

# Foundations of Autism Spectrum Disorders: An Online Course

## Session 7

### Foundations of Communication and Social Interventions

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*After completing Session 7, participants will:*

1. describe core communication characteristics of the autism diagnostic criteria and how they may influence the development of communication/languages skills.
2. describe core social characteristics of the autism diagnostic criteria and how they may influence the development of social skills.
3. discuss the importance of imitation as a critical developmental milestone and explain how limited imitation skills may interfere with both communication and social skill development.
4. describe the relevance of play to the development of communication and social skills.
5. describe key aspects of communication and social skill development that may support or impede the formation of long-term, meaningful relationships for children and adolescents with ASD.
6. list and describe practices that can be used to promote the development of communication and social skills in learners with ASD.

#### *Introduction*

When designing interventions for learners with autism spectrum disorders, a number of factors must be considered. Current level of functioning, as well as individual strengths and needs, families' concerns and priorities, and constraints and supports of current learning and living environments are just some of the issues that should be considered when planning intervention. Common to most learners with autism are the core or central symptoms of autism--social, communication, and behavioral differences and challenges. IFSP and IEP goals and objectives, developed by an interdisciplinary team and based on appropriate individualized assessment, provide the foundation for intervention planning, implementation, and progress monitoring.

Considerable overlap across developmental domains must be considered when planning interventions because progress in one area (e.g., communication) will have a positive impact on other areas (e.g., social, behavioral). Some evidence based practices that may be used to target communication and social skills are highlighted at the end of

this chapter; these same practices may be applicable to other developmental domains as well.

### *Foundational Principles for Acquisition of Communication and Social Skills*

#### *Communication and Social Skills Development*

Typically developing children acquire nonverbal communication, social, and imitation skills quickly and without structured intervention during the first few years of life. These skills, classified by Bruner (1975) as reciprocal social interaction skills, joint attention skills, and behavior to regulate others, include responding to the initiations of others, focused eye gaze, turn-taking, initiating interactions with others, and imitation of physical and vocal actions of others. These prelinguistic skills provide the foundation for the development of later, more sophisticated communication and social skills. Learners with ASD often have difficulty in acquiring and using skills related to nonverbal joint attention, social pragmatics such as turn-taking, initiating, and terminating interactions, and other aspects of social reciprocity (Mundy, Sigman, & Kasari, 1993).

Imitation is considered a critical milestone in development because it is central to understanding a sense of self and other (Vygotsky, 1964) and allows individuals to sustain social interactions (Quill, 2000). Learners with ASD often have delays in, and later deficits in, the use of imitation that may also contribute to delays and deficits in communication and social skills. Imitation is often closely associated with play, another area in which learners with ASD have been shown to differ from typically developing peers. Play promotes the development of social and communication skills, as well as cognitive skills. Learners with ASD often engage in solitary play that lacks symbolism, imagination, and flexibility. Research suggests that there are distinctive qualitative differences in the play of children with ASD when compared to typically developing peers in that children with ASD display increased repetition of routines, little or no spontaneous symbolic play, and a greater incidence of stereotypic play (Ozonoff, Pennington, & Rogers, 1990). It is within the social context of play and interaction that many foundational communication and social skills are acquired and practiced. Communication skills related to reciprocity, communicative function (or intent), and the ability to initiate, sustain, and terminate conversation are often missing or inhibited in learners with ASD (Quill, 2000). These delayed or impaired communication/language skills are probably exacerbated by poor imitation and play skills.

#### *Basis for Effective Communication and Social Intervention*

The basis of effective intervention for learners with ASD, described as *Guiding Principles* in Session 4, includes a thorough understanding of the impact of ASD on learning and development, interdisciplinary planning and practice, family-centered practices, individualization (i.e., IEP/IFSP), cultural awareness, data-based decision making, the use of evidence-based practices (EBP), a focus on maintenance and generalization of learned skills, the use of natural settings (with attention paid to transitions across settings), and the inclusion of learners with ASD with their same age, typically developing peers. These guiding principles, along with expertise in evidence-

based instructional strategies that promote skill acquisition while decreasing challenging behaviors and the creation of optimal learning environments will help children and adolescents with ASD develop effective and appropriate social and communication skills. These communication and social skills, in turn, will facilitate functional and academic skill development and independence, while also decreasing behavioral challenges.

