Teaching Communication Skills to Children with Severe Disabilities: Using Evidence-Based Practices

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Abstract: Many children with severe disabilities are having difficulties in communication. These difficulties limit their social interaction and communication with their peers and other people. Some of these children may develop inappropriate and unacceptable forms of communication to interact with people. Performing a comprehensive assessment and choosing an effective intervention are extremely important to prevent these children from developing inappropriate communication behaviors and teach them more functional and acceptable communication skills. This study provides information regarding how to perform a comprehensive assessment and introduce the communication matrix, which is an online assessment tool used to get further information of a child's communication skills. Sample assessment results of a 13-year-old, seven grades, female student with communication difficulties is provided and sample objectives are developed based on student's assessment results. In addition, evidence-based practices and the importance of their use for children with communication difficulties are explained.

Keywords: Disability, assessment, communication, intervention, evidence-based practices.

İleri Derecede Özel Gereksinimli Çocuklara İletişim Becerileri Öğretimi: Kanıt Temelli Uygulamaların Kullanımı

Öz: İleri derecede özel gereksinimli çocukların birçoğu iletişim konusunda çeşitli zorluklar yaşamaktadır. Bu zorluklar, çocukların akranlarıyla ve diğer insanlarla olan iletişimini ve sosyal etkileşimini sınırlamaktadır. Bu çocukların bir kısmı etkileşimde bulunmak için uygunsuz ve kabul edilemez iletişim biçimleri geliştirebilmektedir. Bu çocukların uygunsuz iletişim davranışlarını öğrenmelerini önlemek ve daha işlevsel ve kabul edilebilir iletişim becerilerini öğrenmelerini sağlamak için kapsamlı bir değerlendirme yapmak ve etkili bir uygulama seçmek önemlidir. Bu çalışma, kapsamlı bir değerlendirmenin nasıl yapılacağına ilişkin bilgiler sağlayarak bir çocuğun iletişim becerileri hakkında daha fazla bilgi almak için kullanılabilecek, İngilizce'de "communication matrix" olarak bilinen ve Türkçe'de de "iletişim tablosu" olarak ifade edilebilecek, çevrimiçi değerlendirme aracını tanıtmaktadır. Çalışmada, iletişim yetersizliği bulunan 13 yaşındaki yedinci sınıf bir kız öğrencinin değerlendirme sonuçları örnek olarak verilerek bu değerlendirme sonuçlarına göre örnek hedef davranışlar belirlenmiştir. Ek olarak, çalışmada kanıt temelli uygulamalar ve bu uygulamaların iletişim zorluğu yaşayan çocuklar için önemi açıklanmıştır.

Anahtar kelimeler: Özel Gereksinim, değerlendirme, uygulama, kanıt temelli uygulama.

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Introduction

Communication Skills of Children with Severe Disabilities

Communication is essential for social life and learning because people learn through interaction with each other (Downing, 2005). Communication occurs when a message is sent from an individual to another and the message is understood by receiver (Butterfield & Arthur, 1995). Spoken language is the basic tool for communication, but there are other types of communication tools, which are used with spoken language, such as body movements, gestures, and facial expressions. Using all or some of these tools together increases the effectiveness of communication, but does not guarantee an effective communication. For example, a well-used spoken language may not have any meaning for a communication partner with hearing impairment. However, using sign language, gestures, body movements, or visual items rather might be more effective than spoken language for the same partner.

Many children with disabilities, especially those with severe disabilities, experience difficulties in communication (Conklin & Mayer, 2011; Kuder, 2003). These difficulties limit the children from interacting with other people and developing effective communication. Thus, children with severe disabilities may develop different forms of communication by themselves if these children are not taught appropriate forms of communication. Some of these behaviors might be inappropriate and unacceptable. For example, a nonverbal 4-year old child with intellectual disability may throw any available items to other people when he or she wants to get their attention. Since this communicative attempt is not acceptable and has potential harm for the others, it should be removed and replaced with more functional communication behavior. In order to prevent these children from developing inappropriate and unacceptable forms of communication and teach them different forms of functional communication, the intervention should start as early as possible.

When it is first recognized that a child has communication difficulties, the child's present level of performance and needs in communication should be determined through assessment. Based on child's communication needs, different types of treatments or interventions can be implemented. Some communicative difficulties might be removed through medical procedure, some children may need to get treatment from a speech language pathologist or some students may need to use a voice output communication aids (VOCA) (van der Meer & Rispoli, 2010). Communication behaviors that are non-functional and inappropriate need to be replaced with more functional and acceptable behaviors. The new replacement behavior must be as efficient as the replaced behavior and must require the same amount or less effort to meet the same needs (Downing, 2005).

