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TEACHING VERBAL BEHAVIORS TO A FOUR-YEAR-OLD AUTISTIC BOY USING TECHNIQUES OF APPLIED BEHAVIOR ANALYSIS

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SUMMARY

Background

Autism entails serious deficiencies in communication. Methods to develop verbal behavior have been extensively described in the literature, but remain a major challenge. Every therapeutic procedure should be based on a thorough behavioral analysis and a precise model of developing such behaviors. Applied Behavior Analysis (ABA) methods successfully develop autistic children's verbal behaviors.

Material/ Methods:

The assessment of behavioral changes was based on an analysis of data collected during therapy. We used the AB model, in which A stands for the baseline level and B for the therapeutic procedure.

Results:

Appropriately selected ABA techniques are very effective in developing verbal behaviors. The functional behavior analysis we conducted allowed us to decide on the course of action which eventually led to the development of verbal imitation skills and naming basic objects in the surroundings.

Conclusions:

Our study showed that therapy focused on the development of verbal behaviors should be based on the premises of ABA. Therapeutic procedures, including the stages of the program and the selection of the teaching method, should be chosen on the basis of a functional behavior analysis.

Key words: Functional Analysis, discrete trial training, incidental teaching

INTRODUCTION

One of the basic features characterizing autistic children is their impairment in speech development and communication skills (cf. American Psychiatric Association, 2000). Abnormal speech development is not an isolable symptom, as it co-occurs with other behavioral traits of autistic children.

The first reports made in the 1960s already indicated that speech development is closely related to the ability to establish relationships with others, hence verbal communication disorders affect the child's functioning in their social environment.

Statistics show that over 50% of autistic children fail to use speech (cf. Charlop & Haymes, 1996). Immediate and delayed types of echolalia appear in those children who do speak (cf. Carr, Schreibman & Lovaas, 1974; Schreibman & Carr, 1978), with speech frequently functioning as stereotypical behaviors. The language used by autistic children is very simple: they neither understand nor use metaphors, and their utterances are grammatically ill-formed. If complex utterances are used, they are ungrammatical and result from severe echolalia, both immediate and delayed. Also affected are intonation, stress, rhythm and syntax. Sometimes speech develops correctly in the first two years of the child's life, and then regresses. Autistic children also suffer from a seriously retarded development of listening comprehension skills: they do not respond to their own name or understand the simplest names of objects.

It is evident that in the case of autism it is difficult to create one speech development model that would pertain to all autistic children.

Research has shown that some autistic children undergo speech stages which are typical of children with normal speech development, but at different ages. The different time of development of particular speech stages depends on several factors: the severity of autism, the therapeutic procedures applied, and a professional and correct diagnosis (cf. Błeszyński, 1998).

The research conducted by Błeszyński (1998) has shown that there are no autistic persons whose speech has developed normally, or has finally become a normally functioning system. No common period during which speech disorders would most frequently occur has been found for all children.

Speech development in autistic children is not uniform or continuous, which goes to show that verbal skills are acquired in an individual manner. In the course of research, the functioning of speech organs has also been assessed, and no important anatomical or physiological changes that would impair communication have been found. Also, the results showed no connection between speech disorders and the sex of autistic children (cf. Błeszyński 1998).

Thanks to over forty years of research, behavioral analysis has made it possible to create many effective methods of developing speech. Such skills as generalized verbal imitation (cf. Young, Krantz, McClannahan & Poulson,

1994), naming objects and actions (cf. Lovaas, 1977), establishing social relationships (cf. Krantz & McClannahan, 1998) and conversation (cf. Stevenson, Krantz & McClannahan, 2000) have been taught by means of behavioral techniques. The efficiency of behavioral therapy has been attested by numerous studies (cf. Lovaas, 1987; Eikeseth, Smith, Jahr & Eldevik, 2002; Fenske, Zelenski, Krantz & McClannahan, 1985; Harris, Handleman, Gordon, Krostoff & Fuentes, 1991; Andersen, Avery, DiPietro, Edwards & Christian, 1987; Brinbrauer & Leach, 1993; Smith, Groen & Wynne, 2000; Weiss, 1999; Howard et al., 2004).