### *Other Considerations*

In addition to these foundational principles and skills, those who support learners with ASD also should thoroughly assess current skill levels, identify and target milestones of typical development (e.g., joint attention, imitation) that have not been attained, and provide multiple opportunities for skill use across settings with multiple partners of varying ages. Practitioners may want to familiarize themselves with comprehensive intervention programs that may be used with learners with ASD. Articles by Rogers & Vismara (2008) and Odom, Boyd, Hall & Hume (2010) may be helpful as professionals and families look for information related to comprehensive treatment models; see references for full citations. For this course, however, the emphasis is not on the more comprehensive programs and systems, but instead on focused interventions for both communication and social skill development. Following a review of communication and social characteristics of individuals with ASD, overviews of evidence-based practices that can be used to address delays and impairments in these two developmental domains are provided, along with information on where to access online resources related to these practices.

## *Communication and Language*

Differences in communicative abilities are a hallmark of autism spectrum disorders. In fact, some estimate that 50% of persons who have ASD are unable to meet daily communication needs with natural speech (Wing & Attwood, 1987). Even learners who develop spoken language often experience difficulties with pragmatics, or the social use of language. As outlined in Session 2, *Characteristics of Individuals with Autism Spectrum Disorders*, other common areas of difficulty include delays in, or lack of, spoken language; impairments in conversational abilities; and stereotyped, repetitive, and idiosyncratic language use. Additional difficulties may include the appropriate use of pronouns and understanding the non-literal uses of words and phrases. Closely related to both social and communication skills are difficulties in varied and spontaneous pretend play and social imitative play. These areas of communication and potential effective interventions are discussed and are organized by the DSM-IV criteria sub-headings for communication.

### *Absence of or Delays in Spoken Language*

Again, learners with autism spectrum disorders may have either delays in, or a total lack of, spoken language. Generally, this lack of spoken language is accompanied by a lack of development and use of alternative modes of communication such as gestures or miming. In the current diagnostic classification, spoken language delays are most likely

to occur in learners with autistic disorder and those with PDD-NOS, as well as individuals who have been diagnosed with Rett's Disorder and childhood disintegrative disorder (CDD). Individuals with Asperger's disorder do not generally experience delays in language, though they struggle with the social use of language. For learners who have significant delays in spoken language or no spoken language and who demonstrate communicative intent, intervention begins with augmentative and alternative communication (AAC) systems. For learners with communication and speech delays and impairments, AAC systems provide opportunities for them to interact with others by supporting comprehension (receptive communication) and expressive communication (Light, Roberts, Dimarco, & Greiner (1998). AAC systems include those that are unaided (i.e., do not require an external aide or device) such as sign language or gestures, and those that are aided (i.e., do require an external aide or device).

Practices that may be used to develop skills in spoken language include, but are not limited to, the Picture Exchange Communication System (PECS; Bondy & Frost, 1994), speech generating devices (SGD) and discrete trial training, all of which have a solid base of evidence in the research literature . These practices are described briefly in the section of this session labeled 'Practices for Promoting Communication/Language and Social Skills.'

#### *Stereotyped and Repetitive Language*

Learners with ASD may use spoken language in non-communicative ways or in a manner that does not immediately appear to be communicative. Some examples of atypical language use that are commonly seen in individuals with ASD include idiosyncratic language, that is, the use of words or phrases that have meaning assigned by the individual but not to others and the use of repetitive language, including echolalia.

Evidence-based practices that may be useful in promoting functional language use include, but are not limited to, functional communication training (FCT), the Picture Exchange Communication System (PECS), naturalistic intervention, and pivotal response training. These practices are described briefly in the section of this session labeled 'Practices for Promoting Communication/Language and Social Skills.'

#### *Difficulties with Play and Imitation*

As mentioned earlier, children who develop typically progress through developmental stages in which they acquire important communication and social skills. Play is another important domain in which lifelong interaction skills are developed. For many learners with ASD, atypical development in the area of play leads to difficulties in spontaneity, pretend play, and imitation with children engaging in very restricted, and sometimes isolating, play activities. These delays in play and imitation can severely impede development of more complex behavior and social skills, further isolating learners with ASD from others (Ingersoll & Schreibman, 2006).

