Int. Adv. Otol. 2011; 7:(1) 71-81

ORIGINAL ARTICLE

The New Training Method for Speech and Language Delay: Learning the new Words by SUEPL

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Objective: Language and speech should be taught in the natural flow of the life. For this purpose, we developed the new training method for speech and language delay: Learning the new words by "Synchronously-understanding the Unplanned Event and its Picture through Listening" (SUEPL). The aim of this study was to use the SUEPL to determine expressive speech skills in children with receptive and expressive language delay.

Materials and Methods: Nine children with receptive and expressive language delay with the mean age of 37 months were included into the study. They were applied the training method of learning the new words by SUEPL. In SUEPL method, the family draws a picture of the actual event that is experienced at that moment. Pictures are shown to the child while asking the question appropriate to the word one wanted to teach. Question about the picture was answered other than the child. Child only listened to the answer. Every day, question is asked to other person by showing the drawn picture with the intervals of 1-2 hours or more. Child listened to the answer. This procedure went on until the answer is taken from the child by self. When making sure about the child's learning the word, picture is teared. The number of daily drawn pictures depends on the child's age and learning performance. At first, 5-10 words per day; then 10-20 words; later 20 - 30 words. To evaluate the effects of SUEPL training method on hearing, language and speech; and to determine in how many months the children talked, we calculated the number of new learned words and learning time. By Language scale test 4, it was assessed when they reached to language skills as appropriate to their chronological age level.

Results: It was determined that the children who received SUEPL training began to improve their expressive speech in 6 months (ranged 4 to 8 months) with a learned word number of 200 (range 150 to 250 words). Normally developed speech was achieved within 13 months (ranged 8 to 18 months) with a learned number of 375 words (range 250 to 500 words).

Conclusion: It was concluded that the new training method for speech and language delay "Synchronously-understanding the Unplanned Event and its Picture through Listening" (SUEPL) was an effective method to improve language and speech in a short time. With this method, children learn words related to everyday life more quickly. As they know which words to use (word retrieval) in the event or condition they encountered in daily life, their communicating with speech skills increased. In conclusion, with this training method of SUEPL, the plasticity of the auditory system may be increased with the help of continuous stimuli. Therefore, children may be able to understand the ongoing speech at that moment, they heard; and may be able to continue mutual conversation.

Submitted : 14 July 2009 *Revised: 01 December 2009* *Accepted : 11 December 2010*

Introduction

In general, a child is considered to have speech delay if his/her speech development is significantly below the norm for that age. We describe that by saying that the speech development is equivalent to that of a normally developing child but at a younger chronologic age; the skills are acquired in a normal sequence, but at a slower-than-normal rate [1,2]. Shriberg et al [3] estimated the incidence of speech delay based on a demographically representative subsample of 1328 monolingual, English-speaking 6-year-old children. Their major findings were: 1) the prevalence of speech delay was 3.8%; 2) speech delay was 1.5 times more prevalent in boys than girls; and 3) the speech delay and language impairment co-morbidity was 1.3%.

The sensory systems are normally ascribed a role in the continuous, moment-to-moment updating of a veridical mental representation of the stimulus as it unfolds in time [4]. The ability of the auditory system to

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respond to rapid changes in the envelope of a sound stimulus over time which underlies the ability of the listener to distinguish. Speech perception is a complex process involving perceptual analysis and encoding of sensory information, retrieval of previously stored information from memory, and the interpretation, integration, and assimilation of various knowledge sources. In normal-hearing listeners, both perceptual analysis and word retrieval are influenced by the presence of stimulus variability. For example, introducing stimulus variability by varying the talker from trial-to-trial results in a decrease in both spoken word recognition and spoken word recall when compared to a single-talker condition [5].

