enhance children's willingness and ability to communicate (Xu et al., 2020).

At the same time, due to the large differences between autistic children and ordinary children in the performance and acquisition of communication abilities (Edmunds et al., 2019). Therefore, there will be different requirements for the parent-child communication abilities of their parents (Ganz et al.,2022). More importantly, the development of ordinary children's communication abilities does not require special attention from parents. Communication impairment is the core obstacle for children with autism. In addition to delivering communication information in different ways, parents need to adopt different strategies and methods in the process to improve the communication abilities of children with autism (Delehanty et al.,2023). To support the development of communication abilities in children with autism, it is crucial that they not only interact with others but also accurately comprehend the information conveyed to them and clearly express their own thoughts. This approach aligns with the developmental needs of enhancing children's communication abilities.

Thus, the communication abilities of parents with children who have autism are parent-focused. This encompasses the parents' abilities to employ both verbal and nonverbal methods during interactions and communication with their children (Duan, 2017) to exchange information, opinions, ideas, views, emotions, and attitudes with their children for the purposes of mutual understanding, problem solving, emotional strengthening, and cooperation, and, in doing so, facilitate the development of communication abilities in children with autism (Kushner et al.,2023). Therefore, parent-child communication abilities of parents of autistic children are mainly based on parents. In the process of communicating and interacting with children, they use verbal or non-verbal methods to exchange information, opinions, thoughts, perspectives, emotions, attitudes, etc. with their children. To achieve the purpose of understanding each other, solving problems, strengthening emotions, cooperation, and improving children's communication willingness and abilities (Duan, 2017).

2.3.2 Researches on Parent-Child Communication Abilities of Autistic Children' Parents

Researches on the communication abilities between parents and their autistic children primarily focus on two areas. 1)They examine parental capabilities

during interactions with their children. By observing and comparing the differences between interactions involving parents of children with autism and those with neurotypical children, researchers analyze the characteristics of these interactions, noting tendencies such as increased directive guidance and reduced supportive behaviors. (James & Marjorie, 2022). 2) Providing guidance to parents of children with autism, teaching them communication strategies. Such studies included Parent–Child Interaction Therapy (PCIT), Parent-mediated communication-focused treatment (PACT), Relationship Development Intervention, Developmental, individual-difference relationship-based model (DIR), etc. (Green et al., 2010; Brooke & Anna, 2020; Liu & Feng, 2018; Wang & Mo, 2022; Kathleen, 2015). These studies highlight various effective strategies for parents of children with autism to enhance communication with their children. such as sensitivity to children's reactions, providing support during communication, responding to children's communication behaviors, using specific language models, expanding, and reshaping children's communication behaviors, and taking turns in communication (Kaiser & Roberts, 2013).

2.3.3 The Elements and Characteristics of Parent-Child Communication Abilities of Parents of Autistic Children

The concept of parent-child communication has been discussed and applied more in the field of general education. This process not only promoted intimacy among family members and fosters healthy psychology and good behavior in children (Yao, T.T. et al., 2022), but also helped to enhance family members' communication abilities, form certain communication schemas, and guided their members to apply such schemas in other communication situations (Wang et al.,2009), and influenced their peer as well as teacher-student relationships (Liu et al., 2022).

However, in the context of parent-child communication abilities for parents of children with autism, beyond adopting general theories and attitudes towards parent-child communication, parents must also grasp specific abilities. This includes understanding communication-related knowledge and abilities, recognizing the unique cognitive and communicative characteristics of children with autism, employing

strategies and techniques for interacting with them, and utilizing methods to enhance their children's communication abilities.

Researchers hold varied perspectives on this topic. The researcher examined several models and programs currently discussed and applied within theoretical and clinical settings for training parents of children with autism. These programs aimed to either specifically improve the communication abilities of children with autism, address behavioral issues, or enhance their overall abilities. However, all these programs incorporate strategies for enhancing parent-child communication abilities. The strategies are summarized in the following table.

The researcher explicitly outlined the strategies and methods included in parental intervention plans aimed at enhancing the communication abilities of children with autism, categorizing them according to four elements. For some strategies or methods that cannot be classified into these dimensions, the researcher classified them and put them in other. In addition to the strategies and methods involved in the above-mentioned parent intervention programs that clearly propose to promote the autistic children' communication abilities, there are also some useful strategies and methods mentioned in other parent training programs, observations, surveys, and other studies. Now organize the relevant content in the next two tables.

Table 2 Elements and characteristics of parent-child communication abilities for parents of children with autism (1)

Intervention method	Elements				
	Constructing a good communication environment	Eliciting communication behaviors in children	Assist children in understanding communication messages	Understand the communication messages expressed by the child	others
Enhanced Milieu Teaching	Play and engage; Balance turn taking; Environmental arrangement	Observation and response; Reflecting and understanding;	Environmental arrangement techniques;	Notice;	

	strategies.	Demonstrating and broadening communication.			
Improving Parents as communication Teachers	Follow Child's Lead; Animation; Balanced Turns.	Imitate You child Communicative Temptations; prompting; reinforcement.	Modeling and Expanding Language;		
Pre-school autism communication therapy (PACT)		Observe and respond to the focus of children's attention; using pauses to create opportunities to initiate communication; parental synchronous response to child communication	adapting parent's communication style to respond to the child; signals in a timely manner; using appropriate language to match the child's interests and intentions; using repetitive language and interactive games in routine activities to aid understanding.		increasing grammar, expanding semantics, developing grammatical and narrative abilities.
Parent-mediated communication-focused treatment		pauses. parental sensitivity and responsiveness to child;	reduce mistimed parental responses; action routines; repetitive language;		
Communicating partner	Balance; fun developmental cooperation; shared control;	mutual responsiveness;			
Son-Rise Program	Involvement in the child's activities Flexible adjustment	eliciting communicates motivation of children Eye-to-eye contact;			Eliciting children's language
The Early Start Denver Model (ESDM)	establish positive interactions; turn; understand	Child chooses the activity; interest in children's activities; Captures the	establish a routine; repeat certain activity steps; Provides very clear social and communication signals;		Use of prompting, fading, shaping, and chaining.

	children's emotions; games as a medium; Various forms of communication; flexible; Use non-verbal to attract attention	child's attention; Sensitive to children's communication, respond positively, wait imitating, and offering help.			
Parent-Child Interaction Therapy	Emotional-emotional support,	flexible response, Maintaining the child's attention	linguistic input to support child development, Synchronized nonverbal behavior,		
Developmental, individual-difference, relationship-based model		Entering/engaging with children's worlds;		interpreting the child's emotional signals. Interpreting and responding to children's emotions.	Helping children to express their emotions;
Early Social Interaction (ESI) model	Broadening the spontaneity of gestures, vocalizations, vocabulary, and joint focus.				
Program for Education and Enrichment of Relational Abilities		providing corrective feedback			priming (form of cognitive rehearsal, prompting, praising)

(*Collated from: Wetherby & Woods, 2006; Jonathan G., et al. ,2010; Hong ,2011; Ann & Megan, 2013; Pickles et al.,2016; Sally et al., 2016; Wang, 2017; Chen,2018; Liu & Feng, 2018; Wu et al.2018; Ma,2019; Liu, 2020; Wang, &Mo, 2022; Whitney, G., et al., 2023).

TABLE 3 Elements and characteristics of parent-child communication abilities for parents of children with autism (2)

Researcher	Elements				
	Constructing a good communication environment	Eliciting communication behaviors in children	Assist children in understanding communication messages	Understand the communication messages expressed by the child	others
Drew., et al. (2002)			Providing nonverbal cues		
Hong (2011)		waiting	waiting		
Yang., et al. (2014)		Guide children to pay attention to the object of communication; design communication activities; Emphasize social elements of communication.	Clarifying ability; Providing nonverbal cues.		Modeling
Chen& Zhang (2015)	accepting the mistakes of child				
Yang (2015)	empathic to understand the thoughts, feelings; encourage multiple communication way			understand the meaning expressed by the child	Modeling
Pickles et al (2016)				Parental sensitive behavior	
Shi (2017)			appropriate communication styles	Parental sensitive behavior	
Wu., et al. (2018)		trigger synchronous interactions; Following, Imitating; Waiting;			

		respond			
Sarah., et al., (2019)		Responding to children; attending to children's focal points. PVR in line with children's focus of attention: "follow-in directives,"		Focus on children's attention	linguistic mapping; verbalizing repetition; clear pronunciation; expanding vocalization.
Su (2019)			Providing nonverbal cues		
Dai & Sun, (2020).	maintaining accepting and supportive attitude				
Jiang et al., (2020)	Accept life's moments of crisis	Following, imitating	Providing nonverbal cues		
Lin (2020)		maintain attention; waiting	reduce the child's cognitive load in communication		Support according to children's abilities and language development
Xu et al. (2020)	accepting the child's (behavior; interests; negative emotions); accept and encourage multiple communication way.	accepting the child's behavior; accepting the child's interests. Respond positively	Providing nonverbal cues	observation (motivation, context, and meaning of communication)	Different methods and strategies will be adjusted in communication

Tong, et al., (2021)		create opportunities for communication; respond positively	Providing nonverbal cues		Promote children's basic abilities related to communication
Abigail, et al. (2023).				Responding promptly, predictably, and warmly to infant cues, emotions, and behaviors, supporting child language development.	Parent verbal responsiveness. followed the child; linguistic mapping, translate child's gesture into words; expansions, follow.
Naima et al., (2023)			Visual supports		

Summary: Presently, numerous studies focus on communication abilities and parent-child communication, with some investigating parent-child communication among parents of autistic children. Yet, few studies have comprehensively examined the elements and characteristics of parent-child communication among parents of children with autism. Considering the context-specific nature of communication abilities, discussions should consider diverse subjects and scenarios. Therefore, integrating features of communication abilities, parent-child communication, and nuances of communication within families of autistic children is essential to explore the elements and characteristics of parent-child communication among parents of autistic children.

3 Researches on Parent-Child Communication Abilities of Autistic Children' Parents

3.1 Difficulties in Parent-Child Communication of Parents of Autistic Children' Parents

Research indicates varying degrees of challenges for children with autism in social interactions. A deeper understanding of these challenges can facilitate more effective support from communicating partners (Sally et al., 2016). Some researchers found that due to the sensory perceptual, cognitive, and motor characteristics of

children with autism, the communication process described above is often a great challenge for children with autism, and they may encounter many difficulties as communicators that affect their interaction with others and their own communication development (Bhana et al.,2024).

3.1.1 Difficulties in Perceiving Communication Information about Children with Autism

Some researchers had explored the difficulties of children with autism from the perspective of perceiving communication information. They believed that children with autism have different perceptual pathways and processing patterns in perceiving communication information (Shan,2021; Kathleen, 2015). Some researchers have found that children with autism may experience difficulties with auditory, visual, tactile, olfactory, gustatory, vestibular, and proprioceptive senses (Pacione, 2022; Yang, 2015). This is manifested in terms of these senses may be overly sensitive, avoiding certain sensory stimuli, or sensory retardation, not responding to sensory stimuli, or sensory deficits, requiring excessive sensory stimulus seeking (Robert, 2020; Fumi & Junichi, 2019). This makes children with autism: either likely to be immersed in the sensory stimuli of the self and more retarded in seeking social information; or have difficulty attending to the multiple attributes of things and not being able to identify needed social information (Kathleen, 2015). These are likely to affect the development of their communication abilities. Some researchers found children with autism have certain advantages in searching for visual information and processing visual information (Yang, 2015), providing appropriate visual support can significantly enhance the comprehension abilities of children with autism. (Lin. et al., 2021; Yang, 2015).

3.1.2 Difficulties in Processing Communication Information in Children with Autism

Some researchers have explored the difficulties faced by children with autism from the perspective of processing communication information. They suggest that children with autism encounter numerous cognitive processing challenges (Beukelman & Mirenda, 2020), which affect their development of communication abilities.

Some researchers founded due to their abilities to integrate information. Some researchers have investigated the communication challenges of children with autism from the perspective of information processing. They suggest that these children face numerous cognitive processing difficulties. thus, making it difficult to comprehend the meaning of the communication message comprehensively (Shan, 2021; Fumi & Junichi, 2019; Yang, 2015; Kathleen, 2015).

Some researchers founded that limited by deficiencies in attention concentration and allocation, during social interactions, some children with autism are less able to find the points that require their attention among the numerous communication stimuli and have difficulty switching among the various points that require attention (Wetherby & Woods, 2006; Bhana et al., 2024). For example, they may pay attention to the movements of the speaker's lips rather than to changes in the elements of the speaker's voice Valerie, 2017).

Some researchers find that limited by the ability to recognize and process facial expressions, some children with autism are slow to respond to stimuli provided by people or lack response, which affects their motivation and interest in communicating with others (Robert & Kimberly, 2019; Wang et al., 2021). Some researchers founded that limited by cognitive flexibility, language comprehension, and the ability to judge communication situations, some children with autism communicate with people when they may use parrot-like imitation speech strategies (Robert & Kimberly, 2019; Yang, 2015; Kathleen, 2015). Some researchers founded that limited by abstract reasoning, some children with autism have more difficulty understanding the associations between words, which constrains the development of their grammatical abilities (Bai, 2015; Robert & Kimberly, 2019).

Some researchers found that, due to limitations in developing a theory of mind, even highly capable children with autism struggle to understand others' feelings, intentions, emotions, and perspectives in social situations. (Beukelman & Mirenda, 2020; Lin et al. 2021; Yang, 2015; Kathleen, 2015), which makes it difficult for them to establish intimate relationships with others and to more in-depth communication.

3.1.3 Difficulties in Expressing Communication Information about Children with Autism

Some researchers have explored the difficulties faced by children with autism from the perspective of processing communication information. They believe that abnormalities in the executive function of children with autism affect their ability to express processed communication information. (Fumi & Junichi, 2019), the inadequate response of the part of the brain competent for movement in some children with autism (Yang, 2015), they have difficulties in linking emotional and motor expressions (Wetherby & Woods, 2006; Stanley & Serena, 2019). Therefore, although they can complete eating, walking, and other activities normally like normal children, their abilities to focus, plan, and adjust when completing a behavior or task is weak. Therefore, although they can perform activities such as eating and walking as normal children, their ability to focus, plan, and adjust when completing a behavior or task is weak, making their motor control potentially problematic.

The above characteristics of executive functioning, combined with problems in reception and processing of communication information in children with autism, cause children with autism to have possible problems with shorter sentence length, single tone, fixed loudness, faster speech speed, and fixed repetition of language, and some children with autism also have unclear pronunciation, and some even have difficulty developing oral language abilities (Robert & Kimberly, 2019; Shan, 2021; Yang, 2015).

3.1.4 An Integrated Perspective on the Communication Difficulties about Children with Autism

For clarity, the characteristics of communication abilities in children with autism are presented separately here, but in the actual process of communication, these characteristics of theirs sometimes do not completely cut apart, but may interact with each other and eventually manifest themselves as behaviors of communication deficits. For example, the problem of monotonicity in children with autism may be caused by their lack of motor control, or it may be caused by their weak ability to respond to

emotions. Therefore, when implementing interventions, they need to be considered in an integrated manner.

It is worth emphasizing that during the process of communicating and interacting with children with autism, adults should not only be mindful of these characteristics but also recognize that these characteristics impact not only the development of their communication abilities but also their interactions with adults and the quality thereof. This dynamic can foster a vicious circle that impedes the further advancement of their communication abilities. (Robert, 2020; Robert, 2021).

In turn, limited communication abilities may hinder the development of their related abilities, making this vicious circle worse (Lin et al., 2021; Kathleen, 2015). For example, some children with autism exhibit deficits in eye contact and gaze. This can make their communicating partner feel undervalued, reducing their motivation to maintain conversation topics and, consequently, decreasing opportunities for interaction. As communication and interaction opportunities diminish, the development of these children's communication abilities, including eye contact abilities, is further hindered.

Another example is that some autistic children may have fixated self-stimulatory behaviors or self-injurious behaviors, which on the one hand affect their feelings when interacting with others, making it difficult for them to communicate normally with ordinary people, and on the other hand ordinary people do not understand their communication style and do not know how to communicate with them, thus affecting the acquisition of their communication abilities (Lin et al., 2021; Kathleen, 2015).

When thinking about these communication characteristics of autistic children, the impact of these characteristics on their communication experiences and the counter-effect of this impact on their communication abilities need to be considered together.

For these reasons, most children with autism experience difficulties with communication interactions. Approximately 25-30% of children with autism struggle to

develop active, flexible functional language throughout their lives (Sally et al., 2016). The remaining children with autism can develop language, but often only imitate and repeat the words of others. Some children with autism have difficulty maintaining normal interpersonal relationships with others and maintaining prolonged interactions with others, although they are more proficient at reciting or memorizing specific content. Some children with autism who have better cognitive and expressive language abilities can develop better conversational abilities, but they have more difficulty understanding the emotional and affective elements embedded in language, making them often engage in inappropriate communication behaviors (Yang, 2015).

3.2 Distress in Developing Parent-Child Communication Abilities for Autistic Children' Parents

Due to the limitations of parents' roles and professional abilities, some researchers have explored the following phenomena that occur when parents of children with autism are involved in their education and rehabilitation process.

(1) Since spoken language is the most used, convenient, and easily accepted by the public as a means of communication, for children with autism who do not speak, speak little, or speak unclearly, some parents' greatest hope is for their children to speak as soon as possible and clearly as soon as possible. So, parents often ask their children to talk in different ways, such as "You shout 'mommy', and I'll take you out to play", "You say 'I want to eat an apple', and you will eat it" and so on. Some parents even ask their children to say the same words repeatedly. While such an approach can see some results, it often creates other negative effects during the interaction, like the child must go through the process of interacting with people filled with conditional agreements and demands, so that the communication experience is not positive (Xu et al., 2020).

(2) Due to factors such as limited social and emotional feedback from children with autism to parents and lack of functional language, many parents view interactions with children with autism as tedious and uninteresting and do not know how to communicate with them (Simmons-Mackie et al., 2016). Thus, making it difficult to communicate and interact with their children for a longer period. And this is an important

way for ordinary children to learn language. Limited conversation between parent and child, reducing their chances of learning language in natural contexts (Simmons et al.,2016). That condition leaves children with autism lacking communication opportunities and repeatedly experiencing frustrating communication experiences, making them feel stressed and overwhelmed by social interactions, thus reducing their motivation to communicate with others (Robert, 2020).

(3) Some parents lack the awareness of letting their children initiate communication and do many things for them, making them less likely to initiate communication to seek help. For example, as soon as the child cries, even before indicating, the parent says, “Oh, you are hungry, you want to eat,” or when the child is still puzzling with something, the parent says, “Oh, you want to play, let me open it for you” (Xu et al., 2020; Zhang et al., 2017 Sally et al., 2016). Not only that, in the process of communicating with children, parents of autistic children also prefer to use guidance, they tend to use fewer strategies to promote the development of their children’s language and communication abilities, such as Parent Verbal Responsiveness, etc. (Delehanty et al.,2023).

(4) Given the slow and lengthy progress of treatment for children with autism, parents may explore various information channels and experiment with different novel treatment approaches. In addition to conventional educational methods, parents may go for different approaches such as dietary therapy, heavy metal detoxification, auditory integration training, and cranial osteopathy. While some of these approaches lack an empirical evidence base, others only have anecdotal reports or subjective case studies (Robert, 2020). It is difficult for parents to distinguish whether these methods are appropriate for their children and to systematically link this knowledge for use because they lack the relevant background and expertise.

In process of implementing parent training, these disturbances can be combined with the problems parents face and become experiences that lead them to reflect.

3.3 The Importance of Parental Participation in the Training of Children with Autism

The family is an important place for children's life, growth and development, and parents often conduct family education in the process of communicating and interacting with it. For children, the family is an important channel for their learning and progress. Currently, the educational system for children with autism is imperfect (Shi, 2017), and the social demand is greater than the service provided by special education and rehabilitation center (Brooke & Anna, 2018). For mainland China, the teaching quality and rehabilitation effects of various special education center and rehabilitation center on the market are uneven (Shi,2017). Under such circumstances, parents must be the implementers of rehabilitation education for autistic children to a certain extent (Shi, 2017; Wei et al., 2021; Brooke & Anna, 2018).

Moreover, even without conducting specific and deliberate rehabilitation training for children with autism, as primary caregivers, parents have numerous opportunities for daily communication and interaction with them (Pickles et al., 2016). By systematically understanding strategies and methods of communication and interaction with children with autism, these can be applied in daily educational interactions, enhancing communication abilities when interacting with children with autism and facilitating improvements in their communication abilities.

Numerous domestic and international studies have demonstrated that parental involvement in interventions for children with autism yields multiple benefits in enhancing their abilities. Firstly, such participation can help ameliorate the interfering behaviors exhibited by autistic children to a certain extent (Brooke & Anna, 2020; Wei et al., 2021), and secondly, parental participation in the intervention can promote the social communication, language, cognition, etc. of autistic children Ability in all aspects plays a very important role (Factor et al.,2022; Liu, 2019; Pickles et al., 2016; Sally et al., 2016; Wang & Mo, 2022). Thirdly, because parents give children with autism more realistic and natural learning environment, the abilities acquired by the children are easier to apply in life (Brooke & Anna, 2020; Wei et al., 2021).

Guidance and training provided to parents of children with autism not only benefit the children themselves but also have positive implications for society, special education professionals, and other parents. For society, parents' involvement in interventions for children with autism, following appropriate training, can help mitigate the costs associated with the education and rehabilitation of children with autism (Zhang & Guo, 2022). For special education professionals, the participation of parents is conducive to the cooperation between families and schools or rehabilitation center. Bringing teaching concepts and teaching strategies back to the family can make the intervention of children with autism have continuity, which is equivalent to increasing professional education. The length of personnel intervention allows them to continue to improve (Brooke & Anna, 2020; Qin, 2020).

For parents, if they can receive intervention training and participate in the intervention activities for children with autism, it will help them make psychological adjustments, reduce their stress and anxiety, make them have a more optimistic attitude, and be able to accept their children as soon as possible. Children with autism, when parents participate in interventions, can enhance parent-child relationships and proactively improve family dynamics, consequently enhancing overall family quality of life. Such improvements can foster a positive and supportive environment for the growth and education of children with autism, facilitating the development of various abilities (Brooke & Anna, 2020; Robert, 2021; SeyedHasan et al., 2021).

Witnessing progress in their children instills hope in parents, motivating them to engage more actively in intervention activities, thereby fostering a cycle of positive interaction between parents and children. Consequently, an increasing number of researchers are focusing on the involvement and intervention of parents in the education and rehabilitation processes of children with autism (Qin, 2020).

3.4 Researches on Parents' Participation in Promoting the Development of Communication Abilities in Children with Autism

In recent years, intervention methods such as Preschool Autism Communication Therapy (PACT) and Improving Parents as Communication Teachers (IMPACT) have incorporated parental involvement (Pickles et al., 2016; Brooke & Anna,

2018). Moreover, there has been a clear proposal to enhance the social communication abilities of children with autism by strengthening parent-child communication and interaction (Wang & Mo, 2022). Additionally, aside from these well-defined studies demonstrating the efficacy of parental intervention in improving communication abilities in children with autism, there are also studies that concurrently address communication abilities along with other aspects of autism. Some of these studies are outlined below:

TABLE 4 Researches on parents of autistic children improving children's communication abilities

Researcher	Research object	Research subject	Research method	Research result
Kaiser & Roberts (2013)	35 parents of children with language development delay.	Using Teach Model-Coach-Review to intervene parents.	Randomly divide the subjects. The control group was 60 minutes each time, 24-36 times.	Children's language ability has improved, and their language expression ability has improved.
Pickles. et al. (2016)	152 children with autism and their parents (121 left at last)	Use PACT to intervene with parents and test its long-term maintenance effect.	Experimental Study.	Children's social communication and fixation behavior can maintain the level at the end of the intervention for a long time.
Ren (2017)	Three ASD children and their parents.	Instruct parents to intervene on the joint attention ability of 3 ASD children.	Single-subject experiment	the joint attention of subjects was significant improved. parental efficacy, stress levels, and children's abilities may influence the result.

Researcher	Research object	Research subject	Research method	Research result
Liu (2019)	A mildly autistic child with poor active language and his parents.	Integrate the intervention strategy of active language into the family game, teach the strategy to parents.	The combination of case study method and single subject experiment method.	Children's language is more active and durable than before. The quantity and quality of active language, their interest in people, concentration, participation ability, and joint attention all have been improved.
Xu et al., (2019)	60 autistic children aged 2-9 and their parents.	Train parents with Caregiver Abilities Training.	Experimental Study.	The social interaction and communication abilities of children improved more.
Liu,(2020)	60 autistic children aged 16-30 months and their parents.	The experimental group added parents to implement the early intervention Denver model.	Experimental research involving 30 participants in the control group and 30 participants in the experimental group.	The comprehensive abilities of the children in the experimental group have shown improvement, with significant enhancements observed in communication, social interaction, and other domains.
Yu et al., (2020)	Ninety-three parents of children with autism.	Parents are trained using the Early Intervention Denver Model, and parents intervene with children.	experimental study, there were 47 people in the control group. Parents received training, and went home to train their children.	In terms of communication abilities, sensory ability, cognitive ability, motor ability, etc., the progress of children in the two groups is comparable.
Chen et al.,(2022)	92 children diagnosed with ASD and their parents	Children were trained in PRT, the observation group parents received Intervention.	experimental study, control group (44 cases) and observation group (48 cases)	Observation group had higher age of progress in the personal and social, hearing and language, hand- eye coordination, and visual performance.
Factor et al.,(2022)	31 children with autism aged 4-6 and their parents	Instruct parents and children remotely on PEERS R.	quasi-experimental research.	Children's social abilities were improved.
Bhana et al., (2024)	3 autistics and their parents.	Parents performed family photographs intervention training and Naturalistic Developmental	single-case multiple probes and qualitative	improve communication about past events between parents and children.

		Behavioral Interventions with remote guidance.		
Guthrie et al., (2023)	82 autistic children and their parents	Parents were trained in Early Social Interaction (ESI) model, parents intervened their children at home.	complete crossover randomized controlled trial.	Children who received Individual-ESI earlier exhibited greater treatment gains compared to those who received the intervention at a later phase.

3.5 Methods for Evaluating Parent-Child Communication Abilities of Autistic's Parents

Presently, researchers primarily refer to two methods for evaluating parent-child communication abilities of parents of children with autism.

3.5.1 Standardized Evaluation of Parent-Child Communication Abilities of Autistic's Parents

Regarding standardized evaluation, there is limited research on evaluating parent-child communication abilities among parents of children with special needs, including autism (Deb et al.,2020). Consequently, some researchers have assessed these abilities using questionnaires designed for parents of typically developing children (Jiao, 2019). The main assessment domains for parent questionnaires include: open expression and communication, listening and responding, cross-examination and questioning, disagreement and conflict resolution, and comprehension (Jiao, 2019).

However, these assessment methods for typically developing children largely rely on strong verbal and communication abilities, making them less suitable for children with autism, who often have less developed language and communication abilities. (Liu,2020).

The Dyadic Parent-Child Interaction Coding System is a standardized tool utilized for assessing parent-child interaction (Cañas Miguel et al.,2021). Since its inception in 1981, this system has undergone several revisions (Sheila & Elizabeth, 2000). The instrument involves observing and recording parent-child interactions across

three standardized contexts: Child-Directed Interaction, Parent-Directed Interaction, and Clean-up, Indirect commands, and Negative talk. Scores from these interactions can gauge the parent-child communication abilities, with the instrument demonstrating good reliability (Cañas Miguel et al.,2021; Sheila & Elizabeth, 2000), and can be used to conduct pre-intervention baseline assessments as well as post-intervention assessments of rehabilitation outcomes (Cañas Miguel et al.,2021; Sheila & Elizabeth, 2000). However, this assessment tool mainly assesses the quality of the parent-child dialogue, such as guidance, questioning, instructions, and responses to the child.

To evaluate the efficacy of training programs, researchers have devised tools to assess parent-child communication abilities among parents of children with autism. For instance, the Dyadic Communication Measure for Autism (DCMA), based on the PACT program, is one such assessment tool (Wetherby & Woods, 2006). The DCMA enables parents and children to engage in natural interactions, capturing an 8-minute video. It evaluates three dimensions: Parent synchrony and responsiveness, Child communicative initiations, responses, and communicative functions, and the amount of mutual shared attention between parent and child. The dimension of increasing conversational turns is particularly relevant for children with autism exhibiting higher abilities, aiding in understanding communication dynamics between parents and their children with autism.

3.5.2 Non-Standard Evaluation of Parent-Child Communication Abilities of Autistic's Parents

Among others. Currently, the materials for these standardized interaction abilities assessments usually consist of a video of parents providing a video of their interaction with their child with autism, ranging from 3-8 minutes in length. The interaction between the parent and child is typically recorded in natural or structured settings (Cañas Miguel et al.,2021; Pickles et al,2016). On this basis, analyze the communication frequency, communication behavior, communication quality, language ability and other aspects of autistic children and their parents (Bhana et al.,2024).

In addition to this, some researchers used a descriptive approach to assess parents' parent-child communication abilities (Deb et al.,2020). They would tell parents the learning objectives before the beginning of each learning activity and provide them with a checklist after the activity, asking them to reflect on the questions in the checklist to help them reflect on the impact of their own behavior on their children, whether they have mastered the relevant parent-child communication abilities, and how they should adjust in the future. For example, the researcher might ask parents to think about “How does your child respond to the physical cues you provide during play” and “How does your child respond to new ways of playing that you demonstrate? Does he or she imitate you?” and so on. These inquiries focus on communication abilities taught to parents, encompassing elements such as following the child's lead, imitating the child, exaggerating, modeling, extending language, and facilitating play interactions (Brooke & Anna, 2018).

3.5.3 New Developments in Evaluation of Parent-Child Communication Abilities of Autistic's Parents

With advancements in assessment technology and modern tools, there have been notable developments in evaluating parent-child communication abilities in children with autism.

(1) Combination of qualitative assessment and quantitative assessment

Qualitative descriptive assessment methods help to collect in detail the performance of parents' abilities when communicating with children with autism, but they are longer and slower. Quantitative assessment methods are less time-consuming, but the information collected is not detailed and comprehensive enough to respond to the details. Hence, a combination of both approaches can be employed to assess parent-child communication abilities among parents of children with autism, leveraging the strengths of each method while mitigating their respective limitations.

(2) Evaluation of parent-child communication abilities of parents of children with autism using computer technology

In view of the time-consuming and subjectivity of manual assessment, some researchers tried to use computer vision-based method to evaluate the communication status between parents and children of autistic children (Isaev et al.,2024). This method collected videos of parents and children playing, and uses computers to encode the behavior of parents and children during this process, such as reaching for toys, or body posture and position, to understand the communication between parents and children.

Summary, children with autism exhibit significant disparities in sensory perception, cognition, and social abilities compared to typically developing children. These differences pose challenges for parents when communicating with them. As a result, it not only affects the parent-child relationship but also impedes the development of language and communication abilities in autistic children. Previous research suggests that parental ability can be improved through training interventions. However, existing training methods for parents are fragmented and lack systematic organization and coordination.

4 Researches on Parent-Child Communication Abilities Training of Autistic Children' Parents

Parents play a crucial role in fostering the development of abilities in autistic children, their impact comparable to the outcomes of professional training in center (Yu et al., 2020). This effect is particularly pronounced in enhancing communication abilities, given that parents spend considerably more time with their children compared to professionals, allowing for communication opportunities to arise at any moment in daily life (Edmunds et al., 2019).In the "2014 Evidence-Based Practice Report on Autism Intervention in Young Children and Adolescents" released by the National Autism Intervention Professional Development Center, parent executive intervention is one of the 27 effective evidence-based practices (Zeng & Hu,2015). However, some research results showed that parents still have deficiencies in promoting the development of children's abilities. For example, their role in promoting the language ability of autistic children is not as good as that of professionals (Yu et al.,2020).

In existing studies, some researchers asked parents to perform certain activities that had been designed (Liu,2019; Factor et al.,2022; Ren,2017). Some researchers provide counseling for the problems that parents have when intervening with their children (Wang,2017). Due to the lack of relevant theoretical support and background, parents often can only perform the activities preset by the researchers, but they are not clear about their own goals. When children's abilities change, it is difficult to develop more coping strategies (Liu,2019).

In addition, most researched interventions focused on improving communication or other abilities in children with autism (Wetherby & Woods, 2006; Factor et al.,2022), or pay attention to parent-child pressure, self-efficacy and other psychological and emotional topics (Wang, 2017). There has been limited research addressing and analyzing the efficacy of specific parental behaviors during intervention processes, particularly regarding which parental behaviors are most effective for intervening with children with autism (Edmunds et al., 2019).

Parents of children with autism may differ in their learning patterns, goals, and approaches due to differences in interests, cultural foundations, lifestyles, life experiences, and professional backgrounds (Robert, 2020). To help them better master the parent-child communication abilities mentioned earlier, individualized consideration is also needed on application issues such as the process and strategies of communicating partner program development and implementation.

While there are limited training methods specifically tailored to enhance parent-child communication abilities among parents of children with autism, there are more available methods for other areas, such as behavioral interventions and language abilities enhancement for children with autism, which can serve as valuable resources. Among the available studies, researchers have explored different contents, processes, methods, and strategies, etc. Although there are differences in the processes and elements involved, there are some commonalities and patterns that are worthy of reference, and the researchers have organized the main contents as follows.

4.1 Learning Contents of Training for Parents of Children with Autism

Researchers naturally focus on elements such as enhancing communication and related abilities in children with autism, selecting and designing activities for parent-child interaction, and formulating strategies for effective parent-child interaction when parents engage in interventions to improve the communication abilities of children with autism (Wetherby & Woods, 2006; Sally et al., 2016). But in addition to these specific strategies and methods, there are also some contents that parents can focus on and understand. Although not directly linked to the communication and interaction abilities of children with autism, this aspect significantly influences the enhancement of both parents' and children with autism's communication abilities.

First, some researchers believed parents' perceptions and attitudes need to be considered: how to view their autistic child, how to view the different feelings brought to the family by the autistic child, how to deal with the relationship between the autistic child and other siblings, how to deal with the frustration and anxiety in the process of raising the autistic child, etc. are all issues that parents need to think about (Sally et al., 2016). These issues involve not only adjustments in approach and strategies, but also a change in perspective.

Professionals therefore need to help parents recognize their own thoughts and feelings, the impact of their behavior on their child and their family, and help them feel and understand the world from their child's perspective so that they can construct a behavior that is consistent with the way they support their child. Therefore, parents need to understand not only the development of children in general, but also truly put themselves in their child's shoes so that they can respond more sensitively to their child's behaviors and needs (Robert, 2020). At the same time, some researchers believed parents having a child with autism in the home can bring different life experiences to other family members than the average family. For example, some parents are fully committed to the education and rehabilitation of their autistic children and neglect to pay attention to the autistic child's siblings. (Xu et al., 2020).

As a result, some intervention programs for children with autism's communication abilities also mentioned attention to various aspects of the parents' as well as other members' physical and emotional well-being, including caring for the partner, allocating separate time together to other children, etc., to provide a more stable and harmonious family atmosphere for the child (Brooke & Anna, 2020; Sally et al., 2016).

4.2 Learning Processes of Training for Parents of Children with Autism

Different researchers has proposed different training processes according to their purposes and contexts, mainly including assessment before the training in order to understand the basic situation of the child and family, using a variety of approaches to conduct the training based on the assessment, parents returning to the real situation for the intervention, and professionals monitoring and giving feedback on the results of the intervention to help parents adjust their own intervention methods (Bhana et al.,2024; Wang &Mo, 2022; Wei et al., 2021; Zhang & Guo, 2022). To ensure the effectiveness of the training, some professionals also focused on other elements, such as making requirements for the intervention setting (Wang & Mo, 2022). The researcher summarized the above intervention process and presented it in the following figure.

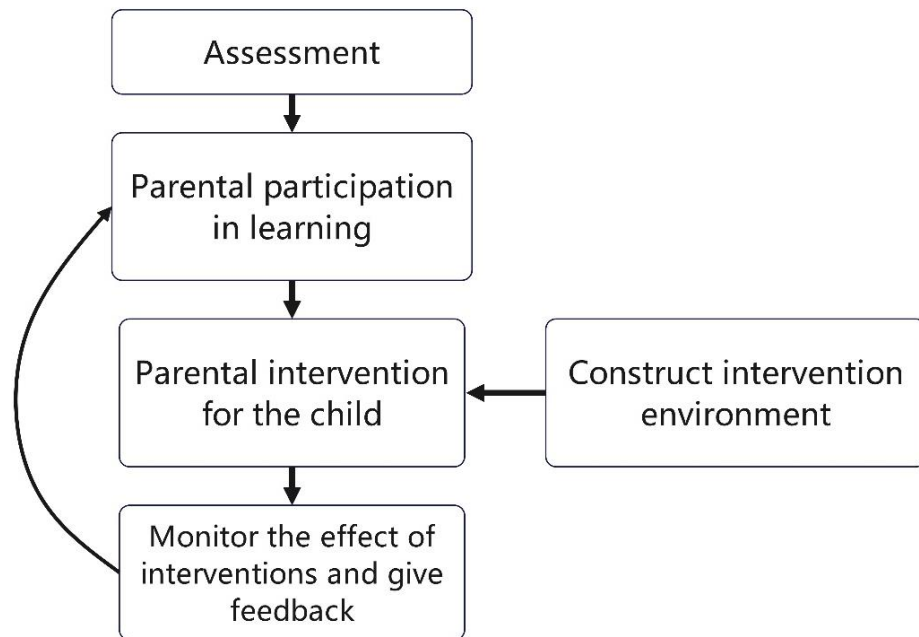


FIGURE 3 Flow figure of parent training

(1) Development of a family training program curriculum based on an assessment

Many researchers believed that if someone want to develop an individualized intervention plan, assessment is very important. Professionals typically administer questionnaires or conduct interviews with parents of children with autism prior to commencing intervention, or they assess the child using evaluation tools.

Researchers used different tools and methods to conduct assessments. This is used to understand the child's abilities, interests, developmental characteristics, parental attitudes, expectations about the outcome of the intervention, understanding of the treatment of the child's communication needs, parent-child interaction, cultural

values, and the parents' preferred learning style (Brooke & Anna, 2020; Wang & Mo, 2022; Wei et al., 2021; Zhang & Guo, 2022; Guthrie et al.,2023).

Following the assessment of social communication and other abilities in children with autism and their parents, professionals collaborate with parents to establish intervention goals and develop an intervention plan. Such as enhancing parents' abilities in play, waiting, initiating socialization, and responsive social behavior, while some suggested activities and strategies will be given based on these goals (Wetherby & Woods, 2006; Brooke & Anna, 2020; Wei et al., 2021).

According to their respective research purposes, some research plans will put forward certain requirements on the abilities of autistic children participating in the project, for example, some studies require children to have certain language abilities (Factor et al.,2022).

(2) Organizing parents for learning

Parental learning is one of the most important aspects of parent training. There are differences in the learning models offered to parents in different intervention approaches, mainly: individual training models in which professionals instruct parents one-on-one, group training models in which professionals provide intensive instruction to multiple parents in the form of family seminars and online lectures, and integrated training models in which both are combined (Brooke & Anna, 2020; Wei et al., 2021; Bhana et al.,2024; Guthrie et al.,2023).

In terms of specific training formats, there are training programs that emphasize parental involvement and communicate with parents primarily through an interactive approach. Parents first share their own interventions with their children and reflect on whether they have observed changes in their children and the problems they encountered during the implementation process. The professional subsequently guides the parent through interactions with the child and engages in discussions with the parent based on the outcomes of these interactions.

To help parents better understand their own communication behaviors and communication styles, the professional also discusses with parents again based on

the video recording (Wang & Mo, 2022). In such a process, parents grow through a cycle of action-reflection-mentoring-action again. In this way, parents can reflect on and adjust their behavior (Bhana et al.,2024).

Some training programs, on the other hand, looked at the professional's explanation, and their training is completed through the three steps of teaching-observing-directing. In this format, the professional first uses a PowerPoint presentation to teach parents the principles of using the abilities and shows a video demonstration. Then parents are allowed to implement the learned abilities on site, and the professionals observe, guide, and provide feedback on the implementation (Bhana et al.,2024; Brooke & Anna, 2020; Zhang & Guo,2022).

(3) family practice

Returning to an authentic family and social life is the goal of communication abilities for children with autism. Therefore, various intervention approaches mention such a component as parents returning to their families for practice after learning to consolidate, train, and transfer parent-child communication abilities (Brooke & Anna, 2020; Guthrie et al.,2023; Wang & Mo, 2022). In some studies, professionals will guide parents to intervene with children. As parents' abilities continue to improve, the intervention of professionals will gradually decrease (Factor et al.,2022).

These practices are not only a way for parents to improve their communication abilities, but also a way for children to be trained. In many parent-involved intervention plans, there are high requirements for parents to provide practical intervention time and intensity (Factor et al.,2022). For example, Early Social Interaction (ESI) model. Parents are required to conduct 20 hours of intensive training for their children at home every week (Guthrie et al.,2023; Wetherby & Woods, 2006). Even small ones require parents to commit to 20-30 minutes of dedicated training time each day (Pickles et al.,2016).

In addition to acquiring and practicing intervention abilities, some interventionists prioritize creating an intervention environment conducive to learning. They aim to establish a tidy, electronics-free, and minimally distracting environment for

children with autism and their parents (Sally et al., 2016; Wang & Mo, 2022). This facilitates face-to-face interactions between children with autism and their parents at eye level (Robert, 2021; Brooke & Anna, 2018; Sally et al., 2016).

Based on such a rationale, some researchers even suggested that the voices of communication targets should all be at the same level of the autistic child's ears to communicate with them (Robert, 2020). By doing so, not only the child with autism but also the parents are able to communicate with each other with full and focused attention.

(4) monitoring and evaluation of intervention effects

Following an intervention phase, professionals assess the effectiveness of the intervention by monitoring and evaluating parents' involvement through seminars, telephone guidance, online support, questionnaires, interviews, and similar methods. (Brooke & Anna, 2020; Factor et al., 2022; Wei et al., 2021), and some will even follow up on the parents' intervention situation after the intervention has been completed for some time (Zhang & Guo, 2020). so that parents can adjust and improvements.

4.3 Learning Methods of Training for Parents of Children with Autism

In the research and practice of parent training for children with autism, researchers have developed several methods, including video demonstration, role-playing, self-monitoring, parent-child interaction training, practice sessions, and case studies (Robert, 2021; Wei et al., 2021; Sally et al., 2016). These methods can be broadly categorized as follows:

(1) lecture-based approach

This method is mainly a method that teaches or demonstrates relevant theories and operational strategies to parents (Brooke & Anna, 2020). For example, the video demonstration method is a teaching-based method. Video demonstrations can be made by professionals who record videos based on target abilities and parents watch the videos to learn the theory and abilities (Brooke & Anna, 2020; Pickles et al., 2016; Wei et al., 2021; Zhang & Guo, 2022), or they can record videos of other parents interacting with children for parents to observe and learn

(Robert, 2020). Some professionals also developed corresponding operation manuals for parents to use for self-study, review, and inquiries (Brooke & Anna, 2020). Some researchers also carry out online lecture-based parent training through real-time communication tools such as zoom, and there is a trend of using it more and more (Bhana et al.,2024; Factor et al.,2022; Pacione, 2022).

(2) Practice-based approach

This method is mainly operated and practiced by parents and reviewed by professionals. For example, the role-play method is a practice-based method. Professionals and parents play the two different roles of parent and child in a set social situation to enable parents to master the intervention abilities. Parent-child interaction training is also a practice-based method. This method involves parents interacting with their children and professionals observing how they communicate with each other before making their own suggestions (Robert, 2020; Zhang & Guo, 2022).

In certain instances, researchers have facilitated role reversals among parents of children with autism and other parents. These involved parents teaching each other's children in a reciprocal manner, with each parent instructing children other than their own, and vice versa. (Robert, 2020). If time does not allow, parents can also be coached by observing videos of parents interacting with their children afterwards (Brooke & Anna, 2020). In addition to the practice of actual interaction with the child, practice can also be done on written materials. The case study method is one such method of practice. In this method, after teaching a strategy to parents, the professional also provides a case that can use the method and asks the parents to analyze the case and propose solutions and methods based on what they have learned (Sally et al., 2016).

(3) introspection-based approach

As adult learners, parents' styles and habits of communication and interaction with their children are more solidified, and to really get them to recognize and accept these strategies and methods, in addition to lectures and exercises, they need to

reflect and internalize these strategies and methods, from which they can easily make real adjustments and changes. One such approach is the self-monitoring strategy.

The self-monitoring strategy is a method in which the intervention process is recorded on video, and then parents use an observation log sheet to assess the intervention process and adjust their intervention behavior against the results (Wei et al., 2021). Some training programs had parents dedicate a review session after each phase of learning to guide parents to reflect on whether they had time to use intervention strategies, in which situations they used these intervention strategies, whether the strategies used in these situations were appropriate, and how their child behaved after using these strategies, etc. (Brooke & Anna, 2020). Methods of parental introspection include self-reflection, engaging in discussions, sharing feelings, and so on (Brooke & Anna, 2020).

All these methods are helpful in improving parent-child communication abilities of parents of children with autism, but their application scenarios and purposes of application may vary, so in actual teaching applications, professionals often use a combination of these methods (Brooke & Anna, 2020). For example, some researchers combined professional lectures with parent exercises to carry out training (Guthrie et al., 2023); Some researchers provided a training model that combines lecture reading, video viewing, parent exercises, professional consultation, and guidance, etc. (Wetherby & Woods, 2006).

4.4 Learning Strategies of Training for Parents of Children with Autism

Learning for adults is more complex than learning for children. Because adult learners have many experiences that they already have, some of which are beneficial to their learning and some of which may hinder their learning. Thus, adult learners need to learn not only new knowledge and abilities, but also behaviors, knowledge, abilities, and attitudes that break down (Robert, 2020), and the latter may be more difficult to learn. Therefore, when teaching parents of children with autism parent-child communication abilities, it is necessary to focus on their characteristics as adult learners and to explore effective learning methods based on them.

The primary motivation for parents of children with autism to engage in learning stems from their desire to address issues related to their child. As adult learners, their learning process and strategies must consider relevant theories, strategies, and methods of adult learning to maximize efficiency. Moreover, it is crucial to acknowledge their roles as parents of children with autism, respect their emotions and experiences, and demonstrate the impact of their learning to ensure sustained participation. Some strategies to enhance parents' learning effectiveness include:

(1) Respect parents and pay attention to the emotions of adult learners

Parent-child communication may seem like a simple thing, but the relationship is about the nature of the individual, and this relationship is important for building the parent's self-worth. Some parents may have their self-worth challenged in the process and choose not to cooperate with the professional's suggestions. Therefore, professionals need to be very careful when intervening, paying attention to, and respecting their feelings (Robert, 2020).

For example, parents of children with autism can be guided rather than blamed to discover what they do well and what problems they have in communicating and interacting with their children, "Did you observe that your child just pulled you because he or she wanted to communicate with you?" "The way you guided your child in the video was good, I observed that your child I observed that the child was following your movements at that time" and so on to help parents understand their own practices.

Different parents have different learning experiences and cultural backgrounds, and their speed of learning may vary widely. Professionals should respect this difference, allow, and accept the shortcomings in parents' learning process, acknowledge their practices and the progress they have made, and suggest adjustments based on this (Brooke & Anna, 2020; Robert, 2020). For parents who have received other training and have some professional competence, professionals should respect their previous practices and find ways to help them integrate the new methods into the old ones (Brooke & Anna, 2020). For parents who have less comprehension,

professionals need to adapt difficult terminology into language they can understand and easily implement (Brooke & Anna, 2020), so that parents can better grasp the relevant methods.

Different parents have different family backgrounds and may have differences in the time and energy they allocate to learning, and professionals should likewise respect such differences. When providing guidance and support to parents, more flexible learning programs can be offered to parents to reduce the possibility of parents dropping out in the middle of the program due to time or energy (Brooke & Anna, 2020).

(2) Building a theoretical structure and practical operation in parallel

Parent-child communication abilities involve many elements and strategies, and these methods need to be taught to parents in a sequential and systematic manner (Brooke & Anna, 2020). Therefore, each time specific strategies are taught, professionals should provide relevant basic theories, principles, examples, and ways to apply them, and create opportunities for parents to apply them (Brooke & Anna, 2020; Robert, 2020).

Adults are not just receptive learners; they have their own experiences, ideas, and questions, so in addition to teaching relevant content, professionals need to provide opportunities for parents to express their ideas and ask their own questions (Robert, 2020).

(3) Making Learning Visible

For adult learners, they have many other things to focus on, and facilitating their parent-child communication abilities is just one component of their many learning, work, and life tasks. For them to be more consistently engaged in the learning process, making the goals, process, and outcomes of learning clearly visible is a very important strategy (Brooke & Anna, 2020).

Parents, as learners, have a very clear goal that through learning they can improve their own parent-child communication abilities, which in turn promotes their children's communication abilities. In the process of implementing teaching to

them, they need to focus closely on the learning goals. Therefore, at the beginning of the learning process, parents should be clearly informed of their learning goals. During the learning process, parents should be guided to always monitor their learning goals so that they can adjust their behavior according to the achievement of the learning goals. Finally, at the end of a phase of learning, opportunities should be created for parents to review their learning goals (Brooke & Anna, 2020; Robert, 2020).

For the learning outcome component, professionals can allow parents to monitor and evaluate their own behaviors through easy-to-use behavior scales or practice schedules (Brooke & Anna, 2020; Robert, 2020), so that their learning outcomes can be visually represented and they can see their progress and gains as well as their problems and deficiencies. Based on such a rationale, professionals can also provide specific assessment comments and meaningful feedback to parents. Professionals should give timely feedback when they notice that parents are using a certain strategy that they have learned. This way the parent's behavior may be used again because it is reinforced, resulting in their own more habitual behavior patterns (Robert, 2020).

For the process of learning component, professionals should also allow parents to feel the transformation that the learning process gives them by proxy. For example, take the example of positive emotion learning. Positive emotions can bring great energy to parents and give them more motivation, ideas to face their and their child's dilemma. However, if the knowledge about positive emotions is only expressed in a narrative way, it is difficult for learners to experience it (Wang, 2021). Especially for parents of children with autism who have experienced a lot of pain in their lives, or are experiencing pain, they may feel that simple lectures do not really solve some of the problems they are experiencing. Therefore, it is necessary for researchers to teach in a way that allows them to see their learning process in a concrete and visual way, so that they can truly feel the power of positive emotions.

4.5 Learning Organization of Training for Parents of Children with Autism

To promote the effectiveness of parents' learning of parent-child communication abilities, professionals also need to effectively manage and organize the process of parent training, considering the quality of the professionals, the duration of the learning, the learning space, and the number of participants.

In terms of professionalism, training coaches who teach parents need to have certain professional knowledge and abilities, general knowledge of child development, special knowledge of social communication development, understanding of behavioral principles and mastery of various strategies in the training program, etc., so that they can better guide parents to implement and enforce various strategies and be able to solve the problems parents encounter in the process (Brooke & Anna, 2020).

In terms of the timing of learning, trainers should consider aspects including when parents start learning about the intervention; the length and frequency of individual parent learning sessions; and the total length of parent learning.

First, regarding the timing of training, different researchers have different suggestions, with some suggesting that the sooner the child is diagnosed, the better to learn the strategies (Guthrie et al., 2023; Wetherby & Woods, 2006); others suggesting that parents should be given a buffer time for psychological adjustment before learning. Some researchers suggest a combination of the above options, so that on the one hand parents can be exposed to the intervention program early, and on the other hand, if they cannot learn the strategies in the program now, they can arrange the opportunity to learn them again later (Brooke & Anna, 2020).

Second, depending on the timing of the training, flexible learning duration and time schedule can be provided, such as distinguishing between core elements and peripheral elements and allowing parents to determine the content of the learning according to their own time; or scheduling intensive and high-intensity training to reduce the frequency of learning; and also using nighttime or weekend time to conduct training in order to increase the participation of parents who have less time, such as working parents (Brooke & Anna, 2020).

Again, if parents bring their children along to the training, the training schedule also needs to consider factors such as the child's ability to focus (Brooke & Anna, 2020).

In terms of learning venue, home, institution, or school are all possible choices of venue. The advantage of the home as a learning venue is that parents can interact with their children in a natural and realistic context, receive guidance and advice from professionals, and the knowledge and abilities acquired do not need to be transferred or transferred. And other family members can also be trained together. However, there are too many distractions in the home that can affect the effectiveness of learning. The opposite is true for center or schools, where there are fewer distractions, but parents are required to transfer the abilities they have learned, which is more demanding for both parents and trainers. To avoid these problems, researchers suggest that toys or activities from home can be brought to the institution, and training can be conducted in the institution in a context that simulates family activities (Brooke & Anna, 2020). With the development of network technology, more and more parent training programs adopt the method of remote training (Simmons et al.,2016).

In terms of the number of people involved in the learning, researchers have different recommendations depending on the purpose and form of learning, which should be chosen according to the specific situation. In general, individual family training has higher effectiveness of the intervention and higher parental satisfaction due to the focused objectives. At the same time, studies have shown that individualized parent training is more effective than group parent training (Guthrie et al.,2023). In contrast, group-based programs can save coaching time, reduce costs, increase efficiency, and have experience sharing and emotional support from fellow parents. Therefore, some researchers have used small groups of 6-8 parents to conduct the training (Brooke & Anna, 2020).

In addition to what was covered earlier, there are factors such as the level of administrator support, parent-trainer relationship, logistics, etc. that may affect the effectiveness of parent learning. For example, service providers who receive

administrator support can better implement parent intervention programs. In addition, programs that can address aftercare concerns such as child care and transportation during parent training are better implemented (Brooke & Anna, 2020). These aforementioned factors, although not directly related to parent training, have a large impact on its effectiveness and are issues that researchers should consider and focus on when organizing parent training.

