Language Intervention in Daily Life: The Karlstad Model of Language Learning

Monica Ingemarsson and Bjorg Ovstebo

Sorlandet and Statped West Support Centres

Norwegian Support Centre for Special Needs Education

NORWAY

Background

The Karlstad Model is a language intervention programme for individuals with language disorders, developed in the late 1970s by Iréne Johansson who is a professor in both phonetics and special education. The model was developed in collaboration with parents, professionals and researchers at the University of Umeå and the University of Karlstad, Sweden for individuals who needed language training. It is a theoretical model combining key ideas about speech and language learning, and also a model of practice. It is still evolving as a result of input from new experiences, working partners and research.

The model may be used with all language learners, and has been adapted for children, adolescents and adults with different types of language disorder. Many of them have had mental or perceptual difficulties in additional to a speech and language disorders; others have had only a language problem. This model has also been used with children who have hearing difficulties or and a cochlea implant and those who are from a multilingual background.

The first aim of the model is communication and to prepare the child for the social use of spoken and written language, so that they become socially competent to live independent adult lives. Language competence is an obligatory requirement for the child in their social adaptive and cognitive development, and thus a prerequisite for an independent adult life. The second aim is to prepare the child for the cognitive use of language in order to facilitate problem-solving, and improve memory and thought processes. The third aim is to teach

those around the child the specific way to communicate with them, and to facilitate inclusion of the child into the environment.

Philosophic and theoretical introduction

The model's main aim is to work for a better quality of life for all individuals with speech and language disorders. It regards communication, speech and language learning as of utmost importance to achieve this goal. The Karlstad Model is based upon the relationship between language, the individual and society. Empowerment is a key principle in the model. The theory of empowerment is about giving knowledge to those who need it when they need it. This knowledge can enable a person to gain power over their own life and them self. Another strong influence is the ecological theory of human social development (Bronfenbrenner, 1979). According to this theory, people behave and perceive other people's behaviour as a consequence of cultural, religious, ethical, political and social factors as well factors based upon their own experiences. That the individual is influenced by those around them, and has the power of influence is the foundation of democracy. Language in this way can be seen both as a prerequisite condition for and as a ticket allowing contribution to democracy. The Karlstad Model has been inspired by the social constructive theories of Vygotsky (1962).A basic principle of learning is that the child is regarded as a subject, in need of emotional and psychological energy and guidance. Engaging in problem-solving, the child is guided by adults or other children who are further on in their development. The adults in the environment have to be in front of the child, so they can use manual signs, and they should provide the child with developmentally appropriate challenges. The child is engaged in an unceasing process, always working towards new goals. Nobody can actually teach the child anything, the child is the 'architect and the director' of his own development.

Content, form and use

The model is based upon normal language development, and looks at language development as a life-long, creative process which is included in other activities, and governed by social, cultural and historic factors. The people around the child have to show

the way and support the child in becoming competent in spoken language. In the professional literature, language development and language problems in young children are approached from a number of different perspectives. This model describes language development based upon the language milestones and progression that characterizes the developmental stages. Bloom and Lahey's (1978) theoretical model of language and communication is another framework in the model. This takes a holistic perspective based upon the integration of three fundamental components; form, content and use. A child's early communication and later linguistic communication is seen as a mutually dependent unit consisting of these three components. As the child acquires their language, they must develop the capacity to function according to these components. The balance between the components is upset if there is a problem which means that one or more of the three components is lacking.

The use of language belongs to the field of pragmatics. It appears to be an area of particular difficulty for many children with developmental language disorders. It is a challenge to know how to take part in conversation or any other speech event. The use means that words and language should function in accordance with the social rules that are relevant in different situations with different conversation partners and about different subjects. To know what correct and incorrect behaviour is, the child must have experienced how to behave in different settings. It is important to have an understanding and sense of the use of language, to make the content accessible to others, and to take pleasure in using it. Pragmatic functions provide meaning beyond the syntactic information, such as linking new information with old information or using various speech acts (e.g. questions, exclamations, etc.).

The *content* concerns the meaning of words, phrases and sentences, and has to do with knowledge about objects and events in the real world. Gaining knowledge from language content is a continuous process. The content is influenced and determined by the child's cognitive and emotional ability, and closely connected to memory.

