Communication is a specific type of behavior in which at least two people are present. Typically, during communication the action of one person must be directed to the another person, and as a result the second person in turn provide an appropriate response to the first person.

Nowadays, difficulties with communication are one of the most common problems among children with developmental delays, especially in case of autism spectrum disorder (ASD). And for this purpose functional communication training (FCT) was developed. It is used as a systematic practice in order to decrease the level of undesirable behaviors, and simultaneously increase and change communication with more appropriate and effective communicative skills and/or behaviors (Cooper, Heron & Heward, 2007). It is a differential reinforcement of alternative behaviours in which a person (or as in this case, a child) is taught an alternative behavior which results in the same class of reinforcement identified as maintaining problem behavior. The concept of FCT was introduced by Carr and Durand in 1985 as a kind of treatment for the undesirable behavior of children with developmental disabilities.

This kind of treatment can be effectively used not only with children who are diagnosed with ASD, but according to various studies it was demonstrated that it can be implied in many cases, such as aggression (e.g. hair pulling or hitting), body rocking, tantrums, property destruction, self-injurious behavior (SIB), walking away, oppositional behavior, hand flapping.

There are three basic step which must be done in order to implement FCT correctly. They are:

– conduct an assessment which can show the function of undesirable behavior (e.g. gain, escape or avoid);
– identify a desirable communicative response which serves the same function as undesirable behavior. In addition, this response must be less effortful (or in other
words, simple) than problem behavior, quickly acquired and recognisable for a conversation partner;

- develop a treatment plan and implement it.

As to the type of alternative response which can lead to desirable reinforcer, there is a big variety of forms: vocalization, signs, communication boards, words cards, picture cards, vocal output system, gestures.

One of the most common and evidence-based type of FCT is picture exchange communication system, or PECS.

PECS is a picture-based functional communication system which is based on alternative augmentative communication (AAC). It was developed by Lori Frost and Andy Bondy. The main purpose of PECS is based on the development of non-verbal communication skills among people with some difficulties linked to communication by using variety of signs, pictures, and/or symbols. PECS always consists of two main parts: communicative books and pictures with desirable things which are place in this book using stickers. And namely the process of exchange of pictures is very important when PECS is used due to the fact that through this procedure the user is interacting with the communicative partner. In order to teach a person how to use functional communication in everyday life, the basic behavioral principles, such as positive and negative reinforcement, are applied. PECS includes 6 instructional phases: the phases I-IV focus on teaching the child how to use a symbol in order to make a request, and during the last two phases (the phases V-VI) person’s communicative skills are expanded.

The basic principles of PECS are:

- the presence of a communication partner;
- the presence of communication facilitator;
- pictures which are used for communication;
- 3-5 highly preferred things;
- continuous changing of desirable items.

As it was already mentioned, PECS consists of six phases. Below, the detailed description of all these phases is present:

1. Phase I, which is called How to Communicate
   The main goal of this phase is to teach a child how to initiate a communication. This phase consists of three basic step:
   - pick up a desirable picture;
   - reach to communicative partner;
   - and give it to him or her (release the picture).

   During the Phase I there are two trainers: communicative partner and physical prompter. It is very important to mention that during this phase only one picture is used, which means that there is no discrimination between pictures.

2. Phase II, which is called Increasing Spontaneity and Range.
   During this phase, a communicative partner moves away, turns away, or even moves into the next room and removes all attention from students, and in turns a student has to complete the same steps which are described in the previous phase, but in addition he or she must get the communicative partner’s attention in different situations and settings, and across different people in order to exchange the picture for desirable thing. Also during this phase only one picture is used, which means that still there is no discrimination between pictures which are present in the book.
3. Phase III, which is called *Picture Discrimination*

   The main characteristic of this phase is that a child has to choose between two pictures which item he or she wants. This phase is divided into two subphases:

   1) Phase IIIa which means simple discrimination between pictures with one desirable and one undesirable things. If a child makes a mistake and take picture with undesirable thing, the 4 step error correction procedure for mistakes must be implemented.