According to information processing theory, it is a combination of bottom-up and top-down factors that determines an individual's ability to process auditory information [6]. Network models of auditory processing emphasize the distributed nature of information processing in the nervous system, with the integration of sound, meaning and intention involving more than the auditory pathway [4]. While bottom-up (data-driven/pathway model) and top-down (concept-driven/network model) approaches are dissimilar, they are not contradictory [7, 8]. In this way, top-down processes could ensure sounds are assimilated in a manner consistent with the listener's experience and expectations, while bottom-up processes could ensure that the listener is alerted to novel information and information incompatible with ongoing hypotheses about the message [9]. This approach would also allow for the relative contribution of bottom- up and top-down processes to be driven by the demands of the listening environment; for example, the more degraded the signal, the greater the requirement for top-down processing [10]. Training should be intensive, exploiting plasticity and cortical reorganization; should be extensive, maximizing generalization and reducing functional deficits; and should provide salient reinforcement to promote learning [11,12] The accumulated programming, incorporating both bottom-up (e.g., acoustic signal enhancement, auditory training) and top-down (i.e., cognitive, metacognitive, and language strategies) approaches delivered consistent with neuroscience principles [10,13,14].

It was observed that, for any reason (hearing, auditory processing and/or listening disorders, etc., the children with receptive and expressive language delay, will gain the language and speech later; have difficulty in listening and perception of others speech in their daily lives; and have failed in mutual fluent speak. They have especially been unable to understand ongoing and long speech. It may be related that they can not accurately perceive auditory signals of brief duration when presented at rapid rates. Their sensory trace may not be translated into "phonologic coding" and stored into long term memory and phonologic working memory. Because, they can not understand the talk when heard; and can not distinguish speech sounds. If the opposite speak consisted of short sentences and individual, they can speak partially. It was thought that these problems can not been solved by classical and traditional training methods.

There are a lot of hearing, language and speech training methods. Traditionally, speech-language intervention has been offered to language-impaired children in a treatment room apart from naturalistic Environments. Norris and Hoffman [15] said that as language intervention becomes more naturalistic and interactive, it is important that organization and systematicity be maintained within therapy. Yet naturalistic therapy depends to a large extent upon the spontaneously occurring events, utterances, and communicative situations that arise in the context of play, daily routines, and instructional activities.

In this study, auditory training, auditory processing, language and speech training were applied by the method of learning the new words with "Synchronously-understanding the Unplanned Event and its Picture through Listening (SUEPL)". Processing of SUEPL in the auditory pathway is based on bottom-up and top-down processing rationale. In this study, the behaviors of children in the learning process were discussed during application of SUEPL.

Materials and Methods

The study was assessed in Hacettepe University Faculty of Medicine, Education Audiology Division of ENT Department. All steps of the study were planned and continued according to the principles outlined in the Declaration of Helsinki [16].

Subjects

Nine children, from a larger group of 100 children, were enrolled in the present study. All of them were normal according to Denver II Developmental Screening Test [17]; and had delay in auditory

comprehension and/or expressive communication skills in Language tests. All children received hearing and speech education at Hacettepe University Faculty of Medicine, ENT Department, Education Audiology Division. The study group of nine children were selected based on similar features such as similar behavior, development and learning level; and similar training initiating time (Table 1). All of them underwent audiologic tests, appropriate to their ages, and those with normal bilateral hearing were selected before attending to Education Audiology Division.

Selected children's overall development was normal (According to Denver II) [17]. All children's language development was detected as delayed [18]. In Table 2, children's gender; age; and receptive and expressive language levels when they first came to the clinic are presented.

Table 1. Features of the Childs

Mother education levels	- Primary school in 6 childs, - High school in 2 childs - University in 1 child
Sociocultural levels of the families	Average sociocultural levels in all childs
The families' number of childs	2 or more
Development levels with Denver II (17)	Normal development levels
In childs, genetic, neurological or additional problems except language delay	None
ENT examination	Normal
Audiological test results	Normal
Language delay	Present
Receptive Language Levels	18-23 months to 3 years-3 years 5 months according to Language Scale-4 [18]
Expressive Language Levels	18-23 months to 24-29 month according to Language Scale-4 [18]
Training initiating time	2 years 4 months to 4 years 6 months

Table 2. In SUEPL group, receptive and expressive language levels of children when they first came for the training