In summary, there is a lack of studies explicitly focusing on the training objectives, processes, content, methods, and evaluation techniques for parents of children with autism to become effective communicating partners. However, by synthesizing existing literature on parental training for children with autism, valuable insights into these aspects can be obtained. This can provide a basis for designing training programs aimed at enhancing parent-child communication abilities, specifically tailored for parents of children with autism.

5 Theory of Transactional Model of Communication

5.1 The Meaning of Communication within Transactional Model of Communication

Communication is a process of interaction between people. According to transactional model of communication (Meng, 2010). In this process, both parties of communication continuously transfer and receive information to express needs, share knowledge, and transmit emotions. During this period, both parties need to have the ability to handle complex communication information, i.e., to understand the intention expressed by the other party and to choose an appropriate and socio-culturally appropriate way to express their intentions (Robert, 2020).

This process specifically means that the messenger generates the communication intention, chooses the appropriate communication symbols that the other can understand according to the communication situation to encode the intention, generates the communication symbols, and passes them to the receiver. After receiving the symbol, the receiver decodes it, understands it, and responds (Meng, 2010).

In addition, the communication environment also has an impact on the transfer of information from both sides of communication (Robert, 2020). The communication environment includes both the physical environment when communicating, such as light and noise, and the psychological environment when communicating, such as the attitudes of the communicating parties, inducing each other's communication intentions, and responding to each other's communication information. Therefore, creating a good communication environment is also an ability that both parties need to have.

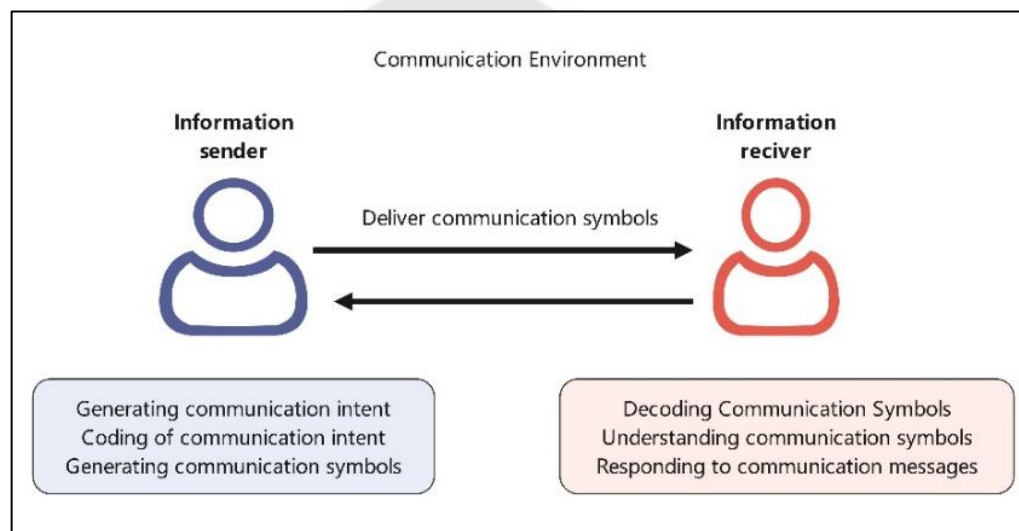


FIGURE 4 The process of communication message transmission and reception

The above diagram only briefly represents the process of information transmission by the message transmitter. However, in a communication interaction, the information receiver is also the information transmitter, so the above roles are constantly interchanged in real communication situations, and the tasks of processing information are also constantly interchanged (Meng, 2010).

5.2 The Meaning of Communication Abilities within Transactional Model of Communication

Within transactional model of communication, the communication process involves the ability to generate communication symbols according to the communication intention, to transmit communication symbols, and to decode communication symbols. It

is understood from this process that the generation, encoding, transmission, and decoding of communication symbols play an important role in the conduct of the communication process. Symbols represent a specific person, thing, object, and their relationship in an abstract way (Beukelman & Mirenda, 2020; Owen & David, 2021), and their application in language is arbitrary (Robert, 2020).

For example, the sound symbol "ball" can refer to any object, but humans give it a specific meaning in the process of communication, so that the sound can represent the round object "ball". Therefore, children need to have certain sensory and cognitive abilities to notice, recognize, understand, and remember objects and their corresponding symbols, so that when people around them say "ball", they know what the "ball" represents and respond accordingly. For example, they can hold the ball, kick the ball, or repeat the word "ball" to others.

In addition, children need to have some motor control to respond to others after understanding the meaning of their communication symbols. For example, children need to maintain a stable posture to accurately perform the action of holding or kicking a ball, and to better control the breathing, vocalization, and articulatory movements required to produce a clear voice and say "ball" when speaking (Xu et al., 2020).

Different researchers have different definitions of communication abilities (Owen & David, 2021). From the perspective of information transmission, Communication abilities refer to the ability of a communicator to deliver an appropriate and effective communication message. Communicators with good communication abilities can conceptualize, manipulate, and adjust the thoughts or ideas they want to express, to encode them in an appropriate way, to transmit them to the other party more accurately, and to know whether their communication intentions have been successfully conveyed to the other party (Owen & David, 2021; Robert, 2020; Sally et al., 2016).

5.3 The Elements of Communication Abilities within Transactional Model of Communication

Due to the ambiguous and ever-changing nature of language. In communication, the interacting parties need to monitor each other's verbal cues as well as the accompanying nonverbal signals (Charles & Michael, 2019). If there is a problem

at any point, it can lead to a communication breakdown. It is for this reason that effective communication is difficult (Robert, 2020). To facilitate effective communication, communicators need to have certain communication abilities.

According to this analysis, to communicate smoothly, communicators need to have at least some ability to feel the communication message, ability to process the communication message (including verbal or symbolic comprehension) (Shan, 2021), and ability to express the communication message through motor control (Robert, 2020). In addition, the communicator needs to have the ability to elicit the other party's communication intention and create a good communication environment to facilitate better communication. This relationship is illustrated with the following figure.

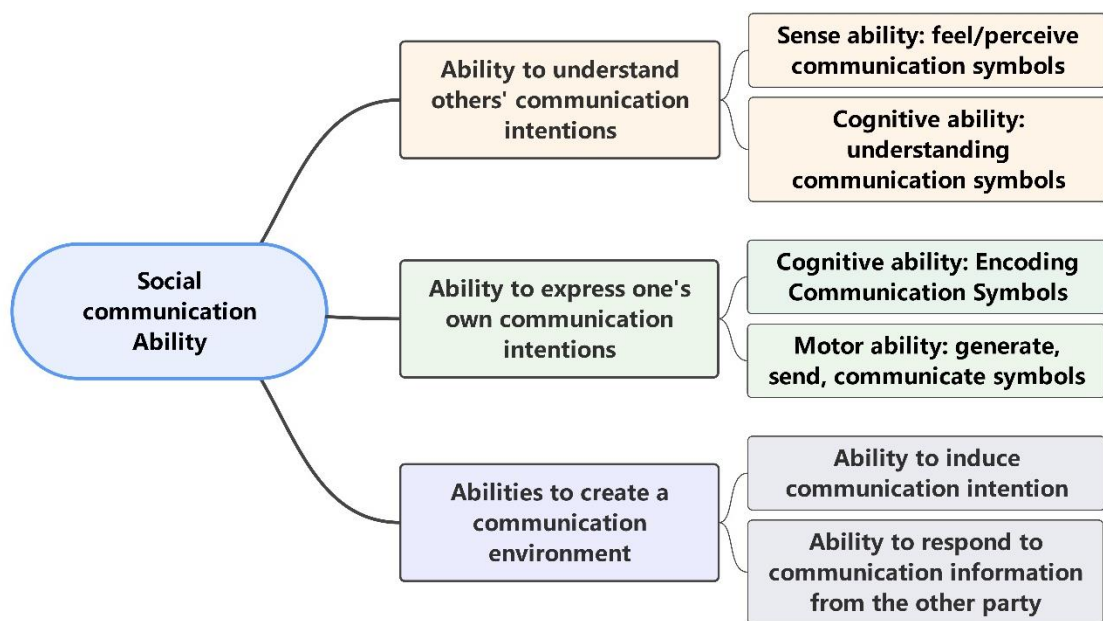


FIGURE 5 Analysis of communicators' communication-related abilities

To facilitate understanding, the researcher used the following figure to simplify the above content.

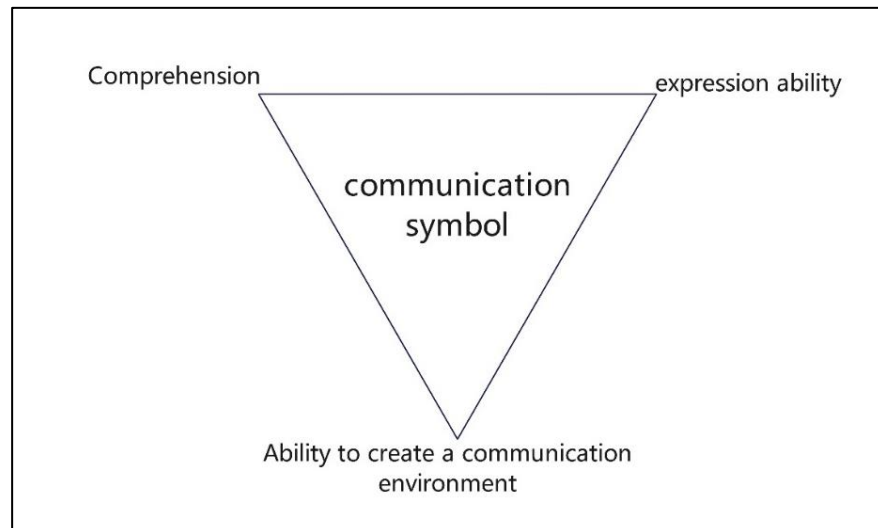


FIGURE 6 Elements of communication abilities based on Informative transfer theory

Must be aware of is, the real communication process requires finer, higher, and more complex abilities of the communicator. Communicators are often faced with the need to process two or more stimuli at the same time. For example, eating while listening, playing while talking, reading while writing or reading and then transcribing, listening, and talking, etc. These activities involve the regulation and distribution of attention. Communicators need to allocate and shift their attention rationally under the premise of attentional focus to perform these tasks better (Robert, 2020). This places additional demands on the communicator.

6 Behavioral Learning Theory

6.1 The Role of Behavioral Learning Theory in the Education of Autistic Children

The application of behavioral learning theory in interventions for children with autism dates to the 1960s and has been utilized for over 50 years, establishing itself as one of the proven effective interventions for this population (CDC, 2022; Yang, 2015).

Early and intensive behavioral interventions have shown significant improvements in the behavior of children with autism, leading to widespread adoption in medical center, schools, and families (Ellen & Marcia, 2017). Furthermore, behavioral learning theory underscores the observability of behavior, rendering the evaluation of educational outcomes for autistic children more scientific and providing a methodological foundation for their education and research (Giacomo & Daniel, 2021).

6.2 The Development of Behavioral Learning Theory in the Education of Autistic Children

At the beginning, the behavioral intervention method was known as Behavior modification (BCM) technique. At that time, punishment strategies such as electric shock, behavior restriction, and seclusion were mainly used to deal with serious behavior problems in cases, and some results were achieved. Behavior Management and Applied Behavior Analysis, which are based on positive reinforcement strategies, gradually replaced the previous behavior modification techniques because of more respect for students (Giacomo & Daniel, 2021).

In contemporary times, behavioral interventions have emerged in the form of Functional Assessment and Positive Behavioral Support strategies. The latter focuses on changing environmental and situational factors to increase the capacity of the individual. Although functional assessment and positive behavioral support are also behavioral interventions, their specific treatment methods have changed because they include environmental and situational factors. Positive behavior support, for example, refers to an assessment that identifies elements of the environment that are not conducive to the development of children with autism, or changes and reframes these elements to teach the child correct behaviors that will reduce problem behaviors and increase their quality of life (Yang, 2015).

6.3 The Application of Behavioral Learning Theory in the Education of Autistic Children

In behavioral learning theory, the behavior of children with autism follows the same patterns that shape typical developing behavior, whereby behaviors associated with positive consequences are reinforced and behaviors that are punished

are reduced. By analyzing the causes and consequences of behaviors and conducting intervention, we can help children with autism reduce inappropriate behaviors and shape behaviors that meet social needs and child development (Giacomo & Daniel, 2021).

The most prominent technique of behavioral intervention approaches is Reinforcements. When a child with autism exhibits desired or target behaviors, the adult immediately gives them something they like or immediately removes something they do not like, such as food, toys, or activities, thereby increasing the rate and likelihood of such behaviors in the future (Yang, 2015). In contrast, when children with autism show unexpectant or non-target behaviors, adults take an ignoring or extinction approach to make children understand that these behaviors do not get them what they want. Through this approach, the child's correct behavior patterns are gradually established.

Behavioral interventions are primarily used to help children with autism establish correct behaviors and eliminate problem behaviors. But there are also researchers who use behavioral intervention methods to deal with communication and language problems in children with autism (Brooke & Anna, 2020). Especially in the early days, there were not many interventions for children with autism at that time. Therefore, many researchers used behavioral interventions to deal with different problems of children with autism (Yang, 2015). In the beginning, researchers used Discrete trial training to train children systematically and progressively with autism in various abilities.

In terms of improving communication abilities, Discrete Trial Training subdivides instructional content into units in a relatively closed environment where an adult leads the instructional activities and trains children to imitate the adult's pronunciation, or to follow the adult's spoken instructions, or to differentiate between different nouns for naming purposes. At this time researchers treat language as a behavior, or an ability that is removed from context, and believe that by training children to improve their language behaviors, they will be able to improve their communication abilities (Kathleen, 2015).

With the rise of the developmental perspective in the field of education for children with autism, behavioral intervention approaches have undergone several adaptations. One of these intervention strategies that is now being used more frequently is Pivotal Response Training. Although this strategy is also conducted in small steps and with increasing strategies, it places more emphasis on the need for children with autism to learn and improve their abilities, especially communication and language abilities, in natural settings (Yang, 2015; Kathleen, 2015). These contexts can be random situations that occur naturally, or they can be deliberately arranged by the pedagogue to attract the child's attention and interest, and occur in a natural environment.

7 Relationship-Based Development Theory

7.1 The Theoretical Foundation of Relationship-Based Development Theory

Some researchers have objected to the behavioral learning theory's overemphasis on children's behavior while ignoring their cognitive and psychological characteristics (Giacomo & Daniel, 2021).

According to the theory of Interpersonal Neurobiology and Transactional model of development, the interaction between people can have an impact on the brain nerves, making the brain neurons. Many children with language retardation have damage about Improve the interaction between parent and child maybe improve the language ability of them (Pickles et al.,2016; Green et al., 2010; Pacione, 2022; Steiner et al.,2021).

7.2 The Application of Relationship-Based Development Theory in Education of Autistic Children

As understanding of children with autism has evolved, relationship-based developmental theory has emerged within the domains of speech therapy and autism education and rehabilitation. This theory adopts a social interaction perspective, asserting that adults can enhance opportunities for communication and interaction among children with autism through their facilitation of communication interactions. Children with autism develop their communication abilities through ongoing participation

in social interactions, accumulating and enriching relevant experiences over time (Robert, 2021).

The relationship-based model encompasses various relationships involving children with autism, including parent-child, teacher-student, and peer relationships. Children with autism are supported to improve their communication abilities by improving their interpersonal environment, providing them with an active exploration environment, and positive social interaction experiences (CDC, 2022; Kathleen, 2015). For example, parents can actively communicate with children in different ways, guide children to answer questions, and facilitate children's understanding of the rules of language through eagle-frame support during interactions (Fumi & Junichi, 2019). In this process, elements such as the adjustment of communication attitudes, the use of communication abilities, and the timing of communication of the communication target are very important (Kathleen, 2015).

According to relationship developmental-based researchers, communication is a two-way interactive, back-and-forth, and changing process that occurs between two communicating parties (Kathleen, 2015). In this process, it is not only necessary for the message transmitter to better deliver the message, but also for the message receiver to understand the received message, and it is necessary for both parties to make dynamic adjustments because of the object, environment, timing, and other elements to promote a smoother transmission of the communication message (Gong, 2022). This requires both parties in the communication to have some prior experience to be able to understand the ideas of the communication object, to be able to pass on their ideas, and to be able to make judgments and adjustments according to the communication situation. If one of the parties has difficulties, they can promote motivation and improve their communication abilities by changing the communication environment, providing communication opportunities, and increasing the sense of control over the communication interaction process (Beukelman & Mirenda, 2020).

Children can only grow as a communicator when they are treated as communicators (Robert & Kimberly, 2019). From this perspective, children's

communication abilities are acquired in the interaction with the environment, and communication barriers are obstacles that arise during the interaction of communication, not just one individual's barriers (Fumi & Junichi, 2019).

Based on this background, researchers have proposed Floor Time, Relationship Development Intervention, Parent-Mediated Communication-Focused Treatment (PACT) aims to enhance the interpersonal experiences of children with autism by improving adult-child interactions and creating additional opportunities for communication and interaction. This approach ultimately enhances the social communication abilities of children with autism (Pickles et al.,2016; Green et al. 2010; Liu, 2019; Liu &Feng, 2018; Wang & Mo, 2022; Kathleen, 2015). The enhancement of these abilities can help children with autism to be more active in self-expression and is not a bad strategy to promote their communication abilities.

A notable example is the Developmental, Individual-Difference, Relationship-based (DIR) model, advocated by Stanley I. Greenspan. This model underscores the importance of recognizing the individual differences among children with autism, fostering their emerging abilities to share attention, participate, interact, engage in play, and think abstractly. It emphasizes understanding the child's communication intentions, establishing suitable relationships and environments to support their interactions, and facilitating continuous practice in interactions that enhance emotional, social, cognitive, and other communication-related abilities (Yang,2015).

The developmental, individual-difference relationship-based model emphasizes not only interactive relationships but also developmentally relevant elements for children with autism, and its overall intervention program includes daily floor time at home for parent-child interaction, two or three sessions per week of speech therapy. The overall intervention program includes daily parent-child interactive floor time at home, speech therapy and physical therapy two or three times a week, a daily curriculum-based learning program, and biomedicine.

7.3 The Role of Relationship-Based Development Theory in Education of Autistic Children

The communication process is highly intricate, encompassing a broad spectrum of elements. Factors such as assessing the communication situation, generating communication motivation, comprehending semantic meaning, and utilizing communication symbols like voice, expressions, and gestures can all influence the effectiveness of communication. These elements are interlinked, influence each other, support each other, but may also weaken each other. If the role of a certain element does not play, not only the impact on the part of the role of the element occurs, but also the peripheral effect that may bring, will make other parts also follow the deficiency; or because of the deficiency of this part, and the other parts need to be more strengthened. Different theories or different sciences have cut in from different angles to do elaboration (Xu et al., 2020) and developed some effective interventions for children with autism (Kathleen, 2015).

However, when people are really in communication, all of the above elements are rubbed together to carry out, rather than a single face stand alone as the base of interaction (Xu et al., 2020), while children with autism have very strong individual differences and no one treatment is suitable for all children (Kathleen, 2015).

Therefore, with the development of various theories, there is a tendency for these strategies to increasingly move towards integration with each other (Kathleen, 2015), such as Naturalistic, Developmental Behavioral Intervention, which has been proposed by some researchers as a behavioral intervention approach that integrates developmental models (Brooke & Anna, 2020). Although the relationship-based developmental model emphasizes the application of natural social environments, it is important to note that this strategy often needs to be used in conjunction with a behavioral intervention model to overcome problems such as unresponsiveness or noncompliance in natural environments brought about by the lack of shared attention, communicative intention, and imitation in children with autism (CDC, 2022; Kathleen, 2015). Hence, practical applications aimed at enhancing the communication abilities of children with autism necessitate compatibility with various theories and approaches.

8 Transformative Learning Theory

Communication is a very common activity in everyday life, and parents of children with autism have developed their own communication patterns with their children in the process of parenting (Robert, 2020). These patterns are not good or bad, but they can bring different experiences to the child and the parents and cause different effects. These experiences are the basis for the design of the Communicating Partner Curriculum. In the process of curriculum development and implementation, attention should be paid to these experiences for them to develop new experiences through a reflective approach to discover what they did well as well as what they did not do well and then adjust (Yang, 2022).

8.1 Implications of Transformative Learning Theory

In 1978, Mezirow proposed the theory of transformative learning. The theory views learning as the process by which critical consciousness arises. In learning, individuals reconstruct preconceived views or old experiences and transform them into their new views, thus forming new learning experiences (Rodríguez & Barth, 2020; Wan & Tong, 2023; Yang, 2022). Several essential elements are required for transformative learning to occur, including: the learner to have old experiences about the topic; the professional of that learning topic to engage in a rational dialogue with the learner from guiding the learner to reflect on the old experience; and the professional to guide the learner to build a new experience about the topic (Rodríguez & Barth, 2020; Wang et al., 2023; Wan & Tong, 2023).

This is an important learning theory for adults with different life experiences. This is because the theory does not only emphasize the accumulation of knowledge and abilities, but also the adjustment and change of adults' ideas that affect their subsequent views, experiences, and thus future practices on similar issues (Yang, 2022).

Communicating partners not only need to have relevant awareness and knowledge, but also need to master the abilities of communication with people with communication disabilities. Here, communicating partners are required to complete the knowledge conversion from "know" to "do", and complete the flexible application in

specific social situations, so Transformative Learning is very important (Simon & Carole, 2018). For parents of children with autism, they have a lot of experience in communicating and interacting with their children, the incorrect part of the experiences will affect the development of children's communication abilities transformative Learning can help them reflect on these inappropriate concepts and behaviors and establish new concepts and behaviors, to get out of the dilemma encountered in communicating with children (Rodríguez & Barth, 2020).

8.2 Process of Transformative Learning Theory

Mezirow divided transformative learning into ten steps such as confusion dilemma and self-examination, but these steps are not fully differentiated (Rodríguez & Barth, 2020; Wang et al., 2023).

Therefore, different researchers have sorted them out and integrated them into different learning phases. However, different researchers have different thinking in integrating these steps, and therefore there are differences in the phases they delineate. Some researchers believe that the theory consists of four main phases (Wan & Tong, 2023):

- trigger phase;
- reflection phase;
- new structure formation phase;
- integration phase.

Some researchers believe that both the second and third phases involve reflection as an important psychological activity and therefore unify them into one phase (Yang, 2022). Other researchers have added a phase of developing a program between the third and fourth phases (Wang et al., 2023) to facilitate the implementation of their reflective outcomes.

In the trigger phase, the instructor or the peers involved in the learning present events like the learners' old experiences (Simon & Carole, 2018), which are confusions or problems that the learners themselves also face, triggering the learners' motivation to learn and thus prompting transformative learning (Wan & Tong, 2023;

Yang, 2022). To find the trigger events that can truly motivate learners, instructors need to organize the trigger events for learning by arranging peers with similar experiences or by observing or interviewing learners in advance to understand the problems they wish they could solve or the problems they are interested in under the topic (Wan & Tong, 2023). To help adults construct a more comprehensive and complete structure of experiences under the topic, these trigger events need to be organized systematically (Zhang, 2021). To better trigger learners, teachers can understand the background and experience of learners in advance (Rodríguez & Barth, 2020). Some researchers have proposed to add the element of background in transformative learning, so that learners can learn from personal background, Understanding and learning from learning experiences in social and cultural contexts (Schnepfleitner & Ferreira, 2021).

In the reflection phase, learners need to reflect on their old experiences. Learners usually have difficulty in discerning their commonplace practices and ideas, so in this phase, the instructor needs to provide some reflection questions and methods on one hand. On the other hand, learners need to be given blank time to reflect (Wan & Tong, 2023). Reflection is a very important method of adult learning, which is mentioned in different adult learning theories (Finch et al., 2018; Simon & Carole, 2018). In the reflective process, adults need to think about the learning process and learning effects, and extract abstract concepts from them to guide the next step of behavior. This awareness itself is part of learning, which can promote the improvement of learners' metacognitive ability and provide a cognitive basis for the development of more strategies (Finch et al., 2018; Simon & Carole, 2018). Some researchers suggested that in the reflection process, learners should increase their analysis and thinking of event details, which help them build more abstract concepts (Savicki & Price, 2021).

In the new structure formation phase, the instructor needs to introduce new ideas, new perspectives, or new methods, and more importantly, needs to guide learners to organize new experiences with their old ones to build their new structures about the topic (Wan & Tong, 2023; Savicki & Price, 2021). At this phase, to improve the mastery of the new knowledge, learning can be conducted in an output manner (Wan &

Tong, 2023). In addition, to help the new experience to be translated into practical actions faster and better, the new structure can be turned into a program with operationalization (Wang et al., 2023). Through the construction of new knowledge and new ideas, learner can break their old behaviors and establish new behaviors (Duggal et al.,2020).

In the integration phase, learners need to integrate what they have learned into practice, thus moving to the application level (Wan & Tong, 2023). This phase has a very important role for learners to truly master the knowledge of the topic. However, because this phase requires feedback from the instructor, and due to the time constraints of the training, this phase is from neglected and should be brought to the attention of the instructor (Duggal et al.,2020; Wan & Tong, 2023)

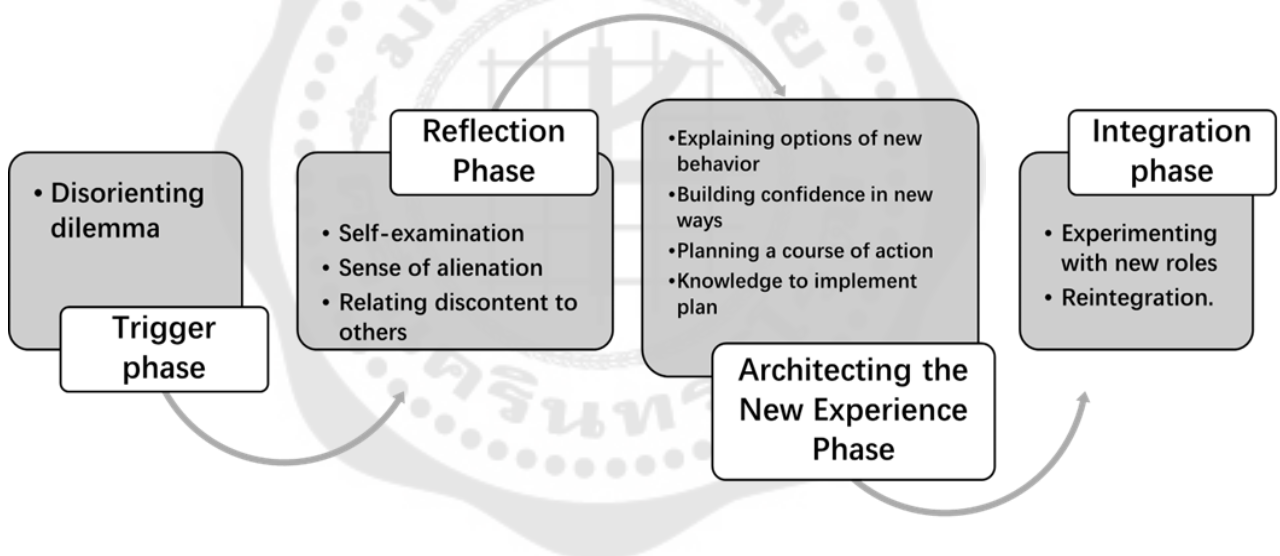


FIGURE 7 Transformative learning implementation phases

The learning model referred to in transformative learning theory has a high degree of fit with the needs of parents in training, so some researchers have used this theory to guide parent training-related work (Yang, 2022). In addition to using transformative learning theory to learn about training-related topics, learners can use this process of identifying problems, reflecting on them, and building new experiences

to solve them to establish new learning models that can provide them with ideas for solving similar problems when they face them in the future (Wan & Tong, 2023).

8.3 Principles of Transformative Learning Theory

Although transformative learning theory encompasses various schools and theoretical foundations, researchers have approached it from different perspectives. Some researchers emphasize the transformation and construction of meaning through viewpoints and meaning diagrams, while others focus on the relationship between human developmental experiences and situational contexts, highlighting the interactive relationship between education and development. Additionally, certain scholars stress the spiritual dimensions, considering how images, symbols, metaphors, archetypes, myths, dreams, and other inner psychological elements interact with learning, enabling learners to reprocess or integrate original knowledge and form new viewpoints (Gao & Li, 2005). Despite these diverse approaches, the fundamental principles they uphold remain consistent, including the following (Gao & Li, 2005; Wang et al., 2023; Xu, 2022):

(1) Emphasize learners' learning experiences, rooted in the constructivist principles of transformative learning theory. Constructivism posits that learning is a dynamic process wherein individuals actively construct meaning based on their own experiences. The learner's existing relevant experience is the basis of transformational learning and an important learning resource for transformational learning. These experiences can stimulate learners' thinking and dialogue. The learning of adult learners needs to focus on their experiences and transform these experiences into their learning motivation, thereby promoting their learning of new knowledge (Simon & Carole, 2018).

(2) Critical thinking. Adult learning needs to break old experiences and construct new ones, so they need to think openly, dialectically, and critically (Duggal et al., 2020). Its thinking angle includes thinking about the premise, process, and content. The thinking on the premise is that learners reflect based on self-assumptions and problems, such as "why I adopt this way and how this way came about". Thinking about content means that learners reflect on the content of a certain question, such as "what

do I feel". Thinking about the process is the learner's reflection on the problem-solving strategy, such as "how do I think about this problem". Reflection on the premise can help learners transform meaning viewpoints or form a more complete meaning viewpoint, and reflection on content and process can change individual thinking, which in turn leads to transformation of meaning structure or adjustment of methods (Savicki & Price, 2021).

(3) Rational dialogue. Critical thinking is the process by which adult learners engage in self-talk. In addition, adult learners also need to have dialogues with people who have similar experiences or people who have done more research on this issue, so that their own thoughts collide with other people's thoughts, and learners can better distinguish and identify and adjust your old experience to construct a more complete and reasonable new experience (Rodríguez & Barth, 2020).

8.4 Application of Transformative Learning Theory

As an important adult learning theory, Transformative Learning has been widely used in adult training. To better improve the effect of Transformative Learning, researchers have explored different methods.

(1) Pay attention to opportunities for experience and practice

Transformative Learning places special emphasis on the critical reflection of learners during the learning process, adjusting old experiences and establishing new ones through reflection. In this process, if learners' real experience of the learning content can be increased, it will help them master the learning content and improve the learning effect (Simon & Carole, 2018). For example, some researchers through interviews with practitioners of autistic children after receiving training, found that allowing trainers to increase opportunities to interact with autistic children during the learning process and actively participate in autistic children Activities, and practice key abilities, let them have a more intuitive understanding and contact with children with autism, and help improve their mastery of training strategies (Duggal et al.,2020). In the process of training pre-service inclusive education teachers, some researchers applied the idea of Service-learning, so that learners can summarize and reflect on their

experience in the process of directly serving special children, to improve their professional ability (Carrington et al.,2015).

(2) Increase cooperation with study peers

In transformational learning, the integration of old and new experiences is of great significance, however, individual experiences are subject to limitations. To enhance learning, researchers recommend introducing peer learning and collaboration opportunities into transformative learning processes (Jorge et al., 2020). Such initiatives can enrich the learning experience, promote knowledge renewal and profound change. Peer-to-peer knowledge exchange and collaboration not only expands learners' horizons, but also develops critical thinking, communicating abilities, and the ability to collaborate across different perspectives. This collaborative learning model not only encouraged individuals to transcend their own experience limitations and embrace diverse experiences, but also provided a richer platform for individuals' self-reflection and self-development in transformational learning (Duggal et al.,2020).

(3) Pay attention to the assessment of learners' views, attitudes, etc.

The change of learners' views and attitudes are important outcomes of Transformative Learning (Savicki & Price, 2021). However, it is difficult to evaluate individual attitudes and concepts, so teachers must pay attention to the evaluation of these elements (Jorge et al., 2020). Some researchers suggest that reflective writing, such as self-assessment reports, diaries, articles, blogs, etc., can be used to understand the results of learners' reflections, and at the same time promote learners' in-depth reflections (Savicki & Price, 2021).

9 Curriculum Development -Related Research

9.1 The Meaning of Curriculum

Curriculum is a very widely used and richly connoted concept. In Chinese, the word "curriculum" first appeared in the poem "Shi-jing. Xiao Ya": "To maintain the curriculum, a gentleman must supervise it, and it is made in accordance with the law". In English, the term curriculum was first introduced by H. Spence in "What knowledge is most valuable? which means "runway" (Shi, 1994).

Over the years, different researchers had different understandings of curriculum from different perspectives. Some researchers considered curriculum as the sum of teaching content and its framework, which includes the purpose of teaching, teaching content, teaching activities, and teaching evaluation. Some researchers consider curriculum as the learning experience of learners, which includes all the learning experiences of students in school (Shi, 1994; Zhong, 2015). The former interprets curriculum from a subject-centered perspective, while the latter interprets it from a student-centered perspective. And some researchers considered curriculum as the result of learning activities or cultural reproduction (Shi, 1994).

These definitions of curriculum have their own starting points, and particularly their own purposes. When discussing the concept of curriculum, the social context, epistemological and methodological foundations behind it should be considered together (Shi, 1994).

9.2 Models of Curriculum Development

Researchers had explored different models of curriculum development according to different perspectives, among which the model of Taylor's thinking is called the objective-oriented model of curriculum development (Shi, 1994). This model is known as the technological model. This model is scientific, rigorous, systematic, and has strong practical guidance. Among them, Tyler's curriculum development ideas, although questioned by different researchers, are still the most influential, and he believes that curriculum development is centered on the following four issues (Shi, 1994), including:

- The educational objectives schools should attain;
- The teaching and learning experiences necessary to fulfill these objectives;
- Efficient organization of these teaching experiences;
- Methods for assessing the attainment of these objectives.

However, some researchers have argued that this rigor in turn limits curriculum development, arguing that certain objectives, particularly in terms of social values, norms, and the establishment of systems of thought. Therefore, instead of focusing on pre-specified objectives, the focus should be on process (i.e., the behaviors exhibited by students) (Shi,1994), which is the process-oriented model of curriculum development. The model is represented by British curriculum theorists (Shi, 1996).

Skilbeck proposed a context-oriented curriculum development model based on both. This model is also known as the environment-oriented model, the cultural analysis model, or the contextual analysis model. It emphasizes that curriculum development should be designed and developed based on a comprehensive analysis and assessment of different environmental realities, focusing on solving curriculum development problems in realistic contexts.

9.3 The Process of Curriculum Development

Curriculum development may vary under the guidance of different models. For example, in response to the goal-oriented model, Bobbitt proposed five steps of curriculum development, which have been very influential and enlightening to later curriculum developers (Shi, 1994)

- Analyze the human experience;
- Disaggregating these experiences into more specific activities;
- Deriving various objectives from these activities;
- Selecting the main goals from these goals;
- Developing a detailed plan based on the objectives.

Lager further organized and sorted out the steps of curriculum development on this basis and concluded that curriculum development consists of three steps as follows:

- Determining the basic objectives;
- Selecting activities and other instructional materials;
- Discovering the most effective way to organize the materials.

For the context-oriented curriculum development model, the basic steps of the curriculum development model proposed by Skilbeck are

Analyzing the context;

Forming objectives;

Designing the program;

Interpretation and implementation;

Checking, evaluation, feedback, and reconstruction.

TABLE 5 Comparison of the three curriculum development models

curriculum development models	Main Representatives	Core Ideas	Advantages	Disadvantages
objective-oriented model	Bobbitt, Taba, Bloom, R.W. Tyler etc.	The educational objectives are the core of the curriculum development, and all activities of the curriculum need to be centered on the objectives.	Standardized, scientific and operational.	Ignore the freedom, creativity, and development that the curriculum should have.
process-oriented model	Lawrence Stenhouse	A curriculum is an open system. Developers should focus on the principles, content, and process of the curriculum, consider how learners will behave in the learning process.	Focus on the learner and the learning process, with greater flexibility.	Lack of clear and implementable programs.
context-oriented curriculum	M. Skilbeck, D. Lawton	Curriculum development should begin with an	Emphasize the	Ignore students' interests and

		analysis of the learning context from which the curriculum objectives and elements of the curriculum program are developed.	importance of the learning context.	body of knowledge.
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In essence, the elements of curriculum development outlined by the three models mentioned above share similarities, encompassing curriculum objectives, content, resources, and evaluation. However, they vary in focus and approach.

Summary:

This chapter examined the elements and characteristics of parent-child communication abilities as a communicating partner for children with autism, delved into the theoretical and applied underpinnings of the Communicating Partner Curriculum, and explored the theoretical and applied principles of curriculum development. These discussions serve as the literature foundation for the development of the Communicating Partner Curriculum.

CHAPTER 3

METHODOLOGY

This study designs, develops, implements a communicating partner curriculum, and evaluates the changes in the parent-child communication abilities of parents of autistic children after learning the curriculum. This chapter describes in detail the methodology used to conduct the research, which consists of five phases of research work according to the purpose of the research. It is briefly explained in the figure below.

Phase I: Identifying the elements and characteristics of parent-child communication abilities of autistic children 'parents

- 1.1 Analyzing literature
- 1.2 Interviewing experts
- 1.3 developing an evaluation form
- 1.4 review the assessment form

Phase II: Basic information study of curriculum design

- 2.1 literature research
- 2.2 Interviewing experts
- 2.3 Interviewing Parents

Phase III: Curriculum development

- 3.1 Design curriculum draft
- 3.2 Expert review curriculum
- 3.3 Pilot study

Phase IV: Curriculum implementation

- 4.1 Basic information for parents participating in the curriculum
- 4.2 research instruments
- 4.3 Collect data
- 4.4 Analyze data

Phase V: Curriculum Evaluation and Revision

- 5.1 Basic information for Curriculum Evaluation
- 5.2 Research instruments

5.3 Collect data

5.4 Analyze data

The research framework is shown in the following figure.

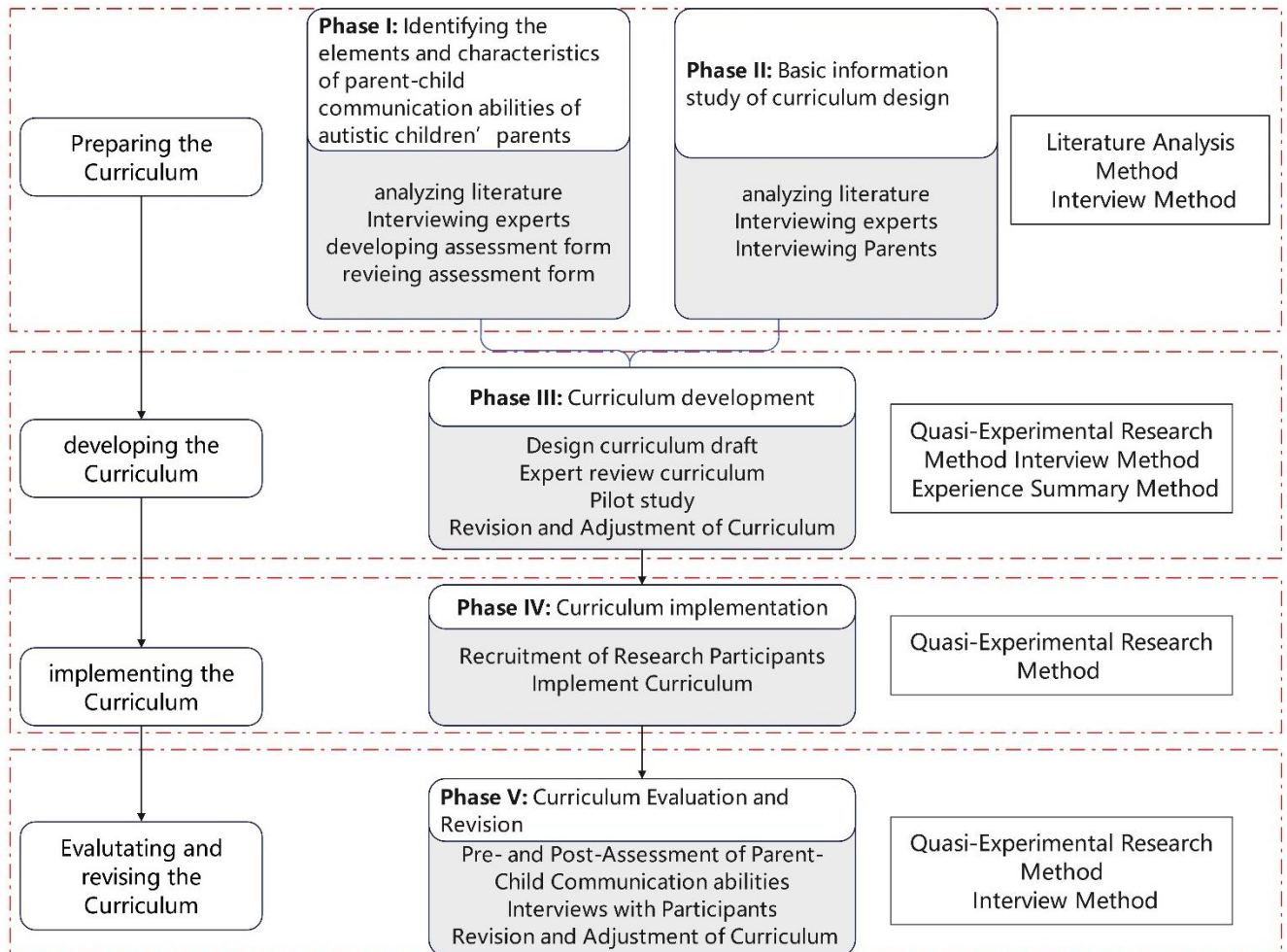


FIGURE 8 Research framework

For detailed information, please refer to the subsequent section.

Phase I: Identifying the Elements and Characteristics of Parent-Child Communication Abilities of Autistic Children's Parents

The primary objective of this research phase was to ascertain the elements and characteristics of parent-child communication abilities among parents of children with

autism. This entailed crafting an assessment tool for evaluating parent-child communication abilities in children with autism, aimed at gauging changes in these abilities pre- and post-participation in the Communicating Partner Curriculum. This phase encompassed four key steps: literature analysis, expert interviews, formulation of an evaluation form, and expert scrutiny of the form.

1.1 Analyzing Literature

According to the diagnostic criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition) for Autism Spectrum Disorder (ASD) (Hu & Zhao, 2015), and the spirit of adjusting the name of autism in the "Notice on Regulating the Titles of Disabled Persons and Disabled Persons in Publicity and Reports" (China Disabled Persons' Federation, 2022) promulgated by the China Disabled Persons' Federation, consider other names that have been studied in the past for autism spectrum disorder. The Chinese search terms used in the research subjects of this study were: 自闭症(谱系障碍)、孤独症、亚斯伯格、阿斯伯格、广泛性发育障碍+儿童+家长(父母)。The English search terms were ASD, autistic, autism, Asperger syndrome, Pervasive Developmental Disorder +children +parents(parent). In some literature, children may have been omitted because parents were already mentioned, and this part of the literature was also included.

The research topic of this study was parent-child communication abilities, and the similar keywords include parent-child interaction and parent-child communication. The Chinese search terms used in this study were parent-child + communication, interaction, communication + ability. Considering the differences in English expressions, the English search terms were communication, communicative, communicating + competence, skill, ability. In some literatures, when it comes to parent-child communication abilities, since parents and children with autism had been mentioned, parent-child or parent-child will be omitted, and this part of the literature was also included. In some literature, when talking about the communication of children with autism, the content related to communication abilities was also covered, and this part of the literature was also included.

To ensure the continuity and timeliness of the research, the search was conducted from 2000 to the present across several databases, including CNKI, Web of Science, and ERIC. The search in CNKI covered article titles, abstracts, and keywords. Web of Science was searched using topic search criteria, while ERIC was searched using basic search parameters. As of July 18, 2023, a total of 4,496 documents were retrieved. After screening for duplicate literature, 2,506 titles were identified. To ensure the accuracy of the sample data, a manual selection method was employed to filter out literature that did not focus on parent-child communication abilities of children with autism based on the abstracts. Ultimately, 656 papers were selected to constitute the literature research sample for this part.

An analysis of the data obtained from literature research led to the preliminary identification of elements and characteristics of parent-child communication abilities among parents of children with autism. The parent-child communication abilities were identified to consist of four elements: 1) Understanding ability; 2) Expressive ability; 3) The ability to create a good communication environment; 4) The ability to Elicitation communication behaviors in children. Several characteristics associated with each element were summarized. These four elements subsequently formed the framework for conducting in-depth interviews.

1.2 Interviewing Experts

1.2.1 Basic Information of Interviewees

Experts with experience in language therapy for children with autism were organized for interviews to identify the elements and characteristics of parent-child communication abilities among parents of children with autism.

The experts were selected based on the following criteria:

A background in professional study or training in speech and language therapy; 10 years or more in clinical rehabilitation, specifically in speech therapy for children with autism; More than 5 years of experience in training or mentoring parents of children with autism; Voluntarily participate and contribute one's own wisdom.

Based on predetermined criteria, five experts were selected for interviews using methods such as professional recommendations and direct outreach.

These experts were chosen due to their extensive experience in children with autism education and rehabilitation, each possessing over ten years of experience in the field. Additionally, all selected experts have more than seven years of experience in counseling, guiding, and training parents of children with autism. Each expert holds a managerial position related to teaching within their respective centers. To ensure a comprehensive and diverse dataset, consideration was given to the geographical and professional backgrounds of the interviewees during the selection process.

Detailed information of experts can be found in the appendix 1.

1.2.2. Interview Instruments

The Interview Outline for Experts Regarding Parent-Child Communication Abilities in Children with Autism served as the interview tool utilized in this phase. Informed by the literature review, the interview outline is divided into two main parts: fundamental details and discussion topics. The fundamental details section seeks to gather essential information from the interviewees, particularly focusing on their expertise in communication rehabilitation for children with autism and their experience in parent training and counseling. The interview topics section revolves around the four key elements of parent-child communication abilities identified in the literature review. This aims to understand the experts' perspectives on these elements, including their importance and specific details. Open-ended questions are incorporated into the interview outline, such as "In your opinion, what abilities enable parents to communicate effectively with their children?" This is aimed at improving and refining the elements of communication abilities of parents of autistic children.

The first draft of the interview guide on parent-child communication abilities for parents of children with autism was sent to five experts for review.

After collecting their feedback, the interview outline for parent-child communication abilities of children with autism was finalized. Among these experts, four specialize in the field of autistic children rehabilitation, particularly in language communication rehabilitation, with over 10 years of relevant experience. Detailed information about the experts can be found in Appendix 2. Additionally, each of them

holds teaching and management responsibilities within their respective centers. The fifth expert specializes in assessment, counseling, and training for autistic children and their parents. The experts provided the following suggestions for revising the interview outline:

① Enhanced the content of basic information. Some experts suggested that the basic information section should include details about the interviewee's current involvement in work related to children with autism. This is important because some interviewees may have previously worked in the field of autism rehabilitation but are not currently engaged in such work, potentially leading to a lack of awareness regarding the latest research and clinical developments.

② Removed content unrelated to the main theme. Some experts recommended eliminating the question "How do you think parents can improve their ability to initiate communication with their children?" The main purpose of the interview is to understand the constituent elements of parent-child communication abilities for children with autism, rather than discussing how parents can acquire these abilities.

③ Probed further in the strategy section to extract more information. Some experts suggested adding wording such as "Please provide as many specific strategies as possible" in the interview topics to prompt interviewees to share more insights.

④ Refined the wording of the interview outline, streamline sentences, and modified certain expressions. For instance, some experts suggested eliminating phrases like "Do you think" from the questions and omitting terms such as "parents of children with autism " from the topics.

The interview outline was revised based on these suggestions to ensure clarity, relevance, and effectiveness in eliciting valuable information from the experts in the field. The revised interview outline, including its content, is as follows:

TABLE 6 Structure of interview outline for experts on parent-child communication abilities of children with autism

Components	Interview Content
Basic Information of the Interview	Interview time, location, interviewee, and identification number
Purpose of the Interview	
Basic Information of the Interviewee	Gender, age, relevant work experience
Interview Outline	Introduction, interview dialogue (7 open-ended questions), closing remarks

Detailed interview outline can be found in the appendix 3.

1.2.3 Collect interview Data

The researcher collected data through interviews, each lasting approximately 60 minutes. Each expert participated in one interview, resulting in a total of five interviews. Face-to-face interviews were conducted for local experts, while experts from other locations were interviewed via Tencent Meeting, an online video conferencing tool. The procedure is outlined as follows:

- 1.Coordinated with the Graduate School to schedule interviews in accordance with the preferences and convenience of the interviewees. The Graduate School was responsible for sending invitation letters to the interviewees to assist researcher in conducting in-depth interviews on specific topics.

- 2.During the interviews, we adhered to a predetermined interview outline and conduct semi-structured interviews experts at the scheduled dates, times, and locations. To ensure comprehensive data collection, the research aimed to gather insights from at least five experts. If data saturation was reached, meaning no new information emerges, the research appropriately concluded the interviews.

- 3.Prior to conducting the interviews, explicit consent from the experts must be obtained. If an expert does not consent to audio recording, the research used traditional pen-and-paper methods to meticulously document important information and opinions.

4.To ensure the reliability and accuracy of the collected data, a strong relationship based on mutual trust was established between the interviewee and the interviewer. During the interviews, all key information was meticulously recorded, and further communication with the interviewees was conducted as needed to clarify and confirm the accuracy and authenticity of the information, resolving any potential ambiguities.

1.2.4 Analyze Data

To enhance the research, particularly in accurately and objectively analyzing and presenting results, two research assistants were invited to participate in the study, primarily during the data processing phase. These research assistants possess over 15 years of experience in autism education and rehabilitation, specifically working with children. They have been extensively involved in educating and counseling parents of children with autism. Furthermore, they have collaborated closely with the researcher for many years and share a strong consensus on communication-related issues in children with autism. The research assistants were thoroughly informed of the study's objectives, processes, and tasks required, and they consented to participate. Detailed information about the research assistants is provided in Appendix 4.

The training for the research assistants focused on enhancing their capabilities in qualitative data analysis and active participation in curriculum development. With extensive experience in autism education and rehabilitation, the assistants received orientation on research objectives, methodologies, and ethical considerations. They underwent specialized training in coding procedures and thematic analysis, participated in curriculum study sessions to provide informed recommendations, and received regular feedback and supervision to ensure their effective contribution to the research project. With cooperation of the research assistants, this phase of the study proceeded according to the following steps.

In the first step, the interview data was transcribed into verbatim transcripts.

After importing the interview results into the data analysis software, the researcher used a Speech-to-Text tool to convert them into verbatim transcripts. Speech-to-Text quickly recognized various speech materials such as audio and video, converting them into corresponding text. Additionally, the tool provided text editing capabilities, allowing the researcher to edit and modify the text in real-time while listening to the recording. This included correcting errors, deleting repetitive language, and removing verbal fillers or exclamations used by the interviewees during speech-to-text conversion, such as "um," "uh," "oh," and so on. Whenever possible, the researcher added intonation and made corrections to content that had been lost due to poor sound or recording quality. After completing the transcription work, the research assistants were invited to cross-reference the verbatim transcripts with the audio recordings for further verification.

The second step involved determining the method and principles for coding the verbatim transcripts.

Given that the purpose of the interviews was to validate and refine the characteristics of parent-child communication abilities among parents of children with autism based on the literature review, the analysis of the verbatim transcripts employed a framework coding approach. The framework coding approach, derived from Erving Goffman, serves as a tool for understanding experiences, organizing, and systematizing the meaning of different action segments in social interactions (including events, interviews, etc.). This approach helps extract meaningful information (Yang et al., 2023). Moreover, frameworks can be utilized to define concepts, elucidate relationships between elements, and provide methods for problem-solving, thereby highlighting the features and attributes of phenomena (Li, 2021). Therefore, framework theory serves as a cognitive tool and interpretive pattern for understanding human social behaviors, representing a research paradigm that translates social existence into subjective understanding, widely applied in qualitative research such as in-depth interviews and text analysis (Wang, 2020). To better organize it, the researcher coded and organized the content of the interviews within the framework of four elements.

TABLE 7 Method of assigning keywords to verbatim transcripts

Method of Obtaining Key Terms	Coded Key Terms	Examples
Compare the relevant keywords mentioned in the literature	Equality	"Equal communication, equality, I think it's very important." (Interviewee 1)
	Observation	"It is possible that he expressed himself, but the parents did not grasp it because his way of expression is different. Currently, parents need to truly observe and understand what the student want. They need to be in a state of being like a third person, detached, observing their own child." (Interviewee 1)
Extract keywords	Enhancing the child's passive responses.	"If the child has difficulty initiating communication, it won't be as you imagine. If you point at him for a response and he ignores it, then at this point, we take the initiative. We aim to increase his passive responses. For example, if you offer him something and he doesn't want to pay attention, you can hold his hand or coax him a bit." (Interviewee 2)
	Flexibly adjust	"In order to communicate better with the child, but now there are some situations

Assign keywords		<p>between you two, and the child lacks flexibility. What should we do if the adults don't adjust?"</p> <p>(Interviewee 3)</p>
	Reinforce	<p>"So, you need to let the child find the sweet spot with the adults. What does 'sweet spot' mean? It may be related to the child's interests."</p> <p>(Interviewee 4)</p>

In the third step, the verbatim transcripts were subjected to framework coding. To better organize and analyze the verbatim transcript data, the researcher imported the transcripts into processing software for analysis. After swiftly importing the data, advanced management, querying, and visualization tools provided by the software facilitated the analysis of the data, enabling clearer and more intuitive conclusions regarding complex issues.