Techniques applied in speech training for autistic children

Presented below are two techniques that support the development of speech:

- discrete-trial training (cf. Lovaas, 1977, 1981; Wolf, Risley & Mees, 1964);
- incidental teaching (cf. Hart & Risley, 1968; McGee, Krantz, Mason & McClannahan, 1983).

Discrete trial training

The discrete-trial method is an effective technique that supports speech development and other behavioral deficiencies in persons with developmental disorders, including autistic children. It is carried out in a special room. At least during the first stage of the training, the therapy room should provide as few stimuli that would be likely to interrupt the learning process as possible; this considerably helps the learner concentrate on the tasks. In the first place, the room should contain materials and aids needed for performing the tasks included in the therapy program, and the rewards that a child can receive on completing a task correctly.

Discrete trial training is used in teaching receptive and expressive language skills, both at the initial stage and when more demanding tasks are introduced. It enables one to teach new concepts and retain the material already covered. The sequence and type of tasks implemented are at the therapist's discretion. The method of conducting training, as well as the description of all exercises, are to be found in the child's individual therapy program. A uniform method of conducting the training by all the persons involved in teaching a given child is a major factor that increases the effectiveness of the therapeutic procedures.

Discrete-trial training consists of the following four parts:

- stimulus presentation;
- the child's response;
- consequences;
- a brief pause between the consequences and the next stimulus, i.e. between trials (cf. Maurice, 1996: 187).

On being exposed to a stimulus, the child may respond correctly or incorrectly, or there may be no response. After an instruction has been given, the

child has 3 to 5 seconds to respond. If the response is incorrect or the child behaves inappropriately, correcting consequences need to be applied. In the event of a correct response, reinforcement should be provided immediately. Each therapy program contains a detailed description of the responses that should be reinforced.

The consequences may vary according to the child's response. If it is correct, positive reinforcement is given immediately: an attractive object, activity or token (depending on the type of reinforcement used), followed by praising the particular behavior. The objects or activities functioning as rewards do not need to be connected with the concept being taught at the moment, e.g. a child may be given a cracker for correctly naming a car in a picture. If the response is incorrect or there is no response whatsoever, the child is given a prompt. The pause between a consequence and the next stimulus presentation should be brief, lasting 3 to 5 seconds, which allows the pupil to understand that one task is over and another stimulus is now being presented.

Since discrete trial training has been extensively applied in working with autistic children, behavioral therapy is often regarded as a synonym for this technique. However, Applied Behavioral Analysis (ABA) consists of more than this particular method, since discrete trial training is only one of a number of techniques described by science which allow one to develop speech and other deficiency-related behaviors. In order to develop spontaneous speech, discrete trial training needs to be used in conjunction with other teaching techniques.

Incidental teaching

Incidental teaching has been used in treating people with autism for over thirty years. According to the definition, incidental teaching is applied for the purpose of developing speech through waiting until another person has started a conversation on a specific subject and responding in a way that would induce consecutive utterances on the part of that person (Hart & Risley, 1982: 5). In incidental teaching, in contrast to discrete-trial training, we wait for the child to begin a conversation or activity, or to indicate that they want to receive an object. That which serves as a stimulus for the child initiating an exchange is also a reward for a correct utterance on their part. For instance, if a child wants to be given some juice and uses the correct form, "Juice, please," the beverage offered to them will reinforce the correct response. The exchange initiation form depends on the child's current stage of speech development. Children who cannot speak yet may point to an object with a finger or make a different gesture. In incidental teaching, use is made of the child's natural desire to receive a particular object or perform a particular activity. Incidental teaching may also be planned in detail by the therapist. The speech programs introduced in this technique are based on a thorough analysis of the child's behavior, taking account of their interests and preferences as well as their current speech ability. As in the case of discrete-trial

training, in incidental teaching the manner of conducting a task and the kind of prompts used and withheld must be described in great detail in the individual therapy program, and the progress achieved must be recorded. In selecting the teaching goals, the child's current stage of speech development needs to be taken into account. Incidental teaching should support the attainment of successive speech development stages, yet the tasks given to the child must not be excessively difficult.