   2) Phase IIIb which means conditional discrimination between equally reinforcing things and pictures with these things. In addition, the procedure of correspondence check must be used in order to check whether the picture which is given by a student corresponds to what he or she takes. If the picture and things are different, the four step error correction procedure is implemented.

   During the phase IIIa and phase IIIb, as well as during the all other phases, the motivation of the learner is the most important aspect on which the whole program is oriented, and in the case of phase III the motivation of the learner is to use correct picture in order to get desired thing or avoid unpleasant item.

4. Phase IV which is called *Building Sentences*

   During this phase the learner is able to use 12 to 20 pictures which are present in his or her communicative book. In addition he or she can discriminate among them to select the desired item. In the phase IV the learner is taught to place an “I want” symbol with one of the desirable pictures already successfully used onto a sentence strip and then use it during the communicative exchange. This is done in order to teach visually a child how to request things with icon “I want” and the using of the sentence strip can provide the structure to elicit spoken words. As a result, a child can spontaneously request using simple sentence structure (Frost & Bondy, 2002).

5. Phase V which is called *Responding to “What do you want?”*

   The main goal of this phase is to teach a child how he or she can spontaneously request a variety of things and give the answer to the question “What do you want?”. As a result, the spontaneity is maintained and a child can answer the question. In addition, during this phase a child is taught how to use attributes, which means requesting very specific things, and as a result the length of the sentence using attribute combination is increased.

6. Phase VI which is called *Commenting*

   During this phase the student is taught how to make a comment or answer questions, like:

   - What is it?
   - What do you have / see / hear / feel?

   After a client completes all six phases of PECS, he or she can make a request spontaneously, to request responsively, and to make a comment spontaneously and make a comment responsively, and to do all these things using a variety of attributes. And finally, creating and using of more complex and longer sentences with complex grammatical forms and a comprehensive vocabulary can be taught.

   The are several advantages of using PECS among children with communication difficulties, especially in case of ASD patients:

   - Due to the fact that just pointing to the picture does not assure that the action is directed toward another person, the user is required to interact with the listener
or communicative partner by approaching this person and giving him or her a picture:
- Individual initiates communication rather than responding to a prompt (the user does not need to wait until someone asks what do you want);
- Starts with requesting and manding, not labeling, tacking or commenting;
- All the phases and changes are based on Skinner’s analysis of verbal behavior.

Unfortunately, but due to the fact that there is a significant lack of knowledge among people who face with communicative problems, there are lots of myths and misconceptions linked to the using of PECS.
- If we are using pictures of any kind, we are using PECS:
  PECS is an alternative or augmentative form of communication which is used for communication with others. It is an expressive form of communication, and it involves a process of exchanging of a picture. Just picture pointing system is not a PECS.
- We are using a visual schedule, so we are using PECS:
  PECS can be used to understand direction following. However, such a use of pictures is not PECS, nor is the use of pictures within a schedule equivalent to PECS. It is not recommendable for parents or teachers just to show a picture for the users to respond to, because PECS is an expressive form of communication.
- PECS just teaches people to request;
- PECS is only for people who do not speak at all:
  It is believed that if a person cannot speak, PECS can be used effectively. However, this assumption does not take into consideration the fact that PECS can serve an augmentative function for many users that during the process of using PECS, a child can speak more words, initiate more frequently or use more complex sentence structure.
- PECS is only for young children:
  According to direct experience and examples within the literature, it is demonstrated that teenagers and adults can also effectively learn with PECS
- PECS only teaches user to request favourite items:
  Within early phase, it is highly recommendable to work on request or manned function. However, during the later phases of the protocol it is advisable to work on attributes and commenting skills
- If we use PECS, the person using the system will not learn to speak:
  According to studies, there are no cases in which people who use PECS stop to speak or could not learn how to speak, which means that using PECS does not interfere with speech acquisition or production.
- PECS is only for people with autism:
  Based on the literature, it was shown that people with a wide variety of disabilities which influence communication can benefit from the use of PECS.

In order to support the fact that all these myths and misconceptions are not true, it is reasonable to demonstrate an experiment which can demonstrate the effectiveness of using PECS in case of ASD.