或者你希望没放手的那些，这样他跟孩子之间的这种亲子的沟通，他的一种沟通的氛围，或者沟通的环境，你觉得是怎样的一种环境会好一些，说策略很足，就是感觉，那种感觉就是怎样去有沟通环，你去接纳他，就是沟通环境的一种对，那么除了这种那些态度，那么怎样去营造这种环境，怎样去营造这种环境，会觉得反方向就是什么意思呢，我们常态的一个家长也好，或者教学也好，都是由老师或者家长指导的，所以我们会是习惯性的叫做是提问，比如说保办你今天在学校做了什么对。

而且这种提问的话有的时候还会，还不是沟通式的提问，他，不是说我好奇所以的话，在这里面我觉得有几个策略就是首先是先倾听孩子，就是先倾听孩子的表达，要那么倾听孩子的表达，我们就家长要做的事情，其实就等待，要有耐心的去等待孩子发起这种沟通，然后跟随孩子的沟通，说得很简单，但是其实是要忍住，就是要忍住，对，就是要忍着，家长要忍着，真的去听孩子去说，他可能说的是不是口语，就是可能不是言语，应该说语言，但是他可能是一些声音。

但是其实孩子也是在表达，那么我们要去解读孩子的非语言的表达，就是要认同接纳，还接受接纳孩子的非语言的表达，然后去理解他这个非语言表达，给予回馈，让孩子，愿意主动的这样去建立沟通的一个互动的过程，然后再来就家长再给予比较偏向于孩子为主导，对以孩子为主导，以他来主导整个活动这种方式沟通的这种，然后家长很自然的是沟通的疑惑，意思是，就是我想要知道接下来的情况，然后我可能真的不懂，就是我们沟通伙伴是的。

那种就是你刚刚说一的只好奇对，因为我们不太对孩子生活保持好奇，觉得他也没什么事情，所以其实对他所表达的东西，其实你刚才接还讲到另外一个，我接纳除了接触孩子以外，刚刚还讲到另外一个接纳，接纳它的表达方式是对，是他的表达方式，就是不同的方式的表达，我们有口语的，没有口语的，有声音的好，然后我们不能去，于说我要要求没有口语的小朋友，现在你较要用口语给我个，但是其实当家长调整接受到我接纳小朋友，他就我觉得他。

他现在就是用声音沟通，那也没关系，我们也很顺畅的沟通，那么在这个地方就是家长要去等待，很重要，因为等待以后要及时的给予孩子回，怎么让家长学会等待，怎么让家长等待，因为很多人都等不及他长，他等不来，我有几个策略，一个策略就是沙盘课里面，因为沙盘我会在进沙盘之前会，给家长一个约定，就是邀请您一起进来，但是你是旁观者，你不能有任何的干预，因为家长已经习惯性的去干预小朋友的所有的事情，因为他想要就我们自己也是一样。

FIGURE 9 Verbatim transcript coding interface

All verbatim transcripts were analyzed in this manner to explore the elements and characteristics of parent-child communication abilities among parents of children with autism. In the figure above, the coded information was highlighted in red. When a specific information point was selected for coding, it was highlighted in red. The researcher initially extracted the 'importance of elements' from the interview content and found unanimous acknowledgment of the importance of the four elements among the interviewees. Thus, the interview information was coded and categorized based on this framework.

To ensure the reliability of the study, the researcher and two research assistants jointly coded the verbatim transcripts according to the principles discussed in the second step. The coded thematic keywords were then placed within the framework of the four major elements derived from the literature. To capture any new information, if any aspect of parent-child communication abilities in children with autism mentioned in the transcripts went beyond the content coded under the four elements, it was categorized under the 'Other' framework.

Fourth step, organized the elements and characteristics of parent-child communication abilities in autistic children 'parents.

After completed the coding of verbatim transcripts and organized the codes, a total of 37 details were identified, involving 183 reference points.

1.3 Developing an Assessment Form

Through literature analysis and expert interviews, it was discovered that some elements of parent-child communication abilities in autistic children 'parents overlap, while others differ. The researcher, along with research assistants, analyzed and discussed the content following the principles outlined below:

1) For identical details, the details were directly selected, such as waiting, observing, accepting, imitating, and so on.

2) For similar details, a reasonable and professionally understandable term was chosen. For example, both "balancing dialogue power in communication" from the literature analysis and "equality" from the expert interviews refer to the psychological,

attitudinal, and behavioral aspects of parents maintaining the same treatment and status as their children during communication interactions. That is, parents have a certain level of leadership in communication, while children also have a certain level of leadership. Therefore, both terms were used as one of the details for this element, labeled as "equality."

3) For different details, after everyone reread the specific content, decisions were made based on experience to retain or delete them. If a detail was rarely applied in teaching practice, it was deleted. For the retained details, a reasonable, professionally understandable, operationally feasible term that aligned with the original meaning of the detail was chosen. For example, in the literature analysis, a document mentioned the detail "face-to-face eye contact with children" under the element of eliciting children's communication motivation. After discussion with the research assistants, it was concluded that face-to-face eye contact might create social pressure for children with autism, potentially causing them to avoid social interactions. Additionally, this detail was not mentioned in other literature or expert interviews, so it was deleted. Another example is from the expert interview results, where four experts pointed to the detail "breaking the routine," which was not mentioned in the literature. After discussion with the research assistant, it was deemed important for eliciting children's proactive communication abilities, so it was retained.

4) For details that appeared in different elements, they were categorized into the most representative element based on frequency and discussion with the research assistants. For instance, the detail "observation" appeared in both the element "Eliciting communication behaviors in children" and "Understand the communication information expressed by the child." However, it appeared three times in "Eliciting communication behaviors in children" and fifteen times in "Understand the communication information expressed by the child." After discussion, it was decided that although both elements required this ability, the element "Understand the communication information expressed by the child" had a higher demand for observational abilities, so it was included there.

5) For some controversial details, a vote was conducted to decide whether to retain or discard them. For example, for the detail "having no purpose" under the element "Constructing a good communication environment," one research assistant felt it should be retained, believing that parents should simply play with their children without any purpose during communication interactions. However, the researcher and another research assistant believed that while playing without a purpose was suitable in the early phases of relationship building, as the relationship became more stable and mutual understanding deepened, there should be a purpose, such as enhancing the child's communication abilities or promoting language skills. Therefore, in the early phases, parents need to cultivate the ability to play with their children without a purpose. As parents' communication abilities improve, they also need to engage with their children with a certain purpose. The decision for this detail was to retain it with remarks and explanations.

Following the principles above, the details involved in each element of parent-child communication abilities in children with autism were organized.

However, a challenge arises as some of these details were too general, lacking operational clarity, making assessment inconvenient. Therefore, the researcher and research assistants engaged in discussions, reviewed interview transcripts, consulted literature, and reexamined the essence of these elements. They proceeded to analyze the specific details, outline their meanings, and transform them into behaviorally measurable objectives for convenient assessment.

Based on the principles discussed above, the various elements involved in parent-child communication abilities in parents of children with autism were identified, edited for assessment, and scored on a scale of 0-4. The scoring criteria were primarily based on the frequency of target behaviors observed. For instance, if parents consistently maintain a positive communication attitude and utilize relevant strategies most of the time, they would score 4 points. In contrast, if parents struggle to maintain a positive communication attitude and rarely use relevant strategies, they would score 0

points. Scores of 1, 2, and 3 are assigned for other situations. The complete assessment form and assessment criteria can be found in the course appendix.

1.4 Review the Assessment Form

Distributed the Parent-Child Communication Abilities Assessment Form for Parents of Children with Autism to 5 experts. Assess the elements and characteristics of parent-child communication abilities in children with autism, and evaluated the effectiveness of behavioral objectives by considering consistency (objective consistency index: IOC), and adjust based on expert advice. Detailed information of experts can be found in the appendix 5.

The IOC uses scoring methods of +1, 0, and -1. A score of +1 indicates alignment with the operational definition being measured. A score of 0 suggests uncertainty about alignment with the operational definition. A score of -1 indicates non-alignment with the operational definition. The formula for calculating the IOC index is as follows:

$$IOC = \frac{\sum R}{N}$$

IOC: Objective Consistency means Index of Item

$\sum R$: Summation of expert's opinion marks

N: Number of experts

An IOC greater than 0.5 indicates that the project effectively reflects the operational definition being measured, specifically the parent-child communication abilities of children with autism.

Among the five experts, four specialize in the rehabilitation of children with autism, particularly in language communication, and all have over 10 years of relevant work experience, and are responsible for teaching management in their respective units. Another expert is an evaluator who understands the counseling and training work for children and parents with autism.

The results of expert evaluation can be found in Appendix 6. The researcher entered the evaluation form reviewed by experts into Questionnaire Star, an online tool for filling out questionnaires, and distributed it among parents of autistic children in Chongqing. Parents were invited to complete it on a small scale. Finally, 43 completed evaluation forms were collected. The data was then input into statistical analysis software. The Cronbach's α coefficient was calculated to be 0.944, indicating high reliability of the evaluation form. The Kaiser-Meyer-Olkin (KMO) coefficient was 0.650, indicating high validity. Detailed information can be found in Appendix 7.

Phase II: Basic Information Study of Curriculum Design

The purpose of this phase was to analyze relevant data and organize the essential needed to develop the curriculum. This phase encompassed three steps: literature research, interviewing experts, and interviewing parents of autistic children. The relevant content was introduced as follows.

2.1 Literature Research

The researcher conducted literature searches on databases including CNKI, Web of Science, and ERIC using Chinese keywords such as autism (spectrum disorders), autism, Asperger, pervasive developmental disorders + children + parents, and English keywords such as ASD, autistic, autism, Asperger syndrome, Pervasive Developmental Disorder + children + parents. The gathered literature was subsequently comprehensively analyzed. Through literature analysis, the researcher collected basic information on curriculum objectives, curriculum content, learning activities, learning resources, and curriculum evaluations.

2.2 Interviewing Experts

2.2.1 Basic Information of Interviewees

Organized experts who have experience in language therapy for children with autism to interview, to understand parent's needs for the curriculum.

The experts were selected based on the following criteria:

Background in professional study or training in speech and language therapy.

At least 15 years of experience in clinical rehabilitation, specifically in speech therapy for children with autism.

Over 10 years of experience in training or mentoring parents of children with autism.

Willingness to voluntarily participate in the study and provide insights.

Some experts overlapped with those interviewed about parent-child communication abilities in children with autism.

In selecting interviewees, the researcher ultimately identified five highly experienced experts using clear criteria and various channels, including recommendations and self-nominations. These experts each have over 20 years of practical experience in the education and rehabilitation of children with autism and more than 15 years of experience in consulting, guiding, and training their parents. They all hold managerial positions closely related to teaching in their respective centers, reflecting their professional status and influence in the field. To ensure the breadth and diversity of data collection, the researcher carefully considered regional and professional background differences when selecting interviewees. This approach ensured a comprehensive and in-depth exploration of issues related to the education and rehabilitation of children with autism. Detailed background information on the experts was provided in Appendix 8 for further reference.

2.2.2. Interview Instruments

Outline of Interview Requirements for the Communicating Partner Curriculum (Professional) was the Interview instruments in this step.

The semi-structured interview outline was crafted by the researcher to align with the curriculum's elements. It comprises two primary sections: basic information and interview topics. The basic information segment aims to gather essential data about the interviewee, particularly focusing on their pertinent experience in communication rehabilitation for children with autism and parent training and counseling. The interview topics section aims to understand the professionals' views on parents' learning needs in the communicating partner curriculum. It covers the status of

the hopes for improving parent-child communication abilities, as well as the content, methods, scheduling, and evaluation methods of the curriculum.

The Outline of Interview Requirements for the Communicating Partner Curriculum (Professional) was sent to five experts. Among these experts, four specialize in the field of rehabilitation for children with autism, particularly around language communication rehabilitation, boasting over 10 years of relevant experience. Additionally, each of them holds responsibilities in teaching and management within their respective center. The fifth expert specializes in assessment and is well-versed in counseling and training for both children with autism and their parents. Detailed information of experts can be found in the appendix 9. The experts provided the following suggestions for revising the interview outline:

① Removed some questions that are not directly related to the main theme, such as 'Do you think parent-child communication abilities can be improved through training?' The reason for this was that improving parent-child communication abilities through training was a consensus among experts and did not need to be explicitly asked.

② Clarified certain questions. For example, a question in the initial draft was "What do you think are the specific goals of the training curriculum?" The experts suggested modifying this question to "In which areas do you think parents need to enhance their abilities?" to gain a clearer understanding of the current issues faced by parents.

③ Made adjustments to the format and wording of certain questions.

TABLE 8 Structure of outline of interview requirements for the communicating partner curriculum

Components	Interview Content
Basic Information of the Interview	Interview time, location, interviewee, and identification number
Purpose of the Interview	
Basic Information of the Interviewee	Gender, age, relevant work experience
Interview Outline	Introduction, interview dialogue (8 open-ended questions), closing remarks

Detailed interview outline can be found in the appendix 10.

2.2.3 Collect Interview Data

The researcher collected interview data, with each session lasting approximately 60 minutes. Each expert participated in a single interview. For local experts, face-to-face interviews were conducted, while remote experts were interviewed using a virtual meeting platform. The procedure is outlined below.

1. The Graduate School contacted, and interviews meticulously arranged to accommodate the schedules and preferences of the interviewees. Srinakharinwirot University taken responsibility for issuing formal invitation letters and diligently preparing interview questions to facilitate a seamless process and gather valuable insights.

2. In-depth interviews were conducted following an interview outline, utilizing a semi-structured format. These interviews were scheduled at mutually agreed-upon dates, times, and locations. Data was collected from at least 10 participants, continuing until data saturation was achieved (i.e., no new information was obtained).

3. Interviews were conducted with the experts' consent. If an expert did not consent to audio recording, important information was documented manually.

4. The reliability of the collected data was verified.

Establishing a strong relationship based on mutual trust between researchers and interviewees significantly enhances the accuracy and authenticity of the collected information.

To ensure the precision of the data gathered, interview results should be meticulously recorded. Any ambiguous areas should be addressed by reaching out to the interviewee for clarification and confirmation of the information's accuracy and authenticity.

2.2.4 Analyze Data

Initially, the interview data was transcribed into verbatim transcripts. The researcher imported the interview recordings into a computer and used a Speech-to-Text tool for transcription. After this initial transcription, research assistants cross-referenced the verbatim transcripts with the audio recordings to ensure accuracy. Subsequently, the researcher and assistants reviewed the transcripts together, categorizing the content based on the curriculum's constituent elements and extracting keywords to aid in curriculum development.

TABLE 9 Record of expert interview results for "communicating partner curriculum" curriculum requirements

Frame	Key points analysis	Summary of the interview
Curriculum objectives		
Curriculum Contents		
Curriculum Implementation		
Curriculum Resources		
Curriculum Evaluation		
other		

2.3 Interviewing Parents

2.3.1 Basic Information of Interviewees

Recommended by the head of a rehabilitation center for autistic children, the researcher randomly selected parents of autistic children aged 2-8 from the Chongqing Autism Rehabilitation center, contacted them, obtained their consent, and interviewed them to understand their curriculum needs. The parents were selected based on the following criteria:

- Their child was diagnosed with autism;
 - The child's age is between 2-8 years old;
 - The child receives rehabilitation or educational training at an autistic children's center in Chongqing;
 - Voluntarily accept interviews and contribute one's own wisdom.
- A total of 8 eligible parents of children with autism were interviewed.

2.3.2. Interview Instruments

Outline of Interview Requirements for the Communicating Partner Curriculum (Parents) was the Interview instruments in this step.

The semi-structured interview outline was devised by the researcher in accordance with the curriculum elements. It comprises two main sections: Basic Information and Interview Topics. The Basic Information section serves to gather fundamental data from the interviewees, emphasizing their relationship with the child, educational background, relevant training experiences, and the child's language abilities.

The Interview Topics section aims to understand parents' needs in curriculum learning, covering the current state of communication with the child, existing issues, and their hopes for improving their parent-child communication abilities. Additionally, it explores parents' requirements for curriculum learning methods, study time arrangements, and other related aspects.

The outline of Interview Requirements for the Communicating Partner Curriculum (Parents) was sent to five experts for review. After collecting their opinions, the outline of Interview Requirements for the Communicating Partner Curriculum

(Parents) was finalized. These five experts were consistent with the experts who reviewed the outline of Interview Requirements for the Communicating Partner Curriculum (Professional). Detailed information of experts can be found in the appendix 9. The experts provided the following suggestions for revising the interview outline:

1). Eliminated some questions that were not closely related to the main theme, such as "Do you think training can improve your parent-child communicating abilities?" The reason was that parents who choose to participate in the training already assume that training can enhance their parent-child communicating abilities.

2). Made certain questions more explicit. For example, one question in the initial draft was "Do you feel it is necessary to improve your communication abilities with your child? Why?" The experts suggested modifying this question to "Please talk about the issues you face when communicating with your child," which could provide clearer insights into the problems parents were experiencing at the time.

3). Modified certain formatting and wording issues.

Detailed interview outline can be found in the appendix 11.

2.3.3 Collect Interview Data

The researcher collected interview data, with each session lasting about 60 minutes. Each expert participated in a single interview, totaling 8 interviews. All parents conduct face-to-face interviews. The procedure was as follows.

1)According to the interview protocol, thorough semi-structured discussions conducted with parents at scheduled dates, times, and locations. The aim was to gather comprehensive and insightful research data from a minimum of 5 parents. Throughout the interviews, careful attention paid to data saturation, with interviews concluding once no new information emerges.

2) Explicit consent from parents obtained prior to commencing interviews. In cases where parents decline audio recording, meticulous traditional note-taking methods employed to ensure the integrity and accuracy of recorded information and viewpoints.

3) To guarantee the reliability and validity of the collected data, the researcher established a robust relationship founded on mutual trust with interviewees. This trust was essential for enhancing the accuracy and authenticity of the gathered insights. All crucial details diligently documented during interviews, and ongoing communication with interviewees maintained as necessary to verify and validate information accuracy. Any uncertainties or ambiguities resolved through follow-up interactions with the interviewees.

2.3.4 Analyze Data

Initially, the interview data was transcribed into verbatim transcripts. The researcher imported the interview recordings into a computer and used a Speech-to-Text tool for transcription. After this initial transcription, the research assistants cross-referenced the verbatim transcripts with the audio recordings to ensure accuracy. Subsequently, the researcher and assistants reviewed the transcripts together, categorizing the content based on the curriculum's constituent elements and extracting keywords to aid in curriculum development.

Phase III: Curriculum Development

The primary objective of this research phase was to develop communicating partner curriculum. This phase encompassed three steps: Design curriculum draft, Expert review curriculum, Pilot study. The relevant content was introduced as follows.

3.1 Design Curriculum Draft

Analyzed and synthesized the information using the data obtained in Phase II, combined with researcher's relevant experience. Developed a communicating partner curriculum draft through the following steps.

3.1.1 Identify the Elements Included in The Curriculum

The purpose of Communicating Partner Curriculum was to improve the parent-child communication abilities of participants. Its purpose was very clear. The curriculum was mainly designed using the goal-oriented curriculum development model. So, the curriculum mainly included curriculum theory, curriculum principles, curriculum objectives, curriculum contents, curriculum learning activities, curriculum resources and curriculum evaluation. Among them:

- 1) Foreword: Introduces curriculum structure and precautions for trainers.
- 2) Theoretical Foundation: Introduces the theories of developing curriculum.
- 3) Curriculum Principles: Introduces the basic principles of using curriculum.
- 4) Curriculum Objectives: Introduces the abilities that parents need to possess through curriculum learning.
- 6) Curriculum Content: Consists of learning units, objectives, and other content. Specifically for each learning unit, content, and learning time.
- 7) Learning activities: a learning process aims at enhancing the communication abilities between parents and children of children with autism.
- 8) Curriculum resources: refer to the resources required to achieve curriculum objectives and complete learning activities.
- 9) Curriculum evaluation: the tools and method developed to evaluate whether the curriculum objectives have been achieved.

3.1.2 Develop Curriculum Draft

Developed a curriculum framework utilizing the curriculum elements and finalized the curriculum draft by integrating the gathered information with the researcher's expertise. The researcher selected several important contents for explanation.

Designed the Principles of Communicating Partner Curriculum
The researcher designed the principles of communicating partner curriculum as follows:

1) According to Transformative Learning Theory, adults need to continually reflect on past experiences to better establish new ones. This principle was integrated based on the theoretical foundations and essence of relevant concepts studied, as well as the data collected during curriculum analysis. 2) Based on the need for parents to master communication strategies applicable in practice, the operational principles of the curriculum were designed to enable parents to apply learned knowledge to solve practical problems. 3) The curriculum integrates teaching methods from Transformative Learning Theory and parent training, fostering an environment where parents with shared experiences can collaborate and advance collectively. The principle of cooperative learning has been incorporated to sustain a long-term learning community. 4) Reflecting the goal-oriented nature of the curriculum and the characteristics of parental learning, a principle for generating curriculum objectives was designed. This ensures that every participating parent can benefit while achieving the established curriculum objectives. 5) Considering differences in learning situations among parents of children with autism, a principle of flexible curriculum adjustment was designed. This management principle facilitates greater parental participation in the curriculum learning process.

Designed the Objectives of Communicating Partner Curriculum

Following the evaluation of parent-child communication abilities in autistic children, along with insights gleaned from expert and parent interviews, seven curriculum objectives were identified.

Designed the Contents of Communicating Partner Curriculum

The researcher designed the curriculum objectives based on the theoretical foundations and essential concepts studied, as well as the data collected during curriculum analysis. Firstly, based on the three basic competency frameworks of awareness, knowledge, and abilities related to communicating partner, three learning modules were identified, namely: understanding communicating partner; communicating partner strategies; Application of communicating partner strategies. The first learning module is used to adjust parents' communication concepts and establish

awareness of communicating partner; The second module is used to help parents master knowledge about communicating partner strategies; The third module is used to help parents transform this knowledge into communication abilities for daily life and interaction with their children. In the first module, establish awareness of communicating partner, including informing parents of the concept of communication, expanding their thinking on communication barriers, and establishing the concept of communicating partner with parents. In the second module, the four elements of Transactional model of communication were used to integrate several strategies of communicating partner and establish a systematic knowledge framework for parents. In the third module, a parent training approach is established by evaluating, setting goals, devising plans, and designing intervention activities. This curriculum integrates communicating partner strategies aimed at transforming skills in daily life.

Designed the Implementation of Communicating Partner Curriculum

The curriculum implementation methods are designed based on the characteristics of Transformative Learning Theory and a goal-oriented approach. Each lesson's implementation process includes several phases: introduction of teaching, teaching implementation, teaching summary, consolidation, and application. Within the implementation phase, the three elements of reflective teaching—stimulation, reflection, and reconstruction—are integrated into the consolidation and application phases.

Designed the Resources of Communicating Partner Curriculum

The researcher designed the curriculum resources according to the needs of parents for more visual prompts during training, and the fact that most parents pay attention to their children's learning characteristics. Designed graphic and textual PPTs, various visual and immitigable tables, and many videos of parents and children participating in the curriculum learning resources.

Designed the Evaluation Methods of Communicating Partner Curriculum

The researcher designed curriculum evaluation methods based on the principle of reflective curriculum, parents were designed to conduct self-evaluation before and after the curriculum, using an evaluation form to help them better understand

their strengths and weaknesses. At the same time, based on the learning characteristic of parents needing a large amount of feedback to better adjust their communication behavior, designed evaluation methods such as classroom Q&A, after-school exercises, and video guidance, so that parents can receive more targeted guidance.

3.2 Expert Review Curriculum

3.2.1 Basic Information of Experts

The first draft of the communicating partner curriculum, along with the curriculum consistency evaluation form and the curriculum rationality evaluation form, was sent to five experts. They were asked to review the curriculum and provide suggestions for modifications. The criteria for selecting these experts are outlined in appendix 12.

Detailed information of experts can be found in the appendix 13.

3.2.2 Instrument of Expert Review Curriculum

The researcher used the Curriculum Consistency Check Form and Curriculum Appropriately Check Form to assess the consistency and appropriately, and through open conversations, understood expert suggestions for curriculum modifications.

1) Curriculum consistency check form

The curriculum consistency check form is mainly used to check whether the various elements of the curriculum are consistent, such as whether the curriculum principles and curriculum objectives are consistent, whether the curriculum content and learning activities are consistent, etc. There are a total of 10 questions. The complete form is in the appendix 14.

The scoring criteria of the curriculum consistency check form are +1, 0, and -1. Among them, +1 represents high consistency between the two curriculum elements, 0 represents uncertainty about whether the two curriculum elements are consistent, and -1 represents inconsistency between the two curriculum elements. The formula for calculating the objective consistency index (IOC) index is as follows:

$$IOC = \frac{\sum R}{N}$$

IOC: Objective Consistency means Index of Item

$\sum R$: Summation of expert's opinion marks

N: Number of experts

If the IOC exceeds 0.5, it signifies that the elements of the curriculum demonstrate internal consistency.

2) Curriculum Appropriately check form

Curriculum Appropriately check form is mainly used to check whether the curriculum elements are suitable. It consists of 6 major items and 18 questions. Taking curriculum principles as an example, it included three questions: Reasonable, Theoretical concepts used to support and lead to practice. The complete form is in the appendix 15. The scoring criteria of the curriculum appropriately check form are 5,4,3,2,1. The scores for appropriately level of each statement are shown below.

TABLE 10 Appropriately level scores definitions

Score Levels	Score definitions
5	Extremely Appropriate
4	Moderately Appropriate
3	Neither Appropriate nor Inappropriate
2	Moderately Inappropriate
1	Extremely Inappropriate

Calculated the average value based on the ratings of 5 experts. Compared the average to the criteria in the table below to determine the appropriately of the curriculum.

TABLE 11 Interpretation of appropriately level Definitions

Mean scores	The Appropriately level
4.51 – 5.00	Very high level
3.51 – 4.50	High level
2.51 – 3.50	Moderate level
1.51 – 2.50	Low level
1.00 – 1.50	Very low level

If the average score for appropriateness exceeds 3.5, it indicates that the developed curriculum is highly appropriate.

3.2.3 Collect Data

The researcher sent the electronic files of the complete curriculum draft, Curriculum Consistency Check Form, and Curriculum Appropriateness Check Form to the experts via email or social software such as QQ or WeChat. After the experts reviewed the materials within one week, they sent back the two check forms. Upon receiving the forms, the researcher contacted the experts by phone to collect their recommendations on the curriculum. The procedure was as follows.

1). According to the protocol, a list of experts was compiled through recommendations from friends and direct contact by the researcher. The experts were then approached to seek their consent to participate in the research.

2) The Graduate School contacted to arrange the interview according to the expert's schedule and preferences. Srinakharinwirot University issued a formal invitation letter for the researcher to conduct the interview using designated questions.

3) Explicit consented from the expert obtained before the interview commences. If the expert declines recording, the researcher used traditional pen and paper to meticulously record important details and opinions to ensure the interview's completeness and accuracy.

4) Stringent checks applied to ensure the reliability, quality, and accuracy of the collected data. After sending the curriculum materials, the researcher provided her phone number to the experts. This allowed them to contact her at any time if they encountered issues during the review process.

3.2.4 Analyze Data

The researcher inputted the collected assessment scores into statistical analysis software for summarization and calculated the average value.

Experts' suggestions for curriculum were classified and organized according to the elements of the curriculum.

3.3 Pilot Study

The curriculum was revised based on expert suggestions, and a pilot study was conducted. The pilot study lasted 3 hours, focusing on Unit 1, Module 1.

3.3.1 Basic Information of Participants in Pilot Study

The researcher adopted a recruitment method and recruited three parents of autistic children to participate in the pilot study. To collect more data, the researcher invited the research assistants to join them.

The parents were selected based on the following criteria:

- Their child was diagnosed with autism;
- The child's age is between 2-8 years old;
- The child receives rehabilitation or educational training at an autistic children's center in Chongqing;

Voluntarily accept interviews and contribute one's own wisdom.

Three mothers participated in the pilot study. Please see the appendix 16 for specific participant information.

3.3.2. Instruments of Pilot Study

After the curriculum, the researcher communicated with parents and the research assistants on issues related to curriculum learning to collect their suggestions for the curriculum. This was an open discussion with no special research instruments. The researcher recorded the curriculum modification suggestions made by the participants of the pilot study.

3.3.3 Collect Data

The researcher contacted a rehabilitation center for autistic children in Chongqing and recruited volunteers to participate in the pilot study through the institution's director. The specific data collection process was as follows.

- 1) Parents participated in the curriculum in the morning.
- 2) In the afternoon, parents and the research assistants who participated in the curriculum were invited to participate in a discussion to understand their suggestions for the curriculum.

3.3.4 Analyze Data

Participants' suggestions for curriculum were classified and organized according to the elements of the curriculum.

Phase IV: Curriculum Implementation

After piloting the curriculum and revising and improving it, the researcher implemented an experimental study of the curriculum for a total of ten weeks. This was an experimental study and the relevant information was below.

4.1 Basic Information for Parents Participating in Curriculum

4.1.1 Population

Parents of autistic children aged 2-8 years old in Chongqing, China. Their children were studying in rehabilitation center for children with autism. Ability to communicate orally, basic literacy abilities, the family's first language was mandarin or Chongqing dialect (a local dialect), and they can use smart mobile devices. Parents did not receive other training curriculum during the intervention.

There were 105 rehabilitation centers for children with autism that had been evaluated and certified by the Chongqing Disabled Persons' Federation (Chongqing Disabled Persons' Federation, 2022).

4.1.2 Sample

Due to the need for in-depth exploration in qualitative research, the sample size is small, focusing on individuals or events that provide the most substantial information (Chen, 2000). To improve the effectiveness of the program and to facilitate

its later dissemination, a Purposive sample of rehabilitation centers was selected for this study that provided the greatest amount of information possible. The sample selected for this study was a university-based center. There were some purposes for choosing this center.

First, the representativeness of the sample was considered to ensure that the curriculum meets the needs of parents of autistic children in various situations. The selected centers' autistic children should exhibit diversity in terms of age, gender, language communication abilities, placement methods, teaching formats, and locations. Specific information is detailed in the following table:

TABLE 12 Basic information of the center

Sampling criteria	Basic information
Age of children with autism	2-15 years old
Number of children with autism	52
Communication abilities of children with autism	Low spoken language, use of vocabulary to express, use of simple sentences to express, good oral expression
Placement method	Special education institution, general school (including kindergarten) + special education institution, home education + special education institution
teaching format	Individual training class, group class, group class
Location	Non-busy area in the main city, close to nearby suburban counties. Children with autism come from the main city, but also from the suburban counties.

Second, for the purposes of the study, the center could provide the greatest amount of information among these centers in the population. The reasons for this were: (a) The center was one of the first centers to be rated AAA, possessing extensive teaching and research experience. (b) The center had been established for 30 years and had been engaged in the education and rehabilitation of children with autism for 25 years and speech therapy for children with autism for 15 years. (c) The teachers and

parents of the center had experience in research studies. (d) The researcher had experience working with the teachers and parents of the center on several occasions.

Parents of autistic children aged 2-8 years old were enrolled from the center, totaling 34. A recruitment notice was issued by the researcher, and 29 parents applied voluntarily. Seven subjects who did not meet the study requirements were excluded after interviews. Additionally, due to the time elapsed between soliciting volunteers and implementing the curriculum, some parents originally planning to participate had their children graduate from the research center or move to other centers.

At the same time, during the curriculum demand survey, some experts suggested that to ensure the effectiveness of parent learning, especially after-school guidance, there should not be too many research subjects. Therefore, no new subjects were recruited. In the end, a total of 15 parents participated in the curriculum. The process for selecting participants is as follows.

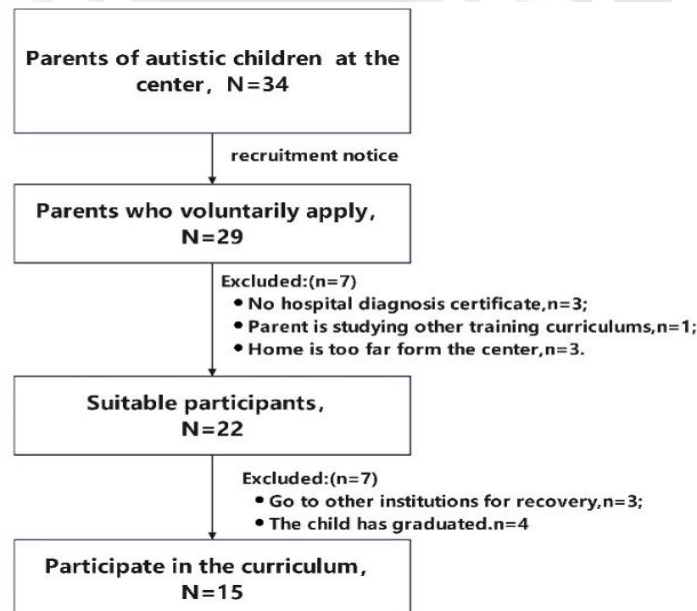


FIGURE 10 Selecting participants

Participants in the study were recruited based on the following inclusion criteria:

- (a) child was between the ages of 2 and 8;
 - (b) participating parent was the primary caregiver of the child, only one parent per family participated;
 - (c) child was previously diagnosed with autism;
 - (d) Parents' willingness to participate in the curriculum,
- and
- (e) Parents who feel they have communication problems with their children.

Excluded parents:

- (a) No oral communication abilities, such as deaf,
- (b) No basic literacy abilities,
- (c) Does not use smart mobile devices.
- (d) Other parent training curriculum were being taken during the intervention. and (e) Other reasons for family.

4.1.3 Ethical Considerations in Research

To ensure adherence to ethical standards, the researcher implemented the following measures:

1). Ethics Training

On May 25, 2023, the researcher completed an online training program on "Ethical Principles in Human Research" organized by the Institute for Strategic Wisdom and Research at Srinakharinwirot University. They successfully passed the Ethics Committee's assessment and received a certificate, allowing them to conduct human research until May 25, 2026.

2). Ethics Committee Approval

Following approval by the research team, the study protocol was submitted to the Institutional Review Board/Human Research Ethics Committee at Srinakharinwirot University for review, ensuring compliance with ethical research standards.

3). Volunteer Recruitment and Informed Consent

During the data collection phase, the researcher informed participants about the study's purpose, process, and confidentiality measures. Consent was obtained from the participants. Fifteen participants were ultimately recruited and informed of their right to withdraw from the study at any time and to request the deletion of their data without facing any consequences. See Appendix 17 for the Volunteer Recruitment Letter.

4). Confidentiality

Research results were reported in aggregate form without personal identifying information, ensuring that individual participants could not be traced. This maintained participant confidentiality. All original data was kept strictly confidential in accordance with ethical guidelines.

5). Fairness and Transparency

All participants engaged in curriculum learning and testing under equal conditions and were fully informed about the study's purpose, process, and results. By implementing these measures, the study ensured the protection and well-being of participating parents and upheld high ethical standards.

4.2 Research Instruments

To verify the effectiveness of the Communicating Partner curriculum, two main research instruments were utilized. One involved the development and adjustment of the curriculum, incorporating various curriculum resources, with parental involvement throughout the study. The other instrument was the Parent-Child Communication Abilities Assessment Form for Parents of Children with Autism, previously detailed in terms of its development process and verification of reliability and validity. This form was used to assess changes in parent-child communication abilities before and after participation in the curriculum. Additionally, researchers used WeChat to consult and guide parents' post-class to understand their progress after each session, which also served as a research tool.

4.3 Collect Data

The experiment took place every Saturday morning from 9:00 to 12:00 in the professional classroom of the Department of Special Education at Chongqing Normal University. The specific data collection process was as follows.

1) Parents were guided to complete the Parent-Child Communication Abilities Assessment Form for Parents of Children with Autism before starting the curriculum.

2) Parents participated in the ten-week program. During this period, two parents each took leave once for personal reasons, and one parent took leave twice for personal reasons. The researcher explained the missed content to them through WeChat after class, highlighting the key points of this part of the study.

3) Parents were instructed to complete the questions in the Parent-Child Communication abilities Assessment Form for Parents of Children with Autism after participating in the curriculum.

4) The researcher reviewed parents' chat records on WeChat, class notes, and videos submitted by parents, and compiled data reflecting parents' learning effects according to the elements of the curriculum.

4.4 Analyze Data

Inputted the pre-test and post-test scores of the participants into statistical analysis software. Calculated the average score and standard deviation of the pre-test and post-test, respectively, before and after the implementation of the curriculum. The researcher guided parents to evaluate the parent-child communication abilities of themselves and their children during interactions. Data analysis was conducted on the evaluation results, comparing the mean, standard deviation, and median. Additionally, a significance test was conducted on the pre- and post-test data.

To assess the significance of parents' progress, the data underwent a paired samples t-test. This test is applicable for evaluating differences before and after the intervention in small sample data. The significance level was .05. That was, if the P value of pre- and post-test was less than 0.05, then the parents' parent-child communication abilities was significant before and after the curriculum.

Data reflecting participant changed and abilities were classified and organized according to the elements of the curriculum.

Phase V: Curriculum Evaluation and Revision

To gather learners' perspectives on the curriculum and improve its revisions, the researcher distributed a communicating partner curriculum evaluation form to parents after the curriculum concluded. The form consists of sections for rating each curriculum element and an open-ended section for collecting parental feedback.

5.1 Basic Information for Curriculum Evaluation

All parents who participated in the curriculum participated in evaluating the curriculum.

5.2 Research Instruments

This evaluation form requires parents to rate the curriculum learning based on their own feelings, The evaluation form is mainly used to understand the satisfaction level of parents with the curriculum, including seven questions such as satisfaction with Curriculum objectives and Curriculum content. The evaluation form also includes open-ended questions inviting parents to provide their suggestions for the curriculum. Please refer to the appendix18 for a detailed table.

The scoring method of the evaluation form is 1-5 points. The satisfaction level represented by it is shown in the table below, and a total score of 35 points

TABLE 13 Satisfaction level scores

The Satisfaction level	Scale value (points)
Very satisfied	5
satisfaction	4
commonly	3
dissatisfied	2
Very dissatisfied	1

Calculate the average value based on the ratings of 15 parents. Compared the average to the Criteria in the table below to determine the satisfaction of the curriculum.

TABLE 14 Interpretation of satisfaction level

Mean scores	The Appropriately level
4.51 – 5.00	Very satisfied
3.51 – 4.50	satisfaction
2.51 – 3.50	commonly
1.51 – 2.50	dissatisfied
1.00 – 1.50	Very dissatisfied

If the average score of the appropriately check was greater than 3.5, The total average score of the seven questions was greater than 24.5. it means that the developed curriculum had high appropriately.

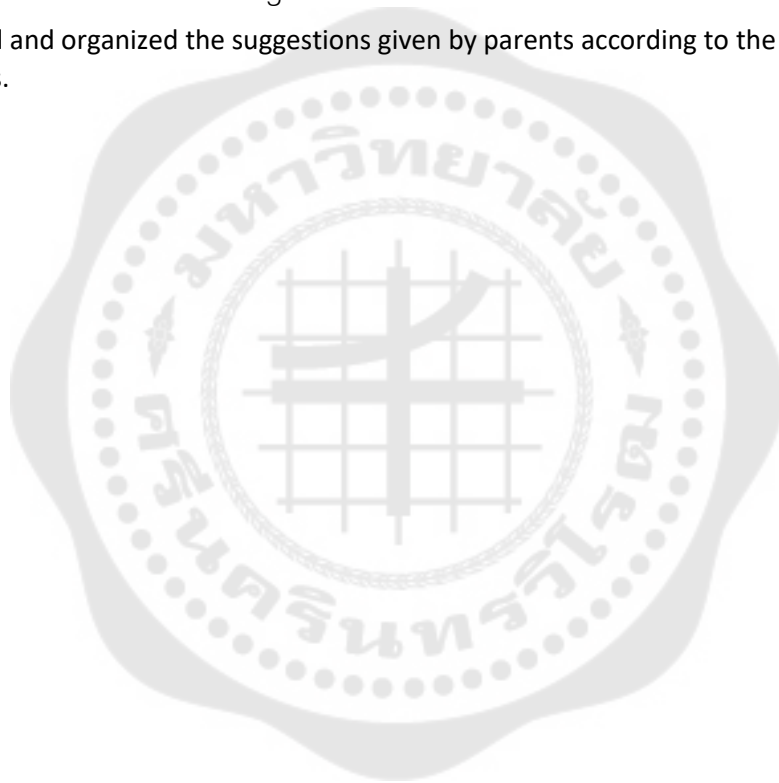
5.3 Collect Data

After the curriculum, the researcher distributed assessment forms to parents and invited them to fill out the forms based on their own feelings. And encouraged them to provide suggestions for the curriculum as much as possible in addition to scoring.

5.4 Analyze Data

Inputted the scores of the participants into statistical analysis software for analysis, and obtain the average score and standard deviation.

Classified and organized the suggestions given by parents according to the curriculum elements.



CHAPTER 4

RESEARCH RESULTS

In alignment with the research objectives, this chapter predominantly unfolds and scrutinizes the results pertaining to the elements and attributes of parent-child communication abilities exhibited by parents of autistic children. Additionally, it delves into the outcomes of the design, development, and implementation of the Communicating Partner curriculum. The key components encompassed in this chapter include the following details.

Phase I: Results of the Elements and Characteristics of Parent-Child Communication Abilities of Autistic Children

1.1 Literature Study Results on Parent-Child Communication Abilities in Parents of Children with Autism

1.2 Results of Interviews with Professionals On Parent-Child Communication Abilities of Children with Autism

1.3 Results of Integration of Literature Analysis and Expert Interviews

1.4 Results of Formation of Parent-Child Communication Abilities Assessment Form for Autistic Children

Phase II: Results of Basic Information Study of Curriculum Design

2.1 Literature Research Results on Curriculum Needs for Parents of Autistic Children

2.2 Professional Interview Research Results on Communicating partner Curriculum Needs

2.3 Curriculum Needs Parent Interview Research Results

2.4 Summary

Phase III: Results of Curriculum Development

3.1 Drafting the Initial Version of the Communicating Partner Curriculum

3.2 Results of Experts Reviewed Curriculum

3.3 Results of Curriculum Pilot Study

Phase IV: Results of Curriculum Implementation

4.1 Pre-and Post-Test Changes in Parent-Child Communication Abilities

4.2 Qualitative Data Analysis of Curriculum Experiments

Phase V Results of Curriculum Evaluation and Revision

5.1 Parents Show High Satisfaction with the Curriculum

5.2 Parents' Suggestions for the Curriculum

5.3 Social Effects of the Curriculum

5.4 Results of Adjustments to the curriculum after the curriculum experiment

Phase I: Results of the Elements and Characteristics of Parent-Child Communication

Abilities of Autistic Children's Parents

Through literature analysis and interviews with professionals in the field of education and rehabilitation for children with autism, the elements and characteristics of parent-child communication abilities among parents of autistic children were identified. The results were explained below.

1.1 Literature Review Results

1.1.1 Elements of Parent-Child Communication Abilities of Autistic Children's Parents

Due to differing views on the composition of communication abilities in existing research, the researcher employed content analysis of relevant literature. To effectively organize various elements, this study utilized the Transactional Model of Communication. Considering the characteristics of children with autism, it was posited that the parent-child communication abilities of parents of autistic children consist of the following elements.

Understanding Ability: In the Transactional Model of Communication, understanding ability refers to the information recipient receiving the information transmitted by the sender, decoding it in the brain, and then analyzing the decoded information based on their own experience and ability to understand the other party (Meng, 2010). This ability includes the capacity to express the desired meaning. Specifically, this refers to the ability of parents of autistic children to receive information

conveyed by their children through both verbal and non-verbal forms, decode it, and analyze the decoded information based on their own experience and abilities to understand the child's capacity to express meaning (Beukelman & Mirenda, 2020; Owen & David,2021). Because children with autism have difficulties with social communication, they may struggle to use spoken language fluently or accurately, making it challenging for others to understand their intended meaning (Ganz et al.,2022). Therefore, parents need to be more attentive in detecting and understanding the communication conveyed through non-verbal forms and comprehending the meaning behind their children's language.

Expressive Ability: In the Transactional Model of Communication, expressive ability refers to the information transmitter encoding their feelings, thoughts, etc., in the brain and choosing an appropriate method to transmit them based on the recipient's ability, experience, etc., so that the other party can understand their thoughts (Shrubsole et al.,2023). This specifically refers to the ability of parents of autistic children to encode their own feelings and thoughts and choose an appropriate method to convey these based on the child's abilities and experiences, enabling the child to understand their thoughts. Due to the social communication challenges faced by children with autism, they may struggle to accurately interpret spoken language and may miss non-verbal cues, leading to difficulties in understanding the information conveyed by others. Therefore, parents need to use special strategies, such as visual cues, to help their children understand what they are saying.

Ability to create a good communication environment: In the Transactional Model of Communication, the communication environment refers to the specific scene or background where information transfer occurs, including the physical environment, social environment, cultural background, channel selection, and other factors (Owen & David,2021; Sally et al., 2016). In a good communication environment, these elements cooperate to help accurately transmit and understand information, establishing a harmonious communication relationship. The ability to create a good communication environment refers to the capacity of parents of autistic children to

optimize the physical setting, psychological atmosphere, and communication channels based on the child's characteristics and communication abilities, ensuring that information is accurately transmitted and understood. Since children are in a weaker position in communication, parents should pay special attention to creating an environment of acceptance, equality, and respect so that their children can communicate better.

Ability to Elicit Communication Behaviors in Children: In the Transactional Model of Communication, the transmission of information is a process of back-and-forth exchange. The information transmitter sends information, and the information recipient receives it, understands it, and responds accordingly (Robert, 2020). At this point, the role of the information receiver changes to the information transmitter, who needs to pass on the response, while the original information transmitter's role changes to the information receiver. In this process, the roles of the two parties are constantly changing, allowing effective transmission of communication information. For children with autism, due to differences in communication intentions and abilities, they may be deficient in active communication, which affects the initiation and continuation of communication. Therefore, adults need to have the ability to induce their communication behaviors to help them communicate better.

1.1.2 The Characteristic of Parent-Child Communication Abilities in Parents of Children with Autism

Based on the literature analysis, the above four elements were summarized and organized to identify the characteristics of parent-child communication abilities in parents of autistic children. Initially, objectives with higher frequency were selected, and the remaining objectives were integrated and organized to derive the specific objectives of parent-child communication abilities in parents of autistic children. The results of the literature analysis are presented in the table below.

TABLE 15 Elements and characteristic of parent-child communication abilities in parents of autistic children

Elements	characteristic
Understanding ability	Observing the child (3), interpreting the child's behavior and emotions (1), understanding the meaning conveyed by the child (1).
Expressive ability	Adjusting communication style (3), using appropriate language (1), repetition (3), utilizing various forms of communication cues (9), structured activities (2), providing support (2), reducing cognitive load (1), clarifying abilities (1).
Constructing a good communication environment	Balancing rights in communication (5), accepting the child (5), self-acceptance (1), engaging in enjoyable play with the child during interactions (4), empathizing with the child's emotions and feelings (2), flexibility in adjustments (2), arranging communication environments (1).
Eliciting communication behaviors in children	Remaining sensitive to the child's communication behavior (8), responding to the child (15), imitating the child (5), following the child (5), enticing the child (2), pausing, and waiting (6), reinforcing the child's communication behavior (2), prompting (1), face-to-face eye contact (1).
Other	Enhancing children's language expression abilities (2), eliciting children's language abilities (1), expanding children's language (3), demonstrating language (4), assisting children in expression (2).

1.2 Results of Interviews with Experts on Parent-Child Communication Abilities of Children with Autism

Interviews were conducted with five experts in the field of communication rehabilitation for children with autism to validate, refine, and integrate the elements and characteristics of parent-child communication abilities for parents of children with autism. The panel consisted of five female experts, each with over 10 years of experience in educating children with autism and more than 9 years of expertise in counseling and training parents of these children.

1.2.1 Elements of Parent-Child Communication Abilities in Parents of Children with Autism

The experts agreed that analyzing the parent-child communication abilities of parents of autistic children through four elements was reasonable and feasible. This approach helped effectively integrate various characteristics.

I believe that the topic of parent-child communication abilities in parents of autistic children covers a wide range of content, and it is necessary to provide a unified framework for it. Different researchers may have varied perspectives, and it is possible to analyze these characteristics from the viewpoint of information transmission.”

(Interviewee 1)

“These four elements not only think about how information gets across but also consider what makes autistic children unique. I think it makes sense.”

(Interviewee 4)

Parents have given us feedback that if a child is more active, it's easier to guide them. So, I believe that encouraging communication behaviors is a crucial element”

(Interviewee 3)

Recognizing these elements, it was necessary to adjust some details. In communicating with autistic children, parents' main goal was to ensure that children understand what they are expressing. Therefore, the focus on expressive ability should be adjusted to helping children understand.

“The parental expressiveness should emphasize its primary purpose, which is to help children understand. This reminds parents to not only express themselves but also consider whether their children understand.”

(Interviewee 3)

“Some parents rarely consider whether their children are paying attention or understanding when they express themselves, or whether their children accept and comprehend the information. This needs to be emphasized.”

(Interviewee 2)

Merged the content in "other" into the element "understanding ability".

It seems illogical to list the other element separately, as if anything can be included in it. I believe the focus should be on improving children's language expression ability, which can be integrated into the element of understanding. As parents understand their children, they can also focus on enhancing their children's ability to express themselves.

(Interviewee 5)

Considered the communication process between parents and autistic children, as well as the special communication needs of autistic children, the order of the four elements could be adjusted to remind parents to prioritize certain elements.

“When parents communicate with autistic children, their mentality and the communication atmosphere created are very important. First, there should be a good communication atmosphere.”

(Interviewee 5)

“For children with autism, their active communication behavior is crucial. I believe parents should prioritize addressing issues in this area before focusing on understanding and expression.”

(Interviewee 1)

Based on experts' suggestions, the parent-child communication abilities of parents with autistic children include four elements: creating a conducive communication environment, encouraging communication behaviors in children, helping children understand communication information, and understanding the communication information expressed by the child.

1.2.2 The Characteristic of Parent-Child Communication Abilities in Parents of Children with Autism

The verbatim transcripts of interviews with the five experts were coded using a coding method. Keywords representing the characteristics of parent-child communication abilities in parents of autistic children were extracted and recorded for comparison with the results of literature research. The research results for each element were summarized below.

The main purpose of constructing a good communication environment, was to create an environment of equality, respect, and acceptance. It primarily includes characteristics such as providing a safe environment, following the child's lead, and interacting with the child. The specific contents were as follows.

TABLE 16 Characteristic of constructing a good communication environment

Characteristic	Examples
Providing a Safe Environment	<i>"Safety is very important. This safety is not only safety in the physical sense, but also safety in the psychological sense. Let the children know that they will be tolerated and accepted in this communication relationship, instead of being corrected and denied all the time."</i> (Interviewee 4)
Following child	<i>"I advise parents to prefer a child-led approach, with him taking charge of the entire activity and the communication methods used therein, and then the adult following the child."</i> (Interviewee 1)
Engaging with Child	<i>"There should be a reciprocal interaction with children, not just adults controlling the communication process."</i> (Interviewee 3)
Accepting Child	<i>"It's just that his conflict lies in whether he can accept his behavior."</i> (Interviewee1)
Reducing Environmental Distractions	<i>"Some children have poor concentration ability. If there are many distractions in the environment, it may affect their communication abilities. Parents should reduce some distractions in the environment."</i> (Interviewee2)
Without Purpose	<i>"In play therapy, we place a special emphasis on playing with children without purpose. This approach is especially crucial for fostering social communication abilities in children with autism. I would emphasize this to parents."</i> (Interviewee 5)
Equality	<i>"You just roll around on the ground, and he thinks you're a bit funny, and he might even look at you. Let go of adult posture, and become like a child, that's it, in fact, it is a key word called equality, this equality in attitude and mentality. I really rolled on the ground."</i> (Interviewee 4)
Empathizing with Child	<i>"There are differences in the sensory perception and cognitive abilities of autistic children from ordinary children. Their inappropriate communication methods, emotions and other problems may be affected by these differences. As parents, we should not only see the problems of children, but also understand the causes of the problems to better understand them"</i> (Interviewee 2)
Joyful	<i>"Of curriculum, parents should have fun playing with their children. This is the prerequisite for them to establish a good communication relationship."</i> (Interviewee 3)
Sincere	<i>Parents should be sincere when communicating with their children. Children will feel whether you are really responding to them and praising them.</i> (Interviewee 2)

The purpose of eliciting communication behaviors was to enable children with autism to develop more active communication behaviors and continue to maintain communication. It mainly includes features such as Breaking the Routine, waiting child, and Amplifying Communication Signals. The specific contents were as follows.

TABLE 17 Characteristic of eliciting communication behaviors in children

Characteristic	Examples
Breaking the Routine	<i>"You may have to give him some new experiences when creating situations, and you can't just follow the previous routine."</i> (Interviewee 1)
Waiting	<i>"There is more waiting before it is possible for him to initiate this communication."</i> (Interviewee 2)
Amplifying Communication Signals	<i>"If he has not taken the initiative to communicate, then you may have to amplify the part and element that may induce him to communicate."</i> (Interviewee4)
Responding	<i>"The more you respond, the more he will feel that his communication is useful. Therefore, parents should respond to their children when guiding active communication behavior. You must respond enough. The more adults respond, the more he will feel that his communication is useful. Behavior, his eyes, his expression, his non-verbal language, and his voice are all useful, and he will be more proactive and produce more. These are the things you need to respond to in a timely manner."</i> (Interviewee5)
Joining the Child	<i>"Naturally join his play style or activities and act as his little assistant. For example, if he is playing with a car, we can help him find the car and hand it to him."</i> (Interviewee5)
Exaggerating	<i>"Such as exaggerated movements and expressions are techniques that parents can directly use to attract children to actively communicate."</i> (Interviewee1)
Prolonging Communication Rounds	<i>"Two people can interact for many rounds, not just verbally, but also nonverbally."</i> (Interviewee2)
Flexibly Adjusting	<i>"Did he compromise, or did he make adjustments, or did the two people make mutual adjustments and reach a common decision?"</i> (Interviewee1)
Imitating	<i>"Sometimes, parents should imitate their children, imitating their movements or sounds to help attract children's attention and induce children's communication behaviors."</i> (Interviewee3)
Reinforcing	<i>"I created an environment to let the children come to me, and then when the children came to me, I gave them immediate feedback to strengthen their positive communication behaviors."</i> (Interviewee4)

Persistent Pursuit	<i>"It's really about being thick-skinned, and then using various methods. Of curriculum, there are definitely times when my mind is blank, and there are many times when I am very embarrassed."</i> (Interviewee1)
Inducing Interest	<i>"For example, you let him play an activity he likes, that is, a certain game he likes to play with you. After these interesting experiences are created, he will take the initiative to communicate with you."</i> (Interviewee2)
Expanding Interests	<i>"The child said watering the flowers. Then I might respond by "watering the flowers" and just make the broken things whole for him. Then if the child's ability is higher, I might expand it a little bit and expand it to topics he likes. This allows the children to continue to communicate with us."</i> (Interviewee5)
Creating Disturbances	<i>"For example, if you prevent him from seeing or getting the items he needs, he may take the initiative to communicate with you."</i> (Interviewee1)
Acting Foolish	<i>"For example, you can deliberately make mistakes to attract the child's attention and proactive communication behavior."</i> (Interviewee1)

The purpose of element of understanding was for adults to learn to understand what children with autism express, and it also encompasses certain aspects that enhance the communication abilities of children with autism. It mainly includes features such as Guessing children's expressions and listening. The specific contents were as follows.