			Language Development Level*	
Child Number	**Gender**	**First coming age to the clinic**	**Receptive Language Level**	**Expressive Language Level**
1	Female	3 years 3 months	18-23 months	18-23 months
2	Male	2 years 4 months	18-23 months	18-23 months
3	Male	2 years 4 months	18-23 months	18-23 months
4	Male	4 years 5 months	18-23 months	18-23 months
5	Female	3 years 8 months	2 years 6 months-2 years 11 months	24-29 months
6	Female	3 years 8 months	2 years 6 months-2 years 11 months	24-29 months
7	Male	4 years	2 years 6 months-2 years 11 months	24-29 months
8	Male	4 years 6 months	18-23 months	18-23 months
9	Male	4 years	3 years-3 years 5 months	24-29 months

** Language Development Levels were shown according to Language Scale-4 [18].*

None of the children included into the study had any of the ear problems such as infectious diseases of the ear, otitis media with effusion, hearing loss, etc. or any other chronic diseases as stated in their hospital files. They were included into the study with the approval of their families.

In Turkey, there is not any language training programs and curriculum issues or the scales for childs between 0 - 6 years with language and speech delay. In educational institutions which give education to these type of children, the child's developmental level are taken as criteria. For example: If the child does not know colors, the colors are taught; does not know numbers, numbers were taught. If the child does not stack cubes, motor skills are taught. Because of these reasons, in this study, the number of words the children learned by SUEPL may only be compared to the childs with normal developmental levels. During Denver II studies, in a study done on 2000 childs[19], it was found that 25% of Turkish children used 4 words at age of twelfth (12th) months; 90% at age of twentieth (20th.) months. When Turkish childs' developmental process on speech is considered, the 25% of the childs began to talk at the age of seventeenth (17th) months; 90% of the childs began to half understood talk at the age of 32th months [19].

Procedure

"Synchronously-understanding the Unplanned Event and its Picture" (SUEPL):

This training method can be defined as drawing a picture of an event involving the child at that moment. A conversation between the clinican and the subject about the event as represented by the picture was held at a later time. Based on the principles of learning the speech sounds and the meaning of speech through listening, the task contains the functions of perception, discrimination, auditory and visual learning, visual auditory memory and callback.

If there are any unknown words in the event, that language delayed child experienced, the picture of SUEPL is drawn. Such as, father and child go to baker for taking bread. At that moment, during buying bread, the father draws the picture of the bread and this event. And then, showing the real bread and picture of the bread and this event, the father asks the question. The answer must be the word which the child does not know and we want the teach him. If there is another person next to child, the question is asked to him/her and the child listens to the answer. The question is: "What we buy?." The answer is "bread". For one hour intervals, the same question is asked to the child showing the drawn picture at the baker. Child listens to the answer. Repeated at regular intervals, the same question will be asked again during the the next day; and the child listen to the answer. This process continues until the child's spontaneous response comes from him/her. If the child answer the question spontaneously by himself/ herself when the question is asked; the picture, drawn at the baker, is torn. In this condition, it was accepted that the child has learned that word-for this example the word of "bread"; and this word is not asked anymore.

As a summary, by SUEPL training method, each new word is drawn in the flow of daily life and is taught. Children learn the new words in the course of daily life (pragmatic language) and use spontaneously by himself/herself.

Stages of SUEPL:

1) Selective listening and transmission of the sounds on auditory pathways, matching of the sound and picture:

The aim is selective listening in natural surroundings and matching view and the sound of the event (echoic memory). In the flow of life, the events are happened as unplanned. For example: When we go to the shopping there are another people who are going on shopping at the same time. There are multipl competing speech signals and we listen to the other people's speech with the seller man. We listen to the other customers' speech; and this is an example for selective listening. Such as, "Give me one kilogram of apple", "Give me five kilograms of orange", "These bananas are too expensive", etc.