The child's system of communication needs to become appropriate and to be in a *form* which can be shared with other people. Speech is the most common expressive form of

communication in our society, but is only one of many possible forms. Conventional signs which are used in everyday life as alternatives to speech include pointing, gestures, mimicry, manual signs, written words and other graphic symbols.

Partnership

Focus on the child

The language training programme has a holistic perspective, and is constructed around the child's initiative and their own activities. The child is never a passive recipient or an onlooker, but is active and learns through their own experiences. The child's motivation is important for learning, and therefore learning through play is the main focus. The training has to be attractive for the child. Very often the child with language disorders needs other form for adaption than children without a disability. The model emphasises the importance of individualisation. It is always the child's capabilities, needs and interest which are central to the adaptation. Children are unique, and grow up in different environments. Therefore, the whole process − from initiation to practice, involves adaptation to the tempo of the individual child, their progress and structuring of the environment and materials. The programme places an emphasis on language training which supports the child in their daily activities at home, in the nursery or at school, and new exercises are devised to take account of this.

Networking groups

The traditional way of treating a child with speech and language problems was to call in the 'experts' and leave the problems in their hands. The intervention was often clinically based, and what happened was

known only to the child and the therapist. The Karlstad Model is the antithesis of this way of thinking. It introduces another kind of working model based upon a networking group for language intervention. The networking group is an educational instrument for implementing

speech and language training in daily life (Johansson, 1997). It is family-centred – its key focus being the child and the family – and built upon partnership. The fundamental idea from which the group operates is that the child develops their language based on their own needs in their environment. Life is lived through relationships, activities, socialising and working with others, and language learning is carried out in the same social context and cultural framework.

A networking group may consist of the parents, relatives, language therapist, staff at the local day nursery or the school, and other people who may belong to the child's network, all working in close cooperation and partnership. Membership of the group is voluntary, and based on democratic principles − all the members are equal, and their different knowledge about the child has equal status. The group has a long-term perspective, and meets on a regular basis to discuss the speech and language training, and how to put their common goals into practice. Members have different roles, and each is responsible for their individual part of the training. The group can be a powerful tool for initiating changes in the child's communication skills. All networking groups are different from each other depending on their members, and the child. Networking starts when the parents make the decision that they want this form of intervention planning. The parents invite key people who are directly involved in the child's daily life to participate in the group. These may include relatives, neighbours, professionals and significant others. When these people have a shared insight into how children learn language, and into the specific difficulties that are delaying the process for their child, they can give vital support and mediate processes as effective pedagogues in everyday settings.

The parents and the relatives in the networking group are the stabile persons in the child's life, the specialists are often altering. The non-professionals are more important in the group than the professionals, because they will stay in the child's life in a long-time perspective. The regular meetings generate a forum where all can communicate constructively, and the professional knowledge of the specialists can combined with the latent knowledge of those in the child's everyday life. (It is important to realise that knowledge about the child's

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communication skills is often held by those close to the child, and rather than by professionals and specialists.) Fundamental to the Karlstad model are the networking group members' collective understanding and knowledge of the child and the child's language. An absolute prerequisite of its success is the group's awareness of speech and language and the development of children.

Using the Karlstad Model, the networking group assesses how the child learns through interaction with others and how meaning is formed by them in their social context. Through the group's creative problem-solving based upon the knowledge of child, they then evolve an intentional system of communication relevant to the child and plan the intervention.

The structure of the intervention programme is individualised, which means that the child leads intervention. The child should never be a passive receiver or observer, but should be allowed to make their own experiences. Language learning should be fun and enjoyable for all. The intervention programme is also holistic; the development of communication is seen as an integrated part of the child's total development − motor, perceptual, cognitive, emotional and social.

The ability to set goals, and agree how best to achieve them, is an important challenge for the members of the group. A common view of the child's challenges and needs is generated through discussion among the networking group, and together they carefully determine programme goals, identify primary goals, split them into targets small enough to be attainable for the child, and propose exercises and procedures. Information from preliminary assessments and evaluations are considered key to planning for the child's optimal progress. The intervention is planned so it can be carried out in a structured way to help the child to cope with the tasks, and summarised using a 'Language Training Form' (see Figure 1 below). The networking group also aims to facilitate smooth transitions for the child into new environments. This is supported by members within the group who know the child well.