Research has shown that the majority of autistic children use the ideas acquired through incidental teaching considerably more frequently than those taught by means of discrete trial training. They use the utterances they have learned outside the context of the training, i.e. in real-life circumstances (cf. McGee, Krantz & McClannahan, 1985). It has been shown by research on this issue that both discrete trial training and incidental teaching are effective in teaching speaking and listening skills to autistic children, and both should be applied in therapy (cf. Sundberg & Partington, 1999).

MATERIAL AND METHODS

The goal of our study was to find successful ABA methods which could be used in forming speech in a four-year-old autistic boy. The teaching of speech was conducted in three stages. To analyze our results at each stage, we used the AB study model (cf. Bailey & Burch 2002), wherein stage A means baseline measurement, and the measurement conducted at stage B shows the behavioral changes which have taken place as a result of our therapeutic actions. The behaviors measured at the particular stages were as follows:

- in Phase I, verbal imitation of phonemes and gestures;
- in Phase II, verbal imitation of syllables and words;
- in Phase III, acquisition of the skills involved in making requests and using nouns.

Prior to the application of a teaching technique, the baseline measures of particular activities were obtained, and the results put on a graph. While setting the baseline measures, the therapist did not use prompts, reward the pupil, or provide any feedback. The baseline measure was obtained by the instructor who would teach the pupil most frequently (i.e. 2 hours and 15 minutes per day), using materials selected for the teaching process. For each task, generalization data were also collected (in the case of verbal imitation and expressing requests, this was the performance of a task with a person who did not take part in the pupil's training sessions; as for using nouns, it was a presentation of things that had not been used in the teaching process). The generalization data were collected twice, prior to the teaching and subsequent to it, and concerned all of the phases.

The analysis of the baseline data showed that the pupil did not possess the ability to imitate sounds, and this pointed to the necessity of beginning therapeutic action to develop that skill. ABA was used to develop the child's

speech. The therapy methods used have been extensively described in the literature on the topic, and were selected on the basis of the conclusions drawn from functional behavior analysis.

In the course of therapy, the pupil's progress was recorded. The data were collected once a week and put on a graph in the form of the percentage of correct responses. Each teaching level was considered completed if the pupil achieved a result of at least 80%, based on teaching samples and generalization. The method of data collection was identical in each phase and particular teaching step.

At least once every three months, inter-observer agreement (IOA) data were collected, i.e. it was determined if the data recorded by two independent observers were congruous.

Case description

Paweł began his therapy at the Institute for Child Development in Gdansk in November 2007, at the age of three. He comes from a full family with good material standing, and has a brother who is one year younger. His parents contacted the Institute when Paweł lost his skills, in particular his social skills, and had developed worrying routines and stereotypical behaviors. The regress took place when he was two years old.

When Paweł was admitted to the Institute, he was diagnosed with considerable deficiencies in the areas of communication and social skills, as well as numerous incorrect behavioral patterns. These observations were supplemented with a detailed interview with the boy's parents. On the basis of DSM-IV-TR, Paweł was diagnosed with the following deficiencies:

Qualitative impairment in social interaction manifested through the following symptoms:

- a) Considerable complex non-verbal behavior disorder, such as eye contact. Paweł did not look at his interlocutors either when speaking or when being spoken to; as for facial expressions, he did not smile when was he being smiled at.
- b) The lack of peer relations typical of his stage of development: Paweł did not seem to notice other children playing in the same room, never initiated interaction with them, nor did he respond to other children's invitations to play.
- c) The lack of spontaneous sharing of happiness, interests or achievements with other people: he never showed or brought objects of interest to his parents or encouraged them to play with him. During his visits at the Institute, he did not notice when his parents left the examination room. At the outset of his therapy at our Institute, he never expressed happiness or hugged his parents when they came to collect him from the kindergarten.
- d) The lack of social or emotional reciprocity: Paweł did not notice other people's emotions, he did not react to someone else's crying or expressing happiness in his presence.