TABLE 18 Characteristic of understand the communication information expressed by the child

Characteristic	Examples
Guessing	<p><i>"When a child initiates a behavior, I ask the parents to stop and guess based on the current situation, and then give feedback on the meaning of their guess. When giving feedback that the child wants or doesn't want, he will give a certain response. Based on the child's reaction, parents will know whether their guess is correct. Then parents need to accumulate the meaning of the child's behavior in this situation."</i></p> <p>(Interviewee1)</p>
Observing	<p><i>"I will let parents know how to observe children so that they can understand what the children want to express."</i></p> <p>(Interviewee3)</p>
Maintaining Curiosity	<p><i>"Generally speaking, parents are not very curious about their children's lives and think that they have nothing to do, so they are actually not curious about what they express. If parents can remain curious about their children and be interested in exploring what they want to express, should be able to better understand children."</i></p> <p>(Interviewee2)</p>
Listening	<p><i>"Parents should have a listening attitude to understand what their children are saying and be patient."</i></p> <p>(Interviewee5)</p>
Enhancing the Child's Language Comprehension and Expression Abilities	<p><i>"Improving children's language understanding and expression abilities can help children express themselves more accurately, and we can also understand them better."</i></p> <p>(Interviewee4)</p>

The purpose of the Ability to Assist Children's Understanding element was for adults to learn to use different methods so that children with autism can better understand what they are trying to express. Primarily, it encompasses characteristics such as adapting the presentation style of information and adjusting the quantity of information. The specific contents were outlined as follows.

TABLE 19 Characteristic of assist children in understanding communication information

Characteristic	Examples
Adjusting the Way Information is Presented	<i>"The content we express must match his ability, in a way that he can understand or almost understand. If it is higher than the child's ability, we need to adjust the way the information is presented."</i> (Interviewee5)
Adjusting the Amount of Information	<i>"When children do not understand, parents can provide different forms and levels of communication clues. If your child doesn't understand "Baby go to the kitchen and get a spoon," you can say the spoon louder or slower to help your child understand."</i> (Interviewee1)
Reducing Language Difficulty	<i>"For some children, parents may need to adjust the difficulty of using language. For example, if a child can only understand simple sentences, parents must simplify long or complex sentences to help them understand."</i> (Interviewee3)
Providing Experiential and Visual Cues	<i>"Demonstration, physical coordination, and visual cues such as symbols, colors, and locations can help children understand your intentions."</i> (Interviewee2)
Improve children's expressive ability	<i>"If the child actively communicates enough, we can forget about the language understanding part and think about how to expand his language more."</i> (Interviewee4)

1.3 Results of Integration of Literature Analysis and Expert Interviews

Through literature analysis and expert interviews, it was observed that certain elements of parent-child communication abilities in children with autism exhibit overlap, while discrepancies exist in others. The researcher, along with research assistants, analyzed and deliberated on these elements and characteristics, the findings of which are presented in the following table.

TABLE 20 Results of elements and characteristic in parent-child communication abilities in children with autism

Elements	Characteristic
Constructing a good communication environment	Acceptance (of children and oneself); Equality; Playfully engaging with children; Empathizing with children's emotions and feelings; Flexibility in adjustments; Arranging a suitable physical environment for communication.
Eliciting communication behaviors in children	Responding, observing, reinforcing children's communication behaviors, pausing, and waiting, imitating, following, and joining, interest induction (expanding), prompting, exaggerating to amplify communication cues, breaking routines, intentionally playing dumb, persistent pursuit.
Assisting children in understanding communication information	Utilizing various forms and degrees of communication cues, adjusting adult communication style (lowering language difficulty, using language suitable for children, repeating), structured activities, providing support, reducing cognitive load,
Understanding the communication information expressed by the child	Observing, speculating about children's expressions, staying curious, and listening. Enhancing children's comprehension and expression abilities, including eliciting language abilities, expanding children's language, demonstrating, assisting children in expression.

To structure the parent-children communication abilities for parents of children with autism, the researcher and research assistants employed framework theory to systematically categorize and organize topics with similar content. Through comprehensive literature analysis and expert interviews, key themes were identified, and overarching concepts were assigned to these themes. The remaining content was meticulously organized using a similar approach. This rigorous process culminated in the development of a final conceptual framework, which was visually represented in the form of a detailed mind map.

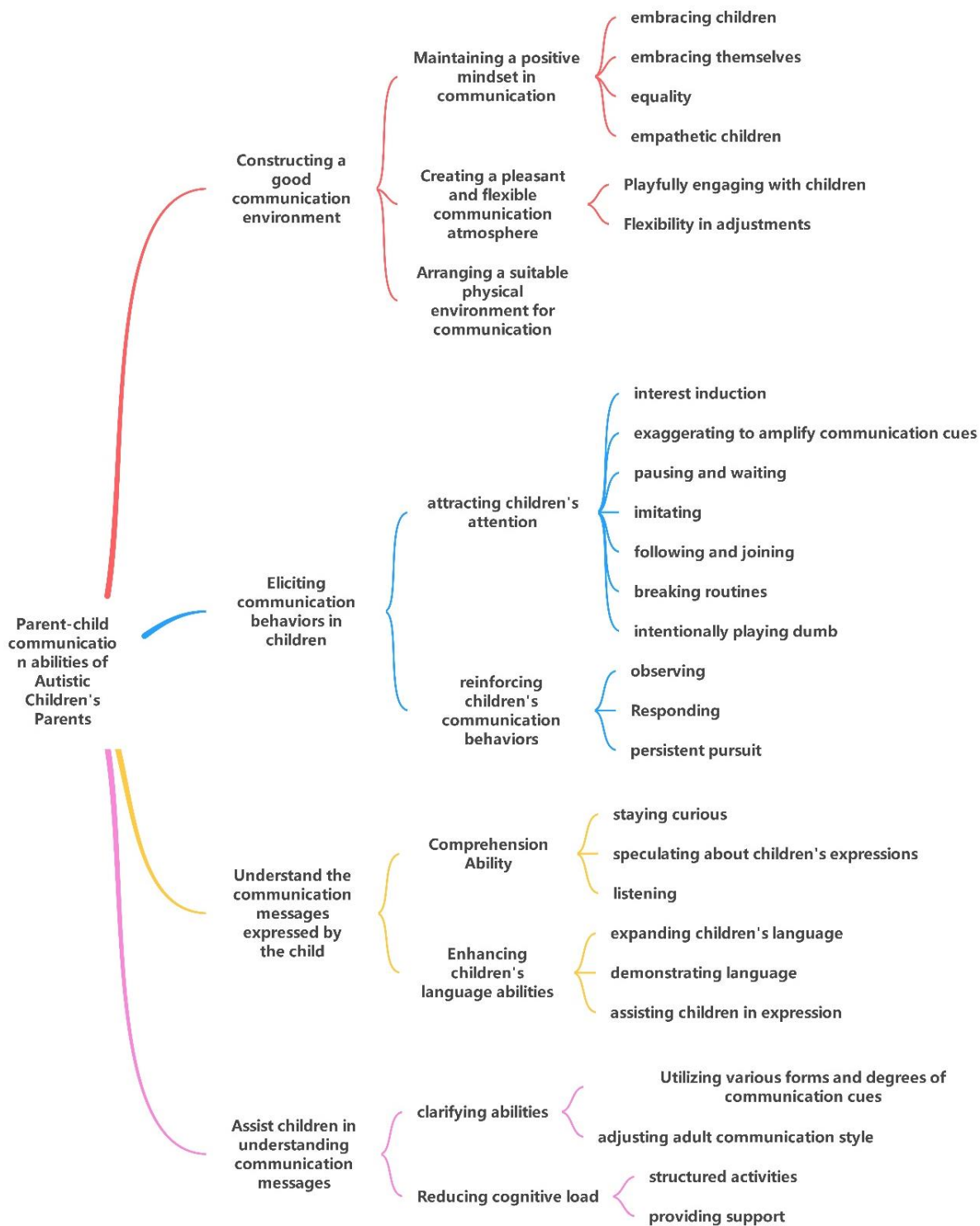


FIGURE 11 Framework diagram of communication abilities

1.4 Results of Formation of Parent-Child Communication Abilities Assessment Form for Autistic Children

1.4.1 Formation Assessment Form and Scoring Criteria

Figure 4-1 presented a framework encompassing elements, items, and details that constitute the communication abilities between parents and children. However, a challenge arose as some of these details were too general, lacking operational clarity and making assessment inconvenient. Therefore, the researcher and research assistants engaged in discussions, reviewed interview transcripts, consulted literature, and reexamined the essence of these elements. They proceeded to analyze the specific details, delineate their meanings, and transform them into behaviorally measurable objectives for convenient assessment. The results of this process are presented in the following table.

TABLE 21 Assessment form of parent-children communication abilities of Parents of Children with Autism

Domain	project	Details	Scoring Rubric				
			0	1	2	3	4
Constructing a good communication environment	Maintaining a positive mindset in communication	can accept the various behaviors of children in the communication process.					
		can accept various feelings and expressions in the process of communicating with children.					
		can interact with my children in a one-on-one manner and pay attention to them, rather than just being led by adults.					
		can understand children's feelings and emotions.					
	Creating a Pleasant and Flexible Communication Atmosphere	can play happily with children during interactions.					
		can adopt communication different methods based on the situation (such as children's reactions, etc.).					
		can arrange a suitable communication environment based on communication activities and children's abilities, such as reducing interference with information in the					

		environment.					
Elicitation communication behaviors in children	Attracting children's attention	can use things that children are interested in to attract their attention.					
		can use exaggerated methods to amplify communication clues when interacting with children					
		can pause ongoing activities that my child is interested in and wait for them to notice before continuing the activity.					

Table. 4-7:Continued

		can imitate the activities that children are doing and wait for them to notice adults.					
		can follow and join the child's ongoing activities, waiting for the child to notice the adult.					
		can do things that are different from the routine of life or activities, waiting for children to notice adults.					
		can intentionally do something wrong and wait for the child to notice adults.					
	Strengthening children's communication behaviors	can observe various verbal and nonverbal communication behaviors initiated by children.					
		can respond to communication behaviors initiated by children in various ways.					
		can elongate the communication and interaction with children in various ways.					
understanding the communication information	Comprehension Ability	can maintain an exploratory attitude towards what children say and do, rather than just denying and blaming them.					
		can listen to children's expressions, both verbally and nonverbally.					
		can have a way to guess the meaning expressed by children.					
	Enhancing children's language abilities	can promote the development of children's language abilities through expansion.					
		can promote the development of children's language abilities through demonstration.					
		can assist children in expressing themselves through pictures, visual cues, etc.					
Assist children in underst	Clarifying abilities	When children don't understand, can provide clues using different forms and levels.					
		When children don't understand, can adjust communication style.					

anding adult commu nication informat ion	Reducing cognitive load	When children do not understand certain languages, can provide regular activities to help them.					
		When children do not understand certain languages, can provide them with visual cues and other support.					

To address the specific behaviors mentioned above, researchers and research assistants had developed a detailed scoring system ranging from 0 to 4, aimed at ensuring the scientific rigor and reliability of the assessment process. In this five-level scoring system, a score of 0 indicates that parents provide no support or exhibit negative behaviors in parent-child communication, showing ineffective interaction and understanding. A score of 1 suggests that parents have some awareness but offer limited support, occasionally demonstrating positive communication behaviors, though overall effectiveness is limited. A score of 2 indicates that parents can provide support and display some understanding and adaptability, but there is still room for improvement. A score of 3 signifies that parents can support their child in a positive and adaptive manner in most situations, demonstrating good communication abilities and understanding. A score of 4 signifies that parents consistently support their child's communication development in a positive manner, exhibiting excellent parent-child communication abilities.

The scoring system primarily utilized the frequency of effective communication behaviors as the criterion. Its objective was to incentivize parents to engage in more effective communication behaviors, thereby fostering positive feedback from their children in communication. This, in turn, encourages parents to develop more suitable and effective communication strategies. This design not only facilitates a thorough and accurate evaluation of interventions aimed at enhancing the parent-child communication abilities of parents of children with autism but also provides a concrete and practical evaluation framework, serving as a significant reference for subsequent

research in this field. The detailed scoring criteria can be found in the Appendix of the Communicating Partner Curriculum.

1.4.2 Verify the Effectiveness of the Assessment Form

The form was tested, and the reliability and validity of the test data were assessed. Five experts evaluated the Objective Consistency Index (IOC) using the Parent-Child Communication Abilities Assessment Form for children with autism. They examined the consistency of 27 characteristics in reflecting the parent-child communication abilities of parents with autistic children. According to expert feedback, the IOC ranged from 0.80 to 1.00, indicating that the assessment form accurately depicts the parent-child communication abilities of parents of children with autism.

43 parents of children with autism completed the assessment form, and statistical analysis software was used to check the questionnaire data. The Cronbach. α coefficient was 0.944, indicating that the evaluation form has high reliability. The Kaiser-Meyer-Olkin (KMO) coefficient was 0.650, indicating that the evaluation form had high validity.

Phase II: Results of Basic Information Study of Curriculum Design

The curriculum requirements primarily addressed the needs of parents of autistic children regarding parent-child communication abilities and existing issues. This involved three key steps: results from literature research, insights from experts in coaching and training parents of autistic children, and interview results from parents of autistic children. The relevant content was outlined as follows.

2.1 Literature Research Results on Curriculum Needs for Parents of Autistic Children

Through literature analysis, the researcher identified the challenges faced by parents of autistic children in developing parent-child communication abilities, resulting in the following research results.

2.1.1 Research Results about Curriculum Objectives

From the perspective of curriculum objectives, parents need to learn to accept their children's different communication behaviors. Parents found it challenging to truly accept the communication behaviors of autistic children.

As spoken language is the most used, convenient, and widely accepted mode of communication, the lack of speech or unclear speech in autistic children represents a significant difference compared to their peers. Some parents harbor the greatest hope for their children to start speaking as soon as possible and to speak clearly. Therefore, parents often use various methods to encourage their children to speak, such as "Say 'mom,' and I'll take you out to play," or "Say 'I want to eat an apple,' and I'll give you one to eat." Some parents even require their children to repeat the same words over and over. While these methods may show some effectiveness, they often lead to negative impacts during interaction, creating conditional agreements and demands during the communication process. This negatively affects the child's development of language communication abilities.

From the perspective of curriculum objectives, parents need to learn methods and abilities for interactive communication with their children. Due to limited social and emotional feedback from autistic children and factors such as a lack of functional language, many parents view interaction with autistic children as tedious and uninteresting. They are unsure about how to communicate with them, making it challenging to engage in extended communication with their children. This situation deprives autistic children of communication opportunities and repeatedly exposes them to frustrating communication experiences, leading to increased pressure and reduced motivation for social interaction.

From the perspective of curriculum objectives, parents need to learn awareness and methods to create opportunities for children to initiate communication. In daily life, parents often have high expectations for their children's oral expression and cognitive abilities but take care of many other things for their children, reducing opportunities for the child to seek help actively. For example, when a child cries, even

before expressing anything, parents may say, "Oh, you're hungry, you want to eat something," or if the child is holding something and contemplating, parents might say, "Oh, you want to play, let me help you open it." As a result, children may lack opportunities to initiate communication.

2.1.2 Research Results about Curriculum Contents

From the perspective of curriculum content, parents' learning needs to be systematic. Due to the slow and lengthy progress in treating autistic children, parents may access various information channels and try different novel treatment methods. In addition to conventional educational methods, parents may also explore dietary therapy, heavy metal detoxification, auditory integration training, cranial therapy, and various other approaches. Some of these methods lack empirical foundations and rely on anecdotal reports or subjective case studies. Due to a lack of relevant background and professional knowledge, parents find it challenging to determine whether these methods are suitable for their children and how to systematically integrate this knowledge.

2.1.3 Research Results about Curriculum Implementation

In terms of learning methods, to enable parents to better participate and improve the effectiveness of curriculum learning, more discussion methods, case analysis methods, and reflection methods can be used, and less use of lecture methods. In terms of organizational form of learning, the actual situation of parents needs to be fully considered during the implementation of the curriculum. For example, when arranging curriculum time, we should not only pay attention to the continuity and effectiveness of the curriculum, but also consider the time when parents can participate. When organizing curriculum, some specific difficulties of parents also need to be considered.

2.1.4 Research results about Curriculum Resources

During learning process, in addition to listening carefully to lectures and participating in discussions, parents need to provide visual cues to help them grasp the learning content. Therefore, parents need to be provided with various curriculum resources such as PPTs, pictures, tables, and videos. At the same time, to facilitate the

recording of various information by parents in discussions, it is also necessary to provide them with curriculum resources such as white paper and colored pens.

2.1.5 Research Results about Curriculum Evaluation

For the evaluation of learning effects after parents participate in the curriculum, in addition to using standardized assessment tools to understand whether their parent-child communication abilities have been improved, videos, self-reflections, interviews, etc. can also be used to understand parents' learning effects.

2.2 Experts Interview Research Results on Communicating Partner Curriculum Needs

Semi-structured interviews were conducted with 5 experts in the field of communication rehabilitation for autistic children to understand the needs of parents in learning the communicating partner curriculum. The panel consisted of one male and four female experts, each with over 20 years of experience in educating children with autism. They possess over 15 years of expertise in counseling and training parents of such children. Furthermore, each serves as a teaching supervisor in their respective center, bringing extensive knowledge in curriculum development and training.

After conducted a detailed content analysis of the interview transcripts, the research categorized and organized them based on curriculum elements such as curriculum objectives, content, and resources. The research extracted representative ideas and listed them as follows in the detailed results table:

TABLE 22 Experts Interview Results for "Communicating partner Curriculum" Curriculum Requirements

Frame	Key points analysis	Summary of the interview
Curriculum objectives	Curriculum objectives should be clearly visible	<i>"What I fear the most is that parents may find the goals too difficult and too high. If they cannot see results, they won't feel a sense of achievement."</i> (Interviewee 1)
		<i>"We need to show parents hope; otherwise, it's challenging for them to persist."</i> (Interviewee 2)

	Curriculum objectives should consider the parents' abilities and experiences."	<p><i>"It is necessary to tailor the teaching to individual needs, establishing suitable learning objectives for parents based on their cultural proficiency, learning motivation, and habits."</i></p> <p>(Interviewee 4)</p>
		<p><i>"I feel that guidance for parents may need to be more individualized now because I have found significant differences among parents, which are just as substantial as the differences among children."</i></p> <p>(Interviewee 2)</p>
Curriculum Content	content needs to be systematized.	<p><i>"Until now, it's probably more about systematic and intensive training, perhaps more professional."</i></p> <p>(Interviewee 2)</p>
		<p><i>"With goals in the communication, for parents, what they consider most important are the things that would prompt them to take action, then they will get more form the curriculum"</i></p> <p>(Interviewee 4)</p>
	Specific Curriculum Content Modules	<p><i>" Parents need to grasp their children's unique traits and challenges at every stage of their growth. Each phase presents distinct joys and obstacles, requiring tailored support and guidance."</i></p> <p>(Interviewee 4)</p>
		<p><i>"It's aligned with the current phase of the child's language development, which appears distinct from the typical goals we establish for the child. It resembles the goals we set for the child; it pertains to what parents are capable of achieving."</i></p> <p>(Interviewee 4)</p>
		<p><i>"I would suggest to parents' what kind of sentences to use more in daily life based on the child's abilities. Occasionally, I provide some activity recommendations."</i></p> <p>(Interviewee 5)</p>
		<p><i>"Enhancing the corresponding abilities in the context of daily life is crucial in my opinion. I believe the aspect of daily life is quite critical because many parents tend to overlook it and focus more on the cognitive and language development of their children."</i></p> <p>(Interviewee 3)</p>
		<p><i>"I've found that the emotions and mindset of parents are particularly important. If the issues with parents are handled well, the child will also make progress accordingly. There must be content s addressing the management of parent's emotions."</i></p> <p>(Interviewee 1)</p>
		<p><i>"The awareness of parents is a crucial factor. If parents' perspectives are adjusted, they often develop many strategies on their own. The key is to make parents willing to change."</i></p> <p>(Interviewee 2)</p>

		<p><i>"I personally emphasize the importance of non-verbal communication to parents. Whether it's children with low verbal abilities in autism or those who have developed language abilities, parents often focus on the child's verbal expression abilities. In reality, children with autism greatly need input on non-verbal information and also require responses to their non-verbal cues."</i></p> <p>(Interviewee 1)</p>
	<p>"Parents need to learn through intuitive methods."</p>	<p><i>"When I train parents, I typically use direct demonstrations, hands-on guidance, and then ask parents to practice while I observe. This approach tends to yield better results."</i></p> <p>(Interviewee 4)</p>
Curriculum Implementation	<p>Parents need to learn through practical application.</p>	<p><i>"The most important thing for our teachers to do is, after explaining a sentence or theory, you have to demonstrate it for me, and parents have to follow along."</i></p> <p>(Interviewee 3)</p>
		<p><i>"Handling grandparents can be a bit more complicated. Often, I find myself simply giving them instructions without diving into the reasons behind them. It's not always easy to bridge the generation gap and explain modern parenting strategies effectively, especially when they're used to doing things differently."</i></p> <p>(Interviewee 3)</p>
		<p><i>"I've been guiding his mom, telling her to demonstrate for me. There were quite a few issues initially, but by having her do it continuously and guiding her on adjustments, the parent has been improving."</i></p> <p>(Interviewee 1)</p>
		<p><i>"With the internet these days, parents often pick up strategies or activities from others. But when they try them out and don't see the results they hoped for, they might get frustrated and end up quitting or trying something else altogether."</i></p> <p>(Interviewee 1)</p>

Table. 4-8: Continued

	<p>The effect of small-group learning is good.</p>	<p><i>"If we want parents to truly learn knowledge and abilities that they can apply, I suggest that the number of participants in the curriculum should not exceed 15 people."</i></p> <p>(Interviewee 1)</p>
	<p>Training Duration</p>	<p><i>"it can be divided into two scenarios. One is intensive, where it could be five days a week for a week or 4-5 weekends a month, with 6 hours each day, 30 hours. The other is distributed model, with twice a month, 4-6 hours each time, continuously for a year, or once a month for a year and a half."</i></p> <p>(Interviewee 3)</p>
	<p>Videos that require</p>	<p><i>"I feel that if videos are to be played during the learning process, it is</i></p>

Curriculum Resources	parents to interact with their children.	<i>essential to play videos of the children of the parents participating in the curriculum. This way, the parents' engagement will be much better, and the outcome will be better too.</i> (Interviewee 3)
Curriculum Evaluation	Parents need positive feedback.	<i>"I remember a parent who had a less positive response and didn't complete assignments well. I kept praising her, any little thing she did, I would complement. She became more and more positive. "</i> (Interviewee 2)
	Self-evaluation by parents.	<i>"I usually create a clear and concise Parent-Child Communication Self-Assessment scale as a pre-test. After systematic and continuous training, I then provide parents with a self-efficacy self-assessment questionnaire to gauge their progress."</i> (Interviewee 4)
other	Parents' self-acceptance.	<i>"You must tell parents that their child's current situation is not their fault. Because parents, especially mothers, are under tremendous pressure, it is essential to provide them with ways to release stress, allowing them to accept themselves."</i> (Interviewee 5)

2.3 Curriculum Needs Parent Interview Research Results

Semi-structured interviews were conducted with 8 parents of autistic children aged 2-8 at the Chongqing Autism Rehabilitation Center to ascertain their requirements for the Communicating Partner Curriculum. A total of 8 parents of children with autism took part in the interviews. The basic information was presented in the table below.

TABLE 23 Basic information of interviewing parents

	male	Female	Total
age of their children			
-2-3years	1	0	1
-3-4years	0	1	1
Table. 4-9 Continued			
-4-5years	0	2	2
-5-6years	1	1	2
-6 years onward	0	2	2

Gender of their children			
-malec	2	4	6
-female	0	2	2
Main city/suburb counties			
-main city	1	3	4
-suburb counties	1	3	4
Children's language communication abilities			
-No spoken or low spoken language	1	4	5
-Can communicate using common vocabulary or simple sentences	1	1	2
-Good oral abilities	0	1	1

The results were outlined below.

2.3.1 Parents' Needs Regarding Curriculum Objectives

During the interviews, parents expressed their difficulties in communicating with their children and hoped that these difficulties could be addressed through curriculum studies. These concerns were considered when designing curriculum objectives. Issues parents faced in the interaction process with children include:

① Parents lacked strategies for interactive communication with their children.

Most parents expressed a lack of strategies and methods for communication with children. They mentioned not knowing how to engage and play with their children.

"I understand that parents have a crucial role, but I feel uncertain about how to engage in activities with my child."

(Interviewed Parent 4)

"At times, I feel like I'm not enjoying our playtime together. I find myself feeling unenthusiastic, and the activities seem overly repetitive."

(Interviewed Parent 1)

② There was a lack of mutual understanding between parents and children.

Constrained by the child's language comprehension and expression abilities, many parents (especially those with children who have weaker verbal abilities) found it challenging to fully understand what their children were trying to express during communication. At the same time, they observed that children also struggle to comprehend the meaning conveyed by adults, creating confusion in communication between parents and children."

"Sometimes, especially when the child is in a hurry, I want to help him, but I can't understand what he means, and it feels very frustrating."

(Interviewed Parent 3)

"Our child speaks very little, and we adults don't quite understand what he wants to express, so communication with him is not very smooth."

(Interviewed Parent 2)

"Moreover, he also doesn't understand what we adults are saying. Sometimes, even after talking to him for a long time, it seems like he hasn't understood, and there is no reaction."

(Interviewed Parent 5)

③ Parents lacked an understanding of children's abilities and their development. They didn't know how to help their children based on their existing language abilities. So, they hoped to have ways to understand the abilities and development of their children, and improved their children's abilities.

"I am confused about what steps my child should take in his development after reaching a certain ability. I don't know which aspects of his abilities I should enhance."

(Interviewed Parent 8)

2.3.2 Parents' Needs Regarding Curriculum Contents

During the interviews, parents also mentioned some of their approaches to learning the curriculum contents.

① Parents hoped that the knowledge they acquire can be applied in practice.

Parents encountered a multitude of challenges when raising their children. They sought not only to impart theoretical knowledge but also, perhaps more importantly, to instill practical wisdom that could be applied in real-life situations. This equipped children to better navigate the complexities they faced as they grew.

"To be honest, ever since my child was diagnosed, I've bought many books to read. The content in the books makes sense and is good, but when it comes to teaching my child, I don't know which method to choose. In actual life, I still use the old methods."

(Interviewed 6)

② Parents hoped to improve their child's oral abilities.

Spoken language stands as one of the primary modes of human communication. Children with autism often face considerable difficulties in social interaction, learning, and adaptation due to deficits in oral language abilities. Recognizing the pivotal role of oral communication, most parents of autistic children prioritized the development and enhancement of their children's verbal abilities. However, as understanding of communication evolves and awareness of the unique characteristics of autistic children spreads, many parents now embraced diverse communication methods for their children prior to the acquisition of spoken language. Consequently, parents were eager to acquire strategies to enhance their children's verbal abilities.

"I want him can speak. After all, he'll go to kindergarten next year, and soon he'll enter elementary school. If he can't speak, the school won't accept him."

(Interviewed 5)

"I'm anxious. He doesn't speak clearly, and when he wants to play with other kids, he pulls them. It really affects his social interactions."

(Interviewed 7)

"I have read some books and know that children need to pay attention to their communication abilities before they develop spoken language, so I can accept that he uses some non-verbal methods to communicate at this phase. But in the long run, I still hope that he can develop active speaking abilities. After all, he will integrate into ordinary society in the future."

(Interviewed 3)

2.3.3 Parents' Needs Regarding Curriculum Implementation

① Parents lacked systematic knowledge and abilities. With the development of computer and internet technology, parents had many channels to access professional knowledge. However, due to the lack of relevant professional backgrounds, parents found it challenging to filter the knowledge they acquire. As a result, they struggled to provide informed recommendations for educational decisions.

"I often learn methods of educating children by watching short videos on Doyin (TikTok). However, it's a bit confusing because the methods taught in different videos are sometimes inconsistent, and I don't know whose advice to follow. For example, some videos suggest providing oral muscle training for children with autism to enhance their speech abilities. But in other videos, it is recommended to simply play with the child."

(Interviewed Parent 1)

"After my child was diagnosed (with autism), I also participated in some training. But I find it difficult to connect this knowledge with each other, and I often just feel good when I learn it. But it's hard to turn it into your own knowledge"

(Interviewed Parent 6)

②Parents hoped that curriculum learning can be flexible. Parents came from different families, had different work and life backgrounds, and sometimes even faced the need to take leave. So, they hoped the arrangement of time can be more flexible.

"At the end of the year, our work is particularly busy, and we often have to work overtime on weekends. I don't know if I can follow the curriculum learning the whole time. I hope the curriculum schedule can be more flexible."

(Interviewed 2)

"We have two kids at home, and there are no elderly relatives to help. If I attend the classes, my husband must stay home with the kids. If he has something to do that day, I can only take a leave. It would be great if there were recordings that could be replayed."

(Interviewed 5)

2.4 Summary

Based on the synthesis of literature research, expert interviews, and parent interviews, the following needs from parents of children with autism regarding the Communicating Partner Curriculum had been identified:

In terms of curriculum content, parents first needed to adjust their attitudes towards communication issues with children with autism, establishing a correct awareness of communication. Secondly, parents needed to acquire strategies for interacting with children with autism. Lastly, parents also needed to learn how to apply these strategies in their daily lives. Therefore, the Communicating partner curriculum could include content in three areas: building awareness, understanding strategies, and applying strategies.

Regarding the learning process, trainers should understand and address individual differences among parents, providing intuitive and practical learning resources, and offering opportunities for self-reflection and group discussions. At the same time, trainers should provide timely positive feedback to parents, enabling them to better understand their progress and areas for improvement.

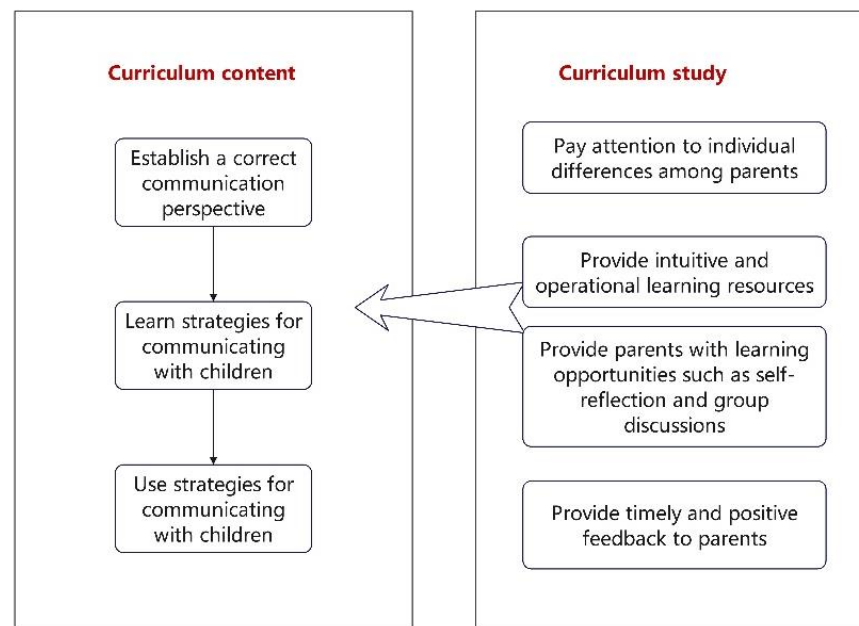


FIGURE 12 Analysis of curriculum needs interview results

Phase III: Results of Curriculum Development

The researcher based on the results of the basic information study and their personal experiences, designed the Communicating Partner curriculum. The initial draft was submitted to five experts for evaluation and review. After receiving the experts' feedback, the curriculum underwent revisions. The specific process was outlined below.

3.1 Drafting the Initial Version of Communicating Partner Curriculum

The Communicating Partner curriculum primarily consists of two main sections. The first section was the introduction, encompassing essential information about the curriculum such as the background, nature, theoretical foundation, and principles. The second section was the curriculum objectives and content, covering aspects like curriculum objectives, content, implementation, resources, and assessment. A brief overview of the relevant content was provided below.

3.1.1 Curriculum Background

In recent years, there has been an annual increase in the incidence of autism among children, leading to a steady rise in the number of affected children. According to the latest data from the "2021 Annual Blue Book of Rehabilitation Industry

for Children with Developmental Disorders" in China, it is conservatively estimated that the number of autistic children aged 0-18 in China will reach 3 million. The education and rehabilitation of children with autism pose numerous challenges, with social communication disabilities being a core issue that has garnered attention from relevant stakeholders. Numerous domestic and international studies indicate that through training, parents can participate in the intervention of communication abilities in autistic children and play a positive role. However, due to the characteristics of communication abilities in autistic children, parents still face challenges in communicating with their children or trying to teach them. Moreover, there are various parenting guides on the market with different schools, perspectives, and strategies, making it difficult for parents without relevant professional backgrounds to make systematic choices, learn, and apply them.

Communicating Partner Curriculum introduces the concept of communicating partner, integrating elements of parent-child communication abilities for parents of children with autism, considering the learning characteristics of parents. It covers various aspects such as the construction of communicating partner ideology, the acquisition of knowledge related to communication strategies, and the application of communication strategies. Using teaching methods such as lectures, case analysis, discussions, group learning, role-playing, etc., the curriculum actively promotes the improvement of parent-child communication abilities for parents of autistic children.

3.1.2 Nature of the Curriculum

This curriculum is a set of parents training programs, emphasizing practical application while also considering theoretical aspects. It is a comprehensive curriculum that focuses on abilities as the primary element, incorporating both experience and knowledge. Throughout the curriculum, parents not only systematically acquire abilities in communicating and interacting with children with autism but also develop the abilities to engage in effective communication with them. Moreover, parents will gain the abilities to acknowledge and honor the characteristics and communication styles of children with autism, thereby nurturing positive emotions in parent-child

interactions. The curriculum aims to establish a bridge for communication with autistic children, laying the groundwork for behavior management, routine establishment, knowledge acquisition, skill enhancement, as well as future education and career development for children with autism.

3.1.3 Theoretical Foundation of the curriculum

The development of this curriculum primarily involves four theoretical foundations: the Transactional Model of Communication, Behaviorist Learning Theory, Relationship-Based Developmental Theory, and Transformative learning theory. The Communicating Partner Curriculum is designed based on the integration of these theories. For instance, adults will learn, guided by the Relationship-Based Developmental Theory, how to establish a positive relationship with children with autism, create communication opportunities to elicit their active communication behavior, and build motivation for future language and communication learning. Guided by Behaviorist Learning Theory, adults will also learn to thoroughly observe the communication behaviors of children with autism, respond, and reinforce them appropriately in various contexts. This approach assists autistic children in acquiring additional communication behaviors.

3.1.4 Curriculum Principles

To enhance the effectiveness of curriculum learning, the following principles should be considered during the curriculum implementation:

1. Reflective Principle: Parents need to continually reflect on their thoughts and behaviors during the learning process to establish new ideas and actions.
2. Participatory Principle: Parents should deeply engage in curriculum learning to achieve higher-quality learning outcomes.
3. Collaborative Learning Principle: Parents need to expand their perspectives through knowledge exchange and collaboration with peers, cultivating critical thinking, communication abilities, and the ability to collaborate under different viewpoints.
4. Goal-Generation Principle: Instructors can adjust goals based on the specific situation of each family, revise some goals, or generate new ones.

5. Flexible Adjustment Principle: Instructors can flexibly manage curriculum timing and content progress based on arrangements.

3.1.5 Curriculum Objectives

The main objectives are to enhance the parent-child communication abilities of parents with autistic children, including the following specific objectives:

1. Maintain a supportive and accepting stance towards the current communication abilities of children with autism.
2. Demonstrate empathy towards the feelings and emotions of children with autism.
3. Elicit active communication from autistic children during communication.
4. Sustain synchronized responses with the child during communication.
5. Clearly express one's communication intentions to children with autism.
6. Assist children with autism in understanding the meaning of their expressions.
7. Understand the meaning expressed by children with autism.

3.1.6 Curriculum Contents

The curriculum content is divided into three modules: Establishing Communicating Partner Awareness, Communicating Partner Strategies, and Application of Communicating Partner Strategies. Within these three modules, there are ten units of study. The specific content includes:

TABLE 24 Communicating partner curriculum content

Module	Unit	Elements of parent-child communication abilities involved
Module 1: Establish awareness of communicating partners	Unit 1: Building a bridge of communication with children: concepts related to communicating partners.	Help parents of children with autism establish awareness of communicating partners so that parents are willing to learn and use communication strategies related to communicating partners.
	Unit 2: The Most Familiar Stranger: Understanding Autistic Children and Their Communication Characteristics.	
	Unit 3: What is suitable is the best: ways to improve the development of language communication abilities in children with autism.	
Module 2: Common communicating strategies among communicating partners	Unit 1: So, We Can Communicate Better: Strategies for Building a Good Communicating Environment.	Help parents master Strategies for Building a Good Communicating Environment.
Table. 4-10: Continued		
	Unit 2: Why children communicate: Strategies for inducing active communication	Help parents master Strategies for inducing active communication
	Unit 3: Children, let you understand me better: Help children understand other people's strategies.	Help parents master Strategies that help children understand other people
	Unit 4: Children, let me understand you better: Strategies for understanding children's communication information.	Help parents master Strategies that understanding children's communication information.
Module 3: Application of Communication Strategies for Communicating Partners	Unit 1: Playing with Communication: The formulation and application of individualized family communication plans.	Enable parents to flexibly apply communication partner strategies in daily life.
	Unit 2: Communication Everywhere (1): Application of communication strategies in daily life activities.	
	Unit 3: Communication is everywhere (2): Application of communication strategies in family communication games.	

3.1.7 Learning Activities

In first module, parents are mainly touched through videos, case analyses, etc., so that they can accept the concept of communicating partners. In the second module, parents mainly learn the relevant strategies of communicating partners

through lectures, video demonstrations, exercises, etc. In the third module, communicating partner strategies are integrated into the daily life by discussing their children's goals with parents, formulating family communication plans, designing communication activities, and using checklists to reflect on their own communication activities. In their daily lives, they can become familiar with these strategies and integrate them into the process.

The learning activities will vary according to the focus of each module. In the first module, narrative techniques will be employed alongside learning methods such as group discussions and parental reflection. The second module will feature narrative teaching methods supplemented by case analysis, practical exercises, and other interactive learning approaches. In the third module, narrative strategies will again be utilized, complemented by exercises and additional learning activities.

Specific to each learning, combined with the transformative learning theory of adult learning, the learning content follows the three teaching steps of introducing teaching-implementing teaching-summarizing teaching, and combining the four phases of transformational learning in these three teaching steps. Implementation, its learning arrangement is shown in the figure below.

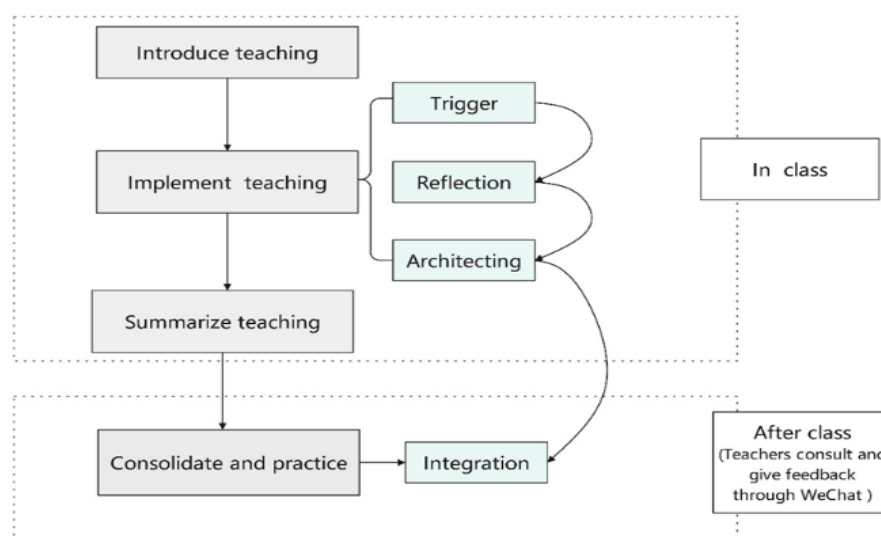


FIGURE 13 Learning activity design framework

In the picture above, the gray box represents the process of classroom teaching activities, and the content in the green box represents the four phases of transformational learning, among which the three learning phases of stimulation phase, reflection phase and reconstruction phase are carried out in the classroom.

In the stimulation phase, teachers raise questions that trigger parents' thinking and arouse parents' awareness of old communication behaviors and existing problems. In the reflection phase, teachers guide parents to think about existing problems through watching videos, group discussions, teacher-student discussions, etc. In the reconstruction phase, teachers introduce the relevant concepts and strategies of communicating partners to parents through lectures, case sharing, etc. based on the theme and parents' existing problems, and assist parents in reconstructing new knowledge through reflection and practice. If there are multiple knowledge points involved in the curriculum learning, according to the characteristics of the knowledge points, a conversion learning method should be used for each knowledge point as much as possible, so that parents can learn through the phases of stimulation, reflection, reconstruction, etc., so that the knowledge points involve the knowledge is internalized into its behavior.

In the integration phase, parents go home after class to communicate with their children to complete the consolidation of new knowledge and strategies. During this phase, teachers provide consultation and feedback to parents through WeChat, phone calls, etc., so that parents can better adjust the strategies they use.

3.1.8 Curriculum resources

PPT, videos, study sheets, multimedia teaching tools, etc.

3.1.9 Curriculum evaluation

The curriculum adopts a combination of formative evaluation and summative evaluation, and a combination of qualitative evaluation and quantitative evaluation to evaluate parents' learning effects.

Among them, the "Parent-Child Communication Abilities Assessment Form for Parents of Children with Autism" was utilized to assess parents' parent-child

communication abilities before and after the curriculum implementation, aiming to gauge the effectiveness of parental curriculum learning.

In each curriculum, teachers will arrange a lot of reflection and exercises, as well as arrange interaction with children after class. In these sessions, what parents think and what they think can reflect their thinking content, thinking methods and thinking results, as well as videos of their interactions with their children, which are reflected and recorded in the notebooks they make and in the videos they interact with their children. , which is the content of formative evaluation.

3.1.10 Study Arrangement

There are a total of 10 classes in the communicating partner curriculum, each teaching time is 3 hours. It is conducted every Saturday morning from 9:00 to 12:00 in the specialized classroom of the Department of Special Education at Chongqing Normal University.

The complete curriculum draft can be found in the appendix 19.

3.2 Results of Experts Reviewed the Curriculum

Five experts evaluated the consistency and appropriation of the curriculum and provided their own suggestions, The specific contents were as follows.

3.2.1 Curriculum Consistency Check Results

Calculated the average score of the curriculum consistency ratings of the five experts and organized the experts' suggestions. The results were as follows.

Curriculum consistency check results revealed a highly commendable average score ranging objective consistency index (IOC) from 0.8 to 1 across various aspects such as curriculum concept, construction, objectives, content, and structure. Consistency level Rationality level was very applicable. Please refer to the appendix 20 for detailed information.

However, for further refinement, the incorporation of more empirical evidence regarding autistic children's strategies for understanding communication information was recommended. Additionally, there was a consistent call for enhancing the clarity of curriculum objectives, ensuring they were explicit and well-defined. The suggestion to conduct diversified curriculum evaluations across different areas to

comprehend the correlation between abilities in diverse domains was a valuable insight. These refinements not only augmented the curriculum's practicality and evidence-based approach but also contributed to its overall effectiveness in addressing the unique communication needs of autistic children.

3.2.2 Curriculum Appropriation Check Results

Calculated the average score of the five experts' ratings of curriculum appropriation, and organized the experts' suggestions. The findings were as follows.

The results of the curriculum appropriation checked indicate that the curriculum development excels in meeting needs and necessity. Average score of curriculum appropriation was from 4.2-5, Most average scores were between 4.4-4.8. Appropriation level was very applicable. Please refer to the appendix 21 for detailed information.

But the experts suggested that the curriculum required a more in-depth exploration of the correlation between improving parental communication abilities and enhancing outcomes for children with autism. The curriculum concept demonstrated good operability and rationality, with a recommendation to provide a clearer introduction to the theoretical foundation. The curriculum objectives performed well in terms of clarity and applicability; however, further clarification of objectives, and consideration of individual parental needs were suggested. The curriculum content aligned with the objectives, supporting their achievement, with minor adjustments recommended in sequencing and supported for predetermined levels of knowledge. Regarding the organization of curriculum learning activities, it was advised to furnish detailed teaching plan samples for reference by other users. The curriculum resources adapted well to the organization of learning activities, effectively supporting goal attainment. Lastly, the curriculum evaluation covered essential objectives but could benefit from further optimization in aligning with knowledge and skill improvement levels. These suggestions aimed to enhance and optimize the overall quality and effectiveness of the curriculum.

3.2.3 Modify the First Draft of the Curriculum Based on Expert Suggestions

The initial draft of the curriculum was amended based on the revision suggestions provided by the experts. The detailed contents are outlined below.

TABLE 25 Curriculum suggestions and revisions table with the experts' suggestions

Expert advice	Curriculum revision status
Curriculum objectives are further refined and divided into levels	<p>1. Constructing a good communication environment</p> <p>1.1 Maintaining a positive mindset in communication</p> <p>1.1.1 Can accepting the child's various expressions during the communication process is essential.</p> <p>1.1.2 Being able to accept oneself in various feelings and expressions during the communication process with the child is important.</p> <p>1.1.3 Being able to engage in interactive exchanges with the child, paying attention to them, rather than solely being led by adults.</p> <p>1.1.4 Being able to understand the child's feelings and emotions.</p> <p>1.2 Creating a pleasant and flexible communication atmosphere</p> <p>1.2.1 During the interaction with the child, both parents and the child can play very happy.</p> <p>1.2.2 During the interaction, being able to employ different approaches based on the context.</p> <p>1.3 Being able to arrange an appropriate communication environment based on communication activities and the child's abilities.</p> <p>2. Eliciting communication behaviors in children</p> <p>2.1 attracting children's attention</p> <p>2.1.1 Being able to capture the child's attention by using things that interest them.</p> <p>2.1.2 Being able to use exaggerated methods to amplify communication cues during interactions with the child.</p> <p>2.1.3 Being able to pause ongoing activities that interest the child, waiting for the child to notice the adult before continuing the activity.</p> <p>2.1.4 Being able to imitate activities that the child is currently engaged in, waiting for the child to notice the adult.</p> <p>2.1.5 Being able to follow and join in the activities that the child is currently engaged in, waiting for the child to notice the adult.</p> <p>2.1.6 Being able to engage in activities that deviate from the usual routines, waiting for the child to notice the adult.</p> <p>2.1.7 Being able to intentionally make mistakes, waiting for the child to notice the adult.</p> <p>2.2 reinforcing children's communication behaviors</p> <p>2.2.1 Being able to observe various language and non-verbal communication behaviors initiated by the child.</p> <p>2.2.2 Can respond to the child's communication behaviors in various ways.</p> <p>2.2.3 Being able to extend rounds of communication interaction with the child using various methods.</p> <p>3. Understand the communication information expressed by the child</p> <p>3.1 Comprehension Ability</p> <p>3.1.1 Being able to maintain an exploratory mindset towards what the child says and does, rather than solely focusing on negation and criticism.</p>

	<p>3.1.2 Being able to listen to the meaning expressed by the child, including both verbal and non-verbal expressions.</p> <p>3.1.3 Being able to speculating about children's expressions.</p> <p>3.2 Enhancing children's language abilities</p> <p>3.2.1 Facilitating the enhancement of the child's language abilities through expansion.</p> <p>3.2.2 Assisting in the development of the child's language abilities through demonstration.</p> <p>3.2.3 Being able to assist children in expression through methods like pictures and visual cues.</p> <p>4. Assist children in understanding communication information</p> <p>4.1 clarifying abilities</p> <p>4.1.1 Can use utilizing various forms and degrees of communication cues.</p> <p>4.1.2 Can adjusting communication style.</p> <p>4.2 Reducing cognitive load</p> <p>4.2.1 When the child doesn't understand, the adult can adjust their communication approach to help the child comprehend.</p> <p>4.2.2 When the child has difficulty understanding certain words, the adult can provide visual cues and support.</p>
Parents should first learn to understand children, and then learn how to let children understand themselves.	Swap the order of Unit 4 and Unit 3 of Module 2, first teach parents how to understand the information conveyed by their children, and then teach parents how to help their children better understand the information conveyed by them.
Detailed teaching plan design samples can be provided for other users to review and refer to.	Add detailed instructional design samples, put them together with the evaluation forms and other forms needed for the Curriculum, and classify them in the appendix of the third part.

Table. 4-11 Continued

Curriculum needs to consider the individual needs of parents.	Before the curriculum is implemented, conduct one-on-one communications with all parents to understand their needs and difficulties. During the implementation of the curriculum, we contacted each parent on WeChat every week to comment on their videos and communicate with them about their learning status.
Curriculum evaluation can take the form of parent self-evaluation to promote parents' reflective ability.	Modify the rhetoric in the evaluation form so that it becomes a parent self-evaluation form. At the same time, the researcher will guide parents to fill in the evaluation form before the curriculum starts and after the curriculum ends. After the parents check, the researcher will communicate with the parents the basis for their check. For example, if parents give themselves a score of 4 on "I can accept various performances of my children in the communication process", the researcher will ask the parents why they give a score of 4? What do you think you did well and what did you do poorly?

3.3 Results of Pilot Study

The curriculum underwent revisions based on expert suggestions, and three parents of autistic children participated in the pilot study alongside the research assistants. A discussion was held with participating parents and the research assistants to revise the curriculum. The pilot study of the curriculum lasted for 3 hours, focusing on Unit 1 of Module 1. The findings of the study were as follows.

Following the pilot curriculum, the researcher, research assistants, and participating parents engaged in reflection and discussion regarding the curriculum objectives, content, learning activities, resources, and evaluation methods. Parents recognized the positive role of the curriculum in improving parent-child communicating abilities and hoped to have the opportunity to participate in the full curriculum. However, some suggestions were also made with a view to further improving the curriculum. The modification suggestions are as follows:

① In the first unit of study, although parents were provided with the opportunity to reflect, their participation was not high, and in order to complete the learning progress, the researcher did not give parents more encouragement and support so that parents could better Participate well in the curriculum.

“I also wanted to participate in the discussion, but I was afraid that I would not speak well, so I did not speak up”.

(curriculum pilot parent 1).

“I think the teacher can wait a little longer and give parents more encouragement, so that parents’ participation will be higher”

(Research Assistant 1).

② Since the researcher’s previous teaching subjects were college students with a certain foundation, the curriculum progress is a bit fast for these parents who lack relevant basic knowledge, and parents should be given more time to practice and digest.

"I think some content is a bit difficult, such as super segments. I want to understand it, but the teacher talks about other content".

(curriculum pilot parent 2).

"Yes, yes, I didn't understand it here either, but it seems very useful. I hope the teacher can explain it more".

(curriculum pilot Parent 3).

Based on the discussions, further revisions were made to the curriculum. The adjusted content was detailed in the table provided below. Additionally, the modifications aimed to address specific areas highlighted during the pilot study, ensuring alignment with the objectives and enhancing effectiveness.

TABLE 26 Curriculum suggestions and revisions table after pilot study

Suggestions	Curriculum revision status
Increase parental involvement during the first lesson.	<ol style="list-style-type: none"> 1.Add interactive participation in the learning activities of the first class. 2. Teachers should give parents more waiting time in the curriculum.
Reduce teaching speed to suit the learning ability and foundation of parents.	<ol style="list-style-type: none"> 1.Increase interactive activities with parents in learning activities, and communicate more about learning situations with parents. 2.Discuss with parents after class to understand their learning progress. 3.For parents with learning difficulties, individual counseling and guidance should be provided.

Phase IV: Results of Curriculum Implementation

After piloting the curriculum and revising and improving it, the researcher implemented an experimental study of the curriculum for a total of ten weeks. The researcher recruited 15 parents who voluntarily participated in curriculum learning in Chongqing through voluntary registration. The experimental time was every Saturday

morning from 9:00 to 12:00 in the professional classroom of the Department of Special Education of Chongqing Normal University.

There were 11 mothers, 3 father and 1 grandfather. The basic information for parents participating in the curriculum as follow.