Language Training Form for XX				
Period:				
Overall goal:				
Evaluation date:	Partial goal	Resources/ method	Responsibility for training	Responsibility for generalisation
Pragmatics				
Lexicon				
Grammar				
Phonology				
Prosody				

Figure 1: Example of a network group intervention planning document

Goals are defined not only for the children, but also for the adults. The adults share the responsibility for language training by taking different roles, discussing what approaches to use, how the training is to be done and how to generalise the new knowledge into daily life. All members of the group follow the same strategies, but each of them gives the child opportunities to acquire knowledge and skills in different ways, and in different environments. Most importantly, everybody aims to be an effective communication partner for the child.

The model of practice

The Karlstad Model presents a comprehensive proposal for practical intervention planning supported by sound theory. Through this model, practitioners can promote language development from pre-linguistic, 'performative communication', through 'primitive grammar', 'simple grammar ', 'complex grammar' to 'reading − and writing' at school age (see Figure 2). Through working with and developing the model, resource materials and methods have been designed. Some of these have been published in books and reports, which have been

translated into different languages. The books contain a description of the theoretical

background, ideas for developing materials and how to implement the language training.
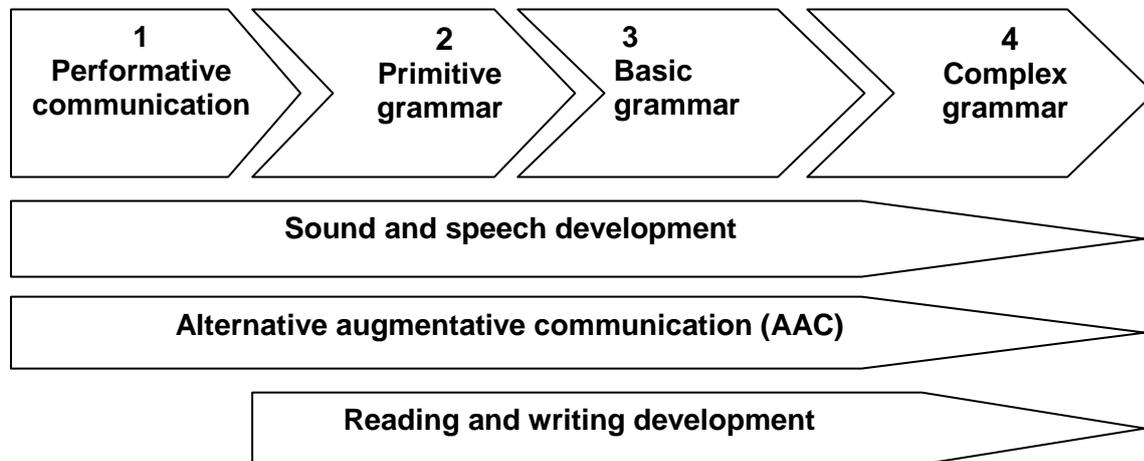
Figure 2. An illustration of the different phases of language development

The different phases of language development

Performative communication (Johansson, 1988)

Performative communication is the basic building block of more conscious communication

and is intentional, deliberate and goal-directed. There is an understanding that the child can

use other people as tools to achieve a specific objective, but also that other people may be

the objective. The actions build upon different modalities, involving different signals from the

visual, audio, motor channels which complement each other. The child engages other people

using gaze, facial expression, sounds and body movements well adapted to its purpose.

Performative communication is seen as a process with growing complexities of expression,

and symbolic contents. The members of the child's community network need training to allow

them to identify, accept, interpret and use this expressive, performative communication. The

principal aim in this phase is priming and training the child's listening and attention skills.

Young children are particularly sensitive to speech sounds, but the ability to perceive and

discriminate between small differences in the properties and qualities of speech sounds is difficult for many of the children with language disorders. They need to learn to notice the differences and similarities between speech sounds and to group them into different categories. To facilitate this, the child is presented with speech sound sequences which are differently organised and structured from their mother tongue.

Through interacting with others while though playing, listening, looking, imitating and touching, the child learns how to enjoy communicating. The written materials (Johansson, 1988)[1] contain of 12 programmes along with proposals for activities and materials. Some of the special areas focused upon are turn-taking, speech/sound listening patterns, baby massage as tactile communication, mirroring and alternative and augmentative communication (AAC).