Practices that have been shown to promote play behaviors and related skills of individuals with ASD include, but are not limited to, peer-mediated instruction and intervention (PMII), naturalistic intervention, and pivotal response training (PRT). These practices are described briefly in the section of this session labeled 'Practices for Promoting Communication/Language and Social Skills.'

### *Difficulties with Conversational Language*

Many learners with ASD develop verbal language and use it to effectively control their environment, making requests of people or responding to questions. For many of these learners, the skills required to sustain discourse in conversation do not develop fully and are not generalized across settings, topics, and communication partners. According to Berko-Gleason (1985), the complex skills involved in conversing in a generalized manner are developed and refined throughout one's lifetime. Elements of conversation include turn-taking, selecting appropriate topics, and taking perspective. Turn-taking refers to initiating, sustaining, interrupting, and ending conversations with another. Topics are the content of the conversation, and topics should fit the context and the communicative partner. Perspective-taking is the ability to monitor the conversation and adjust one's behavior to fit the specifics of the situation. In addition, in conversation, participants must pay attention to verbal and nonverbal cues from the communicative partner, while internally preparing to contribute to the conversation, and at the same time monitoring any external features (e.g., time of day, location, other people, task demands) that may impact the conversation. Thus, the ability to engage in conversation with another is a highly refined process that requires simultaneous processing of sensory input.

Evidence-based practices that may help promote conversation skills include, but are not limited to, naturalistic intervention, social narratives, social skills training groups, peer mediated intervention and instruction, and video-modeling,. These practices are described briefly in the section of this session labeled 'Practices for Promoting Communication/Language and Social Skills.'

### *Social Skills: Considerations and EBP*

A core characteristic of autism spectrum disorders is that of social interaction deficits. Specifically, learners with ASD are likely to have marked impairments in the use of non-verbal behaviors such as eye gaze, facial expression, body postures, and gestures to regulate social interaction. In addition learners with ASD frequently fail to develop or maintain peer relationships appropriate to their chronological age. There is often a lack of initiation in sharing enjoyment, interests, and achievements with others. Finally, learners with ASD frequently lack social and/or emotional reciprocity. Following a review of each of the criteria related to social interactions and skills, practices that target specific categories of social behavior will be presented.

### *Joint Attention*

Joint attention is the sharing of attention between two or more individuals and is often mediated by an object or event along with eye-gaze and gestures. Joint attention is a critical feature of social interaction, and the development of joint attention skills is an important aspect of ASD intervention, especially with toddlers and young children. Examples of deficits in joint attention include toddlers who rarely look to a familiar adult to “check in” or do not bring an object of interest to an adult in order to show it. The ability of toddlers to follow an adult’s point, rate of initiations of joint attention (as well as requesting behaviors and imitations), and the duration of joint engagement between an adult and child have all been identified as predictors of language development (Kasari, Freeman, & Paparella, 2007).

Practices that may be used to develop skills in joint attention include, but are not limited to, naturalistic intervention and pivotal response training.. These practices are described briefly in the section of this session labeled ‘Practices for Promoting Communication/Language and Social Skills.’

### *Reciprocity*

Reciprocity is the give-and-take or back-and-forth of social interaction. Ideally, in a social exchange, each partner contributes to the interaction, responds to the other partner’s contributions and cues, and builds upon the exchange. For learners with ASD, reciprocity often falls short, particularly with communicative partners who do not know them or have not had experience interacting with them. In such situations, the person with ASD may dominate the conversation by insisting on a very limited topic. Alternately, they may fail to respond to questions or nonverbal cues from their partner which would help to keep the conversation going, making the communicative partner feel as if they have to carry the interaction.

Practices that may be helpful in promoting reciprocity include, but are not limited to, naturalistic intervention, peer-mediated instruction and intervention, pivotal response training, social narratives, and video modeling. These practices are described briefly in the section of this session labeled ‘Practices for Promoting Communication/Language and Social Skills.’