TABLE 27 Basic information of curriculum learners

	male	Female	Total
age of their children			
-2-3years	1	2	3
-3-4years	0	3	3
Table. 4-14 Continued			
-4-5years	1	2	3
-5-6years	1	1	2
-6 years onward	1	3	4
Gender of their children			
-male	4	8	12
-female	0	3	3
Main city/suburb counties			
-main city	1	8	9
--suburb counties	3	3	6

As can be seen from the table, most of the parents who participated in the curriculum were mothers. In addition to the parents, there was also a grandfather who participated in the curriculum. Their children all have diagnosis certificates of autism and are aged between 2 and 7 years old.

The results were as follows.

4.1 Pre-and Post-Test Changes in Parent-Child Communication Abilities

Before and after the implementation of the curriculum, the researcher guided parents to evaluate the parent-child communication abilities of themselves and their children when interacting, the data for the pre- and post-tests were shown in

Appendix 22. Then the research conducted data analysis on the evaluation results, compared the mean, standard deviation and median, and conducted pre- and post-test data Significance test. The results were shown in the table below.

TABLE 28 Evaluation results of parent-child communication abilities

Lists of evaluation	Full score	Pre-test		Post-test		t	p
		X	SD	X	SD		
ability to constructing a good communication environment	28	7.73	2.02	21.73	2.19	47.819	<.001
Ability to eliciting communication behaviors in children	40	11.53	4.48	31.73	3.28	28.379	<.001
ability to understand the communication information expressed by the child	24	8.87	4.48	18.4	3.28	19.207	<.001
ability to assist children in understanding communication information	16	2.60	1.18	12.33	1.54	7.124	<.001
Overall performance	108	7.68	3.04	21.05	2.52	50.680	<.001

** p<0.01

As evident from the table above, both before and after the curriculum implementation, there were substantial improvements in the parent-child communication abilities of parents of autistic children across all sub-domains and the average total score. Its overall average score improved from 7.68 to 21.05. The curriculum could improve parents' parent-child communication abilities. At the same time, except for the slight increase in the standard deviation of abilities to assist children in understanding communication information, the standard deviations of most other areas and the total score had decreased, and the average score of the total standard deviation had

decreased from 3.04 to 2.52. Thus, through curriculum study, the difference in parent-child communication abilities between parents was shrinking.

At the same time, the parent-child communication abilities of the parents who participated in the experiment had changed before and after learning the communicating partner curriculum, and there had been a certain improvement in each element. All p-values were less than .001 shows significant statistical differences. And all changes had significant differences.

The results of the statistical data can be found in the appendix 23.

4.2 Qualitative data analysis of curriculum experiments

During the implementation of the curriculum, the researcher collected process data on parents' learning (such as parents' WeChat chat records, parents' curriculum study notes, photos of interactions between parents and children, records of inter-class exchanges between parents and researchers, etc.). Following the curriculum, the researcher engaged in discussions with participants to assess the effectiveness of the curriculum and gathered their suggestions for improvement. Content analysis methodology was employed to systematically organize and summarize these materials. The specific contents were as follows.

① Parents had a better understanding of children with autism and could better accept their children.

Through the curriculum, many parents said that they have a better understanding of the communication abilities and sensory characteristics of children with autism, which helped them better accept and guide their children.

"For the first time, I have understood so comprehensively that it is not easy for children to speak. I used to only let them imitate us adults in speaking. I didn't expect that speaking requires children to have so many basic abilities. It seems that we need to slowly teach children Guide"

(chat record between researcher and parents 8).

"After listening to your class, I have a better understanding of children's behavior, abilities and development"

(WeChat chat record between researcher and parent 9).

② Parents could play better with their children.

How to play with their children is a confusion for many parents. Through curriculum study and discussions between parents, parents said that they can play with their children better and had more ways to play with their children.

"Last night, for the first time, I experienced the emotional synchronization with my child. I played a squeezing game with him. The child was very happy and really looked at me with emotion. I could feel the light in his eyes. It was like a look in his eyes. Eye contact, pleasure, and emotion are all online"

(WeChat chat records between researcher and parent13).

"I handed in two homework at the end. I'm happy. The bubble-making game was so stress-relieving. The whole family had a great time."

(Researcher and parent 2 WeChat chat record).

③ Parents increased the methods and strategies for communication and interaction with their children.

In the past, parents preferred to use spoken language to communicate with their children. Meanwhile, parents believed that improving their children's language communication abilities requires face-to-face language rehabilitation training. Through study, parents had more strategies to communicate with their children. Not only that, they also understood that in addition to face-to-face language communication training, children could also improve their language communication abilities in daily life and games. This not only increases the effectiveness of language training, but also

enhances the parent-child relationship between parents and children, helping to improve their quality of life. For example: Used visual cues to help children understand the rules of poker:

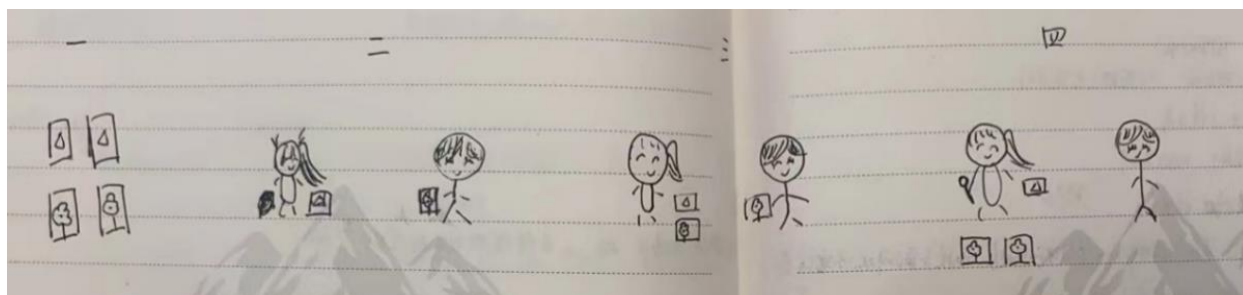


FIGURE 14 Visual prompts offered by parents to their children during play

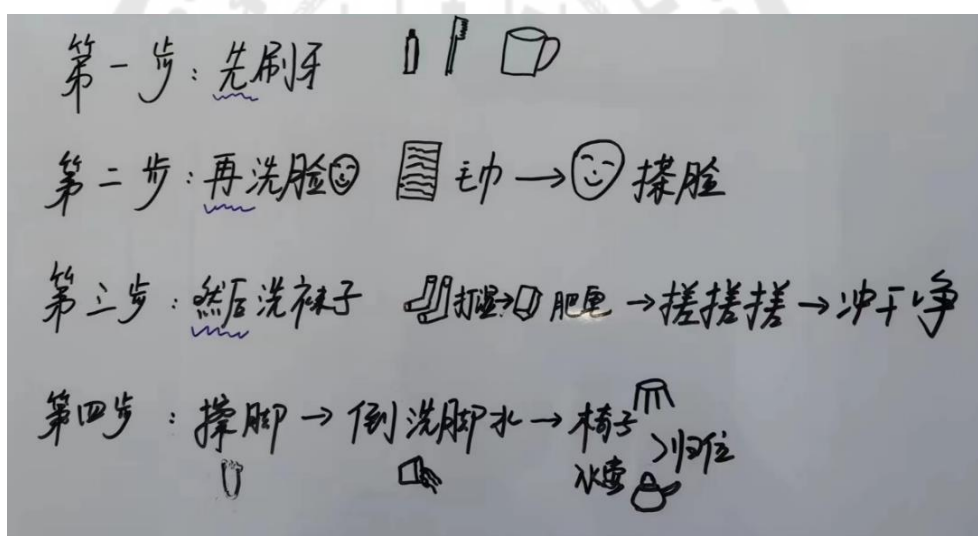


FIGURE 15 Visual signals offered by parents to their children during everyday activities



Figure.16 children with autism in daily life activities and game activities.

For example: Promoted children's communication abilities in daily life activities and game activities.

④ Parents' self-acceptance and mood gradually improved.

Parents' emotions affect their state of communication with their children and the communication methods they choose. Through curriculum study, many parents had improved their self-acceptance and their emotions had become better and better.

"I found that Hongyi's father always had a frown when he first came to class, but now he smiles more and more".

(chat record between researcher and research assistant).

"After listening to your class, I see the problem more clearly and my mentality is more peaceful".

(WeChat chat record between researcher and parent 9).

⑤ Parents' reflective abilities and adjustment abilities were improved.

Parents not only learned the strategies and abilities of communicating partners, but also hoped that they can learn to self-reflect and adjust based on the results of reflection, so that they could continue to learn and make progress after the curriculum was over.

"Parents have made many adjustments to the activity of playing poker with their children under the guidance of the researcher, constantly finding methods that suit their children"

(WeChat chat records between researcher and parent14).

"Through recent studies, I found that recording videos can review the pattern of getting along with children, which can help identify problems and correct them. It is a good method. It just consumes too much memory on my phone. I have to find a way to solve this problem."

(Research WeChat chat record between researcher and parent 2).

⑥ The child's communication abilities had improved.

The purpose of the communicating partner curriculum was to improve parents' parent-child communication abilities. Therefore, it did not involve the assessment and recording of children's communication abilities, but the research results showed that by the end of the study, through parents' participation in the curriculum and adjusting their communication methods with their children, the children's communication abilities had also improved.

"Yesterday we were video chatting with grandma (we haven't seen her for a long time). Although he didn't let her hang up. He said he wanted to watch more, so he couldn't bear to hang up with grandma."

(Researcher and parent 2 WeChat chat record).

"When I moved bricks back to my hometown, I watched very carefully. My attention to people has improved a lot, so I knew I wanted to get started. And he also participated in playing with the children."

(Researcher and parent 9 WeChat chat record).

It can be seen from the above that through the communicating partner curriculum, parents' parent-child communication abilities had been truly changed. Not only that, some parents reported that their children's communication abilities have also improved through the communicating partner curriculum.

V Results of Curriculum Evaluation and Revision

After the curriculum, the researcher invited parents to fill in a curriculum learning evaluation form. the results were as follows:

5.1 Parents Show High Satisfaction with the Curriculum

The parents who participated in the curriculum expressed their satisfaction with the objectives, learning content, and learning arrangements of the curriculum, believing that the curriculum had changed the way they view their children, enabling them to master more communication and interaction strategies and methods with their children.

Among them, parents' ratings for curriculum objectives, curriculum content, curriculum learning methods, and overall curriculum learning effectiveness were summarized in the table below.

TABLE 29 Parental evaluation of curriculum(n=15)

Items	Min.	Max.	Avg.	Std Dev
Curriculum objectives	3	5	4.53	.640
Curriculum content	4	5	4.67	.488
Curriculum learning methods	4	5	4.87	.352
Study seat arrangement	4	5	4.93	.258
Curriculum resources (learning materials such as PowerPoint)	4	5	4.87	.352
Curriculum schedule	4	5	4.93	.258
Curriculum effectiveness	4	5	4.87	.352
total	31	35	33.67	1.113

This evaluation form requires parents to rate the curriculum learning based on their own feelings, with a score of 0-5, and a total score of 35 points. From the above table, the scores of most options are between 4-5 points, and the average score of each option was higher than 4.5 points. The total score was between 33 and 35 points, with an average score of 33.67 points. Parents had a high level of satisfaction with the communicating partner curriculum.

In addition, parents also expressed some specific gains from the curriculum learning.

I feel that the videos the teacher showed us had a great impact on me. I used to rarely observe children so seriously.

(Interviewed Parents 2).

"I think discussions with other parents have been very helpful to me, and the path they have taken before can give me a lot of inspiration".

(Interviewed Parents 3).

5.2 Parents' Suggestions for the Curriculum

To have a more objective understanding of the problems in the curriculum and facilitate curriculum adjustments, the researchers had compiled suggestions from parents regarding the curriculum, as shown in the table below.

TABLE 30 Curriculum suggestions of parents

Frame	Key points analysis	Summary of the interview
Curriculum objectives	Curriculum objectives should be clearly	<i>"Although the teacher always talks about the learning content of this class, I don't quite understand if that is the curriculum objective? What is the relationship between curriculum objectives and curriculum learning content?"</i> (Interviewed Parents 1)
	The evaluation method of curriculum objectives should be more specific	<i>"Although we practiced after each class and received guidance and feedback from the teacher, I am not sure if I have achieved the goals required by the teacher. It would be even better if I could know whether I have achieved my objectives after each study."</i> (Interviewed Parents 4)
Curriculum Content	Some of the curriculum contents is a bit difficult.	<i>"I think the selection of communication goals is a bit difficult. There are too many abilities that children need to supplement, and I want to give them everything. I don't know how to determine the most important goal."</i> (Interviewed Parents 1)
Curriculum Implementation	More practical operations are needed.	<i>"Although I practiced the strategies I learned in class at home every week, the teacher also provided timely feedback. However, I still don't know how to apply some of the strategies, and it would be even better if the teacher could provide hands-on guidance for my child."</i> (Interviewed Parents 5)
		<i>"I suggest practicing each strategy in class so that you can receive timely guidance from the teacher."</i> (Interviewed Parents 3)
	"The curriculum schedule can be more flexible."	<i>I always sit with familiar parents in class and discuss with those parents. It would be even better if we could communicate with more parents.</i> (Interviewed Parents 2) <i>I suggest offering a combination of online and offline curriculum, so that when parents attending the training must take leave due to unforeseen circumstances, they can receive more assistance by watching online curriculum.</i> (Interviewed Parents1)
Curriculum	hope to have review materials available	<i>"For me, I hope to have more review materials besides PPTs. Sometimes when I go back to look at the teacher's PPT, I can't recall how the teacher</i>

Resources		<i>explained these strategies and what are the precautions needed?"</i> (Interviewed Parents 5)
other	More in-depth training.	<i>"I hope that after the curriculum ends, the teacher can provide ongoing support. Once we return and practice for a while, if we encounter new problems, we can continue our learning. Only in this way can we continually improve."</i> (Interviewed Parents 2)

5.3 The Social Effects of Communicating Partner Curriculum

At an international conference, the researcher presented "A New Perspective on Communication Barrier Rehabilitation: Practical Exploration of Communicating Partner Curriculum" and conducted in-service teacher training on curriculum's content. This received widespread recognition from the attendees. In addition, the researcher also provided communicating partner-related training to some special education teachers and autism education and rehabilitation professionals.

Participants in the training stated that the curriculum provided significant insights into transforming their educational approaches and methodologies for teaching communication abilities to children with autism. The social effects of the curriculum were shown in Appendix 24.

5.4 Results of Adjustments to the Curriculum after the Curriculum Experiment

Based on the results of curriculum implementation and feedback from parents, the researchers had adjusted the curriculum, as shown in the table below.

TABLE 31 Curriculum suggestions, review. And revisions table after curriculum

Suggestions	Curriculum revision status
Curriculum objectives should be clearly	Add explanations of curriculum objectives in each unit of learning.
The evaluation method of curriculum objectives should be more specific	Add a learning objective sequence table, guiding parents to fill it out at the end of the curriculum to help them understand the achievement of curriculum objectives.
Some of the curriculum contents is a bit difficult.	Shorten the overall teaching time from 3 hours to 2.5 hours, with a break for parents in between to address any questions they may have.

	Increase the review time before class ends from 10 minutes to 15 minutes for addressing parent inquiries. If there are no questions from parents, randomly select a video of a parent's class for feedback.
ore practical operations are needed.	Provide personalized guidance to parents. If necessary, schedule a time to join during the learning period. It is requested that parents bring their children along and demonstrate the process face-to-face.
can arrange more rest time during the curriculum learning.	Adjust the curriculum schedule to a total of 150 minutes, divided into three classes with two breaks in between.

Table. 4-18 Continued

The curriculum schedule can be more flexible.	Video recording of the curriculum teaching process is provided as curriculum resources to parents. Due to the involvement of video materials from other children during the teaching process, parents need to sign a confidentiality agreement before they can access curriculum resources.
hope to have review materials available	
More in-depth training.	1.The learning group has always been reserved for answering questions that parents may encounter later. 2.Develop new advanced curriculum.

The adjusted and modified curriculum can be found in the appendix 22.

CHAPTER 5

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Curriculum development research on parent-child communication abilities of parents of autistic children. The relevant conclusions, discussions and recommendations are summarized as follows.

1 Research Conclusions

The curriculum research on parent-child communication abilities of parents of autistic children encompasses three primary objectives. The research conclusion pertaining to these objectives are outlined below.

1.1 Conclusions of Elements and Characteristics of Parent-Child Communication Abilities of Parents of Autistic Children

The parent-child communication abilities of parents of autistic children encompass four elements: constructing a good communication environment, eliciting communication behaviors in children, Understanding the communication information expressed by the child, and Assisting children in understanding communication information.

Constructing an effective communication environment entails parents of autistic children optimizing both the physical and psychological settings, as well as communication channels, in accordance with the child's characteristics and communication abilities. This ensures accurate transmission and comprehension of information with the child. This element contains seven characteristics are embracing children, embracing themselves, equality, empathetic children, playfully engaging with children, Flexibility in adjustments and arranging a suitable physical environment for communication.

Eliciting communication behaviors in children refers to the ability to induce their communication behaviors to help them communicate better. This element includes 10 characteristics: interest induction, exaggerating to amplify communication cues, pausing, and waiting, imitating, following, and joining, breaking routines, intentionally

playing dumb, observing, responding and persistent pursuit.

Assist children in understanding communication information refers to the ability of parents to encode their own feelings, thoughts, etc. in the brain, and choose an appropriate method to pass them on based on the child's ability, experience, etc., so that the child can understand their own thoughts. This element includes six characteristics: staying curious, listening, speculating about children's expressions, expanding children's language, demonstrating language, and assisting children in expression.

Understand the communication information expressed by the child refers to the ability of parents to receive information conveyed by their children using verbal and non-verbal forms, decode it, and analyze the decoded information based on their own experience and abilities to understand the child's meaning. This element includes four characteristics: Utilizing various forms and degrees of communication cues, adjusting adult communication style, structured activities and providing support.

1.2 Conclusions of Design and Develop Communicating Partner Curriculum

The Communicating Partner Curriculum encompasses various components, including background, nature, theoretical basis, principles, objectives, content, implementation, resources, and evaluation. These elements collectively contribute to the structure and effectiveness of the curriculum.

1.2.1 The curriculum background encapsulates the rising prevalence of children with autism in children, posing significant challenges to their educational and rehabilitative endeavors. It underscores the indispensable role of parents in nurturing their children's communication abilities; while also shedding light on the myriad challenges they confront in this journey. This backdrop serves as the impetus for developing a curriculum tailored to address these pressing needs and enhance parent-child communication dynamics within the context of autism.

1.2.2 The nature of the curriculum emphasizes that this curriculum is a set of parent training curriculums that emphasizes practice and considers theory.

1.2.3 The theoretical foundation of the curriculum includes information transfer theory, behavioral learning theory, and relationship-based development theory, which are three theories that organize curriculum content, as well as transformative learning theory, which is a theory that organizes curriculum learning.

1.2.4 The curriculum goal is mainly to improve the parent-child communication abilities of parents of autistic children, including improving constructing a good communication environment, eliciting communication behaviors in children, Understand the communication information expressed by the child and Assist children in understanding communication information. individual abilities and corresponding sub-abilities.

1.2.5 The curriculum content includes three modules, namely Establishing Communicating Partner Awareness, Communicating Partner Strategies, and Application of Communicating Partner Strategies. Within these three modules, there are ten units of study. The study time of each study unit is 150 minutes, divided into three classes, with a 10-minute break in the middle of each class.

1.2.6 The curriculum is implemented using the theory of transformational learning, mainly by inducing parents to discuss and reflect on their own communication behaviors and ideas with their children, and to adjust and establish new ideas and behaviors when communicating with their children. Among them, case analysis, group discussion and other methods are of great help to parents' learning.

1.2.7 Curriculum resources include teaching PPTs for each unit, study sheets, and various learning-related videos, especially videos of parents and children participating in the training, which play a very important role in parents' enthusiasm and participation in curriculum learning.

1.2.8 Curriculum evaluation adopts a combination of qualitative evaluation and quantitative evaluation. The qualitative evaluation includes videos of parents interacting with their children, homework completed by parents, and responses in class during the curriculum learning process. The quantitative evaluation is the ratings made

by parents before and after the curriculum, using the "Parent-Child Communication Abilities Evaluation Form for Children with Autism".

1.3 Conclusions of Effectiveness of Communicating Partner Curriculum

Through the implementation of communicating partner curriculums, significant results have been achieved, with special emphasis on improving parent-child communication abilities. The curriculum is designed to emphasize the active communication abilities of children with autism as its core, focusing on creating a positive parent-child communication environment to promote children's social abilities and language development. Throughout the implementation phase, particular emphasis is placed on fostering parents' sensitivity and comprehension, enabling them to respond adeptly to the nuanced emotions and requirements of children with autism.

In evaluating the parent-child communication abilities of parents with autistic children before and after the curriculum, notable advancements were observed. Participants who engaged in the curriculum demonstrated substantial progress in their communication abilities, with their average score on parent-child communication abilities escalating from 7.68 to 21.05. Paired sample t-tests conducted on the pre- and post-test scores yielded p-values all below .001. These findings underscore the significant impact of the curriculum in enhancing the parent-child communication abilities of parents of children with autism.

At the same time, after the curriculum, the results of the parent satisfaction survey and open-ended interviews showed that parents were highly satisfied with the curriculum learning. They believed that through curriculum learning, their mentality towards their children and the way they communicate with their children have changed. Most parents expressed their willingness to continue studying related curriculums if time permits.

While the curriculum primarily targets the parent-child communication abilities of parents with autistic children, it also addresses the broader domains of social engagement and language development in autistic children. Qualitative study findings reveal that through adjustments in parental mindset and enhancements in

communication strategies, parents can effectively facilitate the social integration of autistic children within the family unit. Additionally, notable improvements were observed in the communication and language abilities of these children as a direct outcome of these parental interventions.

In summary, the curriculum on improving parent-child communication abilities of parents of autistic children has achieved significant implementation results in strengthening parent-child communication abilities, providing a solid foundation for them to better establish a deep connection with their children. This provides useful experience and guidance for the design and implementation of similar curriculums in the future.

2 Discussion

From the research results, the communicating partner curriculum enhanced the abilities of parents of autistic children to communicate with their children by establishing a sense of communicating partner and mastering communicating partner strategies. The researcher discussed the following three aspects based on their research objectives:

2.1 Discussion on the Elements and Characteristics of Parent-Child Communication Abilities in Children with Autism

2.1.1 The elements of parent-child communication abilities in children with autism

Although there were currently many studies exploring the elements and characteristics of communication abilities (Jiao, 2018; Liu et al., 2022; Zhang & Duan, 2018), there were also some studies exploring the elements and characteristics of parent-child communication abilities (Dai & Sun, 2020; Duan, 2017; Wang. et al., 2009). Limited research exists specifically addressing the elements and characteristics of parent-child communication abilities in children with autism. However, select studies on parental interventions for autistic children sporadically touch upon the features of parent-child communication abilities in this population. For this reason, information clues in this field are complex and scattered, and researcher adopted framework theory as an effective tool for integrating and analyzing that information. Framework is a valuable tool

for understanding and organizing experiences, which can make different action segments in social interaction organized and systematic, and thus extract truly meaningful content from a large amount of information (Yang et al., 2023). Framework theory not only helps us organize and extract information, but also highlights the core definition of things, explains their internal relationships, and reveals problem-solving strategies (Li, 2021).

Since Transactional model of communication can comprehensively explain the elements involved in interpersonal communication process (Meng, 2010; Cerrone & Maekivi, 2021) this theory was chosen as the framework for studying the elements involved in parent-child communication abilities of children with autism. Firstly, the three elements of reasoning ability, expression ability, and the ability to create a good communication environment were identified (Owen & David,2021; Shan, 2021). Taking into account the communication dynamics between parents and children (Elizabeth, 2015; Hanne et al., 2022), with a specific focus on the nuances of communication in families with autistic children (Edmunds et al., 2019; Ganz et al.,2022), as well as the characteristics of communication abilities of autistic children (Xu et al., 2020), these three elements were specifically described and expanded, and the elements involved in parent-child communication abilities of autistic children were identified as constructing a good communication environment, Edifying communication behaviors in children, and Understanding. The communication information expressed by the child and Assist children in understanding communication information. These four elements were derived through theoretical analysis and validated during interviews with five experts specializing in the education and rehabilitation of children with autism, each possessing extensive practical expertise. Among them:

Constructing an optimal communication environment serves as the cornerstone for fostering effective communication (Owen & David,2021). This ability holds particular significance for parents navigating the complexities of communication with autistic children. Given the inherent communication challenges faced by children on the autism spectrum, parents often find themselves at a disadvantage, leading to

potential instances of communication avoidance. Previous researchers have also made similar findings (Brooke & Anna, 2020; Dong et al.,2021). Thus, cultivating an environment conducive to open and supportive communication becomes paramount in facilitating meaningful interactions between parents and their autistic children. If parents can adjust themselves and establish an accepting and respectful communication environment for their children when communicating with them, it will be of great help in promoting communication between parents and autistic children and improving their communication abilities (Xu et al., 2020).

Eliciting communication behaviors in children is a element that was less often addressed by researchers in other studies on communication abilities or parent-child communication (Chi, 2011; Edmunds et al., 2019; Vivienne et al., 2016). Researcher primarily chose this element considering the deficiency in proactive communication abilities among children with autism (Kushner et al.,2023; Xu et al., 2020). These children require individuals communicating with them to employ specific methods to attract and sustain their communication motivation (Macdonald, J. ,2011; Brooke & Anna, 2018), enabling them to better and more actively engage in communication.

Understanding the communication information expressed by the child is a very important element of communication abilities mentioned in Transactional model of communication (Owen & David,2021). Regardless of the communication relationship, both parties involved in communication need to have a foundation of understanding each other to communicate better (Robert, 2020). For communication between parents and children of children with autism, this basic communication abilities is equally important.

Assist children in understanding communication information comes from the ability to express themselves in information transmission patterns. Expressive ability is also a very important element of communication abilities mentioned in Transactional model of communication (Owen & David,2021). However, due to the weak understanding ability of children with autism, those who communicate with them not only

need to have ordinary expression abilities, such as clear speech and flow (Liu et al., 2022). It is even more necessary to master some strategies to help children with autism better understand (Brooke & Anna, 2020) to make communication smoother.

2.1.2 The Characteristics of Parent-Child Communication Abilities in Children with Autism

Using the identified four elements as a framework, the researcher proceeded to employ framework theory to systematically gather, synthesize, and structure information pertaining to the parent-child communication abilities of children with autism, integrating both theoretical insights and practical observations. This comprehensive approach facilitated the incorporation of relevant findings into the framework of the four elements, enhancing the depth and breadth of understanding in this domain.

At the theoretical level, to make the literature review as comprehensive and accurate as possible to ensure its scientific and completeness (Yu, 2017), the researcher collected literature related to parent-child communication abilities of children with autism from two aspects. On one hand, the literature clearly proposes training programs aimed at promoting parental communication abilities and enhancing communication abilities in children with autism. These literatures involved many characteristics of parent-child communication abilities that parents of children with autism need to possess, such as Play and Engage, Notice and Response, Imitate, Observe and Response, pauses, etc. (Guthrie et al., 2023; Kaiser & Roberts, 2013; Liu & Feng, 2018; Liu, 2020; Pickles et al., 2016; Sally et al., 2016). On the other hand, although the literature does not explicitly mention the improvement of parents' communication abilities, it also involves the characteristics of communicators who enhance communication abilities in children with autism, such as Providing. Nonverbal cues (Drew et al., 2002; Brooke & Anna, 2020), Clarifying ability (Kathleen, 2015), accepting the misses of children (Chen & Zhang, 2015), sensitive behavior (Pickles et al., 2016), responding (Edmunds et al., 2019), etc. Within the framework of the four elements, the above information was subjected to keyword extraction and encoding,

and then classified and integrated into characteristics of parent-child communication abilities in children with autism.

At the practical level, to ensure the rationality and applicability of the collected characteristics of parent-child communication abilities of children with autism, experts with solid theoretical foundations and rich practical experience in relevant fields were invited to conduct interviews. They were asked to help clarify and confirm the information obtained through theoretical research (Yu, 2017), and supplement the above information based on practical experience.

Through the above path, the research resulted on the elements and characteristics of parent-child communication abilities in children with autism have high reliability and validity. This was confirmed by the evaluation results of Objective Consistency Index (IOC) by experts and the statistical data filled out by 43 parents.

2.2 Discussion on the results of design and development for communicating partner curriculum

2.2.1 Discussion on the methods and processes for designing and developing communicating partner curriculum.

The communicating partner curriculum has a strong goal-oriented approach, which clearly hopes that parents can effectively improve their parent-child communication abilities through curriculum learning. Therefore, a goal-oriented curriculum development model is adopted for the design and development of this curriculum. During this process, the researchers followed a systematic curriculum development process and demonstrated through steps such as collecting data—preliminary design—expert evaluation—revision—parental trial—re-revision—parental formal use—re-revision (shi,1994;Zhong,2015). They made repeated adjustments and scientifically and reasonably solved key issues in goal-oriented curriculum, such as determining curriculum principles, analyzing curriculum objectives, selecting curriculum content, organizing curriculum learning, and implementing curriculum evaluation (Huang & Yang, 2021), completed the work of curriculum design and development in a more standardized manner.

2.2.2 Discussion on methods for designing and developing curriculum elements.

Researcher designed the five principles of communicating partner curriculum based on various theoretical foundations and the essence of relevant concepts, combined with data collected from expert and parent interviews during curriculum needs analysis (Shi, 1994). Based on the results of the assessment of parent-child communication abilities in children with autism, as well as data from expert interviews and parent interviews, seven main curriculum objectives and several specific learning objectives of the Communicating Partner curriculum were designed. Based on various theoretical foundations and the essence of relevant concepts, as well as the data collected during curriculum analysis, designed the curriculum contents of the Communicating Partner curriculum, consisting of three modules and nine units. Based on the characteristics of parents as adult learners and the foundation of transformative learning theory, elements such as learning methods, curriculum resources, and curriculum evaluation methods had been designed for the curriculum. These methods of designing and developing curriculum elements are in line with the ideas and requirements of curriculum design and development (Huang & Yang, 2021).

2.3 Discussion on the results of the implementation effect of the communicating partner curriculum

After a ten-week communicating partner curriculum, parents of children with autism have significantly improved their parent-child communication abilities in constructing a good communication environment, Edifying communication behaviors in children, Understanding the communication information expressed by the child, and Assist children in understanding communication information, showing significant statistical differences. This result was like previous studies that had shown that the parent-child communication abilities of parents of children with autism can be improved through acquired learning (Dong et al., 2021; Pickles. et al., 2016; Sally et al., 2016).

However, during the research process, it was found that there are significant differences in parent-child communication abilities between parents, whether before or after the implementation of the curriculum. This phenomenon was also present

in earlier research (Deb et al., 2020). Some parents have good parent-child communication abilities (Brooke & Anna, 2020), while others perform poorly in parent-child communication, which is like the conclusions of some previous researchers (Wetherby & Woods, 2006). The reasons for this may be influenced by a combination of factors such as gender, age, knowledge background, personality characteristics, learning ability, and learning opportunities (Liu, 2019; Qin, 2020). At the same time, due to significant differences in age, communication abilities, and behavioral performance among children with autism, there are also significant differences in the learning needs of parents. Although researchers have paid attention to the different needs of parents in curriculum content organization, teaching media preparation, classroom discussions, and after-school tutoring, limited by the relatively traditional form of classroom organization, attention to this part is still insufficient, resulting in some differences in parent-child communication abilities among parents of children with autism after the curriculum was completed.

In addition, the study also found that by adjusting the mentality and methods of parents when communicating with their children, children with autism had improved their ability to actively communicate with others, make eye contact, and listen to instructions. This was like some previous research results, that is, the improvement of parents' communication abilities can effectively enhance the communication abilities of children with autism (Brooke & Anna, 2018; Sally et al., 2016; Wang & Mo, 2022).

3 Recommendations

Based on the findings and problems encountered by the researcher in collecting data, designing curriculums, and implementing curriculums, the following recommendations are proposed for future curriculum implementers and researchers interested in this field.

3.1 Recommendations for future curriculum applications

3.1.1 Curriculum implementers need to have a broad theoretical knowledge and strong practical abilities related to the education and rehabilitation of children with autism.

As a set of curriculums that balance theory and practice. The communicating partner curriculum not only expects parents to construct a theoretical framework to integrate more knowledge, but also expects parents to master immediately available operational strategies. These two places high demands on the implementers of the curriculum. At the same time, in addition to the curriculum goals, parents of autistic children also face problems, such as children's integrated education, self-adjustment of parents' mentality, the relationship between other brothers and sisters in the family, and so on. These issues may seem unrelated to curriculum learning, but they affect parents' perception of the professional abilities of curriculum implementers, which in turn affects their confidence in curriculum learning. Therefore, in the process of applying this curriculum, it is recommended that curriculum implementers not only familiarize themselves with the relevant content of the curriculum, but also have rich theoretical foundations, practical experience, and parental consultation and guidance experience in relevant fields, to be able to deal with issues beyond the curriculum objectives, gain parental trust, and improve the efficiency of curriculum learning.

3.1.2 Prepare curriculum resources authorized by parents in advance to showcase various communication strategies

The communicating partner curriculum involves many communication and interaction strategies between parents and children of children with autism. Due to lack of preparation (such as obtaining authorization from relevant parents), the researcher can only find some videos online for editing to demonstrate these strategies. On one hand, it was difficult to accurately demonstrate these strategies and their effects on children, and on the other hand, it also caused difficulties for curriculum implementer in lesson preparation. Therefore, it is recommended that before the implementation of the curriculum, the curriculum implementer should be fully familiar with the various communication and interaction abilities involved in the curriculum, prepare curriculum resources in advance based on these abilities, and obtain parental authorization for public disclosure.

3.1.3 Provide placement plans for children with autism who are left unattended by their parents during curriculum learning

Although the researcher emphasized to parents before the start of learning that they should not bring their children to participate in curriculum learning, but sometimes parents may encounter some special situations, such as their spouse having a temporary job, the elderly getting sick, etc. If there is no one to take care of the children, they will bring them to the classroom, which will affect the progress of the curriculum. Therefore, it is recommended that curriculum implementers plan the placement plan for these children in advance, such as arranging curriculum assistants, planning safe and playable areas for children, etc.

3.2 Recommendations for future research

3.2.1 Conduct in-depth research from multiple perspectives on the constituent elements and characteristics of parent-child communication abilities in children with autism

The research found that different researchers approached the discussion of communication abilities and parent-child communication abilities from various perspectives, resulting in a diverse set of elements and characteristics for these abilities. Thus far, researchers primarily analyzed and studied this issue from the perspective of Transactional model of communication. To reveal the components and characteristics of parent-child communication abilities more comprehensively in children with autism, future researchers can explore this issue from different theoretical perspectives and angles. This approach will enable a more comprehensive demonstration of the elements and characteristics of parent-child communication abilities in children with autism.

3.2.2 Expanded Research Objectives: Including the Enhancement of Communication Abilities in Children with Autism

This study focused on improving the parent-child communication abilities of the parents with autistic children and did not specifically explore the changes in the communication abilities with autistic children. However, some parents reported an improvement in their children's communication abilities during or after the study. Future

researched could expand its objectives to include the assessment of communication abilities in children with autism. This would allow parents to not only focus on their own changes but also observe their children's progress, thereby increasing their confidence and motivation in the curriculum, and enhancing the efficiency of learning.

3.2.3 Exploration of Long-Term Mechanisms for the Curriculum

This study only assessed the parent-child communication abilities of parents after the curriculum ended. However, it did not delve into whether parents' communication abilities continue to improve after completing the curriculum, or if they require further support. Future researchers could explore the long-term mechanisms of the curriculum after its completion in more depth.



REFERENCES

- Alfrey, L. (2023). An expansive learning approach to Early Social Interaction Project on transforming traditional fitness testing in health and physical education: Student voice, feelings and hopes. *Curriculum Studies in Health and Physical Education*, 15(1), 24-39. <https://doi.org/10.1080/25742981.2023.2183477>
- Bai, R. (2015). *A case study of using natural context teaching to promote communication behavior in children with severe intellectual disabilities* [Master's thesis, East China Normal University].
- Barberis, M. & Vandermosten, M. (2023). The role of education, concept knowledge, work setting and clinical experience in communication partner training: A survey of Flemish speech and language therapists. *International Journal of Language & Communication Disorders*, 58(6), 2117-2130. <https://doi.org/10.1111/1460-6984.12928>
- Beukelman, D.R. & Mirenda, P. (2020). *Augmentative and alternative communication: Supporting children and adults with complex communication needs* (4th ed.) (Chen, M. & Peng, Y. Trans.). HuaXia Publishing. (Original work published 2012).
- Bhana, N., Raulston, T. J., Ousley, C. & Bagawan, A. (2024). Photographs and parent training to support conversations about past events between caregivers and children with autism. *Advances in Neurodevelopmental Disorders*, 8(2), 311-323. <https://doi.org/10.1007/s41252-023-00333-6>
- Brooke, I. & Anna, D. (2018). *Teaching social communication to children with autism: A manual for parents* (Wu, J. Q. et al., Trans.). Taipei: Hongye Culture Business Co. (Original work published 2015).
- Brooke, I. & Anna, D. (2020). *Teaching social communication to children with autism and other developmental delays: the Project ImPACT Guide to Coaching Parents*. (Jiang, Z. X. et al. Trans.). Taipei: Hongye Culture Business Co. (Original work published 2019).
- Cai, L. J., Qiu, L. F. & Li, Q. J. (2023). Communication Experience of Communication

- Partners with Post-stroke Aphasia: A Qualitative Study. *Military Nursing*, 40(2), 6-9.
- Cameron, A., Mcphail, S., Hudson, K., Fleming, J., Lethlean, J. & Finch, E. (2019). Telepractice communication partner training for health professionals: A randomised trial. *Journal of Communication Disorders*, 81(9), 105914.
<https://doi.org/10.1016/j.jcomdis.2019.105914>
- Cameron-Faulkner, T., Melville, J. & Gattis, M. (2018). Responding to nature: Natural environments improve parent-child communication. *Journal of Environmental Psychology*, 59, 9-15. <https://doi.org/10.1016/j.jenvp.2018.08.008>
- Cañas Miguel, M., Ibabe Erostarbe, I., Arruabarrena Madariaga, M. I. & Paúl Ochotorena, J. D. (2021). Dyadic parent-child interaction coding system (DPICS): Factorial structure and concurrent validity. *Psicothema*, 33(2), 328-336.
<https://doi.org/10.7334/psicothema2020.429>
- Carrington, S., Mercer, K. L., Iyer, R. & Selva, G. (2015). The impact of transformative learning in a critical service-learning program on teacher development: Building a foundation for inclusive teaching. *Reflective Practice*, 16(1), 61-72.
<https://doi.org/10.1080/14623943.2014.969696>
- Centers for Disease Control and Prevention. (2023). *DSM-5 revision tweaks autism entry for clarity*. *Spectrum News*. <https://www.spectrumnews.org/news/dsm-5-revision-tweaks-autism-entry-for-clarity/>
- Cerrone, M. & Maekivi, N. (2021). A zoosemiotic approach to the transactional model of communication. *Semiotica*, 2021(242), 39-62. <https://doi.org/10.1515/sem-2020-0052>
- Charles, R. B. & Michael, E. R. (2019). *An integrated approach to communication theory and research* (3th ed.). Routledge.
- Chen, L. F., Wang, H., Li, H. F., Ding, L., Zhou, S. S. & Peng, F. F. (2022). A study on the efficacy of pivotal response treatment combined with video-feedback intervention of parent training on children with autism spectrum disorders. *Chinese Journal of Rehabilitation Medicine*, 37(8), 1073-1078.

- Chen, X. J. & Zhang, T. (2015). *Language and speech therapy for children with special needs*. Nanjing Normal University Press.
- Chen, X. M. (2000). *Qualitative research methods and social science research*. Educational Science Press.
- Chen, X. Y. (2017). Emotions? No problems-Positive parenting group helps parent-child communication. *Chinese Social Work*, (33), 24-25.
<https://doi.org/10.3969/j.issn.1674-3857.2017.33.014>
- Chi, L. (2011). A three-level model of parent-child communication: Theory, scale and application in Chinese 5th and 6th graders. *Psychological Development and Education*, 27(2), 140-150.
- China Disabled Persons' Federation. (2022). *Notice on standardizing titles for persons with disabilities and disability work in propaganda and reporting*.
<http://www.capidr.org.cn/news2066.html>
- Colegrove, V. M. & Havighurst, S. S. (2017). Review of nonverbal communication in parent-child relationships: Assessment and intervention. *Journal of Child and Family Studies*, 26, 574-590. <https://doi.org/10.1007/s10826-016-0563-x>
- Dai, M. N. & Sun, Y. M. (2020). Research on early parent-child interaction of children with autism spectrum disorders. *Chinese Journal of Special Education*, 239(5), 47-53.
<https://doi.org/10.3969/j.issn.1007-3728.2020.05.009>
- Dale, H. S. (2012). *Learning theories an educational perspective* (6th ed.). Pearson.
- Deb, S., Retzer, A., Roy, M., Acharya, R., Limbu, B. & Roy, A. (2020). The effectiveness of parent training for children with autism spectrum disorder: a systematic review and meta-analyses. *BMC Psychiatry*, 20, 1-24. <https://doi.org/10.1186/s12888-020-02973-7>
- Delehanty, A., Hooker, J. L. & Wetherby, A. M. (2023). Verbal responsiveness in parents of toddlers with and without autism during a home observation. *Journal of Autism and Developmental Disorders*, 5, 1-14. <https://doi.org/10.1007/s10803-023-05935-6>
- Dong, P., Liu, J., Li, L., Wang, P. N. & Xu, S. (2021). A Review of Remote Training for Parents of Children with Autism Spectrum Disorders Abroad. *Modern Special*

Education (Research in Higher Education), (10), 32-38.

<https://doi.org/10.3969/j.issn.1004-8014.2021.10.005>

Drew, A., Baird, G., Baron-Cohen, S., Cox, A., Slonims, V., Wheelwright, S., Swettenham, J., Berry, B. & Charman, T. (2002). A pilot randomised control trial of a parent training intervention for pre-school children with autism: Preliminary findings and methodological challenges. *European Child & Adolescent Psychiatry*, 11, 266-272.

<https://doi.org/10.1007/s00787-002-0299-6>

Duan, X. (2017). *A case study on the improvement of parent child communication in autistic children* [Master's thesis, Northwest Normal University].

Duggal, C., Dua, B., Chokhani, R. & Sengupta, K. (2020). What works and how: Adult learner perspectives on an autism intervention training program in India. *Autism*,

24(1), 246-257. <https://doi.org/10.1177/1362361319856955>

Edmunds, S. R., Kover, S. T. & Stone, W. L. (2019). The relation between parent verbal responsiveness and child communication in young children with or at risk for autism spectrum disorder: A systematic review and meta-analysis. *Autism Research*, 12(5),

715-731. <https://doi.org/10.1002/aur.2100>

Ellen, G. & Marcia, R.G (2017). *Nursing of Autism Spectrum Disorder, evidence-based Integrated Care across the Lifespan*. (Xu, B.Q. et al. Trans.). Taipei: Psychology (Original work published 2012).

Factor, R. S., Glass, L., Baertschi, D. & Laugeson, E. A. (2022). Remote PEERS® for preschoolers: A pilot parent-mediated social skills intervention for young children with social challenges over telehealth. *Frontiers in Psychiatry*, 13, 1008485.

<https://doi.org/10.3389/fpsy.2022.1008485>

Finch, E., Fleming, J., Cameron, A., Lethlean, J., Hudson, K., Dassanayake, S. & Mcphail, S. M. (2018). Is an educational lecture a critical component of communication partner training? *International Journal of Speech-Language Pathology*, 20(7), 779-

789. <https://doi.org/10.1080/17549507.2017.1360940>

Fumi, T. & Junichi, F. (2019). *Language development disorders* (Su, P. C., Trans.). Taipei: Hopkins Book Publishers (Original work published 2016)

- Ganz, J. B., Liew, J., Yllades, V., Liao, C. Y., Luo, W., Hong, E. R., Yoro, A. J., Rodriguez, D., Clark, S., Stein, K., Stein, K. & Ura, S. K. (2022). Communication and affective synchrony between parents and their children with autism during a multimodal communication parent-coaching intervention. *Child & Family Behavior Therapy*, 44(2), 113-134. <https://doi.org/10.1080/07317107.2022.2043683>
- Gao, Z. M. & Li, J. (2005). The research of the conversion learning theory and its development- based on the research report of lisa. *Journal of Adult Education College of Hebei University*, 7(4), 24-31.
- Giacomo, V. & Daniel, S. M. (2021). Theories of autism and autism treatment from the DSM-III through the present and beyond: Impact on research and practice. *Journal of Autism and Developmental Disorders*, 51(12), 4309–4320. <https://doi.org/10.1007/s10803-021-04887-z>
- Gong, H. (2022). *Interpersonal relationship and communication*. People's Post and Telecommunications Publishing House.
- Green, J., Charman, T., McConachie, H., Aldred, C., Slonims, V., Howlin, P., Le Couteur, A., Leadbitter, K., Hudry, K., Byford, S., Barrett, B., Temple, K., Macdonald, W. & Pickles, A. (2010). Parent-mediated communication-focused treatment in children with autism (PACT): a randomised controlled trial. *The Lancet*, 375(9732), 2152-2160. [https://doi.org/10.1016/S0140-6736\(10\)60587-9](https://doi.org/10.1016/S0140-6736(10)60587-9)
- Guo, H. X. (2023). *a study on social worker intervention on parent-child communication problems of left-behind children in urban areas under cognitive behavioral theory* [Master's thesis, Dalian Maritime University].
- Guo, X. Q., Li, H., Yang, A. J., Peng, Y. & Wang, T. T. (2018). A systematic review of interventions for social communication disorders of children with ASD in China. *Journal of Modern Special Education (Research in Higher Education)*, (12), 57-69. <https://doi.org/10.3969/j.issn.1004-8014.2018.12.011>
- Guthrie, W., Wetherby, A. M., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L. & Lord, C. E. (2023). The earlier the better: An RCT of treatment timing effects for toddlers on the autism spectrum. *Autism*, 27(8), 2295-2309.

<https://doi.org/10.1177/13623613231159153>

Hanne, R. I., Meredith, L. R., Veslemy, R. & Imac, M. Z. (2022). Features of communication in Norwegian parent-child play interactions. *First Language*, 42(3), 383-404.

<https://doi.org/10.1177/01427237211072661>

Harley, T. A. (2014). *The psychology of language from data to theory* (4th ed.). Psychology Press.

Henderson, D., Wayland, S. & White, J. (2023). *Is this Autism? A Guide for Clinicians and Everyone Else*. Routledge.

Hopper, T., Holland, A. & Rewega, M. (2002). Conversational coaching: Treatment outcomes and future directions. *Aphasiology*, 16(7), 745-761.

<https://doi.org/10.1080/02687030244000059>

Hu, W. B. & Zhao, B. (2015). Reflections on the diagnosis criteria of autism spectrum disorder in DSM-V. *Modern Special Education*, (12), 12-19.

Huang, G. & Yang, L. (2021). *Curriculum development and design: Concepts and practices*. Shi Da Shu Yuan.

Huang, M. (2022). *case work is involved in the research on the improvement of parent-child communication abilities of left-behind children in rural areas of southwest china —take G village in M city as an example* [Master's thesis, Southwest University].

Hymes, D. (1972:). *On communicative competence*. Penguin Books Ltd.

Isaev, D. Y., Sabatos-DeVito, M., Di Martino, J. M., Carpenter, K., Aiello, R., Compton, S., Davis, N., Franz, L., Sullivan, C., Dawson, G. & Sapiro, G. (2024). Computer vision analysis of caregiver-child interactions in children with neurodevelopmental disorders: A preliminary report. *Journal of Autism and Developmental Disorders*, 54(6), 2286-2297. <https://doi.org/10.1007/s10803-023-05973-0>

Isaksen, J., Beeke, S., Pais, A., Efstratiadou, E. A., Pauranik, A., Revkin, S. K., Vandana, V. P. & Valencia, F. A. (2023). Communication partner training for healthcare workers engaging with people with aphasia: Enacting Sustainable Development Goal 17 in Austria, Egypt, Greece, India and Serbia. *International Journal of Speech-*

Language Pathology, 25(1), 172-177.

<https://doi.org/10.1080/17549507.2022.2145355>

James, B.M. & Marjorie, S. (2022). Characterizing Parent–Child Interactions in Families of Autistic Children in Late Childhood. *Social sciences*, 11(3), 208-234.

<https://www.mdpi.com/2076-0760/11/3/100>

Jiao, J. (2018). *Towards an intercultural business communication competence model and assessment system* [Doctoral dissertation, University of International Business and Economics].

Jiao, J. (2019). *A study on the intervention of "problem-centered" parent training on parent-child communication for parents of children with developmental disabilities* [Master's thesis, Chongqing Normal University].

Jill, P. & Christopher, L. (2012). Assisting Communication Partners in the Setting of Treatment Goals: The Development of the Goal Sharing for Partners Strategy.

Seminars in Hearing, 33(01), 53-64. <https://doi.org/10.1055/s-0032-1304728>

Kaiser, A. P. & Roberts, M. Y. (2013). Parents as communication partners: An evidence-based strategy for improving parent support for language and communication in everyday settings. *Perspectives on Language Learning and Education*, 20(3), 96-111. <https://doi.org/10.1044/lle20.3.96>

Kathleen, A.Q. (2015). *Do-Watch-Listen-Say, Social and communication intervention for children with autism* (Yang, Z.R. et al. Trans.). TaiBei: Psychology Press (Original work published 2010)

Kent-Walsh, J. & McNaughton, D. (2005). Communication partner instruction in AAC:

Present practices and future directions. *Augmentative and Alternative*

Communication, 21(3), 195-204. <https://doi.org/10.1080/07434610400006646>

Kent -Walsh, J., Murza, K. A., Malani, M. D. & Binger, C. (2015). Effects of communication partner instruction on the communication of individuals using AAC: A meta-analysis.

Augmentative and Alternative Communication, 31(4), 271-284.

<https://doi.org/10.3109/07434618.2015.1052153>

Kushner, E. H., Britsch, E. R. & Iverson, J. M. (2023). Caregiver object labels within

- supported and coordinated joint engagement during interaction with toddlers at elevated and typical likelihood of autism. *International Journal of Language & Communication Disorders*, 58(3), 672-686. <https://doi.org/10.1111/1460-6984.12809>
- Li, J.& Xu, Y. (2016). Analysis of parent-child communication among middle school students in a certain district of Shanghai. *Chinese Journal of Health Education*, 32(5), 432-435. <https://doi.org/10.16168/j.cnki.issn.1002-9982.2016.05.011>
- Li, L. Y. (2021). Review of research and development of framework theory. *Chinese New Communication*, 23(17), 5-6. <https://doi.org/10.3969/j.issn.1673-4866.2021.17.004>
- Lin, C., Gong, H. N., Deng, L.& Lei, J. H. (2021). A visual analysis of hot topics of research on communication disorder of people with autism. *Chinese Journal of Special Education (Monthly)*, (5), 22-30. <https://doi.org/10.3969/j.issn.1007-3728.2021.05.003>
- Lippe, A. L.& Moller, I. U. (2000). Negotiation of conflict, communication patterns, and ego development in the family of adolescent daughters. *International Journal of Behavioral Development*, 24(1), 59-67. <https://doi.org/10.1080/016502500383476>
- Liu, C. W., Wang, M. W.& Tang, M. Y. (2022). Relationship between parent-child communication and learning engagement of migrant children: the mediating role of family cohesion and peer relationship. *China Journal of Health Psychology*, 30(8), 1261-1265. <https://doi.org/10.13342/j.cnki.cjhp.2022.08.028>
- Liu, Q. (2019). *A case study of family games promoting active language development in autistic children* [Master's thesis, Shenyang Normal University].
- Liu, Y. M. (2020). *The effectiveness of implementing the early start denver model for young children with asd in China* [Master's thesis, Hunan Agricultural University].
- Liu, Y.& Feng, J. X. (2018). The role of parents' sensitive behavior in the language interventions in children with autism spectrum disorders. *Chinese Journal of Special Education*, (12), 42-48. <https://doi.org/10.3969/j.issn.1007-3728.2018.12.008>
- Liu, Y.& Feng, X. T. (2022). The impact of family structure on parent-child relationships. *Youth Exploration*, 242(6), 31-40. <https://doi.org/10.13583/j.cnki.issn1004-3780.2022.06.003>

- Luan, J. (2019). On the nonverbal communication abilities in parent-child communication. *Journal of Jiujiang Vocational and Technical College*, (1), 79-81.
<https://doi.org/10.16062/j.cnki.cn36-1247/z.20190312.001>
- MacDonald, J.D. & Wilkening, P.(1994).*Parent-child relationships for communicative development: an intervention study*.(pp1-16). Retrieved from:
<https://eric.ed.gov/?id=ED377648>
- Macdonald, J. (2011). *Communicating Partners* (Hong,J.P. Trans.). Wisdom Publications Ltd. (Original work published 2005).
- Matthew, H. O.& Hergenhahn, B. R. (2015). *An introduction to theories of learning* (9th ed.). Psychology Press.
- Meng, F. L. (2010). *Deaf people and society*. Zhengzhou University Press.
- Munz, E. A. (2015). Parent-child communication. In C.
- National Health Commission Office. (2022). *Guidelines for screening and intervention services for autism spectrum disorder in children aged 0-6 (trial version)*.
https://www.gov.cn/zhengce/zhengceku/2022-09/23/content_5711379.htm
- Nielsen, A. I., Jensen, L. R.& Power, E. (2019). Communication partner training and post-traumatic confusion. In *International Brain Injury Association conference*.
- Orm, S., Haukeland, Y. B., Vatne, T.& Fjermestad, K. (2022). Measuring family communication in pediatric nursing: Psychometric properties of the Parent-Child Communication Scale-Child Report (PCCS-CR). *Journal of Pediatric Nursing*, 62, 78-83. <https://doi.org/10.1016/j.pedn.2021.10.022>
- Owen, H. & David, D., (2021). *Skilled Interpersonal Communication: Research, Theory and Practice* (7th ed.). Routledge.
- Pacione, L. (2022). Telehealth-delivered caregiver training for autism: Recent innovations. *Frontiers in Psychiatry*, 13, 916532. <https://doi.org/10.3389/fpsy.2022.916532>
- Peng, C. (2022). Constructive analysis of new parent-child relationship under the nonviolent communication dialogue model. *Survey of Education*, 11(18), 32-35.
<https://doi.org/10.16070/j.cnki.cn45-1388/g4s.2022.18.004>
- Peng, M.& Dai, B. R. (2019). The effect of parent-child communication and peer

relationship on social adaptability of rural left-behind children. *Chinese Journal of Special Education*, 231(9), 70-76. <https://doi.org/10.3969/j.issn.1007-3728.2019.09.012>

Peter, H. (2022). *DSM-5 revision tweaks autism entry for clarity*.