In order to determine a child's present level of performance in communication, a comprehensive assessment is needed. Because communication occurs everywhere, it is important to implement an assessment that provides clear idea of a child's communication needs in any environment (Renzaglia, Karvonen, Dragow, & Stoxen, 2003; Brady et al., 2016). Ecological assessment provides comprehensive information about the child's behaviors and all the variables in the environment that affect and are affected by the behaviors (Evans & Evans, 1990). Based on the ecological assessment, the information about the child should be obtained within the natural environment of the child by people who have been observing the child or interacting with the child (Downing, 2005). Ecological assessment also makes it possible to learn the form of communication that target student's peers use so that teachers can determine the type of assistance or aid that the target child needs to interact with his or her peers (Downing, 2005). Once a comprehensive assessment is completed, goals and objectives are

developed, and appropriate interventions are set up to reach these goals. Different kinds of interventions can be used based on the intended behaviors to teach.

This study first provided brief information to be considered when teaching communication skills to children with severe disabilities and how to determine a child's present level of performance (PLP) in communication through ecological assessment. In addition, this study introduced communication matrix that helps obtaining data about a child's communication skills and provided a sample assessment results and objectives for a 13-year-old, seven grade female student with communication difficulties. Finally, evidence-based practices and the importance of their use for children with communication difficulties are explained.

What to Consider While Teaching Communication Skills

There are many factors that teachers should consider when teaching new communication skills. Because communication occurs at least between two people, the communication partners should be included in the process of teaching communication skills. Teachers or service providers should create communication opportunities between target students and their peers. Both students with disabilities and their typically developing peers may not be willing to interact with each other. Therefore, teachers should choose activities that are rich in content and appealing both for target students and their communication partners (Snow, Burns, & Griffin, 1998). When creating communication opportunities, teachers should ensure that communication partners are motivated to communicate with target students and have the basic communication skills whether verbal, symbolic, or non-symbolic.

A communication partner should be taught effective communication tips such as increasing proximity to communication partner, positioning himself/herself at eye level, being less directive, and providing enough time to initiate or respond (Downing, 2005). İn addition, a teacher may prompt a student into using some desirable social behaviors by modeling. Or, teacher may direct target student's attention to those who are engaging in desirable behaviors. Furthermore, a teacher may create different communication opportunities by using the available materials to encourage students to initiate communication. For example, during an activity, a teacher may refrain from giving students the materials they need unless the student asks for it. Or, teacher may intentionally give less or more than the student need so that the student may ask more or less based on his or her needs (Downing, 2005).

Assessment

Providing an effective intervention depends on comprehensive assessment that offers detailed information about a child's present level of performance (PLP) and needs in communication. There are various resources to gather data about a child's PLP. These resources include various assessment tools such as standardized test results, child's individualized education program (IEP), and description of child provided by parents and teachers based on observation. Although standardized tests are widely used, some experts claim that they are not suitable to provide practical information about the communication of children with severe disabilities because these tests are not contextually based in familiar environments (Taylor, 2003). Therefore, some alternative resources or tools such as the communication matrix should be used to collect more inclusive and convenient data (Rowland, 2011).

The Communication Matrix

The Communication matrix is an assessment tool designed to determine an individual's present level of communication and provides framework for developing effective communication goals. The tool was first published in 1996 and lastly updated in 2004 by Dr. Charity Rowland of Oregon Health & Science University. The primary purpose of the tool is to serve speech language pathologists, educators, and parents to determine expressive communication skills of children with severe and multiple disabilities. The matrix covers the range of communication skills that are seen at the age range of 0 to 24 months old typically developing children. The matrix is suitable for individuals who are functioning at the earliest stages of communication regardless of their age, but it is not suitable for those who are fluent in language. The matrix guides users through series of questions that should be answered based on user's experiences with the child and observation. The matrix is available for free to use by anybody and it can be reached online through https://communicationmatrix.org/ (Rowland, 2011).

A Sample Assessment Report

A sample assessment report of a 13-year-old seven grade female student is provided below. The information on assessment report is obtained from student's IEP, communication matrix completed by classroom teacher, and observation report provided by classroom teacher. No information about the student's identity is provided for the confidentiality purposes. The statement "X" is used to refer the student.

Description of X

X was diagnosed with multiple disabilities, intellectual disability, and other health impairments. A Communication Matrix Profile (Rowland, 2011) was completed and included input from IEP documents and classroom teacher's direct observation during Social Studies, Math, Independent Living classes, and lunch time. Results indicated that X is intentional in her communication, meaning that she consistently and persistently communicates messages to refuse or obtain items/actions. Intentional communication is emerging for social functions and information sharing. X is using both unconventional and conventional communicative behaviors. X has difficulty with hearing. She uses a small hearing device with a teacher microphone to amplify instruction. She uses both aided and unaided communication including sign language and voice output communication aid (VOCA). Her voice output device does not include pictures. After the correct answer, she shows a "thumbs up" to her teacher and smiles in order to verify that she gave a correct answer. In the classroom there are no specific pictures, which are arranged for the use of X. Moreover, most of the exercise materials, which are used in the classroom include some visual pictures. X often uses these pictures in order to answer questions, which are asked by the teacher.