### *Nonverbal Behavior*

Nonverbal behavior involves abilities that span multiple domains, including communication and social skills. Indeed, there are multiple skills involved in comprehending, as well as using, nonverbal behaviors successfully. These skills include the ability to pay attention to, process, and make decisions about the nonverbal cues of others such as facial expressions, gestures, and body posture and position. In addition, individuals must also be aware of their own facial expressions, gestures, body postures and positions, and the potential meanings that may be inferred by those with whom they are interacting. Deficits in nonverbal social-communication skills are among the most pronounced features of autism (Baron-Cohen, Tager-Flusberg, & Cohen, 1993). Successful interventions in this area build upon existing skills, while simultaneously

motivating individuals with ASD to develop and use additional nonverbal behavior skills, both receptively and expressively.

Practices that may be used to teach appropriate nonverbal behavior skills include, but are not limited to, functional communication training, naturalistic intervention, peer mediated instruction and intervention, social skills training groups, and social narratives. These practices are described briefly in the section of this session labeled 'Practices for Promoting Communication/Language and Social Skills.'

### *Peer Relationships*

Learners with ASD struggle with establishing and maintaining relationships, particularly with same age peers. The core characteristics of autism related to restricted and stereotypical behavior, and delays and differences in communication and social skills may profoundly influence understanding of others and their own experiences within relationships (Quill, 2000). Improving behavioral, communication, and social skills will likely have a positive impact on establishing and maintaining relationships, as well as promoting more positive interactions in on-going relationships.

Practices that may be used to increase peer interactions, teach peer-related social skills, and help peers better understand and interact with individuals having ASD include, but are not limited to, naturalistic intervention, peer mediated instruction and intervention, and social narratives. These practices are described briefly in the section of this session labeled 'Practices for Promoting Communication/Language and Social Skills.'

## Practices for Promoting Communication/Language and Social Skills

In this section, descriptions of practices that have been used to promote communication/language and social skill development are provided. Some of these practices meet the criteria for evidence based practices adopted by the National Professional Development Center on ASD. Practices include discrete trial training (DTT), functional communication training (FCT), naturalistic intervention, peer mediated instruction and intervention (PMII), the Picture Exchange Communication System (PECS), pivotal response training (PRT), social narratives, video modeling, social skills training groups, and speech generating devices (SGD).

Information on all of these practices, as well as additional evidence-based practices to use with learners with ASD, can be found at the following websites:

The National Professional Development Center on ASD:

<http://autismpdc.fpg.unc.edu/content/briefs>

Autism Internet Modules:

<http://www.autisminternetmodules.org/>

### *Discrete Trial Training (DTT)*

DTT is a structured behavioral intervention approach that has been widely used with children and youth with ASD to teach a variety of skills including language and communication. Instruction is delivered in a planned, systematic manner during one-to-one, adult-led learning activities (Lovaas, 1987). Communication goals may include, for example, labeling, making requests, identifying named objects, or greeting.

A typical teaching session uses repeated trials with each trial having an identifiable beginning, middle, and end. Each step of the skill is mastered before new concepts are presented. With DTT, a very small amount of information is given and the learner's response is immediately reinforced or not reinforced (Ghezzi, 2007). As learners make progress, the use of the discrete trial format is gradually decreased while increasing the emphasis on naturalistic instruction that typically takes place in group settings (Baer, 2005; Smith, Donahoe, & Davis, 2001).

Research on DTT suggests that it can be successful in teaching learners a variety of important behaviors (e.g., Baer et al., 1967; Lovaas, Berberich, Perloff, & Schaeffer, 1966; Metz, 1965; Schroeder & Baer, 1972) and has provided evidence that learners with poor prognoses can make gains (Lovaas, 1987). Although there is substantial evidence to support the effectiveness of DTT, limitations of this approach exist. First, the emphasis on adult-directed instruction has been found to limit the spontaneous use of behavior as well as decrease the occurrence of more naturalistic adult-child interactions. Second, the highly structured teaching environment and use of artificial reinforcers can inhibit the generalization of newly acquired skills to naturalistic settings such as in the classroom and at home. Increasingly, researchers have focused on nonacademic skills such as play and peer interaction, decreased use of aversive intervention, and a wider variety of reinforcement to increase the functional use of behavior (Schreibman & Ingersoll, 2005).

### *Functional Communication Training (FCT)*

According to Durand (1990), FCT uses communication to reduce interfering behaviors. More specifically, learners are taught an alternative communicative form, which replaces a less desirable behavior, to meet the same function (i.e., outcome). The existing literature on FCT indicates that it has been used to effectively teach alternative and appropriate communication skills, while reducing undesired and inappropriate behaviors with learners having ASD from early childhood through secondary ages. To use FCT, a functional behavioral assessment (FBA) should be completed, and appropriate communicative alternatives should be identified, taught, and reinforced (Durand & Merges, 2001).