Qualitative impairment in communication manifested through the following symptoms:

- a) The lack of language skills: Paweł did not speak at the beginning of therapy, he did not communicate his needs and was unable to imitate sounds. His lack of speech was not compensated for by other forms of communication.
- b) The lack of varied games based on pretending or on social imitation suitable for his developmental age: he usually played in the same stereotypical manner. He reacted to attempts on the part of others to join him or change the rules of a game by crying and stopping interaction. Paweł did not observe or imitate other children or adults.

The occurrence of limited and stereotypical behavioral patterns and interests manifested through the following:

- a) Being engrossed in one or several stereotypical and limited interest patterns. Paweł always played in the same manner, usually not using toys in the expected way but differently, e.g. by spinning the toy car wheels or turning lights in glowing toys on and off.
- b) Being strictly bound to particular impractical rituals, such as walking the same routes or eating only some favorite dishes.
- c) Stereotypical and repeated movement mannerisms, such as waving his arms, jumping, spinning around, pinching his clothes, rubbing his legs and face and touching furniture.
- d) Persistent preoccupation with parts of objects.

Individual therapy in the Institute for Child Development (IWRD) was launched in November 2007. The therapy was conducted for 4.5 hours a day, and the therapists changed several times during the day, so that Paweł would not become dependent on a single person only. Within a month after the commencement of the therapy, most of the educational-therapeutic programs were introduced in the child's home, and continued by his parents in the afternoons, after Paweł had returned from the IWRD.

At first, the priority target of the therapy was creating a motivational system, thanks to which one could introduce educational tasks designed to develop the child's deficiencies and reduce his undesired behaviors that impeded his acquiring new skills and disordered his proper functioning.

The therapeutic programs were aimed at developing Paweł's speech, social behaviors, imitative skills, matching, self-service and graphomotoric abilities.

Functional analysis of Paweł's behavior showed the necessity to use selected speech developing techniques. The target behavior of the therapeutic procedures was defined – depending on the stage of the teaching process – as the ability to imitate sounds, syllables, words, to imitate single movements, to formulate requests and use nouns.

In the three stages of the therapeutic procedures described, oriented to developing speech skills, the following techniques were applied:

- adequately motivating the boy to cooperate – the use of an individualized motivational system with numerous rewards that were attractive to Paweł;
- appropriate prompts – depending on the type of specific task, he was given verbal or manual prompts; a timeout was applied, consisting in turning one's head for 2-3 seconds whenever the pupil provided a wrong response.

The stages of the therapeutic procedures varied as follows:

Phase One – learning to imitate sounds

The target of the first phase was teaching the child to imitate single sounds verbally. This phase consisted of 4 steps. The first step contained the task of imitating sounds. During the therapeutic sessions, the instructor pronounced a request: "Say... (sound)". For the purpose of teaching that skill, the instructor used the technique of discrete trial training, based on creating an adequate training situation. Each session consisted of the following phases: presentation of a stimulus ("Say: a"); the child's response, and the consequences – if the response was correct, Paweł was rewarded according to an individualized motivational system (a material reward – a relish, a toy or a token). Then, there was a short break between the consequence and the presentation of the subsequent stimulus. If he had failed to imitate the sound properly, there was a 3-second timeout (turning the head, which was supposed to be a clear indication to Paweł that his utterance had been incorrect) and the sound to be imitated was presented again. In case there was no response or the exercise was performed improperly, the instructor provided verbal and manual prompts.