According to the study (Lerna, Esposito, Conson, Russo & Massagli, 2012), 18 participants (17 males and 1 female) were selected based on the following criteria: a diagnosis of autism, to be between 18 and 60 months, to have little or no functional language, not using PECS before. The whole procedure was divided into several
stages: Time1 stage, or pre-treatment stage when all assessment were done (standardized test assessment and unstructured free-play session), treatment which lasted 6 months, and finally Time2 stage, or post-treatment assessment. As to the formal testing, the following scales were used: the Griffith Mental Developmental Scale (GMDS) (language and social parameters), the Autism Diagnostic Observation Schedule (ADOS) (communication and reciprocal social interaction), and the Vineland Adaptive Behavior Scale (communication and social parameters). On the other hand, as to the unstructured free-play assessment it consisted of the following characteristics: cooperative play, eye contact, joint attention, requests, and initiation. This was a double-blind experiment, and in addition, the assessments and therapy were delivered to the patients in different places. It was predicted that using PECS will show better improving in socio-communicative skills among children with ASD in comparison to children diagnosed with ASD who used conventional language therapy (CLT). The analysis of the result was divided into two groups:

1) Standardised test assessment
   – participants who used PECS showed better results than participants used CLT on the VABS social domain (between group comparison);
   – participants who used PECS showed better results than participants used CLT on the VABS social and communication domains (within group comparison);
2) Unstructured free-play session
   – participants who used PECS showed better results than participants used CLT in all domains (cooperative play, eye contact, joint attention, requests, and initiation), except eye contact (between group comparison);
   – participants who used CLT did not show any significant changes between results in Time1 and Time2 measurements

Despite the fact that based on the results of this study the idea that PECS can have better effect on development and improvement of socio-communicative skills, there were some limitations:

– There was a lack of randomization of treatments;
– The number of participants was relatively small;
– Re-assessment was done after 6 months, so it can be said that the same results can be if the re-assessment is done after one year or more;
– There was no collection of observational data on dyadic interactions between children and adults in everyday life;
– This study did not demonstrate the influence of using PECS and changes in language abilities (due to the fact that in this research social-communicative function was a priority, the language assessment was not done);

In conclusion, it must be said that PECS is a very effective strategy which can be used in order to develop, increase or improve social-communicative skills, especially in case of children with ASD.

References:
PROBLEMY POWIĄZANE U DZIECI Z ZABURZENIAM ZE SPEKTRUM AUTYZMY

Yuliia Vakulenko
Doktorant Wydziału Psychodiagnostyki i Psychologii Klinicznej Kijowskiego
Narodowego Uniwersytetu imienia Tarasa Szewczenki


Jednak obecne badania sugerują, że wiele dzieci z zaburzeniami ze spektrum autyzmu mają powiązane problemy, które mogą wpływać na ich jakość życia i codzienne funkcjonowanie [1; 2; 3; 4; 5].

W szczególności chodzi o przetwarzanie i integrację informacji sensorycznych, które często są zaburzone u dzieci z autyzmem. Przetwarzanie informacji sensorycznych to zdolność mózgu do rejestrowania, organizowania i rozumienia informacji na podstawie własnych doznań. Według danych międzynarodowych upośledzona integracja sensoryczna w zaburzeniach ze spektrum autyzmu wynosi od 42% do 88%. Teoria integracji sensorycznej według A. J. Aires wskazuje, że odpowiednie przetwarzanie i integracja informacji sensorycznych ma zasadnicze znaczenie dla kształtowania zachowań adaptacyjnych dziecka i możliwości uczestniczenia w codziennych czynnościach, wpływa na jakość treningu, odpoczynku i snu. Identyfikacja trudności związanych z przetwarzaniem i integracją informacji sensorycznych jest ważna przy określaniu, jakie działania są potrzebne, przy opracowywaniu planu działania dla specjalistów i rodziców [2; 3].

Zaburzenia snu należą do klinicznych objawów zaburzeń ze spektrum autyzmu i są one wskaźnikiem nieprawidłowej funkcji mózgu w tej nosologii w postaci wtórnych trudności zachowania [4].