<https://www.spectrumnews.org/news/dsm-5-revision-tweaks-autism-entry-for-clarity/>

Pickles, A., Le Couteur, A., Leadbitter, K., Salomone, E., Cole-Fletcher, R., Tobin, H., Gammer, I., Lowry, J., Vamvakas, G., Byford, S., Aldred, C., Slonims, V., McConachie, H., Howlin, P., Parr, J. R., Charman, T. & Green, J. (2016). Parent-mediated social communication therapy for young children with autism (PACT): Long-term follow-up of a randomised controlled trial. *The Lancet*, 388(10059), 2501-2509. [https://doi.org/10.1016/S0140-6736\(16\)31229-6](https://doi.org/10.1016/S0140-6736(16)31229-6)

Preminger, J. E. & Lind, C. (2012). Assisting communication partners in the setting of treatment goals: The development of the goal sharing for partners strategy.

Seminars in Hearing, 33(01), 053-064. <https://doi.org/10.1055/s-0032-1304728>

Purnomo, S. (2023). Application of developmental, individual differences, relation-based (DIR/Floortime) in children with developmental disorders of the neurological system and brain. *Psikostudia: Jurnal Psikologi*, 12(1), 18-26.

<https://doi.org/10.30872/psikostudia.v12i1.9270>

Qin, M. H. (2020). A review and enlightenment of foreign research on internet-based

parent-implemented intervention of autism. *Journal of Suihua University*, 40(7), 106-110. <https://doi.org/10.3969/j.issn.2095-0438.2020.07.025>

Raun, K. K. (2018). *Autism breakthrough: Strategies from a man who used to be autistic*.

Chongqing University Press.

Ren, Y. J. (2017). *Joint attention in children with autism spectrum disorder: a parent-mediated intervention model* [Master's thesis, LiaoNing Normal University].

Rietdijk, R. (2013). Training communication partners of people with severe traumatic brain injury improves everyday conversations: A multicenter single blind clinical trial.

Journal of Rehabilitation Medicine, 45(7), 637-645.

<https://doi.org/10.2340/16501977-1173>

- Robert, O. & Kimberly, A. F. (2019). *Introduction to Communication Disorders: A Lifespan Evidence-Based Perspective* (6th Edition) (Lin, B.G. et al., Trans.), (pp.213-245). Taipei: Huateng Culture Co. (Original work published 2010).
- Robert, O. (2020). *Language development: An introduction* (Lin, L. X. et al., Trans.) (pp. 62-89). Taipei: Huateng Culture Co. (Original work published 2015).
- Robert, O. (2021). *Early Language Intervention for Infants, Toddlers, and Preschools*. (Tong, B.J. et al., Trans.). (pp.56-77). Taipei: Huateng Culture Co. (Original work published 2017).
- Rodríguez Aboytes, J. G. & Barth, M. (2020). Transformative learning in the field of sustainability: a systematic literature review (1999-2019). *International Journal of Sustainability in Higher Education*, 21(5), 993-1013. <https://doi.org/10.1108/IJSHE-05-2019-0168>
- Røe-Indregård, H., Rowe, M. L., Rydland, V. & Zambrana, I. M. (2022). Features of communication in Norwegian parent-child play interactions. *First Language*, 42(3), 383-404. <https://doi.org/10.1177/01427237211072661>
- Rosalind, C. (2015). *Understanding child development*. Sichuan Children's Publishing House.
- Sally, J. R., Geraldine, D. & Laurie, A. V. (2016). *An early start for your child with autism: using everyday activities to help kids connect, communicate and learn* (Zhang, C.Q., et al., Trans.). Huaxia Publishing House (Original work published 2012).
- Sally, W. J. (2016). *The infant and toddler language bible*. (Mao, M., Trans.). Beijing Science and Technology Press. (Original work published 2012).
- Savicki, V. & Price, M. V. (2021). Reflection in transformative learning: The challenge of measurement. *Journal of Transformative Education*, 19(4), 366-382. <https://doi.org/10.1177/15413446211045161>
- Schnepfleitner, F. M. & Ferreira, M. P. (2021). Transformative Learning Theory – Is It Time to Add A Fourth Core Element. *Journal of Educational Studies and Multidisciplinary Approaches*, 1(1), 40-49. <https://doi.org/10.51383/jesma.2021.9>

- Shan, C. L. (2021). *Language rehabilitation*. People's Health Publishing House.
- Sheila, M. E. & Elizabeth A. R. (2000). *Manual for the dyadic parent-child interaction coding system* (3th ed.). Researchgate.
- Shi, L. F. (1994). Exploration of the Western paradigm of curriculum inquiry. *Journal of East China Normal University*, 3, 27-33. <https://doi.org/10.16382/j.cnki.1000-5560.1994.03.005>
- Shi, L. F. (1994). The discernment of curriculum definition. *Education Review*, 3, 44-47.
- Shi, L. F. (1996). *Curriculum theory*. Educational Science Press.
- Shi, S. X. (2017). *A case study of autism children on family interaction* [Master's thesis, Northwest Normal University, China].
- Shoumitro, D. (2020). The effectiveness of parent training for children with autism spectrum disorder: A systematic review and meta-analyses. *BMC Psychiatry*, 20, 1-24. <https://doi.org/10.1186/s12888-020-02973-7>
- Shrubsole, K., Power, E. & Hallé, M. C. (2023). Communication partner training with familiar partners of people with aphasia: A systematic review and synthesis of barriers and facilitators to implementation. *International Journal of Language & Communication Disorders*, 58(2), 601-628. <https://doi.org/10.1111/1460-6984.12805>
- Simon, H. & Carole, P. (2018). Communicating partner training: Re-imagining community and learning. *Aphasiology*, 32(7), 1250-1265. <https://doi.org/10.1080/02687038.2018.1482407>
- Simmons-Mackie, N., Raymer, A. & Cherney, L. R. (2016). Communication partner training in aphasia: An updated systematic review. *Archives of Physical Medicine and Rehabilitation*, 97(12), 2202-2221. <https://doi.org/10.1016/j.apmr.2016.03.023>
- Stanley, I. G. & Serena, W. (2019). *Engaging Autism: Using the Floortime approach to help children related communicate and think* (Ma, L.D., Trans.) (pp157-206). Huaxia Publishing House (Original work published 2012).
- Steiner, A. M., Gengoux, G. W., Smith, A. & Chawarska, K. (2018). Parent-child interaction synchrony for infants at-risk for autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 48(10), 3562-3572. <https://doi.org/10.1007/s10803-018->

3624-8

- Suskind, D., Suskind, B. & Suskind, L. L. (2017). *Thirty million words: Building a child's brain* (Ren, Y., Trans.). Beijing: Mechanical Industry Press. (Original work published 2015)
- Tian, X. N. (2023). *Study on case work intervention to improve parent-child communication abilities of drug addicts* [Master's thesis, Yunnan Normal University].
- Valerie, W. H. (2017). *Frontiers in Autism Research New Horizons for Diagnosis and Treatment*. (Kong, X. J., Trans.). (pp152-176), Beijing: People's Health Press (Original work published 2014)
- Vivanti, G. & Messinger, D. S. (2021). Theories of autism and autism treatment from the DSM III through the present and beyond: Impact on research and practice. *Journal of Autism and Developmental Disorders*, 51(12), 4309-4320.
<https://doi.org/10.1007/S10803-021-04887-Z>
- Vivienne, M. C. & Sophie, S. H. (2017). Review of Nonverbal Communication in Parent-Child Relationships: Assessment and Intervention. *Journal of Child and Family Studies*. 26, 574-590. <https://doi.org/10.1007/s10826-016-0563-x>
- Wan, M. C. & Tong, H. B. (2023). The realization path of principal training migration under transformative learning theory. *Education Review*, (1), 133-138.
- Wang, J. (2017). *The application of early start denver model in parent-implemented intervention for children with autism* [Master's thesis, Zhejiang University of Technology].
- Wang, J. J., Wu, S. N. & Wang, M. L. (2023). Transformative Learning in Teacher Training and Its Action Strategy: From the Perspective of Adult Transformative Learning Theory. *Contemporary Education and Culture*, 15(2), 86-91.
<https://doi.org/10.13749/j.cnki.cn62-1202/g4.2023.02.001>
- Wang, L. J., Yu, L. & Xiong, W. R. (2009). A review of foreign research on parent-child communication among adolescents. *Journal of Comparative Education*, (7), 43-46.
<https://doi.org/10.3969/j.issn.1007-8495.2009.07.007>

- Wang, N. (2021). *A study on the intervention of DTT combined with PRT teaching on joint attention ability of children with autism* [Master's thesis, Yunnan Normal University].
- Wang, Q. F. (2020). Framework analysis: As a social research method. *Hunan Social Sciences*, (3), 151-159.
- Wang, Y. & Mo, S. L. (2022). A review of parent-mediated Pre-School autism communication therapy (PACT) for children with autism spectrum disorders in the UK. *Chinese Journal of Special Education*, (5), 64-71.
<https://doi.org/10.3969/j.issn.1007-3728.2022.05.009>
- Wei, T. Q., Li, W. R. & Wei, S. H. (2021). A review of parental executive intervention in social abilities of autistic children. *Modern Special Education*, (8), 51-57.
<https://doi.org/10.3969/j.issn.1004-8014.2021.08.009>
- Wetherby, A. M. & Woods, J. J. (2006). Early social interaction project for children with autism spectrum disorders beginning in the second year of life: A preliminary study. *Topics in Early Childhood Special Education*, 26(2), 67-82.
<https://doi.org/10.1177/02711214060260020201>
- Xu, J., Wang, D.W. & Yan, X.Q. (2020). *A guide to communication education for children with developmental disabilities*. Chongqing University Press.
- Xu, Y. R. (2022). *Research on the problems and countermeasures of secondary vocational teachers' enterprise practice from the perspective of transformative learning theory——taking shandong province as an example* [Master's thesis, Shandong Normal University].
- Xu, Y., Xu, C. X. & Zhu, M. R. (2019). Application of parent-implemented intervention in families with autistic children. *Chinese Journal of Clinical Psychology*, 27(3), 634-637, 612. <https://doi.org/10.16128/j.cnki.1005-3611.2019.03.042>
- Xu, Z. M. (2020). *A paper of the influence of verbal behavior approach based on the principle of applied behavior analysis on language training of autistic children* [Master's thesis, Fujian Normal University].
- Yan, J. (2023). *Study on the intervention of the Satya family therapy model in parent-child communication disorders in single parent families* [Master's thesis, Northeast

- Petroleum University].
- Yang, H. (2022). Parental learning review and promotion strategies from the perspective of transformative theory. *Journal of Adult Education College of Hebei University*, 24(4), 48-54. <https://doi.org/10.13983/j.cnki.jaechu.2022.04.007>
- Yang, K. F. (2015). *Education of children with autism*. Psychology Press.
- Yang, X. et al. (2023). *Framework Analysis: Experiential Organizational Theory*. (Original work published by Owen, G.) (pp29-42), Beijing: Peking University Press.
- Yang, Z. Q. (2021). *Research on the intervention of group work in the improvement of parent-child communication abilities of ocean seafarers* [Master's thesis, Dalian Maritime University].
- Yao, T. T., Wang, F. & Zhou, X. D. (2023). The impacts of different patterns of parental migration and parent-adolescent communication urban le. *Chinese Journal of Social Medicine*, 40(1), 41-45. <https://doi.org/10.3969/j.issn.1673-5625.2023.01.011>
- Yu, H. R. (2017). *Narrative nursing theory construction and its curriculum development and empirical research* [Doctor's dissertation, Naval Medical University of PLA].
- Yu, T., Gao, D., Zhang, X. C., Liu, X. J. & Du, L. (2020). Research on family therapy effects of early start Denver model on children with autism spectrum disorder. *Journal of Developmental Medicine (Electronic Version)*, 8(3), 246-251,256. <https://doi.org/10.3969/j.issn.2095-5340.2020.03.010>
- Yu, W. J. (2023). Acceptance, empathy, communication: Analysis of parent-child communication abilities. *Journal of Moral Education in Primary and Secondary Schools*, (1), 60-63.
- Yue, Z. (2020). Quality matters more than quantity: Parent-child communication and adolescents' academic performance. *Frontiers in Psychology*, 11, 1-8. <https://doi.org/10.3389/fpsyg.2020.01203>
- Zapf, H., Boettcher, J., Haukeland, Y., Orm, S., Coslar, S., Wiegand-Grefe, S. & Fjermestad, K. (2023). A systematic review of parent-child communication measures: instruments and their psychometric properties. *Clinical Child and Family Psychology Review*, 26(1), 121-142. <https://doi.org/10.1007/s10567-022-00414-3>

- Zeng, S. T. & Hu, X. Y. (2015). A review of parent-implemented intervention methods for preschoolers with autism in the United States. *Chinese Journal of Special Education*, (6), 62-70. <https://doi.org/10.3969/j.issn.1007-3728.2015.06.011>
- Zhang, H. Z. & Duan, W. (2018). The construction of the checking model for the communication and cooperation capability of rural teachers. *Journal of Educational Science of Hunan Normal University*, 17(5), 117-124. <https://doi.org/10.19503/j.cnki.1671-6124.2018.05.018>
- Zhang, M. Y. (2021). Constructing the model for the family education guidance based on adult learning theories. *Journal of Shanxi Radio & TV University*, 26(1), 51-57. <https://doi.org/10.3969/j.issn.1008-8350.2021.01.012>
- Zhang, X. Y. & Guo, Q. H. (2022). Implementation procedures and implications of parent training for children with autism in the United States. *Journal of Suihua University*, 42(4), 86-89. <https://doi.org/10.3969/j.issn.2095-0438.2022.04.020>
- Zhang, Y. (2020). Quality matters more than quantity: Parent-child communication and adolescents' academic performance. *Frontiers in Psychology*, 11, 1203. <https://doi.org/10.3389/fpsyg.2020.01203>
- Zhang, Y. S. & Han, J. (2016). *Interpersonal communication and social etiquette*. Tsinghua University Press.
- Zhong, Q. Q. (2015). Evolution of the concept of "curriculum". *Jichu Jiaoyu Kecheng*, (5), 72.



APPENDIX

**Appendix 1 List of experts to be interviewed on parent-child communication abilities of
parents of autistic children**

Name	gender	age	employer	Education/rehabilitation experience for children with autism	Consultation/training experience for parents of autistic children	Currently working with autistic children
Wang, Y.N.	female	37	Speech therapist at Shanghai Fudan Children's Hospital	15 years	12years	Language and communication abilities training for autistic children, guidance and further training for speech therapists, consultation, and guidance for parents of autistic children
Huang, L.	female	40	Research Director of Educational Rehabilitation Center of Chongqing Normal University	20 years	16 years	Language communication training and sand tray therapy for autistic children, development, and design of training curriculums for autistic children, guidance and consultation for parents of autistic children
Pan, L.L.	female	38	Teaching Supervisor of Guangzhou Eggplant Game Center	10 years	9 years	Game intervention for autistic children, professional training for autistic children, training, and guidance for parents of autistic children
Wang, X.Q.	female	49	Chief teacher of Beijing Xingxingyu and teaching supervisor of preschool department	29 years	26years	Assessment and training of language communication abilities of autistic children, formulation of rehabilitation plans for other therapists, training and guidance for teachers and parents
Lin, M.Y.	female	62	Co-founder and Secretary-General of Taiwan Early Childhood Treatment Association for Developmental Delays	33 years	25 years	Parenting counseling for parents of autistic children, psychological and emotional support, individual psychological counseling for autistic children, and the employment attitudes of parents of older autistic children towards their children.

Appendix 2 List of experts for reviewing the interview outline of parent-child

communication abilities for parents of children with autism

name	Gender	Age	Work unit	Education/Rehabilitation Experience for Children with Autism	Parental counseling/training experience for children with autism
Wang, D.W.	male	50	Special Education Advisory Committee Member, Donghua University, Taiwan, and Head of Taiwan Language and Speech Therapy Center	27 years	23 years
Zhang,L.	female	43	Leader of the Autism Rehabilitation Team at the Education Rehabilitation Center of Chongqing Normal University	18 years	14 years
Li,G.W.	female	42	Director of the Rehabilitation Department for Children with Autism at Jinan Disabled Persons Rehabilitation Center, Shandong Province	20 years	17 years
Liang, Y.	female	55	Teaching Director of Chongqing Jiangjin Xiangyang Children's Development Center	30years	24 years
Wang, T.	female	50	Professor of the Department of Special Education at Chongqing Normal University (Expert in Evaluation)		

Appendix 3 Interview outline for parent-child communication abilities of parents of
children with autism

Interview time: Interview location:

Interview method: Interviewee ID:

1. Interview purpose:

To understand the elements and characteristics of parent-child communication abilities in children with autism, and to provide a basis for the development of an assessment form for parent-child communication abilities in children with autism and the development of a communicating partner curriculum.

2. Basic information of interviewees

Gender: Male Female

Age: ___ years old

Years of experience in education/rehabilitation for children with autism: ___ years

Work experience related to parental guidance/training for children with autism:
___ years

5. Current work related to children with autism:

3. Question outline

1. Opening remarks of the interview

Hello, I am a doctoral student majoring in Curriculum Design and Development at Srinakharinwirot University in Thailand. Currently, I am completing my doctoral thesis on the development and implementation of a communicating partner curriculum to enhance parent-child communication abilities in children with autism. Considering your experience in parent-child communication in children with autism, we would like to invite

you as the interviewee for this study. Thank you for giving me time to interview you. The main purpose of this interview is to understand the elements and the characteristics of good parent-child communication abilities in children with autism. Please communicate with me based on your experience. Your interview content will be recorded and used for the research report of the paper, but your name and other basic information will be kept confidential, and the recorded materials will be destroyed after the completion of the paper.

2. Interview dialogue

① In your experience, are there any parents who can communicate well with their children? What abilities do you think enable parents to communicate effectively with their children?

② Do you think it is appropriate to analyze the parent-child communication abilities of children with autism from the perspectives of communication environment and promoting active communication among them?

③ Do you think a good communication environment helps promote communication between parents and children?

If so - what can parents do to create a good communication environment?

④ Do you think inducing children's ability to actively communicate can help promote communication between parents and children?

If so - what can parents do to better induce children's active communication?

⑤ Do you think assisting children in understanding can help promote communication between parents and children?

If so - what can parents do to better assist children in understanding?

⑥ Do you think better understanding of children is helpful for communication between parents and children?

If so - what can parents do to better understand their children?

⑦ In addition to these abilities, based on your experience, what other abilities

should parents of children with autism possess in order to better communicate with their children?

3. Conclusion of the interview

Thank you again for your cooperation. Wishing you smooth work and a happy life!

Appendix 4 Basic Information for Research Assistants

Name	gender	age	Workplace	Relevant working experience	Currently engaged in work related to children with autism
Lei,H.L	female	38	Head of the Speech Rehabilitation Group at the Education and Rehabilitation Center of Chongqing Normal University	16years	Training language communication abilities for children with autism, guiding advanced language therapists and university students in speech rehabilitation studies, providing consultation and guidance for parents of children with autism, and designing and planning the curriculum for the Speech Rehabilitation Group for children with autism.
Guo,Y.H	female	36	Senior Teacher of the Speech Rehabilitation Group at the Education and Rehabilitation Center of Chongqing Normal University	15years	Training in language communication abilities for children with autism, guiding advanced studies in speech therapy for therapists and university students, and providing consultation and guidance for parents of children with autism.

Appendix 5 Experts of Parent-child communication abilities

Assessment form review

Name	gender	age	employer	Relevant working experience
Wang, D.W.	male	50	Special Education Advisory Committee Member of National Dong Hwa University, Taiwan, PhD, Director of Taiwan Speech and Language Therapy Center (expert in communication education)	27 years
Wang, X.Q.	female	49	Head teacher and preschool teaching supervisor (expert in parent training) at Beijing Stars and Rain (one of the earliest rehabilitation center for autistic children in China).	29 years
Xu, S.	female	50	Professor of the Department of Education and Rehabilitation of East China Normal University, member of the Autism Teacher Training Certification Committee of the China Disabled Persons ' Federation and Rehabilitation Association of China, and deputy director of the Applied Behavior Analysis Committee of the China Disabled Persons' Federation and Rehabilitation Association (an expert in the field of autism).	30 year
Huang,L.	female	40	Teaching and Research Director of Educational Rehabilitation Center of Chongqing Normal University	20 years
Wang, T.	female	50	Professor, Department of Special Education, Chongqing Normal University, Ph.D., engaged in teaching and research on special education research methods, psychological assessment, and other curriculums (expert in the field of assessment)	25 years

Appendix 7 Preliminary statistical results of the parent-child communication abilities

assessment form

Case Processing Summary

Number of Cases			%
case	Valid	43	100.0
	Excluded ^a	0	0
	Total	43	100.0

a. Delete Columns Based on All Variables in the Procedure.

Reliability Statistics

Cronbach's Alpha.	Number of Items
.944	27

Kaiser-Meyer-Olkin (KMO) Test and Bartlett's Test of Sphericity

Appropriateness Measure		.650
Bartlett's Test of Sphericity	Approx. Chi-Square	908.965
	Degrees of Freedom	351
	Significance	<.001

Appendix 8 List of experts for curriculum requirements interviews

Name	gender	age	employer	Education/rehabilitation experience for children with autism	Consultation/training experience for parents	Currently working with autistic children
Wang, D.W.	male	50	Special Education Advisory Committee of Donghua University, Director of Taiwan Speech, and Language Therapy Center	27 years	23 years	Assessment and training of language communication abilities of autistic children, formulation of rehabilitation plans for other therapists, training and guidance for teachers and parents
Zhang, L.	female	42	Teaching Supervisor of Education Rehabilitation Center of Chongqing Normal University	20 years	17 years	Behavioral intervention for autistic children, applied behavior analysts, professional training for autistic children, training, and guidance for parents of autistic children
Liang, Y.	female	55	Teaching supervisor of Jiangjin Xiangyang Child Development Center, parent of autistic children, head of the earliest institution in Chongqing to carry out parent training for autistic children.	23 years	20 years	Vocational education for autistic children, life education, training, and guidance for parents of autistic children.
Wang, X.Q.	female	49	Chief teacher and preschool teaching supervisor of Beijing Xingxingyu (one of the earliest center for autistic children in China).	29 years	26 years	Assessment and training of language communication abilities of autistic children, formulation of rehabilitation plans for other therapists, training and guidance for teachers and parents
Lin, M.Y.	female	62	Co-founder and Secretary General of the Taiwan Association for Early Childhood Therapy for Developmentally Delayed Children	33 years	25 years	Parenting counseling for parents of autistic children, psychological and emotional support, individual psychological counseling for autistic children, employment attitudes of parents of older autistic children towards their children.

Appendix 9 List of experts for reviewing the interview outline for communicating partner curriculum requirements

name	Gender	Age	Work unit	Education/Rehabilitation Experience for Children with Autism	Parental counseling/training experience for children with autism
Wang, Y.N.	female	37	Language therapist at Shanghai Fudan Children's Hospital	15 years	12 years
Hu, Y.X.	female	43	Leader of the Autism Rehabilitation Team at the Education Rehabilitation Center of Chongqing Normal University	18 years	
Li ,G.W.	female	42	Director of the Rehabilitation Department for Children with Autism at Jinan Disabled Persons Rehabilitation Center, Shandong Province	20 years	17 years
Huang,L.	female	40	Director of Teaching and Research at the Education Rehabilitation Center of Chongqing Normal University	20 years	16 years
Wang, T.	female	50	Professor, Department of Special Education, Chongqing Normal University, Ph.D., engaged in teaching and research on special education research methods, psychological assessment, and other curriculums (expert in the field of assessment)		

**Appendix 10 Outline of Interview Requirements for the Communicating Partner
Curriculum (Professional)**

Interview time: Interview location:

Interview method: Interviewee ID:

1. Interview purpose:

Understand the needs of parents of children with autism to improve their parent-child communication abilities, and provide a basis for the development of the Communicating partner Curriculum.

2. Basic information of interviewees:

Gender: Male Female

Age: ___ years old

Years of experience in education/rehabilitation for children with autism: ___ years

Work experience related to parental guidance/training for children with autism:
___ years

5. Current work related to children with autism:

3. Question outline

3.1 Opening remarks of the interview

Hello, I am a doctoral student majoring in Curriculum Design and Development at Srinakharinwirot University in Thailand. Currently, I am completing my doctoral thesis on the development and implementation of a communicating partner curriculum to enhance parent-child communication abilities in children with autism. Considering your experience in parent-child communication or parent training for children with autism, we would like to invite you as the interviewee for this study. Thank you for giving me time to interview you. The main purpose of this interview is to understand how to improve the communication abilities of parents and children with autism. Please communicate with

me based on your experience. Your interview content will be recorded and used for the research report of the paper, but your name and other basic information will be kept confidential, and the recorded materials will be destroyed after the completion of the paper.

3.2 Interview dialogue

① What do you think are the difficulties parents face in communicating with their children?

② What aspects of communication abilities do you think parents particularly need to improve when it comes to communicating with their children?

③ What do you think training curriculums can include to enhance parents' parent-child communication abilities?

④ What do you think is the appropriate duration of the training curriculum?

⑤ Which teaching methods do you think have better results?

⑥ What teaching resources do you think are more useful?

⑦ What evaluation method do you think is better to use to evaluate parents' parent-child communication abilities?

⑧ What else do you need to add about this training curriculum?

Thank you again for your cooperation. Wishing you smooth work and a happy life!

**Appendix 11 Outline of Interview Requirements for the Communicating Partner
Curriculum (Parents)**

Interview time: Interview location:

Interview method: Interviewee ID:

1. Interview purpose:

Understand the needs of parents of children with autism to improve their parent-child communication abilities, and provide a basis for the development of the Communicating Partner Curriculum.

2. Basic information of interviewees

Gender: Male Female

Relationship with children:

Age of children: ___ years old

Current living and working status:

Children's language communication abilities (brief description):

3. Question outline

3.1 Opening remarks of the interview

Hello, I am a doctoral student majoring in Curriculum Design and Development at Srinakharinwirot University in Thailand. Currently, I am completing my doctoral thesis on the development and implementation of a communicating partner curriculum to enhance parent-child communication abilities in children with autism. The main purpose of this interview is to meet your needs in improving your communication abilities with children. Your interview content will be recorded and used for the research report of the paper, but your name and other basic information will be kept confidential, and the recorded materials will be destroyed after the completion of the paper.

3.2 Interview dialogue

① Please talk about the current situation of communication between you and your child.

② Please talk about the issues you have when communicating with your child.

③ What aspects of parent-child communication do you think need to be improved in particular?

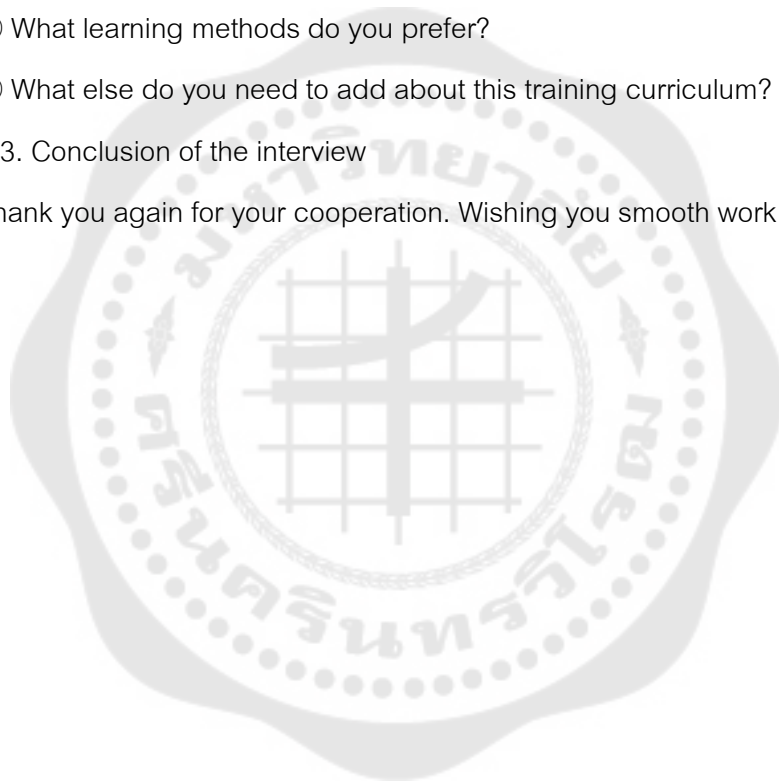
④ What do you think is the appropriate duration of the training curriculum?

⑤ What learning methods do you prefer?

⑥ What else do you need to add about this training curriculum?

3.3. Conclusion of the interview

Thank you again for your cooperation. Wishing you smooth work and a happy life!



Appendix 12 Form of criteria for selecting experts for the evaluation of the Curriculum

NO	Job/Professional Area	Criteria
1	Expert in communication education for children with autism	<ul style="list-style-type: none"> ◆ Speech therapy specialization; ◆ Master's degree or higher; ◆ 20 years or more in speech therapy for children with autism; ◆ More than 10 years of experience in training and coaching parents of children with autism.
2	Expert in the field of autism education	<ul style="list-style-type: none"> ◆ A major related to the education of children with autism or a license to practice; ◆ Master's degree or higher; ◆ 20 years or more in education for children with autism; ◆ More than 10 years of experience in training and coaching parents of children with autism.
3	Autism Clinical Staff	<ul style="list-style-type: none"> ◆ A profession related to the education of children with autism or a license to practice; ◆ 20 years or more in education for children with autism; ◆ More than 10 years of experience in training and coaching parents of children with autism.
4	Special Education Curriculum Development Specialist	<ul style="list-style-type: none"> ◆ Background in special education and related fields. ◆ Master's degree or higher; ◆ More than 15 years of experience in training and coaching parents of children with autism. ◆ Developed several curricula related to children with special needs or autism.
5	Assessment and evaluation specialist	<ul style="list-style-type: none"> ◆ Associate Professor or Professor; ◆ Master's degree or higher; ◆ Research in assessment and evaluation at least 10 years; ◆ Experience with autistic children.

Appendix 13 List of curriculum review experts

Name	gender	age	employer	Relevant working experience
Wang, D.W.	male	50	Special Education Advisory Committee Member of National Dong Hwa University, Taiwan, PhD, Director of Taiwan Speech, and Language Therapy Center (expert in communication education)	27 years
Wang, X.Q.	female	49	Head teacher and preschool teaching supervisor (expert in parent training) at Beijing Stars and Rain (one of the earliest rehabilitation center for autistic children in China).	29 years
Xu, S.	female	50	Professor of the Department of Education and Rehabilitation of East China Normal University, member of the Autism Teacher Training Certification Committee of the China Disabled Persons ' Federation and Rehabilitation Association of China, and deputy director of the Applied Behavior Analysis Committee of the China Disabled Persons' Federation and Rehabilitation Association (an expert in the field of autism).	30 years
Shen, J.N.	female	45	Special education researcher and associate professor at the Chongqing Academy of Educational Sciences, special education national training teacher at Southwest University, distinguished teacher at the special education teacher training base of Chongqing Normal University, leader of the National Intelligence Education Singing and Rhythm Subject Curriculum Standards Group of the Ministry of Education (Curriculum Specialist).	20 years
Wang, T.	female	50	Professor, Department of Special Education, Chongqing Normal University, Ph.D., engaged in teaching and research on special education research methods, psychological assessment, and other (expert in the field of assessment)	25 years

Appendix 14 Curriculum consistency check form

Using the IOC (Index of item consistency) and evaluating by external expertise (5 people) who have knowledge and experience relevant your curriculum. Consistency checking form as follows.

Direction: Please mark ✓ in the evaluation results according to your opinion.

No.	Items	Evaluation results		
		Consistent (+1)	Unsure (0)	Inconsistent (-1)
1	Learning problem with the principles of the curriculum			
2	Curriculum principles and Curriculum objectives			
3	Principles of curriculum and learning activities			
4	Curriculum objectives and Curriculum content			
5	Curriculum objectives and learning activities			
6	Curriculum content and learning activities			
7	Curriculum content and learning materials			
8	Curriculum content and learning resources			
9	Curriculum content and learning duration			
10	Curriculum assessment with Curriculum objectives			

Calculate mean score of each item then interpret the consistency following criteria

> .05 consistency

< .05 inconsistency (improve it before implementation)

Appendix 15 Curriculum Appropriately check form

Using 5 levels of the rating scale and evaluating by external expertise (5 people) who have knowledge and experience relevant your curriculum. Appropriate checking form as follows.

Direction: Please mark ✓ in the evaluation results according to your opinion.

No.	Items	Evaluation results				
		5	4	3	2	1
1	Curriculum principles					
	1.1 Reasonable					
	1.2 Theoretical concepts used to support					
	1.3 Lead to practice					
2	Curriculum objectives					
	2.1 Clear and concrete					
	2.2 Can be measured and evaluated					
	2.3 Suitable for the target group					
3	Curriculum content					
	3.1 Meet the curriculum objectives					
	3.2 Academically correct					
	3.3 Suitable for the target group					
4	Learning activities					
	4.1 Meet the curriculum objectives					
	4.2 Suitable for the target group					
	4.3 Interesting and possible					
5	Curriculum materials					
	5.1 Meet the learning activities					
	5.2 Suitable for the target group					
	5.3 Interesting and possible					
6	Curriculum evaluation					
	6.1 Meet the curriculum objectives					
	6.2 Suitable for the target group					
	6.3 Possible to practice					

Calculate mean score and interpret of each item. If the mean score below 3.50 then improves it before implementation.

Appendix 16 Basic information for parents participating in pilot study

No	Child's age	Child's gender	Relationship with child	Occupation	Main city/suburb counties
1	2y 10m	male	M&S	office clerk	Main city
2	3y 7m	female	M&D	doctor	Main city
3	5y 2m	male	M&S	full time mother	suburb counties



Appendix 17 Research Project Recruitment Program

Research Topic: A study on how the Communicating Partner Program can improve the parent-child communication abilities of parents of children with autism

Research leader: Xu Jing (13228686626)

We sincerely invite you to participate in a study on the Communicating Partner Curriculum. This study will invite you to learn a course on **how to communicate and interact with children, build parent-child relationships, and promote the development** of children's language and communication abilities.

Please try to participate in the course's theoretical learning and practical exercises as much as possible. To test the effectiveness of the study, researchers may ask you to: 1. Record a video of your communication and interaction with your child. 2. Participate in an interview about parent-child communication and interaction. 3. Complete a test of parent-child communication and interaction.

By participating in this study, you can better understand how children communicate and communicate with them in a way they can better understand, thereby improving your own parent-child communication abilities while also improving your children's communication abilities. The curriculum takes about 30 hours to complete over ten weeks. Apart from the longer hours required to participate in study and practice, the research will not cause any harm to you.

However, you can terminate or withdraw from the study at any time and ask the researcher to delete any previous research content related to you. If you have any questions about the study during this period, you can ask the researcher at any time.

The researchers will strictly protect all information about you and your child and will never disclose it to anyone other than the researchers. We will destroy the information after the study is completed. The results of the study may be presented at professional conferences or in research papers, but no information about you or your child will be disclosed.

If you have an autistic child aged 2-8 years old who faces language and communication difficulties and are interested in participating in this study, please call me:13228686626.

Appendix 18 Communicating Partner Curriculum Evaluation Form

project	Rating (1-5 points)					proposal
	1(Very dissatisfied)	2 (dissatisfied)	3 (commonly)	4 (satisfaction)	5(Very satisfied)	
Curriculum objectives						
Curriculum content						
Curriculum learning methods						
Study seat arrangement						
Curriculum resources (learning materials such as PowerPoint)						
Curriculum schedule						
Curriculum effectiveness						
Other suggestions:						

Appendix 19 Parent communicating partner curriculum for children with autism (draft)

This curriculum is designed to enhance the communication abilities of parents and children with autism. It mainly consists of the following parts: Introduction (including curriculum background, curriculum nature, curriculum theory, curriculum principles), curriculum objectives and content (including curriculum objectives, curriculum content, curriculum implementation, curriculum resources, and curriculum evaluation), etc.

Part 1 Preface

1. Curriculum background

In recent years, the incidence rate of autistic children has increased year by year, and the number of autistic children is increasing (Centers for Disease control and Prevention, 2023). According to the latest data from the 2021 Blue Book of the Rehabilitation Industry for Children with Developmental Disorders in China, it is conservatively estimated that the number of children with autism aged 0-18 in China will reach 3 million. There are many challenges in the education and rehabilitation of children with autism, but the most core issue is social communication barriers (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision, 2022; Hu & Zhao, 2015; International Classification of Diseases 11th Revision-11,2018), which has attracted the attention of relevant personnel. Many studies at home and abroad had shown that through training, parents can participate in interventions for communication abilities in children with autism and have a positive effect (Brooke & Anna, 2020; Liu, 2019).

The Communicating Partner curriculum introduces the concept of communicating partners, combining elements of parent-child communication abilities of parents of autistic children, considering the learning characteristics of parents, covering the construction of communicating partner ideas, acquisition of communication strategy related knowledge, and application of communication strategies. It adopts various teaching methods such as teaching, case analysis, discussion, group learning, and

role-playing, which has a positive promoting effect on the improvement of parent-child communication abilities of parents of autistic children.

2. Curriculum nature

This curriculum is a parent training curriculum that focuses on practical operations while also considering theory; A comprehensive curriculum that focuses on abilities and balances experience and knowledge. In the process of curriculum learning, parents can not only systematically master the abilities of communication and interaction with children with autism, have the ability to communicate and interact with children with autism, but also learn to accept and respect the characteristics and communication methods of children with autism, establish good parent-child interaction emotions, bridge communication with children with autism, and lay the foundation for behavior management, routine establishment, knowledge learning, skill improvement, and future vocational education, career education, and other aspects of learning for children with autism.

3. Fundamentals of Curriculum Theory

The development of this curriculum mainly involves the following four basic theories. The following is an introduction to the theory and its application in the curriculum:

1). Transactional model of communication. Constructing systematic curriculum learning content through an information transmission model can help parents of autistic children establish a learning framework for communicating partners, to better summarize, integrate, and apply various communication strategies.

2). Behavioral learning theory. This theory can almost explain any learned behavior (Liu. et al. 2015). The basic idea of behavioral learning theory is that if an individual's behavior is reinforced, that behavior may be reinforced and become a stable behavioral expression of the individual (Xu, et al.,2020; Yang, 2015); If you do not want or welcome a certain behavior, you can reduce the frequency of its occurrence or even make it disappear by ignoring it (Liu et al., 2015). For the acquisition of

communication abilities in children with autism, there is a similar process: parents demonstrate communication, children with autism imitate, and parental feedback enhances these behaviors (Robert, 2020). Integrating behavioral learning theory into the curriculum content can help parents better understand and respond to communication information of children with autism, thereby promoting the development of their communication abilities.

3). Relation-based developmental theory. This theory originated from the social constructivist learning theory, which holds that social interaction is the foundation of children's language and cognitive development (Elizabeth, 2015). The framework provided by social interaction and relationships in children's literature encodes and decodes the form and content of language, and enhances communication abilities through repeated interactions (Robert, 2020; Purnomo, 2023; Robert, 2021). The core idea of the Relation-based developmental theory is the support of communication objects. Adjusting the communication environment can provide more communication opportunities for children with autism, stimulate their communication motivation, enrich their social experience, and help them understand and adjust their behavior through continuous explanation and feedback from adults, thereby improving their communication abilities (Kathleen, 2015). Incorporating relational development theory into the curriculum content can help parents better understand and respond to communication information of children with autism from different perspectives, thereby promoting the development of communication abilities in children with autism.

4). Transformative learning theory. Since the target audience of the Communicating Partner curriculum is parents of autistic children with different cultural backgrounds, professional backgrounds, and learning experiences, they have developed stable communication patterns in the process of interacting with their own children. To truly integrate the concepts and methods of communicating partners into the process of interacting with children in daily life, it is necessary for them to reflect and adjust their old experiences, and apply new experiences in practice (Purnomo, 2023;

Yang, 2022).

The communicating partner curriculum was designed based on the integration of the above theories. For example, in the curriculum, adults learned how to establish good relationships with children with autism under the guidance of Relation-based developmental theory, and created communication opportunities to induce their active communication behavior, established their motivation for future language and communication behavior learning. Adults also learn how to observe the communication behavior of children with autism in depth and detail under the guidance of Relation-based developmental theory, and use appropriate and contextualized methods to respond and reinforce, thereby helping children with autism learn more communication behaviors.

4. Curriculum Principles

To improve the effectiveness of curriculum learning, the following principles should be considered in the process of curriculum implementation.

1). Reflective principle

The communication abilities of children with autism exhibit diversity due to individual differences and environmental changes, and learners cannot simply apply fixed strategies when communicating with them. In addition to mastering communication abilities proficiently, it is also important to establish critical thinking, understand the emotions, desires, and needs of children with autism through continuous reflection and adjustment, and flexibly choose communication methods. The cultivation of this ability not only helps to interact more effectively with children with autism, but also provides learners with deeper learning experiences and development opportunities. In addition, the communicating partner strategies provided to parents in the curriculum may differ from some of the strategies parents used to deal with children before. Teachers should not deny the parents' ideas, but respect their old experiences and feelings, guide them to participate in various activities, actively reflect, and guide parents to establish new communication experiences.

2). Principle of Participation

In the communication process with children with autism, it is crucial to have a clear understanding of their communication characteristics, challenges they face, and effective ways of interaction, to be able to master effective communication strategies more efficiently. Based on this, to better promote individuals to gain insights into communication methods for children with autism, it is necessary to provide opportunities for learners to actively participate in curriculum content and practical operations during the curriculum learning process, and encourage them to deeply engage in curriculum learning to achieve better learning outcomes.

3). Principles of Collaborative Learning

To improve learning effectiveness, attention should be paid to opportunities for peer learning and collaboration during the learning process. Such measures can enrich learning experience, promote knowledge updating and conceptual change. Knowledge exchange and cooperation among peers not only broaden the learner's perspective, but also cultivate critical thinking, communication abilities, and the ability to collaborate from different perspectives. This collaborative learning model not only encourages individuals to overcome their own limitations and embrace diverse experiences, but also provides richer experiences for self-reflection and self-development in transformational learning.

4). Principle of goal generation

Although the curriculum has pre-set goals, due to differences in experience, learning time, learning ability, and focus between each parent and autistic child, as well as differences in communication abilities and needs of each autistic child, educators can adjust the goals based on the specific situation of the family, revise some goals, or generate some new goals.

5). Principle of flexible adjustment

Although the curriculum pre plans learning activities and tasks, parents may have a longer time to reflect during the curriculum, and some goals such as changing attitudes and accepting communication styles for children with autism belong to the

attitude domain goals, which are difficult to learn in several classes. Therefore, educators should not urge parents to achieve the curriculum objectives within a certain period. They can flexibly manage the curriculum time according to the arrangement.

Part 2 Curriculum Objectives and Content

1. Curriculum objective

The main objective of this curriculum is to enhance the parent-child communication abilities of parents of children with autism, including the following objectives:

- 1). Maintain an attitude of acceptance and support towards the status of communication abilities in children with autism.
- 2). Able to empathize with the feelings and emotions of children with autism in communication and interaction.
- 3). Can induce active communication in children with autism through communication and interaction.
- 4). Able to maintain synchronous responses with children during communication and interaction.
- 5). Able to clearly express their communication intentions to children with autism.
- 6). Can assist children with autism in understanding.
- 7). Able to understand the meaning expressed by children with autism.

2. Curriculum contents

According to existing research, good communicating partner needs to establish awareness of communicating partners, master knowledge related to communication strategies, and be able to transform these awareness and knowledge into behaviors in communication and interaction with communication barriers (Kent-Walsh et al., 2015; Finch et al., 2018; Simon & Carole, 2018). The requirements for the learning content and curriculum objectives of the three communicating partners mentioned above. The curriculum content is divided into three modules, namely: establishing awareness of communicating partners; Application of communicating partner strategies. Among them:

The first module aims to raise awareness among parents about communicating partners. To help parents establish awareness, they need to understand the concept of communicating partners and analyze the characteristics of autistic children and their communication abilities from this perspective, as well as the pathways that induce autistic children's communication abilities, to better understand and accept autistic children, and establish good communication relationships on this basis. In this module, attention should be paid to the experiences of parents towards children with autism, and activities should be created to improve, revise, and establish their new experiences.

The second module aims to equip parents with knowledge about different communication strategies used by communicating partners. Due to the involvement of various communication strategies, the use of information transmission theory elements such as information senders, information receivers, and communication environments to introduce communication strategies enables parents to not only master existing strategies, but also develop more strategies based on this foundation. Since some children with autism have certain language abilities, it is necessary to enhance their communication abilities while also enhancing their language abilities (Finch et al. ,2018). To promote more accurate expression in children with autism. Therefore, parents need to master strategies to assist them in better expression. In this module, it is important to focus on parents' existing experiences with these strategies and create activities to refine, revise, and establish their new experiences.

The third module aims to enable parents to use communicating partner strategies flexibly and systematically in specific communication contexts, internalizing communicating partner awareness and strategies into their communication behavior. To enable parents to flexibly use communication strategies, they need to understand their children's and their own communication abilities, and based on this, develop personalized communication plans. At the same time, it is necessary to learn how to use these communication strategies in specific situations, including daily life situations and created communication situations (Henderson et al., 2023). In this module, it is important

to focus on parents' previous experiences in communicating with children with autism, and create activities to improve, modify, and establish their new behaviors.

The basic knowledge structure of curriculum content is shown in the figure.

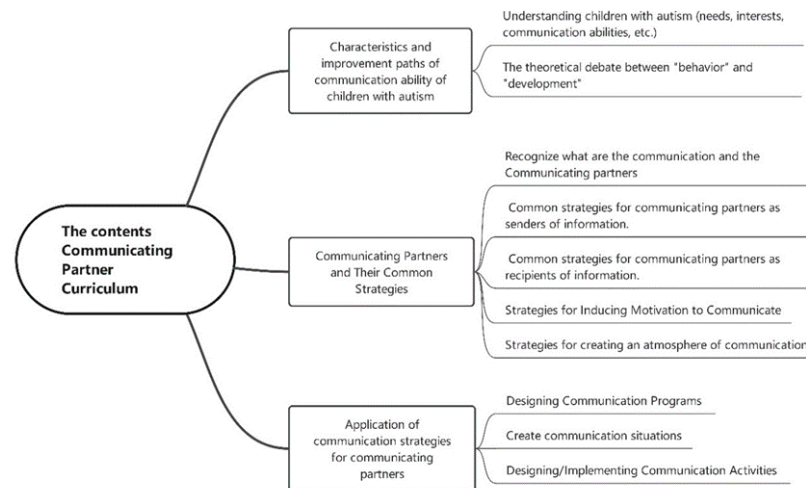


Figure 1: Basic knowledge structure of curriculum content

Considering the continuity of parental participation in the curriculum, some parents may be absent from a certain curriculum, so each curriculum should be presented as a complete content and structure as much as possible. If parents are unable to participate in a certain unit of learning for some reason, it will not affect their mastery of other content. To increase parents' interest in the content and help them remember the main content related to the curriculum. The curriculum designs a topic name that matches the theme for each unit based on the learning content. The topic of the unit "Understanding Concepts Related to Communicating partner" is called "Building Bridges for Communication with Children".

The detailed content of the curriculum is shown in Table 1.

Table 1 Curriculum Content

Module	Unit	Curriculum contents
Module 1: Establishing awareness of communicating partners	Unit 1: Building a Bridge for Communication with Children: Communicating Concepts with Partners.	1. The meaning and elements of communication; 2. Common communication barriers; 3. The meaning, role, and significance of communicating partner.
	Unit 2: Most Familiar Strangers: Understanding Children with Autism and Their Communication Characteristics.	1.The definition, causes, and characteristics of autism; 2. Language communication characteristics of children with autism; 3. The advantages and potential of children with autism.
	Unit 3: What is Suitable is the Best: The Path to Improving the Development of Language Communication abilities in Children with Autism.	1. The acquisition theory and elements of language and communication abilities; 2. The learning function of the brain 3. The role of behaviorist learning theory in language learning; 4. The Role of Relationship Based Development Theory in Language.
Module 2: Common communication strategies for communicating partners	Unit 1: This way we can communicate better: Strategies to establish a good communication environment.	1. The connotation of a good communication environment; 2. Construct a psychological environment for acceptance; 3. Construct an empathetic psychological environment; 4.Reduce interference during communication.
	Unit 2: Why Children Communicate: Strategies to Induce Active Communication	1.The significance of proactive communication; 2. Strategies to induce children to actively communicate; 3. Strategies to enhance children's proactive communication quality.
	Unit 3: Child, Help You Better Understand Me: Assist children in understanding strategies for conveying communication information to others.	1. Difficulties that children may encounter when understanding communication information; 2.Assist children in understanding communication strategies.
	Unit 4: Child, let me better understand you: understand the communication strategies that children use to convey information.	1. Understand the child's meaning; 2. Understand the elements of children; 3. Understand children's strategies; 4. Assist children in expressing themselves better.
Module 3:	Unit 1: Play Communication: Developing and Applying Individualized Family	1.Introduction to individualized family communication plans; 2.Determine the goals of family communication intervention; 3.Develop individualized family communication intervention

Application of communication strategies for communicating partners	Communication Plans.	plans.
	Unit 2: Communication is Everywhere (1): Application of communication strategies in daily life activities.	<ol style="list-style-type: none"> 1. The meaning and function of daily life activities; 2. Achieving rehabilitation goals in daily life activities; 3. Adjusting rehabilitation goals in daily life activities.
	Unit 3: Communication is Everywhere (2): Application of communication strategies in family social communication games.	<ol style="list-style-type: none"> 1. The meaning and role of family social communication games; 2. Common family social communication games; 3. The application of communicating partner strategy in social communication games.

6. Curriculum implementation

Parents need to break the old thinking, habits, and behaviors when communicating with their children, and establish new thinking, habits, and behaviors through a gradual process. In this process, they need to establish new awareness, master new knowledge, and gradually transform into behaviors when communicating with children. In the first module, we mainly provide parents with some inspiration through videos, case studies, and other means, so that they can accept the concept of communicating partners. In the second module, parents are mainly taught strategies related to communicating partners through lectures, video presentations, exercises, and other means. In the third module, we mainly integrate the strategies of communicating partners into the daily life of parents and children by discussing their children's goals with parents, formulating family communication plans, designing communication activities, and using checklists to reflect on our own communication activities, so that they can become familiar with these strategies and integrate them into the process of interacting with children.

Specifically, in each learning session, combined with the theory of transformational learning in adult learning, the learning content follows three teaching steps: introducing teaching, implementing teaching, and summarizing teaching. Among these three teaching steps, four phases of transformational learning are combined to

implement the learning arrangement, as shown in the following figure.

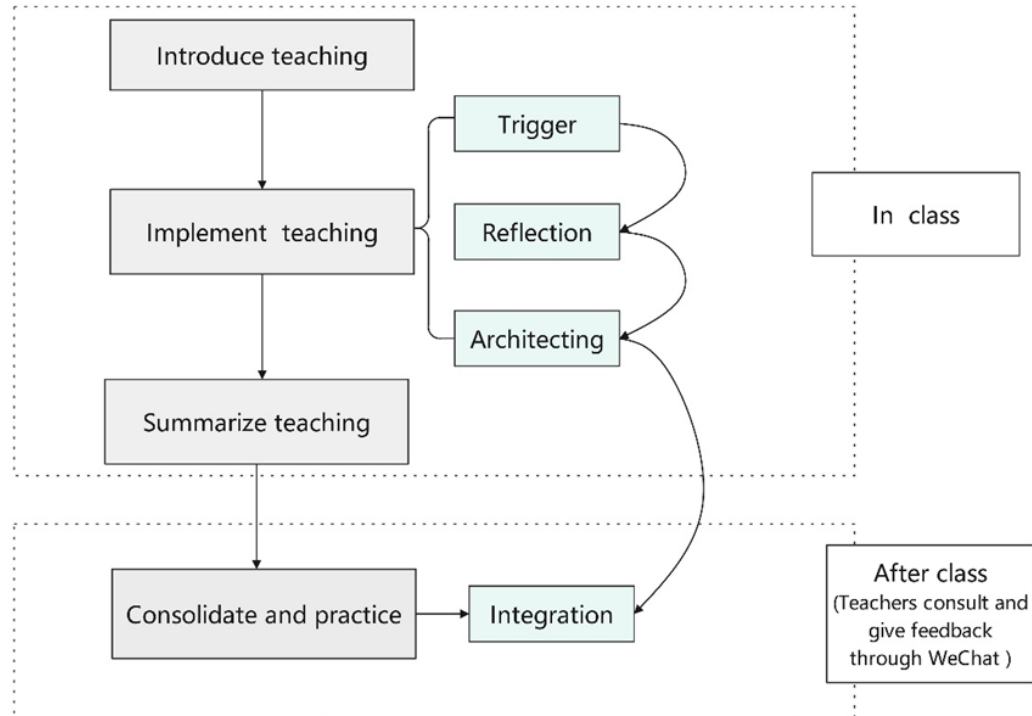


Figure 2: Implementation process of learning activities

In the above figure, the gray box represents the process of classroom teaching activities, and the content in the green box represents the four phases of transformational learning. Among them, the three learning phases of stimulation, reflection, and reconstruction are carried out in the classroom.