In the second step, Paweł was instructed to imitate single movements. This skill was taught with the aid of discrete trial training and manual prompting. Proper responses were rewarded according to the pupil's individualized motivational system. In the case of no response or if the exercise was performed improperly, the instructor provided manual prompts and then reformulated the task.

In the third step, Paweł was instructed to imitate movements with a verbal component. This skill was also taught with the aid of discrete trial training and manual prompting. Proper responses were rewarded according to Paweł's individualized motivational system. If there was no response or the exercise was performed improperly, the instructor provided verbal and manual prompts (by guiding Paweł's hands).

In the fourth step, we went back to imitating sounds verbally. The objective of this phase was to teach Paweł to imitate single sounds: he was not rewarded if he repeated a given sound after the therapist many times. This skill was taught with the aid of discrete trial training, prompting by combining a sound with a verbal component, and timeout.

Phase Two – learning to imitate syllables and words

The target of the second phase was to teach Paweł to imitate syllables and words verbally. This phase consisted of two steps. In the first step, Paweł's ability to imitate single syllables was developed, and in the second step, single words. In both steps, the teaching process involved discrete trial training, verbal prompting and timeout. Proper responses were rewarded according to the individualized motivational system.

Phase III – learning to formulate requests and name nouns

The target of this phase was to teach Paweł to make use of speech functionally – to express requests and name things when confronted with them. This phase consisted of two steps. In the first step, the focus was on learning how to make requests. This skill was developed by using the incidental teaching technique. We took advantage of his being naturally motivated to obtain a specific thing or activity. The moment the therapist noticed that Paweł was reaching for his favorite thing or relish, a verbal prompt was provided (by uttering a sound), and the therapist waited until Paweł repeated it.

Table 1. Description of the phases of teaching the speaking skills to a 4-year-old autistic boy

| Phase | Teaching step | Criteria for getting a pass | Date of start | Date of completion |
|-------|---|---|---------------|--------------------|
| 1 | 1. Imitating sounds | Multiple repeating of sounds (/a/, /m/, /i/, /p/, /u/, /b/) | 2 Sept. 2008 | 7 Oct. 2008 |
| | 2. Imitating a single movement | Single movement (a stamp, clap, bang against a table) | 10 Oct. 2008 | 9 Nov. 2008 |
| | 3. Imitating a movement with a verbal component | A clap + single sounds (/a/, /m/, /i/, /p/, /u/, /b/)) | 12 Nov. 2008 | 10 Dec. 2008 |
| | 4. Imitating single sounds | Repeating of single sounds (/a/, /m/, /i/, /p/, /u/, /b/)) | 12 Dec. 2009 | 6 Jan. 2009 |
| 2 | 1. Imitating syllables | Imitating a single syllable verbally (/am/, /mi/, /ma/, /i/) | 5 Jan. 2009 | 3 Feb. 2009 |
| | 2. Imitating words | One-time repetition of words (oko, buju, picie, auto, nie, żaba, dzieci, osa, bąk, kulki, sala) = eye, rocking, drink, car, no, frog, children, wasp, top, marbles, room) | 5 Feb. 2009 | 25 March 2009 |
| 3 | 1. Teaching the pupil to make requests | Naming a thing which the pupil wants to receive – incidental teaching (/am/ /i/) | 11 Feb. 2009 | 13 Apr. 2009 |
| | 2. Naming objects | Naming nouns / pictures on confrontation – discrete trial-training (oko, buju, picie, auto, nie, żaba, dzieci, osa, bąk, kulki, sala) | 14 Apr. 2009 | 25 May 2009 |

If he imitated the sound, he received a reward. If he failed to repeat the sound, he did not receive the attractive thing.

In the second step, Paweł's ability to name objects was developed. The teaching of this skill involved the discrete trial method and verbal prompting. The therapist presented an object, and if Paweł named it properly, he was reinforced according to his individualized motivational system. If he failed to respond or the response was incorrect, the instructor provided verbal prompts and repeated the task.

Table 1 recapitulates the foregoing information on the particular teaching phases.