Draw a picture of the actual event that is experienced at that moment (The reason for drawing at that moment: The first 100 - 250 msec is very critical for processing of the stimulus). For example: While mother and her child are going on the road, a car comes rapidly. They see the car and move to the sidewalk rapidly. Picture of this moment is drawn. The

question is asked by showing this picture. At this moment, the car has already gone away. Question: Where did we go when the car came fastly? Answer: The sidewalk. When the child looks at a picture, the picture reminds him the feelings about the car's coming rapidly; fear; passing to the sidewalk rapidly; and relaxation. This registration is recorded both auditory and visual memory simultaneously. If the picture, which reminds that moment, is not asked again, and the information is not updated; the memory of the child deleted these image and speech about sidewalk later. Because of that, the question about the illustration is being asked until the child's answer comes spontaneously. In this way, information in the instant memory (sidewalk word) is saved in the long and permanent memory as learned. The child speaks that word by himself spontaneously when using of that word will be necessary. In another time, when he is going on the road, he says to go on the sidewalk by himself.

If the Visual information was not received, processed and recorded for a few seconds, it is deleted passively. If the auditory information was not received, processed and recorded for the first 100 -250 msec, it is also deleted passively. Therefore it can be drawn at the time the events happen.

2) Analysis of the auditory signal:

The aim is supplying to hear duration time short and long morphemes-frequency, intensity, duration rhythm processing.

Pictures are shown to the child and ask the question appropriate to the word, wanted to teach. Question about the picture was answered other than the child. Question will be asked as the answer is the word, wanted to teach. Answer of the question about the picture was given by another person. Answer is one word. Child only listened to the answer.

Purpose: To save the hearing and speech stimuli, received through Listening, in memory. Because the stimuli stayed at memory during 20-30 sec; and if they were not updated, they were deleted.

3. To stimulate the auditory pathways continuously:

The aim is over stimulation auditory pathway, bottom-up and top down processing.

Every day, question is asked to other person by showing the drawn picture with the intervals of 1-2 hours or more. Child listened to the answer. Asking procedure went on until the answer is taken from the child by self. Unclear visual and auditory information will be asked until it will be clear (speech sounds, meaning, etc.) and learned. When making sure about the child's learning the word, picture is teared.

Purpose: Currently learning heard things and what talked without repeat. The aim is cortical processing, language learning (auditory cortex and other association).

Materials required for drawing in SUEPL:

Necessary materials for drawing are coloured cardboards and thick writing gaseous pen. Moreover, the band is used to paste the actual materials. For example: "When you extract the rice, what you extract". For this question, rice can be pasted by band to the picture.

Important issues for attention during drawing the picture in SUEPL Method:

1) The event which will be drawn in picture, must not certainly be planned.
2) Quality and accuracy of the drawing is not important. Reflecting and remembering that moment were important. Nothing will be done on the picture later (painting, picture editing, etc.); the image should not be changed.
3) Experienced event should be drawn at that moment. The picture should not be drawn after the event experienced. For example, they crossed the bridge on the road. When they come home, drawing the picture and asking where we crossed.
4) Questions should be asked in the past tense. Because the picture, drawn in SUEPL, is asked during experiencing the event live and after the event experienced until the child answer correctly. Therefore, the current events stayed in the past, /-ing/ extension (showing present time) not used. /-ed/ extension, showing the past tense is used
5) The child should tell the answer to the question related to drawn picture, by listening. Child should not be repeated the answer.

6) To ask questions of the picture: The answer of the question should be what word is taught.
7) SUEPL is not a training of speaking all sounds correctly, constituting the word. It is a training of learning the meaning of the word. For clearly speaking speech sound, SUEPL is not used.
8) In the child's answer, even if speech sounds bad, the answer, represented the answer of the question, was accepted as child learned; and the picture is tear. For example, for the word /sock/, the child says /ock/, this answer is accepted as correct for representing the word /sock/.

The sequence of teaching the child's unknown words

In general, the first names, then adjectives, adverbs, concepts, negative-positive, discrete words, complex sentences and complex sentences with conjuction were taught. The word application and/or sequence is listed below: Stages:

Stage 1: Name (tangible names), the answer is without suffix

Stage 2: Concrete names+using verb

Stage 3: Concrete adjective, adverb, pronoun, concepts

Stage 4: Add, change meaning

Stage 5: Using concrete adverse (un/no/not) attachment

Stage 6: Complex/difficult words (concrete)

Stage 7: To understand sentences more than one

Stage 8: All words (concrete/discrete mixed)

Stage 9: Conjuctions/particle

Stage 10: The question of picture, drawn at that moment, is asked by the child

In SUEPL, all combinations of the teaching words must be drawn. It is also controlled whether the child understood the new learned word during listening in another's talk; and used in mutual conversation.