### *Naturalistic Intervention*



Naturalistic intervention is a collection of practices including environmental arrangement, interaction techniques, and strategies based on applied behavior analysis principles. These practices are designed to encourage specific target behaviors based on learners' interests by building more complex skills that are naturally reinforcing and appropriate to the interaction. Research demonstrates that naturalistic intervention can be used to facilitate communication and social skills, which may include things like expressive vocabulary, speech intelligibility, use of gesture, shared attention, and turn-taking. It can be useful with prelinguistic learners (i.e., learners who are not yet using formal language to communicate) as well as learners with linguistic communication. Because naturalistic intervention is designed to be implemented across settings and throughout the day, skills are more easily generalized. Because teachers, practitioners, or team members, including parents, childcare providers, and/or teachers, are not always ideally responsive to the communicative attempts of learners with ASD, naturalistic intervention includes mindfully engaging the learner in a language-rich, learner-directed, and reciprocal interaction. Behavioral strategies, including modeling, mand-modeling, modified time delay, and incidental teaching, are then embedded into this interaction in order to elicit a target skill.

#### *Peer-Mediated Instruction and Intervention (PMII)*

The use of peers to positively impact the social behavior of learners with ASD has been demonstrated repeatedly in the research literature. Peer-mediated interventions were developed from behaviorism and social learning theory (Bandura, 1977). Within this practice, individuals are taught strategies for interacting with their peers who have autism that will have positive outcomes and promote extended interactions (Odom et al., 1999). PMII strategies also benefit learners with ASD because they are more likely to generalize skills across settings and activities (Rogers, 2000).

#### *Picture Exchange Communication System (PECS)*

The Picture Exchange Communication System (PECS) was developed at the Delaware Autistic Program (Bondy & Frost, 1994) as an alternative (aided) communication system. According to the developers of PECS, it is a behaviorally based intervention that teaches learners to use visual-graphic symbols to communicate with others (Frost & Bondy, 1994). Unlike other graphic systems of communication, the individual using PECS hands the symbol depicting a desired item to the communicative partner. Once the system is learned and shown effective with requests (mands), it may be expanded to other communicative functions (e.g., labeling, questioning). PECS is the system of communication, not to be confused with how PECS is taught and used (i.e., behavioral principles). There are six phases of PECS instruction, with each phase building on the last. The phases are: 1) teaching the physically assisted exchange, 2) expanding spontaneity, 3) simultaneous discrimination of pictures, 4) building sentence structure, 5) responding to "What do you want?" and 6) commenting in response to a question. A key feature of this evidence-based practice is that PECS has been demonstrated in the research literature to promote speech development and production in previously nonverbal learners (Charlop-Christy, Carpenter, Le, LeBlanc, & Kellet, 2002).

### *Pivotal Response Training (PRT)*

PRT is a naturalistic behavioral intervention model that was derived from research focusing on the identification of essential treatment components and often is used to teach social skills. Intervention addresses the following pivotal areas of instruction: (1) student motivation, (2) responding to a variety of cues, (3) self-management, and (4) self-initiation. Pivotal behaviors are those behaviors that are central to a variety of areas of functioning. A change in the pivotal behavior will produce improvement across a number of other behaviors (Koegel, Koegel, & Carter, 1999; Koegel, Koegel, & McNerney, 2001; NRC, 2001). For example, a teacher might include some of the preventative strategies described above (e.g., offering choices during teaching interactions, reinforcing the child's attempts) into a teaching episode to increase the student's motivation.

Although PRT traditionally focused on verbal and nonverbal communication, it has been expanded to address a variety of other skills such as symbolic and sociodramatic play as well as joint attention (Schreibman & Ingersoll, 2005). The anticipated outcome of PRT is that children and youth with ASD will be able to function more independently in naturalistic environments (e.g., school, home, community). Research suggests that PRT produces more generalized and naturalistic skills than more structured behavioral intervention models such as discrete trial teaching (Koegel, Koegel, Shoshan, & McNerney, 1999b).