RESULTS AND DISCUSSION

Phase I

The graph in Fig. 1 shows the influence exerted by these therapeutic methods on the development of verbal imitative skills, imitating single movements – Phase I.

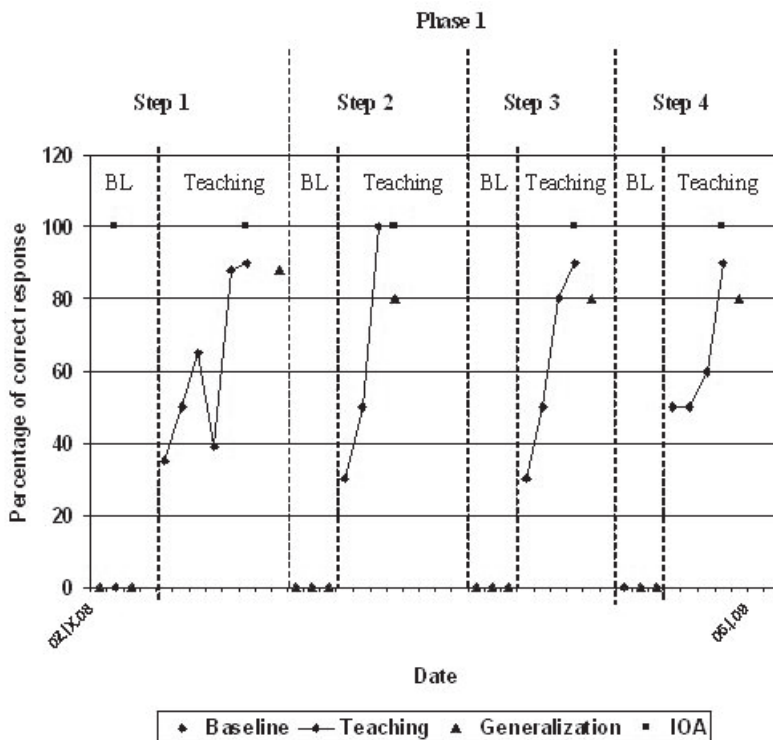


Fig. 1. Percentage of baseline correct responses and the change of behavior following the implementation of the therapeutic procedures in Phase I. 4 teaching steps: multiple repetition of a sound, imitating single movements, imitating a movement with a verbal component, imitating single sounds

The Phase 1 procedures were commenced in September 2008. The target of this phase was to teach the pupil to imitate sounds verbally.

At the first step of the teaching process, 5 sounds were introduced to be verbally imitated: “a”, “m”, “i”, “b”, “u”. The baseline showed that the pupil did not have this skill – the baseline figure was 0%. Over the period of 6 weeks, Paweł acquired the ability to reproduce those sounds.

At the end of the teaching process, generalization amounted to 90%. In order to get a pass in a task at this step, Paweł had to be able to perform multiple repetitions of the sounds. His inability to perform a single repetition of the sounds, with a consequent inability to combine them into syllables and words, made us modify the teaching process. It was decided that the verbal imitation of single sounds would be developed by way of combining a sound with a movement component.

In the second step, we introduced the task of imitating single movements. The baseline result with respect to this specific skill was 0%. Over 3 weeks, Paweł acquired the ability to imitate single movements. At the end of the teaching process, generalization yielded a high result of 80%. After Paweł had acquired the skill of imitating single movements, the baseline measurement of his ability to repeat single sounds was obtained anew, its result being 0%, which motivated us to introduce another step, i.e. a third step consisting in combining a movement with a verbal component – a hand clap + a sound. Within a month, Paweł acquired the ability to repeat a movement with a verbal component. This was confirmed by the end-of-teaching generalization – the level was 80%.

In the fourth step, when Paweł was able to imitate single movements with a verbal component, the movement was gradually withdrawn, and that is how the ability to imitate single sounds was developed. Within a month, Paweł acquired the ability to repeat single sounds. At the end of the teaching process, generalization yielded the high result of 80%.