Asking the drawn picture: All drawn pictures were asked at every day with one-hour intervals (to someone else / child). New drawn pictures added to old ones. If there are a lot of pictures, they would be asked with 10-picture groups. For example, if there are 30 pictures, 10 picture in the morning, 10 pictures in noon and 10 picture in the evening.

Number of daily drawn pictures and tearing the picture: It depends on the child's age and learning performance. At first, 5-10 words per day; then 10-20 words; later 20 - 30 words.

Tearing the picture: If the child answers the question after your answer that it is considered as imitation. Therefore, the learning will not be accepted. In imitation, the word is just heard and the sounds are in the short memory; and learning is not accepted. To accept the word as taught, the child must not hear the answer before. When it is made sure learning, the picture is teared from the end and is not asked later. Teared pictures are calculated. It is found that how many words were learned in how many months.

In the step of "tearing the picture", at first, a picture of experienced event is asked to someone else as a rule. The goal is teaching the child new words and answer of the questions through listening. Therefore the child listen to the question and answer related to the picture drawn in the event continuously. When the child gives the answer automatically without hearing from no-one else while the question is being asked, the picture is torn from the tip. Then, it is accepted that the child has learned that word. Therefore, that picture will not be asked anymore. Tearing indicates that word's learning.

For example: When a child is having breakfast, mother gives him a boiled egg; and the child begins to peel the egg shell. At this time, the mother draw a picture in which a child is peeling the egg's shells.

Question: What did the child do to the egg?

Answer: Peel the shells (Figures 1 and 2).

Then, with one hour intervals, these question is repeated by showing the picture and the mother gives the answer, child listens to the response (Figure 3). When the child gives the answer spontaneously by hearing the question and seeing the picture; the drawn picture is torn from the tip (Figure 4). Tearing indicates that word is learned by the child. Figures 1-4 are used with the mothers' permission.

Figure 1. When a child having breakfast, the mother gives him boiled egg; and the child begins to peel the egg shell. At this time, the mother begins to draw a picture in which the child is peeling the egg's shells.

Figure 2. A mother drew a picture in which a child is peeling the egg's shells and asked a question. Question: What did the child do to the egg? Answer: Peeled the shells. The mother gives the answer, the child listens to the response.

Figure 3. With one hour intervals, these question is repeated by showing the picture and the mother gives the answer, the child listens to the response.

Figure 4. When the child gives the answer spontaneously by hearing the question and seeing the picture; the drawn picture is torn from the tip. Tearing indicates that word is learned by the child.

Evaluation of the effects of SUEPL training method on hearing, language and speech:

1. Criteria of finding the initiation of talking age: Every family in the study has calculated how many new words that the child used in daily speech. They have also found in how many months, these words were learned by their child.
2. Normal Speech Criteria: By Language scale test 4, it has been assessed whether the receptive and expressive language development levels were the same as chronological age. Their normal language development access time was evaluated as month and year [18].

Results

Table 3 contains the various speech measures made during this investigation such as starting to speech and starting to normal speech time with the learned word number.

It was seen that, the children applied SUEPL training, started to speech in 6 months (ranged 4 to 8 months) with learned word number of 200 words (ranged to 150 to 250 words). Also, they started to normal speech in 13 months (ranged 8 to 18 months) with learned word number of 375 words (ranged to 250 to 500 words) (Figures 5 and 6).