In the stimulation phase, the teacher raises questions that trigger parental thinking, arousing parental awareness of old communication behaviors and their existing problems. In the reflection phase, the teacher guides parents to think about existing problems through watching videos, group discussions, teacher-student discussions, and other means. In the reconstruction phase, educators introduce the relevant concepts and strategies of communicating partners to parents through lectures, case sharing, and other methods based on the theme and the problems existing in parents, and assist parents in reconstructing new knowledge through reflection and practice. If multiple knowledge points are involved in the learning of the curriculum, according to the characteristics of the knowledge points, as much as possible, the method of

transformational learning should be adopted for each knowledge point, so that parents can internalize the knowledge involved in the knowledge points into their behavior through phases of stimulation, reflection, and reconstruction.

In the integration phase, parents communicate with their children at home after class to consolidate new knowledge and strategies. During this phase, educators provide consultation and feedback to parents through WeChat, phone, and other means, so that parents can better adjust the strategies they use.

(1) Lesson schedule

The three modules of this curriculum consist of ten classes, each with a concentrated learning time of 3 hours, once a week. Ten classes can also be scheduled to be completed in ten weeks, once a week, based on the distance between parents and the training location, as well as the parents' schedule. During each class, one to two breaks can be arranged based on the feedback of parents and the progress of teaching. After class, parent's complete family tasks to communicate with their children, and discuss them with the teacher through video or homework. Adjustments are made under the guidance of the teacher.

The first module has three units, which takes 9 hours; The second module has four units in total, which takes 12 hours; The third module consists of three units and takes 9 hours. The specific arrangement of curriculum time is shown in Table 2.

Table 2: Curriculum Schedule

Weekly	Learning Unit	time
1	Module 1, Unit 1: Building a Bridge for Communication with Children	3 hours
2	Module 1, Unit 2: Most Familiar Strangers	3 hours
3	Module 1, Unit 3: What is suitable is the best	3 hours
4	Module 2 Unit 1: This way we can communicate better	3 hours
5	Module 2, Unit 2: Why Children Communicate	3 hours
6	Module 2, Unit 3: Child, to help you better understand me Child	3 hours
7	Module 2, Unit 4: let me better understand you	3 hours
8	Module 3 Unit 1: Play Communication	3 hours

9	Module 3 Unit 2: Communication is Everywhere (1)	3 hours
10	Module Three Unit Three: Communication is Everywhere	3 hours

(2) Schedule of curriculum learning activities

According to the curriculum objectives, curriculum content, and curriculum schedule, the curriculum learning activities are arranged as shown in the table below.

Table 3: Schedule of Curriculum Learning Activities

Lesson	Curriculum contents	Learning objectives	learning activities	learning method	Curriculum materials	evaluate
1	Building a bridge for communication with children: communicating with partners about concepts.	1. Able to understand the meaning of communicating partners; 2. Able to understand the significance of communicating partners; 3. Able to accept and understand the communication methods of children with autism.	Teacher guide parents to think about the definition of communication (10 min), and educators present Videos, definitions of communication, and other materials that are not used for oral communication (20 min), guiding parents to think and reconstruct the definition of communication (10 min). Teacher guide parents to think about the purpose and methods of communication between themselves and their children (10 min) Through videos, lectures, case sharing, and group discussions with different communication methods, more communication purposes and methods are presented (20 min), guiding parents to think and reconstruct their communication purposes and methods with their children (15min). Teacher guide parents to think about the obstacles they face when communicating with their children (15 min), Teacher narrates the process of communication and discusses the obstacles in communication through case analysis (20 min), Teacher guiding parents to think and reconstruct their communication characteristics with their children, as well as the communication obstacles between themselves and their children (15 min). the	Lecture, discussion, case analysis	PPT, Video, Paper, and Pen	Oral evaluation: the definition of communication in parental responses; Paper and pen evaluation: Parents write down the purpose and communication method of communication in their notebook; Oral evaluation: Parents answer the meaning and significance of communicating partners; Implementati

			<p>teacher explains the concepts, theoretical foundations, and roles of communicating partners, presents a 20-minute video of communicating partners interacting with children, and guides parents to think and reconstruct their roles in communication with children (15 min).</p> <p>Teach scholars and parents to summarize communication, communication barriers, and communicating partners together Close the concept (10 min).</p>			<p>on evaluation: Parents interact with their children and record videos.</p>
2	<p>The most familiar stranger: Understanding children with autism and their communication characteristics.</p>	<p>1. Understand the language communication characteristics of children with autism; 2. Able to accept and understand the communication methods of children with autism; 3. Able to empathize with the feelings and emotions of children with autism.</p>	<p>Teach scholars the definition, incidence, and relationship with language development of autism differences and connections between delayed children (15 min).</p> <p>Teachers ask parents to reflect on the language characteristics of children with autism (15 min).</p> <p>Teachers analyze language from three elements: physiological, cognitive, and social Composition and the impact of these three elements on language (30 min).</p> <p>Teachers ask parents to analyze children with autism from a physiological perspective Language and communication abilities characteristics (30 min).</p> <p>Teachers ask parents to analyze children with autism from a cognitive perspective Language and communication abilities characteristics (20 min).</p> <p>Teachers ask parents to analyze children with autism from a social perspective Language and communication abilities characteristics (20 min).</p> <p>Teachers ask parents to reflect on their child's strengths and weaknesses (10 min).</p> <p>Teachers analyze the developmental potential of children with autism through case studies and videos (15 min).</p> <p>Teachers ask parents to reflect on their children's strengths and weaknesses, especially paying attention to guidance Parents reflect on their children's strengths</p>	<p>Lecture, discussion, case analysis</p>	<p>PPT, Video, Paper and Pen</p>	<p>Oral evaluation: Parents answer the three elements of language composition; Paper and pen evaluation: Parents write down the communication characteristics of children with autism in their notebooks; Oral evaluation: Parents answer the advantages and difficulties of children with autism; Implementation evaluation:</p>

			and the real difficulties they face in communication (15 min). Teachers and parents summarize the three elements of physiology, cognition, and social interaction together Characteristics of language communication abilities in children with autism (10 min).			Parents interact with their children and record videos.
3	The best path is to enhance the development of language communication abilities in children with autism.	<p>1. Able to understand the theories and related elements of children's language acquisition and communication abilities;</p> <p>2. Able to recognize the sustainable development of the brain;</p> <p>4. Able to understand the significance of development oriented learning theories and strategies for language development.</p> <p>5. Able to accept and understand the communication methods of children with autism;</p> <p>6. Able to empathize with the feelings</p>	<p>Teachers ask parents to think and discuss how their children learn language (20 Min).</p> <p>Teachers explain the theories of children's language learning and the rules of children's language development Information processing patterns of rhythm and children's language (30 min).</p> <p>Teachers play videos and cases of brain plasticity, ask parents to think and discuss the insights gained from these cases, with a focus on guiding parents to build confidence in their children's recovery (30 min).</p> <p>Teachers' scholars the basic theories and core ideas of behaviorism learning theory Emphasize the role of reinforcement in shaping children's behavior (30 min).</p> <p>Teachers guide parents to watch videos and analyze the impact of reinforcement strategies on children's communication The role of communication and language ability (20 min).</p> <p>Teachers play videos of interaction between parents and children, asking parents to analyze their children displayed communication behavior (20 min).</p> <p>Teachers introduce the basic theory and generation of interpersonal relation-based developmental theory Indicative intervention methods and core ideas (20 min).</p> <p>Teachers and parents work together to summarize the path of language development in children with autism and promotion methods (10 min).</p>	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	<p>Oral evaluation: Parents answer the rules of children's language development; Oral evaluation: The role of parental reinforcement in the development of children's language and communication abilities; Oral evaluation: Parents respond to the impact of interpersonal relationships on children's language and communication abilities; Paper and pen evaluation: Parents write</p>

		and emotions of children with autism.				down their children's communication behaviors; Implementation evaluation: Parents interact with their children and record videos.
4	This way we can communicate better: a strategy to establish a good communication environment.	<p>1. Understand the connotation of a good communication environment;</p> <p>2. Master strategies for constructing a psychological environment for acceptance;</p> <p>3. Master strategies for constructing an empathetic psychological environment;</p> <p>4. Master strategies to reduce interference in the communication process;</p> <p>5. Able to accept and understand the communication methods of</p>	<p>Teachers ask parents to reflect on what kind of communication environment they prefer (15 min).</p> <p>Teachers to share cases of a good communication environment (20 min).</p> <p>Teachers guide parents to analyze the characteristics of a good communication environment (15 min).</p> <p>Teachers play videos to guide parents to reflect on what it means to accept their children, and if the child has been accepted (10 min).</p> <p>Teachers analyze how to accept children through video analysis (15 min).</p> <p>Teachers and parents discuss the relationship between the brain and emotions from a neurophysiological perspective. Analyze the generation of emotions and methods of emotional regulation (20 min).</p> <p>Teachers guide parents to reconstruct how to accept their children's communication behavior and communication Interest (20 min).</p> <p>Teachers play videos to guide parents to reflect on what empathy is for children if they had been able to empathize with their children's emotions and feelings (15min).</p> <p>Teachers use case studies to explain strategies for empathetic children's emotions and emotion (20 min).</p> <p>Teachers guide parents to reconstruct how to</p>	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	<p>Oral evaluation: Parents answer the characteristics of a good communication environment;</p> <p>Oral evaluation: Parents respond with strategies to accept their children;</p> <p>Oral evaluation: Parents respond with empathy for their children's strategies;</p> <p>Implementation evaluation: Parents interact with their children and record</p>

		children with autism; 6. Able to empathize with the feelings and emotions of children with autism.	empathize with their children's emotions and feelings (20 min). Teachers and parents summarize strategies for accepting and empathizing with children together (10 min).			videos.
5	Why Children Communicate: Strategies to Induce Proactive Communication	1. Understand the significance of proactive communication ; 2. Master strategies to induce children to actively communicate; 3. Master strategies to enhance children's proactive communication abilities.	Teachers and parents review together strategies to create a positive communication environment (10 min). Teachers guide parents in reflecting on the significance of proactive communication abilities for children, as well as the challenges faced by children with autism in terms of proactive communication abilities (20 min). Teachers demonstrate to parents how to analyze children's proactive communication frequency through video analysis (15 min). Teachers guide parents to analyze children's proactive communication frequency through video analysis and reflect on their own behaviors in this process (15 min). Teachers guide parents to reflect on the qualitative differences between proactive communication in children with autism and typically developing children through video analysis, emphasizing the importance of proactive communication abilities for children with autism (20 min). Teachers led parents to consider and discuss strategies to elicit proactive communication behaviors in children (10 min). Teachers summarize and supplement based on the results of parent discussions, emphasizing the use of strategies such as discovering interests, engaging, and expanding in eliciting proactive communication behaviors in children with autism (20 min). Teachers guide parents to reflect on their children's interests and discuss how these interests can be engaged with and expanded	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	Oral evaluation: Parents respond to difficulties in active communication abilities in children with autism; Oral evaluation: Several strategies that parents use to induce children to actively communicate and improve their quality; Oral evaluation: Parents can combine video analysis to determine what communication strategies they have used; Implementation

			<p>upon (10 min).</p> <p>Teachers explain the use of waiting strategies in eliciting proactive communication behaviors in children with autism, incorporating video examples (15 min).</p> <p>Teachers guide parents to watch videos of their interactions with their children, reflecting on which moments they can wait for their children (10 min).</p> <p>Teachers explain the use of strategies such as creating disruptions and breaking expectations in eliciting proactive communication behaviors in children with autism, using video examples (10 min).</p> <p>Teachers explain the use of strategies such as responding and extending communication exchanges in enhancing the quality of proactive communication abilities in children with autism, using video examples (15 min).</p> <p>Teachers and parents summarize together strategies to promote children's proactive communication abilities (10 min).</p>			<p>evaluation:</p> <p>Parents interact with their children and record videos.</p>
6	<p>Child, help you better understand me: assist children in understanding strategies for conveying communication information to others.</p>	<p>1. Able to understand the difficulties that children may encounter when understanding communication information;</p> <p>2. Able to master strategies to assist children in understanding communication information.</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, and understanding children (10 min).</p> <p>Teachers guide parents in reflecting on the difficulties children face in understanding communication information (15 min).</p> <p>Teachers use case studies to analyze the underlying reasons for children's difficulties in understanding communication information (20 min).</p> <p>Teachers use case studies to explain and demonstrate the application of the "adjusting sensory input" strategy in assisting children to understand communication information (20 min).</p> <p>Teachers use case studies to explain and demonstrate the application of the "highlighting key information" strategy in assisting children to understand communication information (15</p>	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	<p>Oral evaluation: Parents provide a good communication environment, induce children to actively communicate, and understand their strategies;</p> <p>Oral evaluation: Parents answer questions</p>

			<p>min).</p> <p>Teachers use case studies to explain and demonstrate the application of the "reducing language complexity" strategy in assisting children to understand communication information (15 min).</p> <p>Teachers use case studies to explain and demonstrate the application of the "building cognitive scaffolds" strategy in assisting children to understand communication information (20 min).</p> <p>Teachers guide parents in selecting goals and designing how to use the above strategies to help children understand their communication information (20 min).</p> <p>Teachers discuss and provide feedback on the strategies designed by parents (35 min).</p> <p>Teachers and parents summarize together the strategies for helping children better understand communication information (10 min).</p>			<p>about their children's difficulties in understanding communication information;</p> <p>Oral evaluation: Parents can combine video analysis to determine what communication strategies they have used;</p> <p>Implementation evaluation: Parents interact with their children and record videos.</p>
7	<p>Child, let me better understand you: understand the strategies that children use to convey communication information.</p>	<p>1. Being able to understand what it means to understand children;</p> <p>2. Able to understand the key points that need to be paid attention to when understanding children;</p> <p>3. Able to master and</p>	<p>Teachers and parents review together strategies to create a positive communication environment and elicit proactive communication from children (10 min).</p> <p>Teachers guide parents to observe videos of their interactions with their children, reflecting on the application of the strategies and discussing the challenges encountered in applying these strategies (25 min).</p> <p>Teachers discuss the significance of understanding children, what true understanding entails, and understanding children's points of interest (20 min).</p> <p>Teachers use videos to guide parents in reflecting on whether they have achieved</p>	<p>Lecture, discussion, case analysis</p>	<p>PPT, Video, Paper, and Pen</p>	<p>Oral evaluation: Parents respond with strategies to create a good communication environment and encourage their children to actively communicate</p>

		<p>understand children's strategies;</p> <p>4. Be able to master strategies to assist children in expressing themselves better.</p>	<p>understanding of their children during communication (20 min).</p> <p>Teachers discuss the application of observational strategies in understanding children, using videos as examples (15 min).</p> <p>Teachers use videos to guide parents in reflecting on how to observe their children (15 min).</p> <p>Teachers discuss the application of listening strategies in understanding children, using videos as examples (15 min).</p> <p>Teachers use videos to guide parents in reflecting on how to listen to their children (15 min).</p> <p>Teachers discuss strategies to assist children in better expressing themselves (20 min).</p> <p>Teachers use videos to guide parents in reflecting on how to utilize strategies to assist children in better expression (15 min).</p> <p>Teachers and parents summarize together strategies for understanding children and facilitating better expression in children (10 min).</p>			<p>;</p> <p>Oral evaluation: Parents answer to understand the meaning of their children;</p> <p>Oral evaluation: Parents can combine video analysis to determine what communication strategies they have used;</p> <p>Implementation evaluation: Parents interact with their children and record videos.</p>
8	<p>Play communication: Developing and applying personalized family communication plans.</p>	<p>1. Know what personalized family communication plans are;</p> <p>2. Understand the details of individualized family communication plans;</p> <p>3. Able to formulate individualized</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, understanding children, and assisting children's comprehension (20 min).</p> <p>-Teachers use case studies to explain the significance and details of individualized family communication plans (30 min).</p> <p>Teachers discuss the meaning, selection methods, and principles of selecting individualized family communication intervention goals (30 min).</p> <p>Teachers guide parents in discussing and</p>	Lecture, discussion, case analysis	PPT, video, paper and pen, Individual, Family	<p>Oral evaluation: Parents respond with strategies that promote a good communication environment, encourage their children to actively communicate</p>

		<p>family communication intervention goals;</p> <p>4. We will develop personalized family communication intervention plans.</p>	<p>formulating individualized family communication intervention goals for their children (20 min).</p> <p>Parents share their formulated intervention goals, and teachers provide feedback on representative goals (20 min).</p> <p>Teachers guide parents in gradually completing the detailed items of individualized family communication intervention plans through discussions. Meanwhile, teachers supervise the process and provide guidance if any issues arise. If representative issues occur, teachers explain them to all parents together (50 min).</p> <p>Teachers and parents summarize together the methods and considerations for formulating individualized family communication intervention plans (10 min).</p>		<p>Communication Intervention Plan Table Template</p>	<p>, understand their children, and assist their children in understanding; Implementation evaluation: Parents formulate family communication intervention goals; Implementation evaluation: Parents develop a family communication intervention plan; Implementation evaluation: Parents interact with their children and record videos.</p>
9	<p>Communication is Everywhere (1): The application of communication</p>	<p>1. Able to understand the meaning and role of daily life activities;</p> <p>3. Able to adjust</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, understanding children, and assisting children's comprehension (20 min).</p> <p>Teachers ask parents to watch videos of their interactions with their children and reflect on</p>	<p>Lecture, discussion, case analysis</p>	<p>PPT, video, paper and pen</p>	<p>Oral evaluation: Parents answer how to carry out teaching around goals;</p>

	<p>cation strategies in daily life activities.</p>	<p>rehabilitation goals in daily life activities.</p>	<p>whether they are teaching around specific goals or just engaging in activities the child already knows or continually doing things the child cannot do (20 min).</p> <p>Teachers use case studies to explain what daily life activities entail, how to teach around goals during daily life activities, and how to adapt teaching strategies based on the child's responses (20 min).</p> <p>Teachers guide parents in analyzing how to adapt teaching strategies based on the given goals (30 min).</p> <p>Teachers ask parents to watch videos of their interactions with their children and reflect on how they adapt teaching strategies based on the child's responses during these activities (20 min).</p> <p>Parents share teaching strategies based on formulated goals, and teachers provide feedback on representative content (20 min).</p> <p>Teachers use case studies to explain what goal adjustment in teaching entails and methods for adjusting teaching goals (20 min).</p> <p>Teachers ask parents to watch videos of their interactions with their children and reflect on how they adjust teaching goals based on the child's responses during these activities (20 min).</p> <p>Teachers and parents summarize together the significance of daily life activities, how to conduct goal-oriented teaching during daily life activities, and how to adjust goals during these activities (10 min).</p>		<p>, Indi vidu aliz ed fami ly com mun icati on inter vent ion plan</p>	<p>Oral evaluation: Parents answer how to adjust according to goals; Implementati on evaluation: Parents interact with their children and record videos.</p>
10	<p>Communi cation is Everywhe re (2): The Applicati on of Communi cation Strategies</p>	<p>1. Can understand the meaning and role of family social communication games; 2. Can describe common family</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, understanding children, and assisting children's comprehension (10 min).</p> <p>Teachers encourage parents to reflect on and discuss games they play with their children at home (20 min).</p> <p>Teachers use case studies to explain the</p>	<p>Lectu re, discu ssion, case analy sis</p>	<p>PPT , vide o, pap er and pen , Che</p>	<p>Oral evaluation: Parents answer common family social communicati on games; Oral evaluation:</p>

in Family Social Communication Games.	social communication games; 3. Able to apply communicating partner strategies in social communication games.	<p>meaning, purpose, common family social communication games, and considerations of family social communication games (40 min).</p> <p>Teachers guide parents in considering how they can expand the games they play with their children at home (20 min).</p> <p>Teachers ask parents to watch videos and reflect on whether they use communicating partner strategies in these games (10 min).</p> <p>Teachers use case studies to explain the usage of the "Communicating partner Strategy Checklist" (20 min).</p> <p>Teachers guide parents in using the "Communicating partner Strategy Checklist" to evaluate communicating partners in the videos (15 min).</p> <p>Teachers guide parents in using the "Communicating partner Strategy Checklist" to evaluate their interactions with their children in the videos (15 min).</p> <p>Teachers and parents summarize together the significance of daily life activities, how to conduct goal-oriented teaching during daily life activities, and how to adjust goals during these activities (10 min).</p>		cklist for using communicating partner strategies	The application of communicating partner strategies in parent response communication games; Implementation evaluation: Parents interact with their children and record videos.
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(2) Learning environment arrangement

To facilitate discussions and reflection among parents, the learning environment is arranged in a group split format, and walkable space is left between groups, allowing educators to participate in discussions between different groups and facilitating communication between parents.

(3) Learning Activity Management

Although social communication is a core issue for children with autism, parents may encounter other problems in the process of raising them, which can also cause them great distress. Therefore, during the implementation of the curriculum, parents may discuss other issues related to children with autism, such as fixation behavior, emotional issues, etc. Teachers should try to explain and handle them from the perspective of

social communication. If it is not possible to explain and handle from a communication perspective, suggestions can be provided to parents after class.

As adults, it is difficult for parents to let go in front of strangers, and their participation in discussions and answering questions may not be high. Teachers can conduct interviews with parents in advance, exchange the purpose and significance of the curriculum one by one, understand their concerns, and help them participate better in the curriculum.

3. The curriculum duration is relatively long, and parents are distributed in different places, which may result in taking leave for various reasons. The parents require everyone to be present for the first class, and if there are any other matters, they can take leave. But it is necessary to self-study the PPT, complete this week's tasks, and have discussions and communication with the instructor.

4. Due to some special reasons, some parents may sometimes bring their children to attend classes. To ensure the effectiveness of the classes, 1-2 teaching assistants can be arranged to help parents take care of their children.

7. Curriculum resources

The resources of the curriculum include the text of the curriculum; PPT, videos, lecture notes, pictures, tables, etc. used in the implementation of teaching process; The paper and pen used by parents to complete curriculum exercises, as well as the WeChat used for after-school consultation and guidance.

The PPTs for ten of the curriculums maintained the same style, with only adjustments made to the details based on specific content. Considering that some parents may not have a good understanding ability, they should try to present the PPT in a way that combines text and images, and highlight key information to help parents better understand the curriculum content.

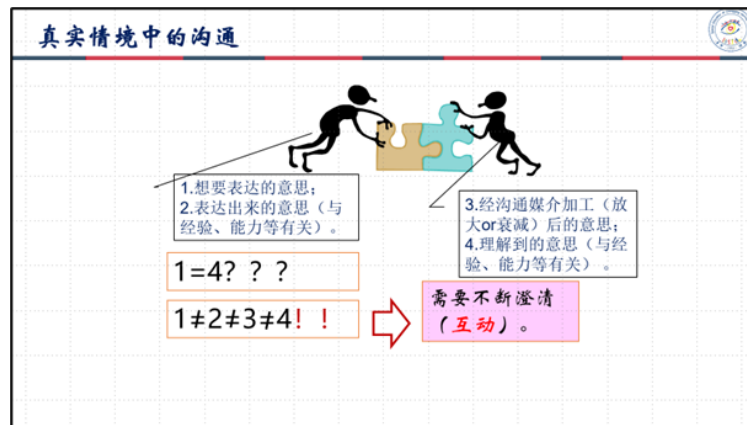


Figure 4: Presenting communication barriers in a visual and textual manner



Figure 5: Mark the key information of the curriculum content with different eye colors

To give better feedback to parents and enable them to have greater sense of participation. research should use videos of parents and children participating in training as much as possible. According to the needs of the teaching content, videos of parents and children interacting should be edited and utilized. The video time should not be too long, usually around 30 seconds, not more than 1 minute. Simply explain knowledge point or prove a strategy.

The main tables used in curriculum learning are as follows. Table 4 is an example of a family communication intervention plan, which can be deleted during use and filled out according to individual needs. Table 5 is the checklist for using communicating partner strategies. The main purpose of using this table is to check the items in the video by comparing them, which can help parents familiarize themselves with the strategies of their communicating partners and better grasp these strategies. During the teaching process, multiple exercises can be arranged according to the schedule, or

parents can be arranged to practice after class.

Table 4 Individualized Family Communication Intervention Plan (Example) -Xiaoshu

Family Communication Intervention Plan

target	Be able to pay attention to the activities of others around he.						
execution time	November 5th, 2023- December 5th, 2023						
Intervention plan							
time	place	supporter	activity	Available strategies	Possible bottlenecks	Solution	Strategy
Wake up in the morning	bedroom	grandmother	Wearing clothes	Wait and adjust the input sensory information (shake your clothes in front of him, pat him with your hands)	Worried about catching a cold	Turn on the air conditioning and wear clothes	
breakfast	restaurant	father	Sending tableware	Breaking conventions (deliberately not sending him utensils), adjusting input sensory information (standing next to him while sending utensils but not speaking)	If a child has emotions, it may affect their school time.	Observe the child and send them utensils before they are in a bad mood	
On the way to school	On the car	Mom	Listening to stories	Create distractions (intentionally unable to release, inviting children to wait) and interest temptations (changing toys that children like and intentionally not opening them for them).	If a child has emotions, it may affect their school time.	Observe the child and let them listen to stories or give them toys before they are in a bad mood.	
On the way out of school	On the bus	grandmother	eat snacks between meals	Interest attraction (open the packaging slowly, please wait for the child).		Buy small packaged food, start giving it directly to the child, and let the child wait later.	
dinner	restaurant	Mom	Sending tableware	Breaking conventions (deliberately not sending him utensils), adjusting input sensory information	The child has emotions that affect	Observe the child and give them utensils before they	

				(standing next to him while sending utensils but not speaking)	the family's dinner.	are in a bad mood.	
After dinner	living room	Mom	Playing word card games	Expand interests (hide word cards, draw word cards, output word cards), wait (give children some time to react during the process), create distractions (intentionally interrupt children when they are interested), break common sense, break conventions (use different word cards, word cards to line up), respond (if children pay attention to children, immediately respond to them), and prolong communication rounds (communicate with children on the same topic correctly)	There are too many strategies, and sometimes mothers may overlook each other.	Review the video, reflect on the issue, and gradually adjust.	
Before going to bed	bedroom	Mom	Listening to stories	Create interference (intentionally unable to release, ask the child to wait, listen to the story with the child, occasionally interrupt him).	If a child has emotions, it may affect their sleeping time.	Observe children and let them listen to stories before they are in a bad mood.	

Table 5 Checklist for using communicating partner strategies

Context:		Interactive object:
Communicating partner strategy		Strategy application situation
field	Details	
Creating a Good Communication Environment	Accepted the child's communication style, behavior, etc.	
	Did you empathize with the child (feelings, emotions, etc.)	
Promote proactive communication	Have you discovered your child's interests (please record your child's interests)	
	Have you participated in the child's interests	
	Has it extended the child's interest (please record the specific approach)	
	Have you waited for the child? Please record the number of times using the word "positive"	
	Has interference been caused? Please record the number of times using the word "positive"	
	Have you achieved breaking common sense and conventions? (Please record specific actions)	
	Have you responded to the child? Please record the number of times using the word "positive"	
	Do you want to extend the communication round? Please record the number of times using the word "positive"	
	Have you observed the child carefully? Please record your observations of the child's behavior and reactions	
	Do you listen carefully to your child? Please record your understanding of the child	
Let children understand us	Has the input sensory information been adjusted? Please record the method of adjustment	
	Whether important information is highlighted, please record the way it is highlighted	
	Has the language difficulty been reduced? Please record the method of reduction	
	Has a cognitive scaffold been built for the child? Please record the method of reduction	

8. Curriculum evaluation

The curriculum adopts a combination of formative evaluation and summative evaluation, as well as a combination of qualitative and quantitative evaluation to evaluate the learning effectiveness of parents.

Among them, the Parent-child Communication abilities Evaluation Form for Autistic Children Parents is used to evaluate the parent-child communication abilities of parents, to understand the effectiveness of parental curriculum learning. This section mainly adopts the method of practical evaluation, where parents provide a video of communication and interaction with their children, and parents evaluate themselves by comparing the details of the evaluation form.

In addition, the teacher will arrange reflection and practice in each curriculum, as well as interactive sessions with children after class. In these phases, the thoughts and ideas of parents can reflect their thinking content, thinking methods, and thinking results, as well as the videos of interaction with children, which are reflected and recorded in their notebooks and videos of interaction with children. This is the content of formative evaluation.

Table 7 Methods of curriculum evaluation

Evaluation method	Evaluation content	Evaluation tools
Summary evaluation	Parental communication	Assessment Form for Parent-child
Implementation evaluation	abilities	Communication abilities of Autistic Children's Parents
Formative evaluation	Parental communication	Video of classroom Q&A, practice, and
qualitative evaluation	abilities	interaction with children after class



Appendix 21 the result of Rationality checking form

Items	Evaluation results					
	1	2	3	4	5	AVG
Curriculum principles	5	5	4	5	5	4.8
1.1 Reasonable	5	5	5	5	5	5
1.2 Theoretical concepts used to support	5	5	5	5	5	5
1.3 Lead to practice	5	5	4	5	5	4.8
Curriculum objectives	4	3	5	5	4	4.2
2.1 Clear and concrete	5	3	5	5	4	4.4
2.2 Can be measured and evaluated	5	4	5	5	4	4.6
2.3 Suitable for the target group	4	4	5	5	4	4.4
Curriculum content	4	5	4	4	5	4.4
3.1 Meet the curriculum objectives	5	5	5	4	5	4.8
3.2 Academically correct	4	5	5	5	5	4.8
3.3 Suitable for the target group	5	5	4	5	5	4.8
Learning activities	4	4	5	5	5	4.6
4.1 Meet the curriculum objectives	4	5	5	5	5	4.8
4.2 Suitable for the target group	5	4	5	5	5	4.8
4.3 Interesting and possible	5	5	5	5	5	5
Curriculum materials	4	5	5	5	4	4.6
5.1 Meet the learning activities	4	5	5	5	5	4.8
5.2 Suitable for the target group	5	5	5	5	4	4.8
5.3 Interesting and possible	5	5	4	5	4	4.6
Curriculum evaluation	4	4	5	4	5	4.4
6.1 Meet the curriculum objectives	4	5	5	5	5	4.8
6.2 Suitable for the target group	5	4	5	5	5	4.8
6.3 Possible to practice	5	4	5	4	5	4.6

Appendix22 The data for the pre -tests

No	Constructing a good communication environment (28)	Elicitation communication behaviors in children (40)	understanding the communication information (24)	Assist children in understanding adult communication information (16)	Total(108)
1	8	12	12	3	35
2	9	13	10	2	34
3	5	7	5	1	18
4	7	11	11	3	32
5	9	18	11	2	40
6	4	4	5	2	15
7	6	6	6	1	19
8	9	13	10	3	35
9	9	12	8	3	32
10	7	10	7	2	26
11	11	21	13	5	50
12	5	7	5	2	19
13	10	15	10	2	37
14	8	13	12	5	38
15	9	11	8	3	31

The data for the post -tests

No	Constructing a good communication environment (28)	Elicitation communication behaviors in children (40)	understanding the communication information (24)	Assist children in understanding adult communication information (16)	Total(108)
1	22	32	18	12	84
2	24	32	18	14	88
3	18	28	15	10	71
4	22	32	19	13	86
5	24	35	19	13	91
6	19	25	17	12	73
7	18	27	16	9	70
8	22	35	20	13	90
9	22	35	19	13	89
10	22	31	18	12	83
11	25	33	20	14	92
12	20	28	18	10	76
13	24	34	19	13	90
14	23	35	21	14	93
15	21	34	19	13	87

Appendix23 The results of experimental study statistical data

Descriptive Statistics

N		Minimum	Maximum	Average	S.D.
pre- study 1	15	4.00	11.00	7.7333	2.01660
pre- study 2	15	4.00	21.00	11.5333	4.48596
pre- study 3	15	5.00	13.00	8.8667	2.77403
pre-study 4	15	5.00	13.00	8.8667	2.77403
Total of pre-study	15	15.00	50.00	30.7333	9.66190
post- study 1	15	18.00	25.00	21.7333	2.18654
post-study 2	15	25.00	35.00	31.7333	3.28344
post-study 3	15	15.00	21.00	18.4000	1.54919
post- study 4	15	9.00	14.00	12.3333	1.54303
Total of post-study	15	70.00	93.00	84.2000	7.88489
Case	15				

Paired Samples Test

Paired Differences								Sig.
95% Confidence Interval of the Difference								
	Mean	SD.	SEM	LB	UB	t	Df.	P
Paired before1-after1	-14.00000	1.13389	.29277	-14.62793	-13.37207	-47.819	14	<.001
Paired before2-after2	-20.20000	2.75681	.71181	-21.72667	-18.67333	-28.379	14	<.001
Paired before3-after3	-9.53333	1.92230	.49634	-10.59787	-8.46880	-19.207	14	<.001
Paired before4-after4	-3.46667	1.88478	.48665	-4.51042	-2.42291	-7.124	14	<.001
Paired before total -after total	-53.46667	4.08598	1.05500	-55.72941	-51.20393	-50.680	14	<.001

Appendix24 Information related to the social effects of the curriculum



Figure. Researcher spoke at international conferences on curriculum related content



Figure. Researchers trained rehabilitation backbone members from various disability federations across the country on the relevant content of the curriculum

Appendix 25. Parent communicating partner curriculum for children with autism

This curriculum is designed to enhance the communication abilities of parents and children with autism. It mainly consists of the following parts: Introduction (including curriculum background, curriculum nature, curriculum theory, curriculum principles), curriculum objectives and content (including curriculum objectives, curriculum content, curriculum implementation, curriculum resources, and curriculum evaluation), etc.

Part 1 Preface

1. Curriculum background

In recent years, the incidence rate of autistic children has increased year by year, and the number of autistic children is increasing (Centers for Disease control and Prevention, 2023). According to the latest data from the 2021 Blue Book of the Rehabilitation Industry for Children with Developmental Disorders in China, it is conservatively estimated that the number of children with autism aged 0-18 in China will reach 3 million. There are many challenges in the education and rehabilitation of children with autism, but the most core issue is social communication barriers (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision, 2022; Hu & Zhao, 2015; International Classification of Diseases 11th Revision-11,2018), which has attracted the attention of relevant personnel. Many studies at home and abroad had shown that through training, parents can participate in interventions for communication abilities in children with autism and have a positive effect (Brooke & Anna, 2020; Liu, 2019).

The Communicating Partner curriculum introduces the concept of communicating partners, combining elements of parent-child communication abilities of parents of autistic children, considering the learning characteristics of parents, covering the construction of communicating partner ideas, acquisition of communication strategy

related knowledge, and application of communication strategies. It adopts various teaching methods such as teaching, case analysis, discussion, group learning, and role-playing, which has a positive promoting effect on the improvement of parent-child communication abilities of parents of autistic children.

2. Curriculum nature

This curriculum is a parent training curriculum that focuses on practical operations while also considering theory; A comprehensive curriculum that focuses on abilities and balances experience and knowledge. In the process of curriculum learning, parents can not only systematically master the abilities of communication and interaction with children with autism, have the ability to communicate and interact with children with autism, but also learn to accept and respect the characteristics and communication methods of children with autism, establish good parent-child interaction emotions, bridge communication with children with autism, and lay the foundation for behavior management, routine establishment, knowledge learning, skill improvement, and future vocational education, career education, and other aspects of learning for children with autism.

3. Fundamentals of Curriculum Theory

The development of this curriculum mainly involves the following four basic theories. The following is an introduction to the theory and its application in the curriculum:

1). Transactional model of communication. Constructing systematic curriculum learning content through an information transmission model can help parents of autistic children establish a learning framework for communicating partners, to better summarize, integrate, and apply various communication strategies.

2). Behavioral learning theory. This theory can almost explain any learned behavior (Liu. et al. 2015). The basic idea of behavioral learning theory is that if an individual's behavior is reinforced, that behavior may be reinforced and become a stable behavioral expression of the individual (Xu, et al.,2020; Yang, 2015); If you do not

want or welcome a certain behavior, you can reduce the frequency of its occurrence or even make it disappear by ignoring it (Liu et al., 2015). For the acquisition of communication abilities in children with autism, there is a similar process: parents demonstrate communication, children with autism imitate, and parental feedback enhances these behaviors (Robert, 2020). Integrating behavioral learning theory into the curriculum content can help parents better understand and respond to communication information of children with autism, thereby promoting the development of their communication abilities.

3). Relation-based developmental theory. This theory originated from the social constructivist learning theory, which holds that social interaction is the foundation of children's language and cognitive development (Elizabeth, 2015). The framework provided by social interaction and relationships in children's literature encodes and decodes the form and content of language, and enhances communication abilities through repeated interactions (Robert, 2020; Purnomo, 2023; Robert, 2021). The core idea of the Relation-based developmental theory is the support of communication objects. Adjusting the communication environment can provide more communication opportunities for children with autism, stimulate their communication motivation, enrich their social experience, and help them understand and adjust their behavior through continuous explanation and feedback from adults, thereby improving their communication abilities (Kathleen, 2015). Incorporating relational development theory into the curriculum content can help parents better understand and respond to communication information of children with autism from different perspectives, thereby promoting the development of communication abilities in children with autism.

4). Transformative learning theory. Since the target audience of the Communicating Partner curriculum is parents of autistic children with different cultural backgrounds, professional backgrounds, and learning experiences, they have developed stable communication patterns in the process of interacting with their own children. To truly integrate the concepts and methods of communicating partners into

the process of interacting with children in daily life, it is necessary for them to reflect and adjust their old experiences, and apply new experiences in practice (Purnomo, 2023; Yang, 2022).

The communicating partner curriculum was designed based on the integration of the above theories. For example, in the curriculum, adults learned how to establish good relationships with children with autism under the guidance of Relation-based developmental theory, and created communication opportunities to induce their active communication behavior, established their motivation for future language and communication behavior learning. Adults also learn how to observe the communication behavior of children with autism in depth and detail under the guidance of Relation-based developmental theory, and use appropriate and contextualized methods to respond and reinforce, thereby helping children with autism learn more communication behaviors.

4. Curriculum Principles

To improve the effectiveness of curriculum learning, the following principles should be considered in the process of curriculum implementation.

1). Reflective principle

The communication abilities of children with autism exhibit diversity due to individual differences and environmental changes, and learners cannot simply apply fixed strategies when communicating with them. In addition to mastering communication abilities proficiently, it is also important to establish critical thinking, understand the emotions, desires, and needs of children with autism through continuous reflection and adjustment, and flexibly choose communication methods. The cultivation of this ability not only helps to interact more effectively with children with autism, but also provides learners with deeper learning experiences and development opportunities. In addition, the communicating partner strategies provided to parents in the curriculum may differ from some of the strategies parents used to deal with children before. Teachers should not deny the parents' ideas, but respect their old experiences and feelings, guide them

to participate in various activities, actively reflect, and guide parents to establish new communication experiences.

2). Principle of Participation

In the communication process with children with autism, it is crucial to have a clear understanding of their communication characteristics, challenges they face, and effective ways of interaction, to be able to master effective communication strategies more efficiently. Based on this, to better promote individuals to gain insights into communication methods for children with autism, it is necessary to provide opportunities for learners to actively participate in curriculum content and practical operations during the curriculum learning process, and encourage them to deeply engage in curriculum learning to achieve better learning outcomes.

3). Principles of Collaborative Learning

To improve learning effectiveness, attention should be paid to opportunities for peer learning and collaboration during the learning process. Such measures can enrich learning experience, promote knowledge updating and conceptual change. Knowledge exchange and cooperation among peers not only broaden the learner's perspective, but also cultivate critical thinking, communication abilities, and the ability to collaborate from different perspectives. This collaborative learning model not only encourages individuals to overcome their own limitations and embrace diverse experiences, but also provides richer experiences for self-reflection and self-development in transformational learning.

4). Principle of goal generation

Although the curriculum has pre-set goals, due to differences in experience, learning time, learning ability, and focus between each parent and autistic child, as well as differences in communication abilities and needs of each autistic child, educators can adjust the goals based on the specific situation of the family, revise some goals, or generate some new goals.

5). Principle of flexible adjustment

Although the curriculum pre plans learning activities and tasks, parents may have a longer time to reflect during the curriculum, and some goals such as changing attitudes and accepting communication styles for children with autism belong to the attitude domain goals, which are difficult to learn in several classes. Therefore, educators should not urge parents to achieve the curriculum objectives within a certain period. They can flexibly manage the curriculum time according to the arrangement.



Part 2 Curriculum Objectives and Content

1. Curriculum objective

The main objective of this curriculum is to enhance the parent-child communication abilities of parents of children with autism, including the following objectives and sub-objectives.

Table1: the curriculum objectives

objectives	sub-objectives	Target
1. Constructing a good communication environment	1.1 Maintaining a positive mindset in communication	1.1.1 Can accepting the child's various expressions during communication is essential.
		1.1.2 Can accept oneself in various feelings and expressions during the communication process.
		1.1.3 Can engage in interactive exchanges with the child, paying attention to them, rather than solely being led by adults.
		1.1.4 Being able to understand the child's feelings and emotions.
	1.2 Creating a pleasant and flexible communication atmosphere	1.2.1 During the interaction with the child, both parents and the child can play very happy.
		1.2.2 During the interaction, being able to employ different approaches based on the context.
		1.3 Can arrange an appropriate communication environment based on communication activities and the child's abilities.
2. Eliciting communication behaviors in children	2.1 attracting children's attention	2.1.1 Can capture the child's attention by using things that interest them.
		2.1.2 Can use exaggerated methods to amplify cues during interactions with the child.
		2.1.3 Can pause ongoing activities that interest the child, waiting for the child to notice the adult before continuing the activity.
		2.1.4 Can imitate activities that the child is currently engaged in, waiting for the child to notice the adult.
		2.1.5 Can follow and join in the activities that the child is engaged in, waiting for the child to notice.
		2.1.6 Can engage in activities that deviate from the usual routines, waiting for the child to notice.
		2.1.7 Can intentionally make mistakes, waiting for the child to notice the adult.
	2.2 reinforcing children's communication behaviors	2.2.1 Can observe various language and non-verbal behaviors initiated by the child.
		2.2.2 Can respond to the child's communication behaviors in various ways.
		2.2.3 Can extend rounds of communication interaction with the

		child using various methods.
3. Understand the communication information expressed by the child	3.1 Comprehension Ability	3.1.1 Can maintain an exploratory mindset towards what the child says and does, rather than solely focusing on negation and criticism.
		3.1.2 Can listen to the meaning expressed by the child, including both verbal and non-verbal expressions.
		3.1.3 Can speculate about children's expressions.
	3.2 Enhancing children's language abilities	3.2.1 Can promote the development of the child's language abilities through expansion.
		3.2.2 Can facilitate the development of the child's language abilities through demonstration.
		3.2.3 Can assist children in expression through methods like pictures and visual cues.
4. Assist children in understanding communication information	4.1 clarifying abilities	4.1.1 Can use utilizing various forms and degrees of communication cues.
		4.1.2 Can adjusting communication style.
	4.2 Reducing cognitive load	4.2.1 When the child doesn't understand, the adult can adjust their communication approach to help the child comprehend.
		4.2.2 When the child has difficulty understanding certain words, the adult can provide visual cues and support.

2. Curriculum contents

According to existing research, good communicating partner needs to establish awareness of communicating partners, master knowledge related to communication strategies, and be able to transform these awareness and knowledge into behaviors in communication and interaction with communication barriers (Kent-Walsh et al., 2015; Finch et al. ,2018; Simon &Carole, 2018). The requirements for the learning content and curriculum objectives of the three communicating partners mentioned above. The curriculum content is divided into three modules, namely: establishing awareness of communicating partners; Application of communicating partner strategies. Among them:

The first module aims to raise awareness among parents about communicating partners. To help parents establish awareness, they need to understand the concept of communicating partners and analyze the characteristics of autistic children and their communication abilities from this perspective, as well as the pathways that induce autistic children's communication abilities, to better understand and accept autistic children, and establish good communication relationships on this basis. In this module, attention should be paid to the experiences of parents towards children with autism, and activities should be created to improve, revise, and establish their new experiences.

The second module aims to equip parents with knowledge about different communication strategies used by communicating partners. Due to the involvement of various communication strategies, the use of information transmission theory elements such as information senders, information receivers, and communication environments to introduce communication strategies enables parents to not only master existing strategies, but also develop more strategies based on this foundation. Since some children with autism have certain language abilities, it is necessary to enhance their communication abilities while also enhancing their language abilities (Finch et al. ,2018). To promote more accurate expression in children with autism. Therefore, parents need to master strategies to assist them in better expression. In this module, it is important to focus on parents' existing experiences with these strategies and create activities to

refine, revise, and establish their new experiences.

The third module aims to enable parents to use communicating partner strategies flexibly and systematically in specific communication contexts, internalizing communicating partner awareness and strategies into their communication behavior. To enable parents to flexibly use communication strategies, they need to understand their children's and their own communication abilities, and based on this, develop personalized communication plans. At the same time, it is necessary to learn how to use these communication strategies in specific situations, including daily life situations and created communication situations (Henderson et al., 2023). In this module, it is important to focus on parents' previous experiences in communicating with children with autism, and create activities to improve, modify, and establish their new behaviors.

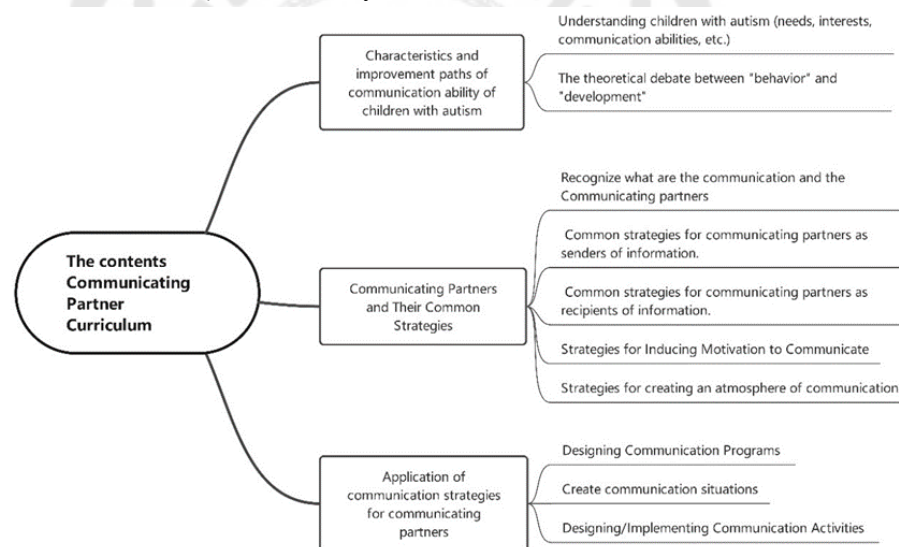


Figure 1: Basic knowledge structure of curriculum content

Considering the continuity of parental participation in the curriculum, some parents may be absent from a certain curriculum, so each curriculum should be presented as a complete content and structure as much as possible. If parents are unable to participate in a certain unit of learning for some reason, it will not affect their mastery of other content. To increase parents' interest in the content and help them remember the main content related to the curriculum. The curriculum designs a topic name that matches the theme for each unit based on the learning content. The topic of the unit "Understanding Concepts Related to Communicating partners" is called

"Building Bridges for Communication with Children".

The detailed content of the curriculum is shown in Table 1.

Table 2 Curriculum Contents

Module	Unit	Curriculum contents
Module 1: Establishing awareness of communicating partners	Unit 1: Building a Bridge for Communication with Children: Communicating Concepts with Partners.	1.The meaning and elements of communication; 2. Common communication barriers; 3. The meaning, role, and significance of communicating partner.
	Unit 2: Most Familiar Strangers: Understanding Children with Autism and Their Communication Characteristics.	1.The definition, causes, and characteristics of autism; 2. Language communication characteristics of children with autism; 3. The advantages and potential of children with autism.
	Unit 3: What is Suitable is the Best: The Path to Improving the Development of Language Communication abilities in Children with Autism.	1. The acquisition theory and elements of language and communication abilities; 2. The learning function of the brain 3. The role of behaviorist learning theory in language learning; 4.The Role of Relationship Based Development Theory in Language.
Module 2: Common communication strategies for communicating partners	Unit 1: This way we can communicate better: Strategies to establish a good communication environment.	1. The connotation of a good communication environment; 2.Construct a psychological environment for acceptance; 3.Construct an empathetic psychological environment; 4.Reduce interference during communication.
	Unit 2: Why Children Communicate: Strategies to Induce Active Communication	1.The significance of proactive communication; 2. Strategies to induce children to actively communicate; 3. Strategies to enhance children's proactive communication quality.
	Unit 3: Child, let me better understand you: understand the communication strategies that children use to convey information.	1. Understand the child's meaning; 2. Understand the elements of children; 3. Understand children's strategies; 4. Assist children in expressing themselves better.
	Unit 4, Child, Help You Better Understand Me: Assist children in understanding strategies for conveying communication information to others.	1. Difficulties that children may encounter when understanding communication information; 2.Assist children in understanding communication strategies.
Module 3:	Unit 1: Play Communication: Developing and Applying Individualized Family Communication Plans.	1.Introduction to individualized family communication plans; 2.Determine the goals of family communication intervention; 3.Develop individualized family communication intervention plans.

Application of communication strategies for communicating partner	Unit 2: Communication is Everywhere (1): Application of communication strategies in daily life activities.	1. The meaning and function of daily life activities; 2. Achieving rehabilitation goals in daily life activities; 3. Adjusting rehabilitation goals in daily life activities.
	Unit 3: Communication is Everywhere (2): Application of communication strategies in family social communication games.	1. The meaning and role of family social communication games; 2. Common family social communication games; 3. The application of communicating partner strategy in social communication games.

6. Curriculum implementation

Parents need to break the old thinking, habits, and behaviors when communicating with their children, and establish new thinking, habits, and behaviors through a gradual process. In this process, they need to establish new awareness, master new knowledge, and gradually transform into behaviors when communicating with children. In the first module, we mainly provide parents with some inspiration through videos, case studies, and other means, so that they can accept the concept of communicating partners. In the second module, parents are mainly taught strategies related to communicating partners through lectures, video presentations, exercises, and other means. In the third module, we mainly integrate the strategies of communicating partners into the daily life of parents and children by discussing their children's goals with parents, formulating family communication plans, designing communication activities, and using checklists to reflect on our own communication activities, so that they can become familiar with these strategies and integrate them into the process of interacting with children.

Specifically, in each learning session, combined with the theory of transformational learning in adult learning, the learning content follows three teaching steps: introducing teaching, implementing teaching, and summarizing teaching. Among these three teaching steps, four phases of transformational learning are combined to implement the learning arrangement, as shown in the following figure.

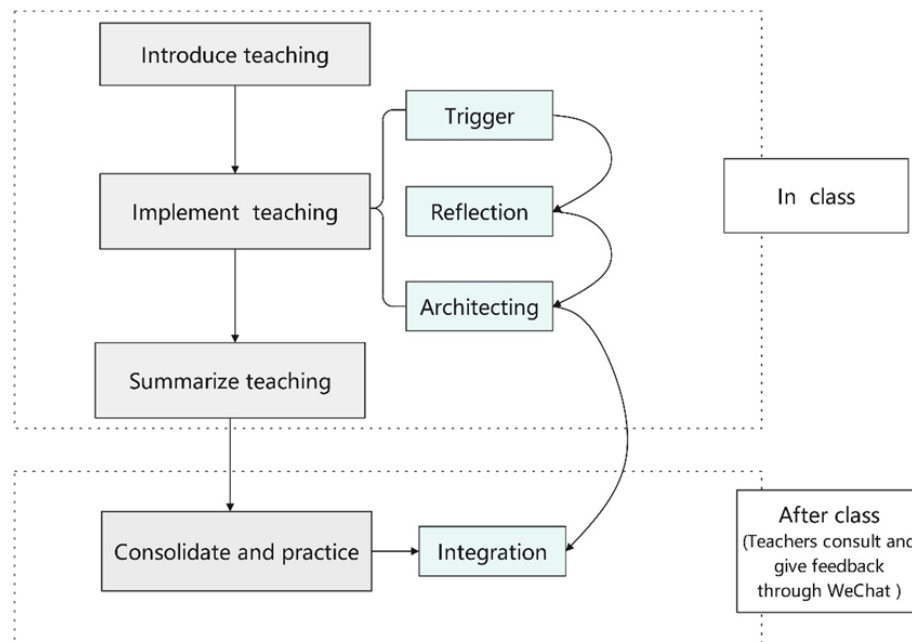


Figure 2: Implementation process of learning activities

In the above figure, the gray box represents the process of classroom teaching activities, and the content in the green box represents the four phases of transformational learning. Among them, the three learning phases of stimulation, reflection, and reconstruction are carried out in the classroom.

In the stimulation phase, the teacher raises questions that trigger parental thinking, arousing parental awareness of old communication behaviors and their existing problems. In the reflection phase, the teacher guides parents to think about existing problems through watching videos, group discussions, teacher-student discussions, and other means. In the reconstruction phase, educators introduce the relevant concepts and strategies of communicating partners to parents through lectures, case sharing, and other methods based on the theme and the problems existing in parents, and assist parents in reconstructing new knowledge through reflection and practice. If multiple knowledge points are involved in the learning of the curriculum, according to the characteristics of the knowledge points, as much as possible, the method of transformational learning should be adopted for each knowledge point, so that parents can internalize the knowledge involved in the knowledge points into their behavior

through phases of stimulation, reflection, and reconstruction.

In the integration phase, parents communicate with their children at home after class to consolidate new knowledge and strategies. During this phase, educators provide consultation and feedback to parents through WeChat, phone, and other means, so that parents can better adjust the strategies they use.