Phase II

The graph in Fig. 2. shows the course of the teaching process with respect to the verbal imitation of syllables and words.

We commenced the therapeutic procedures in January 2009, after Paweł was able to repeat several sounds. In the first step, the baseline result was 0%, which meant that he could not repeat any syllables whatsoever. Within a month, Paweł had mastered the ability to repeat simple open syllables (those built of the sounds he had learned when imitating sounds). The end-of-teaching generalization yielded the result of 80%.

In February 2008, we introduced the second step of Phase II: imitating words. We selected words that can be pronounced easily: *buju* ‘rock-a-bye’, *picie* ‘drink’, *auto* ‘car’. The baseline result was 0%. Following the use of an adequate teaching technique and reinforcements, Paweł acquired the ability to imitate 11 words. Generalization, checked after every successive step of the task, yielded the high result of 80%.

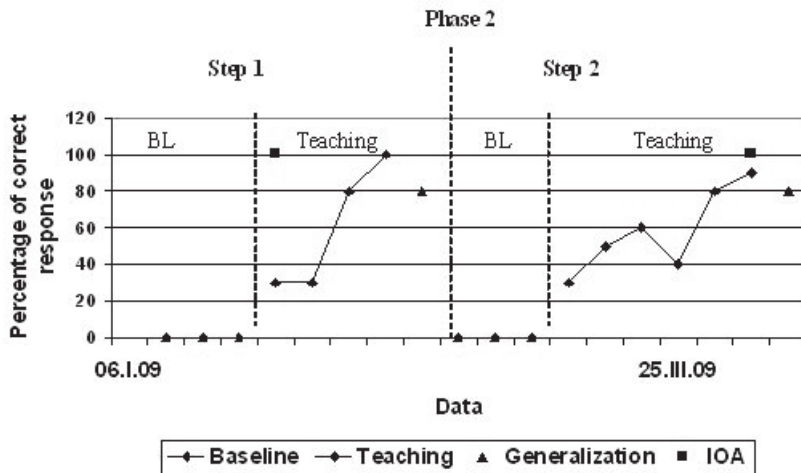


Fig. 2. Percentage of baseline correct responses and the change of behavior following the implementation of the therapeutic procedures in Phase II. 2 teaching steps: imitating syllables and imitating words

Phase III

The graph in Fig. 3 shows the learning curve for the ability to formulate requests and name objects.

The first step – teaching Paweł to formulate requests upon seeing a specific object – was commenced in February 2009. The task combined the /am/

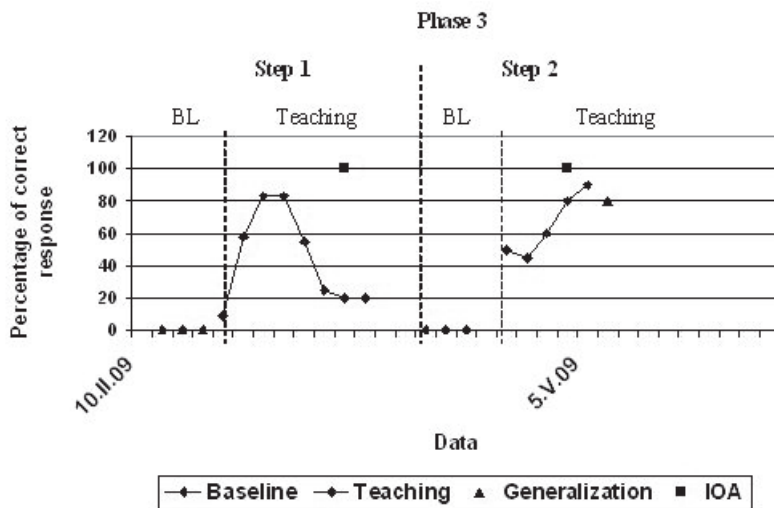


Fig. 3. Percentage of baseline correct responses and the change of behavior following the implementation of the therapeutic procedures in Phase III. 2 teaching steps: formulating requests and naming objects