Primitive grammar (Johansson, 1990)

During this phase, the aim for the child is to develop a large, receptive vocabulary of about 250 words, and expressive use of about 30−50 words (AAC-mediated[2] and/or spoken) and to master some speech acts. In early lexical development, words are the building blocks of language. The child needs to develop a large vocabulary associated with their needs, feelings, thoughts and words specific to situations which they meet in their everyday life. By working with sounds, pictures, sight- words and manual signs, through sorting and categorising, the child learns the meaning and the form of words. Some speech sounds
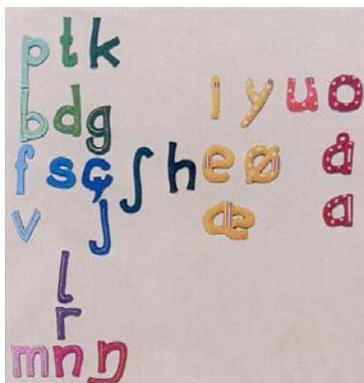
(phonemes) can be difficult to distinguish on the basis of sound alone, so they are made visual to help the child derive meaning from what they hear. On this basis, tangible speech sounds (see photograph below) are introduced in the Karlstad Model to support the acquisition of aural discrimination.

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[1] A list of different language translations of Karlstad Model publications can be found following the 'References' section of this chapter.
[2] e.g. manual signs, symbol, pictographic, electronic, etc.

The tangible speech sounds are based on 'IPA letters', and are made from different materials. The varied colours, weights, textiles and markings represent the distinctive features of the sounds. In the beginning the child plays with these figures. In cooperation with the child, the adult names the sounds. This enables cognitive feedback in terms of phonological representation of the sound.

In addition to being manipulability, these speech units can be used in other tasks (e.g., the synthesis and analysis of phonemes and syllables in words, or the segmenting of phonemes in a word to analyse units for spelling). In different ways, they will be used in all the following phases. The written materials (Johansson, 1990) contain 31 programmes which consist of listening, imitation of sounds and movements, books, songs and rhyme. Some of the special areas focused on here are listening and imitation of sound combinations, books with pictures of manual signs and sight - words.

Basic grammar (Johansson, 1996)

At this stage the child is learning basic, 3-word sentences, and uses three categories of words − nouns, objects and verbs. To acquire syntactic structures, the child must discover and use the grammar of their language to determine 'who did what to whom' in each sentence. The aim at this stage is for the child to be able to ask questions, refer to something, use several types of language, and engage in proto-reading and writing, and discriminate between and segment words/sounds.

Learning grammar involves the processing of sentences rather than just single words, and this will be difficult for most children with language disorders. In the development of grammatical structure, they will probably be reliant upon visual facilitation. Cards of different shapes and colours are used to make this concept visual − the picture is on one side and the word printed on the other. The subject of the sentence is illustrated by a red square and the object by a red circle. Action words are represented by a blue triangle with only the printed word. The child is supported to put the chosen words into the correct order.
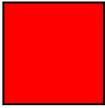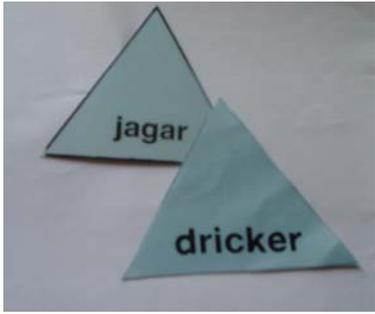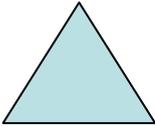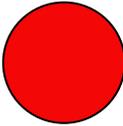
	A red, square denotes a word that influences something.
	A blue triangle denotes a word describing action.
	A red circle denotes a word describing what is under the influence of the action.

Figure 3: Illustration of sentence elements.

When the child has mastered the simple rules of grammar, is able to categorise words and demonstrate their use, has an extended vocabulary and has mastered basic language skills, they can move on to the next phase.

The written materials for this phase (Johansson, 1996) contain 12 programmes which include ideas for working with lexicon, grammar, phonology and picture books with simple text.