Table 3. As a result of SUEPL training, starting to speech and starting to normal speech time

	Mean	Minimum	Maximum
The age of starting to speech (months)	**6 months**	**4 months**	**8 months**
When starting speech, learned word number	**200 words**	**150 words**	**250 words**
The age of starting to normal speech (months)	**13 months**	**8 months**	**18 months**
When starting normal speech, learned word number	**375 words**	**250 words**	**500 words**

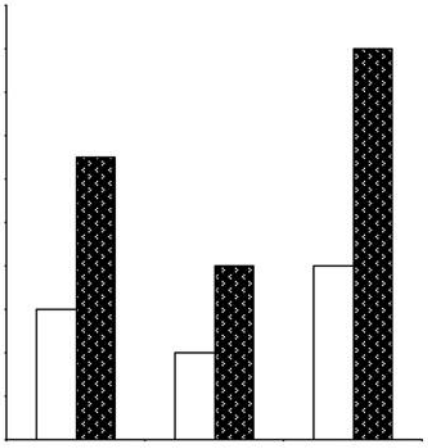

Figure 5. : Starting to speech and starting to normal speech time in children applied SUEPL training method

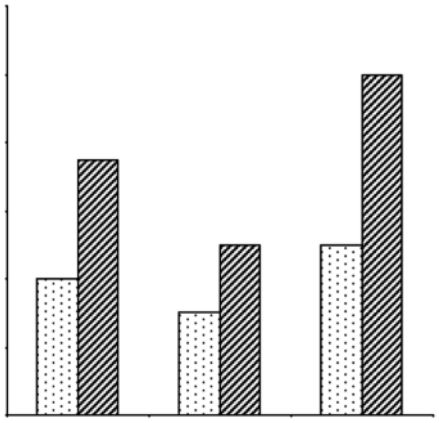

Figure 6. Learned word number when starting speech and when starting to normal speech

Discussion

Auditory processing problems can affect both comprehension and expressive language [20]. In the studies, it was found that to give the visual and auditory stimuli together was extremely efficient in processing the hearing in auditory and cortical pathways [21,22]. Sensory experience and learning alter sensory representations in cerebral cortex. These mechanisms map onto specific functional components of plasticity, which occur in common across the primary somatosensory, visual, and auditory cortices [23].

Listeners may be able to perform ongoing speech task not because they are able to process all inputs simultaneously. It was thought that picturing that speaking moment may help for reminding the spoken conversations later because we remember the previous talks not only with voice and speech, but also with the images. For example, by asking "what did you eat this morning" we do not remember just talk; image and sound come at the same time to our memory. If you drawn your eating during the breakfast, you will remember by the help of the picture and answer the question.

In this study, hearing, speech and language therapy were provided via audio-visual learning at the moment of the event daily life. We introduced a new developed training method of learning speak through its picture and listening at that moment, "Synchronously-understanding the Unplanned Event through its Picture and Listening" (SUEPL)". During SUEPL, in the event that was experienced at that moment, if there was a word unknown by the child, the child's family will draw the event on the paper. Unknown word, the answer of the question, was asked to the person next to the child. Child listened to the answer. This question was asked for one-hour intervals in everyday until the child answered the question by himself/herself. When the child answered the question by self, it was accepted that the child learned that word. The picture was torn and that picture will not be asked anymore. Tearing indicates that word's learning.. In SUEPL

training method, all combinations of the teaching word should be drawn. For example: the word is "waiting". He/she was waited for car; he/she waited for cooling down of the food; he/she waited for queue; did not wait ..., etc. It was controlled whether the child understood the new word while listening another's speech; and used in mutual conversation. For example, if the learned word was "waiting", he/she said to his/her mother waiting for him/her, when removed from home. Or when mother said "wait for me", the child waited for his/her mother, etc. Patients were given training by the same education audiologist during one-hour time at every week. At home, according to the instructions given, child and their family went on working as scheduled at the training center.

It was detected that, the children applied SUEPL training, started to speech in 6 months (ranged 4 to 8 months) with learned word number of 200 words (ranged to 150 to 250 words). And then, they started to normal speech in 13 months (ranged 8 to 18 months) with learned word number of 375 words (ranged to 250 to 500 words).