and /i/ sounds he had learned in the verbal imitation exercises with specific things, so that the speech had a functional significance. The baseline result was 0%. The teaching process involved the incidental teaching technique. It turned out that two months of teaching Paweł to name his favorite things with the aid of this technique failed to produce the expected results. Although the learning curve reached the level of 80% at the beginning, after a certain moment the level of task accomplishment noticeably collapsed. An analysis of progress made us change the therapeutic technique to discrete trial training. In April 2009, we introduced the second step of the teaching process, i.e. confrontation naming of objects. The baseline result obtained before launching the teaching process was 0%. Over a period of 6 weeks, Paweł acquired the ability to name 11 objects. Generalization at the end of the teaching process (naming things that had not been used in the teaching session) yielded the result of 80%.

CONCLUSIONS

Analysis of the speech therapy administered to a 4-year autistic boy shows that in the case of children affected with pervasive developmental disorders, one cannot determine a single, unchangeable way of molding verbal behaviors. The consecutive steps of a therapy should be determined *en route*, against the analysis of the data collected during the therapy. At the beginning of speech therapy for autistic children, one never knows the number of steps that will be required in every phase and how long the teaching process will take. Proceeding from one teaching step to another takes place in a very smooth way: the skills acquired in the first step, i.e. repeating a few words, are immediately used in the second step, in which the child is taught to name things. At the same time, the skill of imitating the next words verbally is shaped on a regular basis.

In working out a therapeutic program to develop verbal behaviors, one ought to be guided by the first-things-first principle, meaning that the essential abilities should be acquired by the pupil before one proceeds to developing more complex behaviors. For instance, one cannot start teaching the word imitating skill when the child cannot imitate single syllables. At the same time, the easier exercises – those acquired in the teaching process – become a component of the more difficult tasks. By applying this principle, before we introduced the verbal imitation of single sounds in the course of our study, we taught Paweł to imitate single movements. The training course in imitating sounds, syllables and words represented an introduction to teaching communicative skills, making use of the acquired words for expressing simple needs and naming things that occur in the immediate surroundings.

The selection of the therapeutic techniques and procedures should be made on the basis of scientific reports. The specific methods should be adopted individually, depending on the effectiveness of the procedures.

In the research described here, at its initial stage, training of the functional use of speech was conducted by means of incidental teaching. The literature suggested that this method, based on the child's natural motivation, is more effective in teaching a child how to use the sounds, syllables, words it acquired when imitating them verbally for the purpose of expressing requests and naming attractive things. The data analysis motivated us to review the effectiveness of the teaching technique applied. The therapy conducted on the basis of incidental teaching failed to produce the desired effect. In spite of the daily training that lasted for a few hours, Paweł did not use the words acquired during the verbal imitation exercises for communication purposes. This made us change the way of teaching and introduce the discrete trial technique for developing functional verbal behaviors in the pupil. The data proved that our decision favorably influenced Paweł's progress. He began to use the acquired words for verbal communication.

Once more, our research confirmed the soundness of the basic premises of Applied Behavior Analysis. The therapist must not stick to a single teaching method, but should rather record the pupil's progress in the course of therapy and constantly verify the validity of the choice of a specific technique. The research described here demonstrates that the discrete trial technique was more effective in teaching speaking skills with regard to this specific child. One can, however, encounter numerous reports in the literature defending the effectiveness of incidental teaching. The conclusions in the relevant research should be a indication for the therapist that it is necessary to adopt an individualized approach to the pupil and apply continuous monitoring of progress.

In conducting therapy for children with autism, one must also remember that abnormal speech development is just one of several disordered spheres. The therapist who works out therapeutic programs should allow for all the deficiency spheres. A consistent therapeutic procedure that takes into consideration the behaviors pinpointed in the diagnosis will render it possible for the autistic person's functioning to be improved.

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