Examples of resource materials associated with them are: shapes and coloured cards with pictures and printed words (illustrated in Figure 3 above), templates, and training ideas for listening to sounds in combination with visual phonemes. The shape and colouring system represent the major linguistic features.

Complex grammar (Johansson, 2006)

In this phase, activities focus upon the use of pragmatic skills as well as extending and varying the vocabulary used. This is achieved through telling stories, reporting, referring and planning. Children with language disorders often struggle to learn to use complex grammar. To support the abstract, grammatical structures, new parts of speech are introduced and made visual. The child's progress in learning new grammatical structures is linked to the size of their vocabulary. To be able to use complex and long sentences, they need to have a large vocabulary, - a couple of thousand words. It is a challenge for them to be able to use different inflections, to determine grammatical endings and order the words correctly.

The written materials (Johansson, 2006) contain different training ideas for pragmatics, lexicon, syntax, semantics, morphology, phonology, prosody, awareness of speech and language and proto-reading and writing. Examples of associated materials are; different coloured shapes representing the different parts of speech, plates illustrating different types of sentences, scenes with paper figures, games and books.

Sound, speech and listening

Listening is the receptive form of spoken language, and starts early in this intervention. Most babies learn language by listening; many children with language disorders have problems with listening due to their difficulties with perceiving, processing and interpreting speech. To listen effectively, it is important to be able to keep sounds in the auditory memory. Auditory attention skills are essential for speech and language processing, and poor auditory attention

can compromise listening. The child needs to learn strategies to direct their attention towards sounds which are important at the moment of utterance, and not to be disturbed by other sounds. Many children with language disorders have unclear speech for various reasons from motor planning to phonology and articulation. All speech training starts with listening exercises. Phonological representations are cognitive manifestations of speech sounds, and in optimal circumstances, these representations are developed on the basis of auditory speech input and on the articulation of the speech output.

Prosody

Prosody refers to variations in pitch, loudness, duration and pause/silence in speech. Prosody plays an important role in a range of communicative functions, and is used to enhance or change the meaning of what is said. Infants are highly sensitive to prosody, showing a preference for child-orientated speech (e.g. 'motherese') and demonstrate an ability to remember prosodic patterns specific to their native language. This early sensitivity to prosody suggests that it may be of primary importance in language acquisition. There has been considerable research investigating the role that prosody might play in the acquisition of language in typically developing children.

As a result of working with children with hearing impairment, a visible system for the acquisition of prosody was designed. The section in the written materials, entitled 'Speech training' (Johansson 2006, 2007) , contains ideas of how to work with prosody during sound, listening, voice, breath and articulation activities (See fig.4 below). The material can also be used for other children in need of speech training.

Figure 4: Illustration from"Speech training".

Palatal plate (Johansson, 1998)

One resource used in the speech training is a palatal plate. It is used pedagogically to focus the child's attention on, and to increase their awareness, articulation. Use of this plate gives the child extra sensory and motor stimulation in addition to visual and auditory stimulation. Each plate is made to fit an individual. It is removable and manufactured from acrylic and covered with small nuts (see photograph). The therapist can screw various stimulants at different places on the palate, to encourage the child to become aware of a particular area in order to produce, for example, dental, velar or palatal sounds. The plate is very flexible, hence its commercial name, 'Flexi Plate'. It was inspired by the Castillo-Morales concept of orofaciale regulation therapy, but the design of the Flexi Plate differs from that pioneered by Castillo-Morales. For older children, the palatal plate is used as a cognitive instrument − a 'map of the mouth' − in speech training. Awareness and attention about 'where and how' a sound forms is the key to successful training. The child, supported by an adult, uses the plate for approximately 20 minutes twice a day in the context of a structured speech and language programme. For the youngest children (at approximately 6 months of age) a more simple plate is made. The aim here is to focus attention on increasing their oral activity. As part of a developing educational application, a visual system for the acquisition of sounds is being created for use in combination with the plate. The written materials (Johansson 2002) include a programme which takes account of the different areas important

for the speech therapy; voice, articulation, phonology, prosody, perception, memory and oral motor.