Medwetsky [24] reported that new information remains in short memory for 20-30 sec. If it is not reinforced and updated, it is deleted. In SUEPL training, when the question is asked until the answer is learned by the child, he/she did not forget the new word. In other words, if the speech sounds and the messages they carry are asked until they transferred to the long memory, the new words have been learned. Then, in daily life, they are able to use that word when necessary. We understand the behavioral response of the children that, if the speech sounds are vaguely coded, the sounds and meaning of the words were not represented in auditory neural paths and cortical areas [phonologic and meaning representations of word]; or are deleted after a while. In the present study, the most significant findings, we observed, as the number of learned words increased, the speed of new word learning also increased. These experiments explored the semantic associations between syntactically similar and dissimilar word pairs in an effort to begin to understand the interrelationships of semantic and syntactic processes. These experiments (lexical processing of visually and auditorily presented nouns and verbs: evidence from reaction time and N400 priming data) demonstrated that traditional measures of semantic organization can be productively used to examine both semantic and syntactic relationships and that such an approach can begin to increase our understanding of language production and comprehension [25].

In SUEPL, at the stage of studying the noun, no significant development was seen in children. In fact, progress in hearing and language development has not been determined. In SUEPL, the first development [bounce] in processing the hearing immediately and language development was seen after adjectives and adverbs were studied. Larger and the second bounce was occurred when negative words (e.g., whether grandfather got on the bus or not) were studied. Almost the child, hesitated to talk, went away; the child became enterprising and talky. This finding is also very significant from another respect. Because the children with hearing, language and speech delays, usually use the name in their speech. Names meet the dictionary meaning of the word [26].

Because using the adjectives and adverbs requires a combination of words and sentences (Sentence combining as increasing adjective use). Contrastingly, a child may have age-appropriate speech skills but present with language difficulty – either receptively and/or expressively – in terms of: delayed syntax (e.g., grammar), semantic content (e.g., meaning/cohesion), pragmatics (language use) and production abilities. In studies, it was mentioned as similar considerations. For example, in "semantic priming," recognition of words in a category is enhanced if subjects know the category [27-29].

In SUEPL training method, it was observed that when the childs learned average 150 words, they began to use these words in their speech. This period is the average of 8 months. This finding shows that SUEPL's positive effects start 8 months later. In other words, 8 months after the training, auditory processing, language and speech functions began a synchronous (timing) processing. In Synchronization mentioned here, all functions attend a process together at the same time (association) [30]. In SUEPL, whatever they have experienced at where is currently drawn in real life. Detection of word's features and spatial position was facilitated because of reminders. It can be said that it was affected in transmission of images of new words (transformed images) to the auditory centers of cortical level. For example, at first, new words were learned for

a long time (15-53 days); 8 months later, they learned new words in 1-2 days. More after, they started to learn the new words, as soon as the the question asked. Of these findings, it is concluded that drawing the experienced event at that moment; and asking it until it is learned, increase the plasticity of auditory pathways. Because, it was found that the children begin to have dialogue after 250 words. This finding shows that in SUEPL, recall is effective to remember the speech at that moment when necessary. Daiman et al. [31] found that effects of semantic context on picture and word naming and the interfering effect of semantic context reflects competition in the retrieval of lexical entries in speaking.

Current research seeks to unravel the complex interactions of pre-attentive and attentive processing of the acoustic scene, the role of auditory attention in mediating receptive-field plasticity in both auditory spatial and auditory feature processing, the contrasts and parallels between auditory and visual attention pathways and mechanisms, the interplay of bottom-up and top-down attentional mechanisms, the influential role of attention, goals, and expectations in shaping auditory processing, and the orchestration of diverse attentional effects at multiple levels from the cochlea to the cortex [22].

As a result, if the child's unknown words was taught in the natural daily and living environment by SUEPL; the picture is seen to be effective to remember the dialogues of the speech and the feeling of that experienced moment. In Bellis' study [6], it was reported that maximum detection time of the auditory stimuli was approximately 250 msec; and the first 100 - 250 msec is very critical to recognize the stimulus. With this method, they learn the words related to everyday life more quickly. As they know which words to use (word retrieval) in the event or condition they encountered in daily life, their communicating with speech skills increase.

Conclusion

In conclusion, with this training method of SUEPL, the plasticity of the auditory system may be increased with the help of continuous stimuli. Therefore, the childs may be able to understand the ongoing speech at that moment, they heard; and may be able to continue mutual conversation.

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