### *Social Narratives*

Social narratives are used to describe social situations in some detail (highlighting relevant cues and offering examples of appropriate responding) or provide scripts that are aimed at helping learners adjust to changes in routine, adapt their own behavior based on the social and physical cues of a situation, or to teach specific social skills or behaviors. They are individualized and typically are quite short, perhaps including pictures or other visual aides. This strategy originated in the behavioral literature and in addition to teaching social skills, has also been used to promote appropriate behavior or to reduce interfering behaviors, as well as to promote effective and appropriate communication. In typical use, social narratives are used as a pre-cursor to, or in anticipation of, upcoming events. As such, they are portable and adaptable to nearly any setting.

### *Video Modeling*

This practice has been shown to be effective in teaching a number of skills in the academic, communication, play, and social domains to children and adolescents ages preschool to 22 years. Video modeling may include video of the individual, similar age/characteristics peers, or of adults engaging in desired tasks. Advantages of video-modeling include that many learners with ASD learn well visually, content can be easily individualized, the video may be watched repeatedly, and students can access the video on demand.

### *Speech Generating Devices (SGD)*

Speech generating devices (SGD) offer the advantage of spoken language for nonverbal learners. SGD are portable electronic devices providing speech output with either synthetic (computer generated) or digitized (recorded) voices. The devices use a variety of graphic symbols or pictures to represent personalized messages for the individual, who uses his or her hand, finger, or some other means (e.g., switch or eye gaze) to activate the device. SGD are considered a “high-tech” aided AAC system (as compared to PECS, which is considered a “low-tech” aided AAC system), and are designed to be robust, turned on and off frequently, carried from place to place and used in areas where people are working or playing (Cerebral Palsy League of Queensland, 2008). The complexity of SGD devices range from quite simple with a switch activated to play a pre-recorded message to those that have large memory capacity and include other features for the user such as word processing, calculators, and the ability to interface with other electronic devices. These recordings may be basic pre-recorded statements or be very individualized for the person who uses the device. SGD range in price from less than \$50 to hundreds of dollars. With ongoing advances in technology, SGD are becoming more widely available and much more affordable. In summary, SGD are electronic devices that are portable and can produce either synthetic or digital speech for the user. SGD may be used with graphic symbols, as well as with alphabet keys.

### *Social Skills Training Groups*

Social skills groups are used to teach individuals with autism spectrum disorders (ASD) ways to appropriately interact with typically developing peers. Social skills groups typically involve small groups of two to eight individuals with disabilities and a teacher or adult facilitator. Most social skill group meetings include instruction, role-playing or practice, and feedback to help learners with ASD acquire and practice skills to promote positive social interactions with peers. Social skills training groups can target the following: perspective-taking, conversation skills, friendship skills, problem-solving, social competence, emotion recognition, theory of mind, and problem-solving. In addition, specific interaction skills such as initiation, responding, maintaining, greeting, giving/accepting compliments, turn taking, sharing, asking for help, offering help, and including others were also improved through the use of social skills groups.

### *Summary*

The goals of communication and social interventions for learners with ASD are to support and promote the attainment of critical developmental skills such as reciprocal social interaction skills, joint attention skills, and imitation and play skills, as well as the development of specific communication and social skills required to have successful conversations with others. The acquisition of effective communication and social skills often has a positive impact on interfering behaviors as individuals learn more effective ways of expressing wants and needs (Carr, Levin, McConnachie, Carlson, Kemp, & Smith, 1997). Likewise, many of the practices described in this session promote

development in multiple skill areas and domains, making them efficient as well as effective. To implement specific communication and social skills intervention practices, careful attention should be paid to guiding principles for instruction, foundational instructional strategies and optimal learning environments, assessment of individual skills and needs, IFSP/IEP goals and objectives, as well as other considerations such as the state and local standards and requirements. With a solid foundation, the specific practices highlighted in this section may be implemented with great confidence in their intended outcomes. Practices that can be used to promote communication/language and social skill development in children and adolescents with ASD include discrete trial training (DTT), functional communication training (FCT), imitation and modeling, joint action routines, naturalistic language strategies, peer mediated instruction and intervention (PMII), Picture Exchange Communication System (PECS), pivotal response training (PRT), social narratives, video modeling, social skills training groups, and speech generating devices (SGD).

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