Alternative and Augmentative Communication (AAC)

On the way to spoken language, the Karlstad Model calls for the use of alternative and augmentative ways of communication. For some children, expression and comprehension of spoken language is problematic. For children who have difficulties with spoken language, it is necessary to find an alternative and augmentative way to communicate. Some children will need AAC for both expression and comprehension of language. Supporting language with manual signs and written words is important and is integrated into all exercises in the intervention. This is seen as a means to encourage communication and develop speech and language. There are two main aims in using AAC in the model: support for communication in daily life, and as an instrument in language learning. Manual signs are designed to reflect spoken language. Signs are borrowed from sign language and combined using spoken/written language syntax (not sign language syntax). Manual signing is always used simultaneously with spoken language.

Manual signs are easier for the child to 'articulate' than speech, and when combined with spoken language, the signs and gestures give multimodal (i.e. visual, kinaesthetic and auditory) feedback and support. Speech is the goal, but AAC gives the child a tool to communicate with as a precursor to talking. All kinds of AAC − gestures, tactile symbols, manual signs, pictures, pictograms, rebus (e.g. Bliss, Widgit) and written words can be used. The choice depends on the needs and ability of the individual child. The principle behind this type of intervention is to use as many alternatives and modalities as possible to facilitate spoken and written language for those unable to produce speech. The supporting adults must be competent in using signs, and take the lead by being one step ahead of the child's developmental level. It is important to be a good language model by using AAC consistently with everyone around the child as well as with the child themselves.

Reading and writing *(Johansson, 1993)*

The prerequisites of reading and writing − the ability to recognise graphical symbols (including words, graphemes and rebuses − sight- words), to realize that graphical symbols can be transformed into speech or signs, and to perceive oneself as a reader − are founded during the earlier phases of the Karlstad Model right back to the primitive grammar phase. The basic methodology used during the reading and writing phase aims to strengthen the child's self-identity as a reader, encourage the child to attempt to decode graphical symbols, to review their interpretations critically, and to self-correct when necessary. The resource material is organised into 12 reading programmes, each of which ends with a book. The structure of each programme focuses on: (a) form, and the recognition of sight-words, syllables and letters; (b) teaching the child to shift attention between form and content; (c) construction new sentences with sight- words, syllables and letters (analysis − synthesis (See fig. 5 below), creating meaning); and (d) making a story book. The training areas in this phase are the lexicon, syntax, morphology, phoneme grapheme connection and articulation of sounds.

Fig 5: From gestalt to parts

Pedagogical principles

There are some basic principles relevant to the methodology used in the Karlstad Model.

1. Language training is a life-long journey; it will never come to an end. The best results are seen when intervention is early and individualised. It is never too late to start. The pedagogic focus is on slow progression, structured and systematic daily training in different environments, programme continuity based on experience, and practice with multiple repetitions. The structured programme enables all involved to maintain an overview of the intervention and remain on task. It ensures predictability of the material which enables the child to achieve, while allowing variation and creativity which maintains interest.

2. The purpose of breaking down the overall intervention aim into shorter-term, small-step targets and exercises is important for maintaining motivation − both for the child and those facilitating and supporting the exercises. Motivation leads to curiosity and exploration, and is an important driving force for the child's development.

3. Experiences into create the Karlstad Model shows that printed word seem easier to remember than spoken words, and visual processing, and visual memory skills in people with developmental language disorders is less impaired than their other cognitive skills; the Karlstad Model therefore capitalises upon children's learning strengths by using visual resource materials. Print makes the language visual, and clar and accurate concrete representations of abstract concepts and effective modelling of language use are crucial in facilitating language learning. The steps in the Karlstad Model follow each other in a developmental progression. The level, order and the relationship between the steps contribute to giving the child the basic building blocks for learning language, reading and writing. In this way, the model offers them the opportunity to become a more independent communicator and contributor within their family and community. The model provides practical guidelines and ideas that can be absorbed into the daily life and activities of those around the child, but, most importantly, it lets the child guide us. We have to remember that no two children are alike, including their rates of progress; their developmental profiles are uneven and vary greatly. Language training may differ from one child to the next, but, nevertheless, they can follow one common model; the resource

materials and methods have to be used individualized to facilitate each child's learning. The model involves the child in joyful discovery of their own potential through the programme's motor, perceptual, language and cognitive activities. There is no single approach to language training, no single method. Practitioners have to gain insight into many different methods, so that they, with the child's family, can make the choices which will unlock language learning for that child.

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