(1) Lesson schedule

The three modules of this curriculum consist of ten classes, each with a concentrated learning time of 3 hours, once a week. Ten classes can also be scheduled to be completed in ten weeks, once a week, based on the distance between parents and the training location, as well as the parents' schedule. During each class, one to two breaks can be arranged based on the feedback of parents and the progress of teaching. After class, parent's complete family tasks to communicate with their children, and discuss them with the teacher through video or homework. Adjustments are made under the guidance of the teacher.

The first module has three units, which takes 9 hours; The second module has four units in total, which takes 12 hours; The third module consists of three units and takes 9 hours. The specific arrangement of curriculum time is shown in Table 2.

Table 2: Curriculum Schedule

Weekly	Learning Unit	time
1	Module 1, Unit 1: Building a Bridge for Communication with Children	2.5 hours
2	Module 1, Unit 2: Most Familiar Strangers	2.5 hours
3	Module 1, Unit 3: What is suitable is the best	2.5 hours
4	Module 2 Unit 1: This way we can communicate better	2.5 hours
5	Module 2, Unit 2: Why Children Communicate	2.5 hours
6	Module 2, Unit 3: Child, let me better understand you	2.5 hours
7	Module 2, Unit 4, Child, to help you better understand me	2.5 hours
8	Module 3 Unit 1: Play Communication	2.5 hours
9	Module 3 Unit 2: Communication is Everywhere (1)	2.5 hours
10	Module Three Unit Three: Communication is Everywhere	2.5 hours

Consider the individual needs of parents. Before the curriculum implemented, the teacher should conduct one-on-one communications with all parents to understand their needs and difficulties. During the implementation of the curriculum, the teacher should contact each parent on WeChat every week to comment on their videos and communicate with them about their learning status.

(2) Schedule of curriculum learning activities

According to the curriculum objectives, curriculum content, and curriculum schedule, the curriculum learning activities are arranged as shown in the table below.

Table 3: Schedule of Curriculum Learning Activities

Lesson	Curriculum contents	Learning objectives	learning activities	learning methods	materials	evaluate
1	Building a bridge for communication with children: communicating with partners about concepts.	1. Able to understand the meaning of communicating partners; 2. Able to understand the significance of communicating partners; 3. Able to accept and understand the communication methods of children with autism.	Teacher provides parents with basic information about the Communicating Partner Program, including its purpose, content, schedule, and assessment methods (10 min). Teacher guide parents to think about the definition of communication (10 min), and teachers present Videos, definitions of communication, and other materials that are not used for oral communication (20 min), guiding parents to think and reconstruct the definition of communication (10 min). Break. Teacher guide parents to think about the purpose and methods of communication between themselves and their children Through videos, lectures, case sharing, and group discussions with different communication methods, more communication purposes and methods are presented, guiding parents to think and reconstruct their communication purposes and methods with their children (20min). Teacher guide parents to think about the obstacles they face when communicating	Lecture, discussion, case analysis	PPT, Video, Paper, and Pen	Oral evaluation: the definition of communication in parental responses; Paper and pen evaluation: Parents write down the purpose and communication method of communication in their notebook; Oral evaluation: Parents answer the meaning and significance

			<p>with their children (15 min), Teacher narrates the process of communication and discusses the obstacles in communication through case analysis (15 min).</p> <p>Break.</p> <p>Teacher guiding parents to think and reconstruct their communication characteristics with their children, as well as the communication obstacles between themselves and their children (20 min).</p> <p>Teacher explains the concepts, theoretical foundations, and roles of communicating partners, presents video of communicating partners interacting with children, and guides parents to think and reconstruct their roles in communication with children (15 min).</p> <p>Teacher and parents to summarize communication, communication barriers, and communicating partners together</p> <p>Close the concept (15 min).</p>			<p>of communicating partners; Implementation evaluation: Parents interact with their children and record videos.</p>
2	<p>The most familiar stranger: Understanding children with autism and their communication characteristics.</p>	<p>1. Understand the language communication characteristics of children with autism;</p> <p>2. Able to accept and understand the communication methods of children with autism;</p> <p>3. Able to empathize with the feelings and emotions of children with autism.</p>	<p>guide parents to think about the feelings when communicating with children (25 min).</p> <p>The teacher played a video showing a child with autism who had communication problems, which led to emotional and behavioral problems (10 min).</p> <p>Teachers guide parents to think about the some questions to understand their children (15 min):</p> <p>Teacher teaches about the definition, incidence, and differences and connections between autism and children with delayed language development. (10 min).</p> <p>Break.</p> <p>Teachers analyze the composition of language from three elements: physiological, cognitive, and social, as well as the impact of these three elements on language (20 min).</p> <p>Teachers guide parents to analyze the language and communication abilities of</p>	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	<p>Oral evaluation: Parents answer the three elements of language composition; Paper and pen evaluation: Parents write down the communication characteristics of children with autism in their notebooks; Oral</p>

			<p>children with autism from physiological perspectives (10 min).</p> <p>Teachers guide parents to analyze the language and communication abilities of children with autism from the perspective of cognitive (10 min).</p> <p>(Break)</p> <p>Teachers ask parents to analyze the language and communication abilities of children with autism from a social perspective (10 min).</p> <p>The teacher combines case studies and videos to analyze the characteristics and developmental potential of communication abilities in children with autism, guiding parents to think about the following questions (10 min):</p> <p>Teacher ask parents to reflect on their children's strengths and weaknesses (15 min).</p> <p>Teachers and parents work together to summarize (15 min).</p> <p>After class exercises:</p> <p>Record a video with your child and analyze it based on the knowledge you have learned.</p> <p>The teacher provides feedback and guides parents to reflect again through communication.</p>			<p>evaluation:</p> <p>Parents answer the advantages and difficulties of children with autism;</p> <p>Implementation</p> <p>evaluation:</p> <p>Parents interact with their children and record videos.</p>
3	The best path is to enhance the development of language communication abilities in children with autism.	<p>1. Able to understand the theories and related elements of children's language acquisition and communication abilities;</p> <p>2. Able to recognize the sustainable development of</p>	<p>Teachers review the content of the previous lesson and introduce the learning objectives for this class(5min)</p> <p>Teachers ask parents to think and discuss how their children learn language (15 Min).</p> <p>Teachers explain the theories of children's language learning and the rules of children's language development</p> <p>Information processing patterns of rhythm and children's language (30 min).</p> <p>Break.</p> <p>Teachers play videos and cases of brain plasticity, ask parents to think and discuss the insights gained from these cases, with a</p>	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	<p>Oral evaluation:</p> <p>Parents answer the rules of children's language development ;</p> <p>Oral evaluation:</p> <p>The role of parental reinforcement</p>

		<p>the brain;</p> <p>4. Able to understand the significance of development oriented learning theories and strategies for language development.</p> <p>5. Able to accept and understand the communication methods of children with autism;</p> <p>6. Able to empathize with the feelings and emotions of children with autism.</p>	<p>focus on guiding parents to build confidence in their children's recovery (30 min).</p> <p>Teachers' scholars the basic theories and core ideas of behaviorism learning theory Emphasize the role of reinforcement in shaping children's behavior (20 min).</p> <p>Break.</p> <p>Teachers guide parents to watch videos and analyze the impact of reinforcement strategies on children's communication The role of communication and language ability (10min).</p> <p>Teachers play videos of interaction between parents and children, asking parents to analyze their children displayed communication behavior (15 min).</p> <p>Teachers introduce the basic theory and generation of interpersonal relation-based developmental theory Indicative intervention methods and core ideas (10 min).</p> <p>Teachers and parents work together to summarize the path of language development in children with autism and promotion methods (15 min).</p>			<p>t in the development of children's language and communication abilities;</p> <p>Oral evaluation: Parents respond to the impact of interpersonal relationships on children's language and communication abilities;</p> <p>Paper and pen evaluation: Parents write down their children's communication behaviors;</p> <p>Implementation evaluation: Parents interact with their children and record videos.</p>
4	<p>This way we can communicate better: a strategy to establish a good</p>	<p>1. Understand the connotation of a good communication environment;</p> <p>2. Master strategies for</p>	<p>Teacher reviews the content of the previous lesson and introduce the learning objectives for this class(5min)</p> <p>Teacher asks parents to reflect on what kind of communication environment they prefer (15 min).</p> <p>Teachers to share cases of a good</p>	<p>Lecture, discussion, case analysis</p>	<p>PPT, Video, Paper and Pen</p>	<p>Oral evaluation: Parents answer the characteristics of a good communication</p>

	communication environment	<p>constructing a psychological environment for acceptance;</p> <p>3. Master strategies for constructing an empathetic psychological environment;</p> <p>4. Master strategies to reduce interference in the communication process;</p> <p>5. Able to accept and understand the communication methods of children with autism;</p> <p>6. Able to empathize with the feelings and emotions of children with autism.</p>	<p>communication environment (20 min).</p> <p>Teachers guide parents to analyze the characteristics of a good communication environment (10min).</p> <p>Break.</p> <p>Teachers play videos to guide parents to reflect on what it means to accept their children, and if the child has been accepted (10 min).</p> <p>Teachers analyze how to accept children through video analysis (15 min).</p> <p>Teachers and parents discuss the relationship between the brain and emotions from a neurophysiological perspective. Analyze the generation of emotions and methods of emotional regulation (10 min).</p> <p>Teachers guide parents to reconstruct how to accept their children's communication behavior and communication Interest (15 min).</p> <p>Break.</p> <p>Teachers play videos to guide parents to reflect on what empathy is for children if they had been able to empathize with their children's emotions and feelings (15min).</p> <p>Teachers use case studies to explain strategies for empathetic children's emotions and emotion (20 min).</p> <p>Teachers guide parents to reconstruct how to empathize with their children's emotions and feelings (20 min).</p> <p>Teachers and parents summarize strategies for accepting and empathizing with children together (15 min).</p>			<p>on environment;</p> <p>Oral evaluation:</p> <p>Parents respond with strategies to accept their children;</p> <p>Oral evaluation:</p> <p>Parents respond with empathy for their children's strategies;</p> <p>Implementation</p> <p>on evaluation:</p> <p>Parents interact with their children and record videos.</p>
5	<p>Why Children Communicate: Strategies to Induce Proactive Communication</p>	<p>1. Understand the significance of proactive communication;</p> <p>2. Master strategies to induce children to actively</p>	<p>Teachers and parents review together strategies to create a positive communication environment (10 min).</p> <p>Teachers introduce the learning objectives for this class(5min).</p> <p>Teachers guide parents in reflecting on the significance of proactive communication abilities for children, as well as the</p>	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	<p>Oral evaluation:</p> <p>Parents respond to difficulties in active communication abilities in</p>

tion	communicate; 3. Master strategies to enhance children's proactive communication abilities.	<p>challenges faced by children with autism in terms of proactive communication abilities (20 min).</p> <p>Teachers demonstrate to parents how to analyze children's proactive communication frequency through video analysis (15 min).</p> <p>Break.</p> <p>Teachers guide parents to analyze children's proactive communication frequency through video analysis and reflect on their own behaviors in this process (10 min).</p> <p>Teachers guide parents to reflect on the qualitative differences between proactive communication in children with autism and typically developing children through video analysis, emphasizing the importance of proactive communication abilities for children with autism (10 min).</p> <p>Teachers lead parents to consider and discuss strategies to elicit proactive communication behaviors in children (10 min).</p> <p>Teachers summarize and supplement based on the results of parent discussions, emphasizing the use of strategies such as discovering interests, engaging, and expanding in eliciting proactive communication behaviors in children with autism (10 min).</p> <p>Teachers guide parents to reflect on their children's interests and discuss how these interests can be engaged with and expanded upon (10 min).</p> <p>Break.</p> <p>Teachers explain the use of waiting strategies in eliciting proactive communication behaviors in children with autism, incorporating video examples (5 min).</p> <p>Teachers guide parents to watch videos of their interactions with their children, reflecting on which moments they can wait</p>		<p>children with autism;</p> <p>Oral evaluation:</p> <p>Several strategies that parents use to induce children to actively communicate and improve their quality;</p> <p>Oral evaluation:</p> <p>Parents can combine video analysis to determine what communication strategies they have used;</p> <p>Implementation</p> <p>evaluation:</p> <p>Parents interact with their children and record videos.</p>
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			<p>for their children (10 min).</p> <p>Teachers explain the use of strategies such as creating disruptions and breaking expectations in eliciting proactive communication behaviors in children with autism, using video examples (10 min).</p> <p>Teachers explain the use of strategies such as responding and extending communication exchanges in enhancing the quality of proactive communication abilities in children with autism, using video examples (10 min).</p> <p>Teachers and parents summarize together strategies to promote children's proactive communication abilities (15 min).</p>			
6	<p>Child, let me better understand you: understand the strategies that children use to convey communication information.</p>	<p>1. Being able to understand what it means to understand children;</p> <p>2. Able to understand the key points that need to be paid attention to when understanding children;</p> <p>3. Able to master and understand children's strategies;</p> <p>4. Be able to master strategies to assist children in expressing themselves better.</p>	<p>Teachers and parents review together strategies to create a positive communication environment and elicit proactive communication from children (10 min).</p> <p>Teachers introduce the learning objectives for this class(5min)</p> <p>Teachers guide parents to observe videos of their interactions with their children, reflecting on the application of the strategies and discussing the challenges encountered in applying these strategies (20min).</p> <p>Teachers discuss the significance of understanding children, what true understanding entails, and understanding children's points of interest (15min).</p> <p>Break.</p> <p>Teachers use videos to guide parents in reflecting on whether they have achieved understanding of their children during communication (15 min).</p> <p>Teachers discuss the application of observational strategies in understanding children, using videos as examples (15 min).</p> <p>Teachers use videos to guide parents in reflecting on how to observe their children</p>	Lecture, discussion, case analysis	PPT, Video, Paper, and Pen	<p>Oral evaluation: Parents respond with strategies to create a good communication environment and encourage their children to actively communicate;</p> <p>Oral evaluation: Parents answer to understand the meaning of their children;</p> <p>Oral evaluation: Parents can combine</p>

			<p>(10 min).</p> <p>Teachers discuss the application of listening strategies in understanding children, using videos as examples (10 min).</p> <p>Break.</p> <p>Teachers use videos to guide parents in reflecting on how to listen to their children (10 min).</p> <p>Teachers discuss strategies to assist children in better expressing themselves (20 min).</p> <p>Teachers use videos to guide parents in reflecting on how to utilize strategies to assist children in better expression (10min).</p> <p>Teachers and parents summarize together strategies for understanding children and facilitating better expression in children (15 min).</p>			<p>video analysis to determine what communication strategies they have used;</p> <p>Implementation evaluation:</p> <p>Parents interact with their children and record videos.</p>
7	<p>Child, help you better understand me: assist children in understanding strategies for conveying communication information to others.</p>	<p>1. Able to understand the difficulties that children may encounter when understanding communication information;</p> <p>2. Able to master strategies to assist children in understanding communication information.</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, and understanding children (10 min).</p> <p>Teachers introduce the learning objectives for this class(5min)</p> <p>Teachers guide parents in reflecting on the difficulties children face in understanding communication information (15 min).</p> <p>Teachers use case studies to analyze the underlying reasons for children's difficulties in understanding communication information (10 min).</p> <p>Teachers use case studies to explain and demonstrate the application of the "adjusting sensory input" strategy in assisting children to understand communication information (10 min).</p> <p>Break.</p> <p>Teachers use case studies to explain and demonstrate the application of the "highlighting key information" strategy in assisting children to understand</p>	Lecture, discussion, case analysis	PPT, Video, Paper and Pen	<p>Oral evaluation:</p> <p>Parents provide a good communication environment, induce children to actively communicate, and understand their strategies;</p> <p>Oral evaluation:</p> <p>Parents answer questions about their children's difficulties in</p>

			<p>communication information (15 min). Teachers use case studies to explain and demonstrate the application of the "reducing language complexity" strategy in assisting children to understand communication information (15 min). Teachers use case studies to explain and demonstrate the application of the "building cognitive scaffolds" strategy in assisting children to understand communication information (20 min). Break. Teachers guide parents in selecting goals and designing how to use the above strategies to help children understand their communication information (10 min). Teachers discuss and provide feedback on the strategies designed by parents (25 min). Teachers and parents summarize together the strategies for helping children better understand communication information (15 min).</p>			<p>understanding communication information; Oral evaluation: Parents can combine video analysis to determine what communication strategies they have used; Implementation on evaluation: Parents interact with their children and record videos.</p>
8	<p>Play communication: Developing and applying personalized family communication plans.</p>	<p>1. Know what personalized family communication plans are; 2. Understand the details of individualized family communication plans; 3. Able to formulate individualized family communication intervention goals;</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, understanding children, and assisting children's comprehension (15 min). Teachers review the content of the previous lesson and introduce the learning objectives for this class(5min) Teachers use case studies to explain the significance and details of individualized family communication plans (30 min). Break. Teachers discuss the meaning, selection methods, and principles of selecting individualized family communication intervention goals (30 min). Teachers guide parents in discussing and</p>	Lecture, discussion, case analysis	<p>PPT, video, paper and pen, Individual Family Communication Intervention on</p>	<p>Oral evaluation: Parents respond with strategies that promote a good communication environment, encourage their children to actively communicate, understand their children, and</p>

		4. We will develop personalized family communication intervention plans.	<p>formulating individualized family communication intervention goals for their children (20 min).</p> <p>Break.</p> <p>Parents share their formulated intervention goals, and teachers provide feedback on representative goals (20 min).</p> <p>Teachers guide parents in gradually completing the detailed items of individualized family communication intervention plans through discussions.</p> <p>Meanwhile, teachers supervise the process and provide guidance if any issues arise. If representative issues occur, teachers explain them to all parents together (15 min).</p> <p>Teachers and parents summarize together the methods and considerations for formulating individualized family communication intervention plans (15min).</p>		Plan Table and Template plate	<p>assist their children in understanding;</p> <p>Implementation evaluation: Parents formulate family communication intervention goals;</p> <p>Implementation evaluation: Parents develop a family communication intervention plan;</p> <p>Implementation evaluation: Parents interact with their children and record videos.</p>
9	Communication is Everywhere (1): The application of communication strategies in daily life activities.	<p>1. Able to understand the meaning and role of daily life activities;</p> <p>3. Able to adjust rehabilitation goals in daily life activities.</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, understanding children, and assisting children's comprehension (15 min).</p> <p>Teachers introduce the learning objectives for this class(5min)</p> <p>Teachers ask parents to watch videos of their interactions with their children and reflect on whether they are teaching around</p>	Lecture, discussion, case analysis	PPT, video, paper and pen, Individualized family	<p>Oral evaluation: Parents answer how to carry out teaching around goals;</p> <p>Oral evaluation:</p>

			<p>specific goals or just engaging in activities the child already knows or continually doing things the child cannot do (20 min).</p> <p>Teachers use case studies to explain what daily life activities entail, how to teach around goals during daily life activities, and how to adapt teaching strategies based on the child's responses (10 min).</p> <p>Break.</p> <p>Teachers guide parents in analyzing how to adapt teaching strategies based on the given goals (20 min).</p> <p>Teachers ask parents to watch videos of their interactions with their children and reflect on how they adapt teaching strategies based on the child's responses during these activities (15min).</p> <p>Parents share teaching strategies based on formulated goals, and teachers provide feedback on representative content (15 min).</p> <p>Break.</p> <p>Teachers use case studies to explain what goal adjustment in teaching entails and methods for adjusting teaching goals (20 min).</p> <p>Teachers ask parents to watch videos of their interactions with their children and reflect on how they adjust teaching goals based on the child's responses during these activities (15 min).</p> <p>Teachers and parents summarize together the significance of daily life activities, how to conduct goal-oriented teaching during daily life activities, and how to adjust goals during these activities (15 min).</p>		<p>y com muni catio n inter venti on plan</p>	<p>Parents answer how to adjust according to goals; Implementation on evaluation: Parents interact with their children and record videos.</p>
10	<p>Communication is Everywhere (2): The Application of Communication</p>	<p>1. Can understand the meaning and role of family social communication games;</p>	<p>Teachers and parents review together strategies for creating a positive communication environment, eliciting proactive communication from children, understanding children, and assisting children's comprehension (10 min).</p> <p>Teachers introduce the learning objectives</p>	<p>Lecture, discussion, case analysis</p>	<p>PPT, video, paper and pen,</p>	<p>Oral evaluation: Parents answer common family social communication</p>

<p>tion Strategies in Family Social Communica tion Games.</p>	<p>2. Can describe common family social communication games; 3. Able to apply communicating partner strategies in social communication games.</p>	<p>for this class(5min) Teachers encourage parents to reflect on and discuss games they play with their children at home (15 min). Teachers use to explain the meaning, purpose, common family social communication games, and considerations of family social communication games (20 min). Break. Teachers show the example to analyze the family social communication games(10min). Teachers guide parents in considering how they can expand the games they play with their children at home (10 min). Teachers ask parents to watch videos and reflect on whether they use communicating partner strategies in these games (10 min). Teachers use case studies to explain the usage of the "Communicating partner Strategy Checklist" (20 min). Break. Teachers guide parents in using the "Communicating partner Strategy Checklist" to evaluate communicating partners in the videos (20min). Teachers guide parents in using the "Communicating partner Strategy Checklist" to evaluate their interactions with their children in the videos (15 min). Teachers and parents summarize together the significance of daily life activities, how to conduct goal-oriented teaching during daily life activities, and how to adjust goals during these activities (15 min).</p>		<p>Che cklis t for usin g com muni catin g part ner strat egie s</p>	<p>on games; Oral evaluation: The application of communicati ng partner strategies in parent response communicati on games; Implementati on evaluation: Parents interact with their children and record videos.</p>
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(2) Learning environment arrangement

To facilitate discussions and reflection among parents, the learning environment is arranged in a group split format, and walkable space is left between groups, allowing educators to participate in discussions between different groups and facilitating communication between parents.

(3) Learning Activity Management

Although social communication is a core issue for children with autism, parents may encounter other problems in the process of raising them, which can also cause them great distress. Therefore, during the implementation of the curriculum, parents may discuss other issues related to children with autism, such as fixation behavior, emotional issues, etc. Teachers should try to explain and handle them from the perspective of social communication. If it is not possible to explain and handle from a communication perspective, suggestions can be provided to parents after class.

As adults, it is difficult for parents to let go in front of strangers, and their participation in discussions and answering questions may not be high. Teachers can conduct interviews with parents in advance, exchange the purpose and significance of the curriculum one by one, understand their concerns, and help them participate better in the curriculum.

3. The curriculum duration is relatively long, and parents are distributed in different places, which may result in taking leave for various reasons. The parents require everyone to be present for the first class, and if there are any other matters, they can take leave. But it is necessary to self-study the PPT, complete this week's tasks, and have discussions and communication with the instructor.

4. Due to some special reasons, some parents may sometimes bring their children to attend classes. To ensure the effectiveness of the classes, 1-2 teaching assistants can be arranged to help parents take care of their children.

7. Curriculum resources

The resources of the curriculum include the text of the curriculum; PPT, videos, lecture notes, pictures, tables, etc. used in the implementation of teaching process; The paper and pen used by parents to complete curriculum exercises, as well as the WeChat used for after-school consultation and guidance.

The PPTs for ten of the curriculums maintained the same style, with only adjustments made to the details based on specific content. Considering that some

parents may not have a good understanding ability, they should try to present the PPT in a way that combines text and images, and highlight key information to help parents better understand the curriculum content.

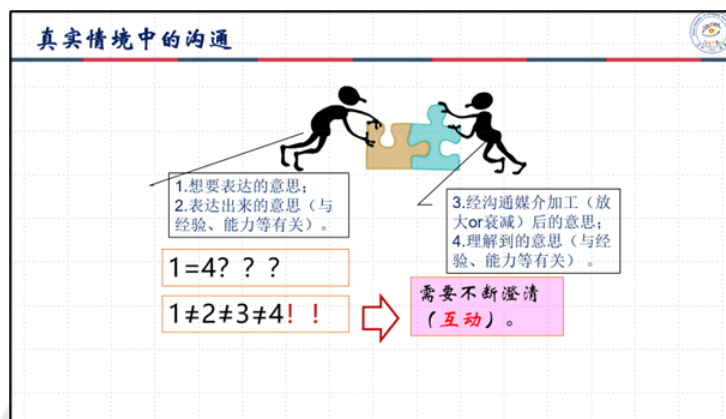


Figure 5: Presenting communication barriers in a visual and textual manner



Figure 6: Mark the key information of the curriculum content with different eye colors

To give better feedback to parents and to enable them to have a greater sense of participation. Teaching videos should use videos of parents and children participating in training as much as possible. According to the needs of the teaching content, videos of parents and children interacting should be edited and utilized. The video time should not be too long, usually around 30 seconds, not more than 1 minute. Simply explain a knowledge point or prove a strategy.

The main tables used in curriculum learning are as follows. Table 4 is an example of a family communication intervention plan, which can be deleted during use and filled out according to individual needs. Table 5 is the checklist for using communicating partner strategies. The main purpose of using this table is to check the items in the video by comparing them, which can help parents familiarize themselves with the strategies of their communicating partners and better grasp these strategies. During the teaching process, multiple exercises can be arranged according to the schedule, or parents can be arranged to practice after class.

Table 4 Individualized Family Communication Intervention Plan (Example) -Xiaoshu
Family Communication Intervention Plan

target		Be able to pay attention to the activities of others around he.					
execution time		November 5th, 2023- December 5th, 2023					
Intervention plan							
time	place	supporter	activity	Available strategies	Possible bottlenecks	Solution	Strategy usage
Wake up in the morning	bedroom	grandmother	Wearing clothes	Wait and adjust the input sensory information (shake your clothes in front of him, pat him with your hands)	Worried about catching a cold	Turn on the air conditioning and wear clothes	
breakfast	restaurant	father	Sending tableware	Breaking conventions (deliberately not sending him utensils), adjusting input sensory information (standing next to him while sending utensils but not speaking)	If a child has emotions, it may affect their school time.	Observe the child and send them utensils before they are in a bad mood	
On the way to school	On the car	Mom	Listening to stories	Create distractions (intentionally unable to release, inviting children to wait) and interest temptations (changing toys that children like and intentionally not	If a child has emotions, it may affect their school time.	Observe the child and let them listen to stories or give them toys before they are in a bad mood.	

				opening them for them).			
On the way out of school	On the bus	grandmother	eat snacks between meals	Interest attraction (open the packaging slowly, please wait for the child).		Buy small packaged food, start giving it directly to the child, and let the child wait later.	
dinner	restaurant	Mom	Sending tableware are	Breaking conventions (deliberately not sending him utensils), adjusting input sensory information (standing next to him while sending utensils but not speaking)	The child has emotions that affect the family's dinner.	Observe the child and give them utensils before they are in a bad mood.	
After dinner	living room	Mom	Playing word card games	Expand interests (hide word cards, draw word cards, output word cards), wait (give children some time to react), create distractions (intentionally interrupt children when they are interested), break common sense, break conventions (use different word cards, word cards to line up), respond (if children pay attention to children, immediately respond to them), and prolong communication rounds (communicate with children on the same topic correctly)	There are too many strategies, and sometimes mothers may overlook each other.	Review the video, reflect on the issue, and gradually adjust.	
Before going to	bedroom	Mom	Listening to	Create interference (intentionally unable to	If a child has	Observe children and	

bed			stories	release, ask the child to wait, listen to the story with the child, occasionally interrupt him).	emotions, it may affect their sleeping time.	let them listen to stories before they are in a bad mood.	
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Table 5 Checklist for using communicating partner strategies

Context:		Interactive object:
Communicating partner strategy		Strategy application situation
field	Details	
Creating Good Communication Environment	Accepted the child's communication style, behavior, etc.	
	Did you empathize with the child (feelings, emotions, etc.)	
Promote proactive communication	Have you discovered your child's interests (please record your child's interests)	
	Have you participated in the child's interests	
	Has it extended the child's interest (please record the specific approach)	
	Have you waited for the child? Please record the number of times using the word "positive"	
	Has interference been caused? Please record the number of times using the word "positive"	
	Have you achieved breaking common sense and conventions? (Please record specific actions)	
	Have you responded to the child? Please record the number of times using the word "positive"	
	Do you want to extend the communication round? Please record the number of times using the word "positive"	
	Have you observed the child carefully? Please record your observations of the child's behavior and reactions	
Let children understand us	Do you listen carefully to your child? Please record your understanding of the child	
	Has the input sensory information been adjusted? Please record the method of adjustment	
	Whether important information is highlighted, please record the way it is highlighted	
	Has the language difficulty been reduced? Please record the method of reduction	
	Has a cognitive scaffold been built for the child? Please record the method of reduction	

8. Curriculum evaluation

The curriculum adopts a combination of formative evaluation and summative evaluation, as well as a combination of qualitative and quantitative evaluation to evaluate the learning effectiveness of parents.

Among them, the Parent-child Communication abilities Evaluation Form for Autistic Children Parents is used to evaluate the parent-child communication abilities of parents, to understand the effectiveness of parental curriculum learning. This section mainly adopts the method of practical evaluation, where parents provide a video of communication and interaction with their children, and parents evaluate themselves by comparing the details of the evaluation form.

In addition, the teacher will arrange reflection and practice in each curriculum, as well as interactive sessions with children after class. In these phases, the thoughts and ideas of parents can reflect their thinking content, thinking methods, and thinking results, as well as the videos of interaction with children, which are reflected and recorded in their notebooks and videos of interaction with children. This is the content of formative evaluation.

Table 7 Methods of curriculum evaluation

Evaluation method	Evaluation content	Evaluation tools
Summary evaluation	Parental communication abilities	Assessment Form for Parent-child Communication abilities of Autistic Children's Parents
Implementation evaluation		
Formative evaluation	Parental communication abilities	Video of classroom Q&A, practice, and interaction with children after class
qualitative evaluation		

Part III Appendix of curriculum Teaching Design Case (Example)

Module 1: Establishing awareness of communicating partners

Learning duration: 9 hours

Module objective:

The main purpose of this module is to help parents of children with autism understand and accept their communication methods, as well as basic methods to promote their communication abilities development. The specific goal is to: 1. maintain an accepting and supportive attitude towards the current communication status of children with autism. 2. Able to understand the emotions of children with autism in communication. 3. Able to accept and support the current communication status of children with autism. 4. Able to understand the emotions of children with autism in communication. 5. Understand the basic principles that promote the development of communication abilities in children with autism.

Module content:

The curriculum contents consist of three units, as shown in the table below.

Table 9 curriculum contents of module1

Unit 1: Building a Bridge for Communication with Children: Understanding the Concepts of Communicating Partner.	Unit 2: Most Familiar Strangers: Understand children with autism and their communication characteristics, understand the communication methods of children with autism.	Unit 3: Suitable is the best path for the development of language communication abilities in children with autism.
1. The meaning and elements of communication; 2. Common communication barriers; 3. The meaning, role, and significance of communicating partners.	1. Communication characteristics of children with autism; 2. The causes of communication characteristics in children with autism; 3. The communication abilities of children with autism.	1. The acquisition theory and elements of language and communication abilities; 2. The learning function of the brain; 3. The role of behaviorist learning theory in language learning; 4. The Role of Relationship Based Development Theory in Language.
1. Experience and reflect on communication barriers; 2. Experience and reflect on different communication methods;	1. Experience and reflect on the feelings of children with autism; 2. Experience and reflect on communication barriers in children	Discuss and consider the advantages and disadvantages of different methods to promote communication abilities in children

3. Understand and reflect on the significance of communicating partners.	with autism; 3. Experience and reflect on the communication abilities of children with autism.	with autism, as well as their application in communication and interaction with children.
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Unit 2 Most Familiar Stranger - Understanding Children with Autism and Their Communication Characteristics

1. Learning objectives

1. Parents can understand the language communication characteristics of autistic children;

2. Parents can accept and understand the communication methods of autistic children;

3. Parents can empathize with the feelings and emotions of autistic children.

2. Learning contents

The main objective of this unit is to help parents understand the characteristics of communication abilities in children with autism, understand the communication methods of children with autism, and based on this, empathize with the feelings and emotions of children with autism. This mainly includes the following content:

2.1 Characteristics of communication motivation in children with autism;

2.1.1 The characteristics of children with autism in understanding their communication information;

2.1.2 Characteristics of expression in children with autism.

2.2 Reasons for communication characteristics in children with autism.

2.2.1 The development and characteristics of perceptual abilities in children with autism and their impact on language communication abilities;

2.2.2 The cognitive development, characteristics, and impact on language communication abilities of children with autism;

2.2.3 The development, characteristics, and impact on language communication abilities of children with autism;

2.2.4 Development and characteristics of social communication abilities in children with autism and their impact on language communication abilities;

2.3 Communication abilities of children with autism

2.3.1 Performance of communication abilities in children with autism

2.3.2 Interpretation abilities for communication abilities in children with autism

3. Learning activities and resources

phase	Learning objectives	Learning activities (time)	learning method	learning resource	assess
Introducing teaching	<ul style="list-style-type: none"> ● Establishing trusting relationship between teachers and parents; ● Establish team trust relationships; ● Establish proactive interpersonal communication atmosphere within the team. 	Ice breaking activity - "Blind navigation"(10min). After the activity, guide parents to think about their own feelings when being blind and their feelings as navigators. Then guide them to think about similar feelings when communicating with children (15 min).	Narrative, experiential learning, and reflective learning.	PPT, eye mask, roadblock, group number sign.	Teachers observe the reactions of parents. Parents show emotional reactions.
Implementation of teaching: 1. Inspiration	<ul style="list-style-type: none"> ● can perceive and understand a child's sadness or grief emotions. ● can perceive and understand a child's nervousness or anxiety. 	The teacher played a video showing a child with autism who had communication problems, which led to emotional and behavioral problems (10 min).	Experiential learning and reflective learning.	Video	The teacher observes the reactions of the students. Parents show emotional reactions.
Implementation of teaching: 2. Reflection	<ul style="list-style-type: none"> ● can perceive and understand a child's sadness or grief emotions. ● can perceive and understand a child's nervousness or anxiety. ● can perceive and understand a child's happy or joyful emotions. ● can perceive and understand other emotions in children. ● can observe at 	Teachers guide parents to think about the following questions (15 min): Does my child also have this situation? Why do children behave like this? What methods can help them? What other emotions do children have besides anger? What is their way of expression?	Group discussion and reflective learning.	Paper and colored pens	The teacher observes the reactions of the students. Parents can concentrate on thinking and

	least 5 common ways of children's communication.				complete exercises.
break					
Implementing teaching: 3. Recognizing new experiences	<ul style="list-style-type: none"> ● Can understand the significance of common communication methods in children. ● Allow children to use communication methods other than oral communication. ● Can understand and accept children's interests. ● When a child encounters difficulties in communication, be willing to support them. ● When children make mistakes in communication, respond, or demonstrate in an appropriate way. ● Accept negative emotions in communication with children. ● Accept inappropriate behavior in communication with children. 	<p>Teacher teaches about the definition, incidence, and differences and connections between autism and children with delayed language development. It is particularly emphasized that children with delayed language development and children with autism may appear to have difficulties in language and communication, but they have fundamental differences. The former is because language ability affects the development of communication abilities, while the latter is because communication abilities affects the development of language ability (10 min).</p> <p>Teachers analyze the composition of language from three elements: physiological, cognitive, and social, as well as the impact of these three elements on language, so that parents can fully understand that language is not just about speaking, but requires children to have a certain physiological, cognitive, and social foundation.</p> <p>The child may not be able to speak or speak well now, possibly because these basic abilities have not yet been developed (20 minutes).</p> <p>Teachers guide parents to analyze the language and communication abilities of children with autism from physiological perspectives such as sensory perception and motor development, by combining videos. Special emphasis is placed on the differences in sensory perception among children with autism (10 minutes).</p> <p>Teachers guide parents to analyze the language and communication abilities of children with autism from the perspective of cognitive structure, cognitive function, and other cognitive aspects through videos (10 minutes).</p> <p>(Break)</p> <p>Teachers ask parents to analyze the language and communication abilities of children with autism from a social perspective (10 minutes).</p> <p>The teacher combines case studies and videos to analyze the characteristics and developmental</p>	Tell and reflect on learning.	PPT, Video, Handout;	The teacher observes the reactions of the students. Parents can concentrate on class and actively participate in discussions. Exercise completed by parents.

		<p>potential of communication abilities in children with autism, guiding parents to think about the following questions (10 minutes):</p> <p>Is it normal to lack understanding and inaction of children's emotions and behaviors;</p> <p>What changes have occurred in the perception of children's behavior in the initial thought of events;</p> <p>What is the future response to this situation.</p> <p>Teachers ask parents to reflect on their children's strengths and weaknesses, especially guiding them to reflect on their children's strengths and the real difficulties they face in communication (15 minutes).</p>			
Summary	<ul style="list-style-type: none"> ● Ability to organize and review learned knowledge 	Teachers and parents work together to summarize the characteristics of communication abilities in children with autism from three elements: physiological, cognitive, and social (15 minutes).	discussion presentation.	PPT, lecture notes;	observe the reactions of parents.
After class consolidation exercise: 4. Integration	<ul style="list-style-type: none"> ● Can understand the significance of common communication methods in children. ● Allow children to use communication methods other than oral communication. ● Can understand and accept children's interests. ● When children encounter difficulties in communication, they are willing to provide support. ● When children make mistakes in communication, respond or demonstrate in an appropriate way. ● Accept negative emotions in communication. 	<p>After class exercises:</p> <p>Record a video with your child and analyze it based on the knowledge you have learned.</p> <p>The teacher provides feedback and guides parents to reflect again through communication.</p>	Discussion and reflective learning	WeChat	The teacher observed the parent's video and communicated with them.

4 learning resources

4.1 PPT



4.2 Video



4.3 Other: Group list cards, paper, and pen, etc.

5. curriculum evaluation

Parents record videos of communication and interaction with their children, and educators provide feedback on them. The key is to see whether parents can accept their children's communication methods, interests, and emotions, rather than just letting them speak up.

**Assessment form of parent-children communication abilities
of Parents of Children with Autism**

Domain	project	Details	Scoring Rubric				
			0	1	2	3	4
Constructing a good communication environment	Maintaining a positive mindset in communication	can accept the various behaviors of children in the communication process.					
		can accept various feelings and expressions in the process of communicating with children.					
		can interact with my children in a one-on-one manner and pay attention to them, rather than just being led by adults.					
		can understand children's feelings and emotions.					
	Creating a Pleasant and Flexible Communication Atmosphere	can play happily with children during interactions.					
		can adopt communication different methods based on the situation (such as children's reactions, etc.).					
		can arrange a suitable physical environment for communication	can arrange a suitable communication environment based on communication activities and children's abilities, such as reducing interference with information in the environment.				
Elicitation communication behaviors in children	Attracting children's attention	can use things that children are interested in to attract their attention.					
		can use exaggerated methods to amplify communication clues when interacting with children					
		can pause ongoing activities that my child is interested in and wait for them to notice before continuing the activity.					
		can imitate the activities that children are doing and wait for them to notice adults.					
		can follow and join the child's ongoing activities, waiting for the child to notice the adult.					
		can do things that are different from the routine of life or activities, waiting for children to notice adults.					
		can intentionally do something wrong and wait for the child to notice adults.					

	Strengthening children's communication behaviors	can observe various verbal and nonverbal communication behaviors initiated by children.					
		can respond to communication behaviors initiated by children in various ways.					
		can elongate the communication and interaction with children in various ways.					
understanding the communication information	Comprehension Ability	can maintain an exploratory attitude towards what children say and do, rather than just denying and blaming them.					
		can listen to children's expressions, both verbally and nonverbally.					
		can have a way to guess the meaning expressed by children.					
	Enhancing children's language abilities	can promote the development of children's language abilities through expansion.					
		can promote the development of children's language abilities through demonstration.					
		can assist children in expressing themselves through pictures, visual cues, etc.					
Assist children in understanding adult communication information	Clarifying abilities	When children don't understand, can provide clues using different forms and levels.					
		When children don't understand, can adjust communication style.					
	Reducing cognitive load	When children do not understand certain languages, can provide regular activities to help them.					
		When children do not understand certain languages, can provide them with visual cues and other support.					

**Scoring Rubric of Assessment form of parent-children communication abilities of
Parents of Children with Autism**

Domain	Project	Details	Scoring Rubric				
			0	1	2	3	4
Constructing a good communication environment	Maintaining a positive mindset in communication	can accept the various behaviors of children in the communication process.	Displays impatience or anger when children show different behaviors, leading to communication breakdowns.	Occasionally tolerates some behaviors but often shows impatience or negative reactions. Attempts to handle behaviors are often ineffective.	Shows basic tolerance for most behaviors but sometimes displays impatience. Handles some behaviors inconsistently.	Usually tolerates and understands most behaviors, rarely showing impatience. Handles most behaviors effectively and maintains communication.	Always shows high tolerance and understanding, never displaying negative emotions. Manages all behaviors effectively with multiple strategies, maintaining positive communication.
		can accept various feelings and expressions in the process of communicating with children.	Shows negative reactions or discomfort with different feelings and expressions, interrupting communication.	Occasionally tolerates different feelings but often shows impatience. Struggles to manage emotional expressions effectively.	Generally, tolerates various feelings but sometimes shows impatience. Manages emotional expressions inconsistently.	Usually accepts and manages various feelings without showing impatience. Handles most emotional expressions effectively.	Always accepts and understands various feelings without negative reactions. Effectively manages all emotional expressions, maintaining

							positive communication.
	can interact with my children in a one-on-one manner and pay attention to them, rather than just being led by adults.	Rarely engages in one-on-one interaction with the child, mostly follows adult direction, and shows little attention to the child.	Occasionally interacts one-on-one with the child but often relies on adult direction. Shows limited attention to the child's needs.	Generally, interacts one-on-one with the child but sometimes follows adult direction. Shows inconsistent attention to the child.	Regularly interacts one-on-one with the child, usually paying attention to the child's needs rather than following adults.	Consistently engages in one-on-one interaction with the child, always paying full attention to the child's needs without adult direction.	
	can understand children's feelings and emotions.	Rarely recognizes or responds to children's emotions.	Occasionally recognizes feelings but often misinterprets or overlooks them.	Generally, recognizes feelings but sometimes misinterprets them. Responses are inconsistent.	Regularly recognizes and understands emotions. Usually responds appropriately.	Consistently recognizes and deeply understands emotions. Always responds sensitively.	
Creating a Pleasant and Flexible Communication Atmosphere	can play happily with children during interactions.	Rarely engages in play with children. Appears disengaged or unhappy.	Occasionally engages in play but often seems disinterested or unenthusiastic.	Generally, engages in play but sometimes shows lack of enthusiasm. Inconsistent enjoyment.	Regularly engages in play with visible enjoyment and enthusiasm.	Consistently engages in play with high levels of happiness and enthusiasm.	
	can adopt communication different	Always uses the same communication	Occasionally tries different communication	Generally, uses different communication	Regularly adapts communication	Consistently adapts communication	

		methods based on the situation (such as children's reactions, etc.).	tion method, regardless of the situation.	tion methods but mostly sticks to one approach.	tion methods but sometimes reverts to the same approach. Inconsistent adaptation.	methods based on the situation and children's reactions.	methods effectively based on the situation and children's reactions.
	Arrange a suitable physical environment for communication	can arrange a suitable communication environment based on communication activities and children's abilities, such as reducing interference with information in the environment.	Does not arrange the communication environment. High levels of interference are present.	Occasionally arranges the environment but often overlooks sources of interference.	Generally, arranges the environment but sometimes misses elements of interference. Inconsistent in reducing distractions.	Regularly arranges the environment to suit communication activities and children's abilities. Usually reduces interference effectively.	Consistently arranges a suitable environment tailored to communication activities and children's abilities. Always minimizes interference.
Elicitation communication behaviors in children	Attracting children's attention	can use things that children are interested in to attract their attention.	Rarely uses children's interests to attract their attention.	Occasionally uses children's interests but often fails to maintain their attention.	Generally, uses children's interests but sometimes struggles to keep their attention. Inconsistent	Regularly uses children's interests to attract and maintain their attention.	Consistently and effectively uses children's interests to attract and sustain their attention.

en					effectiveness.		
can use exaggerated methods to amplify communication clues when interacting with children	Does not use any exaggerated techniques and fails to enhance communication cues during interactions with children.	Attempts to use exaggerated techniques but does so inconsistently or ineffectively, showing minimal enhancement of communication cues.	Sometimes uses exaggerated techniques to some extent, moderately enhancing communication cues when interacting with children.	Consistently uses exaggerated techniques, consistently enhancing communication cues during interactions with children.	Effectively uses exaggerated techniques, consistently enhancing communication cues during interactions with children.		
can pause ongoing activities that my child is interested in and wait for them to notice before continuing the activity.	Rarely pauses activities or does not wait for child's attention.	Occasionally pauses activities but often continues without waiting for child's attention.	Sometimes pauses activities and waits briefly for child's attention.	Consistently pauses activities and waits patiently for child's attention most of the time.	Always pauses activities and patiently waits for child's attention before continuing, demonstrating effective interaction skills.		
can imitate the activities that children are doing and wait for them to notice adults.	Rarely pauses activities or does not wait for the child's attention before continuing.	Occasionally pauses activities but often continues without waiting for the child's attention.	Sometimes pauses activities and waits briefly for the child's attention before continuing.	Consistently pauses activities and waits patiently for the child's attention most of the time before continuing.	Always pauses activities and patiently waits for the child's attention before continuing, demonstrating		

							ng effective interaction and engagement skills.
	can follow and join the child's ongoing activities, waiting for the child to notice the adult.	Rarely follows or joins the child's ongoing activities and does not wait for the child to notice.	Occasionally follows or joins the child's activities but often does not wait for the child to notice the adult.	Sometimes follows and joins the child's activities, waiting briefly for the child to notice the adult.	Consistently follows and joins the child's ongoing activities, patiently waiting for the child to notice the adult most of the time.	Always follows and joins the child's ongoing activities, demonstrating patience and effectively waiting for the child to notice the adult, showcasing strong interaction and engagement skills.	
	can do things that are different from the routine of life or activities, waiting for children to notice adults.	Rarely engages in activities that are different from the routine and does not wait for children to notice.	Occasionally performs activities that are unusual but often does not wait for children to notice the adult.	Sometimes engages in activities that are different from the routine, waiting briefly for children to notice the adult.	Consistently performs activities that are unusual or different from the routine, patiently waiting for children to notice the adult most of the time.	Always engages in activities that are distinct from the routine, demonstrating creativity and patience, effectively waiting for children to notice the adult,	

							showcasin g strong interaction and engageme nt skills.
	can intentionall y do something wrong and wait for the child to notice adults.	Rarely intentionally performs actions incorrectly and does not wait for the child to notice.	Occasionall y performs an action incorrectly but often does not wait for the child to notice the adult.	Sometimes intentionally performs an action incorrectly, waiting briefly for the child to notice the adult.	Consistentl y intentionally performs actions incorrectly, patiently waiting for the child to notice the adult most of the time.	Always intentionally performs actions incorrectly in a way that is noticeable, demonstrati ng creativity and patience, effectively waiting for the child to notice the adult and engage in interaction, showcasin g strong engageme nt skills.	
Stren gtheni ng childr en's comm unicat ion behav iors	can observe various verbal and nonverbal communic ation behaviors initiated by children.	Rarely observes or recognizes verbal and nonverbal communica tion behaviors initiated by children.	Occasionall y observes verbal and nonverbal communica tion behaviors but often misses or does not respond to them.	Sometimes observes and recognizes verbal and nonverbal communica tion behaviors initiated by children, but response	Consistentl y observes and recognizes a wide range of verbal and nonverbal communica tion behaviors initiated by children,	Always observes and accurately recognizes a broad range of verbal and nonverbal communica tion behaviors initiated by	

					may be inconsistent.	demonstrating an understanding of their communication style.	children, demonstrating exceptional awareness and responsiveness to their communication cues.
	can respond to communication behaviors initiated by children in various ways.	Does not respond effectively to children's communication behaviors or ignores them entirely.	Responds inconsistently to children's communication behaviors; sometimes acknowledges but lacks engagement.	Responds adequately to children's communication behaviors; acknowledges and attempts to listen, but lacks depth or consistency in responses.	Responds effectively to children's communication behaviors; actively listens, provides encouragement, and demonstrates empathy and respect.	Responds exceptionally to children's communication behaviors; actively listens with empathy, encourages further communication, models good communication skills, and consistently engages at a high level.	
	can elongate the communication and interaction with children in various	Does not attempt to elongate communication or interaction with children.	Occasionally attempts to elongate communication or interaction, but often ends prematurely	Sometimes elongates communication or interaction with children, demonstrating	Consistently elongates communication or interaction with children, using various	Always elongates communication or interaction with children effectively, demonstrating	

		ways.		y or lacks engagement.	moderate engagement and effort.	strategies to maintain engagement and interest.	ng exceptional skill in sustaining meaningful conversations and activities.
understanding the communication information	Comprehension Ability	can maintain an exploratory attitude towards what children say and do, rather than just denying and blaming them.	Frequently denies or blames children for their actions or statements without exploring their perspective.	Occasionally denies or blames children, with limited attempts to explore their perspective.	Sometimes maintains an exploratory attitude towards what children say and do, balancing exploration with occasional denial or blame.	Consistently maintains an exploratory attitude towards what children say and do, demonstrating openness to their perspectives and experiences.	Always maintains an exploratory attitude towards what children say and do, consistently seeking to understand their perspectives and reasons.
		can listen to children's expressions, both verbally and nonverbally.	Rarely listens to or acknowledges children's verbal and nonverbal expressions.	Occasionally listens to children's verbal and nonverbal expressions but often misses important cues.	Sometimes listens to children's verbal and nonverbal expressions, demonstrating moderate awareness and responsiveness.	Consistently listens to children's verbal and nonverbal expressions, demonstrating understanding and empathy.	Always listens attentively to children's verbal and nonverbal expressions, accurately interpreting cues and responding effectively.
		can have a way to guess the meaning	Rarely attempts to understand or interpret	Occasionally attempts to guess children's	Sometimes effectively guesses children's	Consistently guesses children's meanings	Always accurately guesses children's

	expressed by children.	children's expressions or meanings.	meanings but often misinterpretations or misses important cues.	meanings, demonstrating moderate accuracy in interpretation.	accurately, demonstrating understanding and insight.	meanings, showing exceptional skill in interpretation and empathy.
Enhancing children's language abilities	can promote the development of children's language abilities through expansion.	Does not attempt to expand children's language abilities or rarely engages in activities that support language development.	Occasionally attempts to expand children's language abilities, but efforts are inconsistent or lack effectiveness.	Sometimes promotes the development of children's language abilities through expansion, demonstrating moderate effectiveness.	Consistently promotes the development of children's language abilities through expansion, using various strategies effectively.	Always promotes the development of children's language abilities through expansion exceptionally well, demonstrating creativity and consistently achieving positive outcomes.
	can promote the development of children's language abilities through demonstration.	Rarely demonstrates language abilities or provides examples to promote children's language development.	Occasionally demonstrates language abilities, but demonstrations lack clarity or relevance to children's learning.	Sometimes promotes children's language abilities through demonstration, demonstrating moderate effectiveness in modeling language.	Consistently promotes children's language abilities through clear and relevant demonstrations, effectively modeling language abilities.	Always promotes children's language abilities through exceptionally clear and relevant demonstrations, demonstrating creativity and consistently

							achieving positive outcomes.
		can assist children in expressing themselves through pictures, visual cues, etc.	Does not assist children in using pictures or visual cues to express themselves.	Occasionally attempts to assist children, but efforts lack effectiveness or consistency.	Sometimes assists children in using pictures or visual cues, demonstrating moderate effectiveness.	Consistently assists children in using pictures or visual cues to express themselves, demonstrating understanding and support.	Always assists children exceptionally well in using pictures or visual cues, demonstrating creativity and consistently achieving positive outcomes.
Assist children in understanding adult communication information	Clarifying abilities	When children don't understand, can provide clues using different forms and levels.	Rarely provides clues or assistance when children don't understand.	Occasionally provides clues, but efforts lack effectiveness or are inconsistent in helping children understand.	Sometimes provides clues using different forms and levels, demonstrating moderate effectiveness in aiding understanding.	Consistently provides clues using various forms and levels, effectively supporting children in understanding.	Always provides clues exceptionally well using diverse forms and levels, demonstrating creativity and consistently achieving positive outcomes in aiding understanding.
		When children don't understand	Does not adjust communication style	Occasionally attempts to adjust communication	Sometimes adjusts communication style	Consistently adjusts communication style	Always adjusts communication style

		d, can adjust communication style.	when children don't understand .	tion style, but adjustments are inconsistent or ineffective.	when children don't understand , demonstrating moderate effectiveness.	when children don't understand , demonstrating flexibility and responsiveness.	exceptionally well when children don't understand , demonstrating creativity and consistently achieving positive outcomes.
Reducing cognitive load	When children do not understand certain languages , can provide regular activities to help them.	Does not provide activities to help children understand unfamiliar languages.	Occasionally provides activities, but they lack consistency or effectiveness in aiding language understanding.	Sometimes provides regular activities to help children understand unfamiliar languages, demonstrating moderate effectiveness.	Consistently provides regular activities to help children understand unfamiliar languages, showing dedication and effectiveness.	Always provides exceptionally effective and engaging activities to help children understand unfamiliar languages, demonstrating creativity and consistently achieving positive outcomes.	
	When children do not understand certain languages , can provide	Does not provide visual cues or other support when children do not	Occasionally provides visual cues or other support, but efforts lack consistency	Sometimes provides visual cues or other support, demonstrating moderate	Consistently provides visual cues or other support when children do not	Always provides exceptionally effective visual cues and other support, demonstrati	

		them with visual cues and other support.	understand certain languages.	y or effectiveness.	effectiveness in aiding language understanding.	understand certain languages, demonstrating understanding and responsiveness.	ng creativity and consistently achieving positive outcomes in aiding language understanding.
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