X's receptive communication is better than her expressive communication. She can understand fast and easily. X is a non-verbal student except that she can make some sounds. She is able to identify words with diagraphs such as "ch," "sh," and, "th." According to her IEP, she is able to identify words with many of the special vowel patterns. Furthermore, she may benefit from instruction targeting special vowel patterns, including vowel diphthongs such as "oy", "ow", and, "ay". In the area of refusals/protest, X is at the concrete symbolic level, meaning that she is able to demonstrate pre-symbolic behaviors to refuse. However, while she is able to express this function, her current communication modality is not socially acceptable. Following are some behaviors of X in the area of refusal/protest. If X does not want something, she uses sign "No". However, she sometimes pushes things away with her hand like her FM device

which she does not like to use. Since it is not socially acceptable behavior, pushing something away for refusal should be eliminated. Although X is really good at using her voice output device, she often tries to get out of it when it needs to be used for school work.

In the area of obtaining, she demonstrates strengths in obtaining more of an item or making choices using concrete symbols. X is able to request something initially. If she wants something else more, specifically food, she signs "more." If she is prompted to use her voice output device, she uses her device to say "more." However, she uses her device just to request her breakfast card; she does not use her voice output device in order to request any new items. In addition, to request her breakfast card, she sometimes taps on the instructor on the shoulder and then sign eat. In the area of information sharing, X answers the open-ended questions accurately by using her voice output communication device. Additionally, when X is asked a question, she shakes her head toward front to imply "yes;" and she shakes her head toward back to imply "no." When X is offered a choice between two or more items at the same time, she tends to use sign language in order to show her preference. It is an important point that when she is offered a choice she should have given 30 seconds waiting time for her answer. If she refuses all choices, she is asked to use her voice output communication device in order to know about what she wants.

X can name or label the objects either spontaneously, or in response to a question from instructor or her friends by using her voice output communication device. She is also able to make comments such as "that is pretty" and "hot" by using her device. However, she needs to be prompted to do this. X is not purposefully trying to get the instructor's attention, she does some certain things like running or jumping around the room, laughing or all of the above when she is happy. X is having fun to play games with her friends, but she is not eager to use her device in order to join some required conversation.

Sample Recommendations for X

X should work on using vowel patterns to spell words in order to make the necessary skills at the grade two instructional level (based on her IEP). She is not using her voice output system sufficiently in order to request new items or actions. These would be important skills for her to acquire as these skills will ultimately lead to increased self-determination skills. For example, sometimes she taps on the instructor's shoulder and then sign to request her breakfast card, she needs to learn a more socially appropriate behavior to express her refusal of something and needs to be encouraged to use her device for open-ended questions.

X is having fun to play games with her friends, she is not eager to use her device to participate some required conversation. Therefore, X's classroom plan may include at least two games in a day across different classes so that she could have opportunities to interact with her peers. Moreover, during these games, X should be encouraged to use her communication device for the conversation which is required to join the game effectively.

Sample Language Objectives for X

1. During three Social Studies classes in a week, given no more than two verbal prompts by the Social studies teacher, X will use the "no" sign to show her refusal when two game choices are laid down on her desk and she is asked by pointing to one of the choices if she wants to play in two out of three trials across three weeks.

2. During three Independent Living classes in a week, by using her voice output communication device, X will request three out of five items (pepper, cheese,

mushroom, olives, ketchup) from the instructor while she is making her own meal in two out of three trials across three weeks.

3. Given no more than one verbal prompt to use her device, when she is given an opportunity two times in a day during a week, X will engage in at least three conversational exchanges during a 10-minute play activity with a peer by using her communication device in two out of three trials across three weeks.

Interventions to Teach Communication Skills

There are different types of interventions or practices to teach communication skills. When deciding what intervention strategy to be implemented, various factors such as child's abilities, present level of performance in communication, and the target communication skill intended to teach have to be considered. Quick search about interventions to teach communication skills may allow reaching many interventions. However, teachers and service providers should aware that some of these interventions do not have enough research support. Thus, when deciding the most suitable interventions, it is important to choose evidence-based practices which are approved by research as effective.

What is Evidence-Based Practice?

The terms scientifically-based practice (SBP), research-based practice (RBP), and evidence-based practice (EBP) are used on behalf of each other and the term intervention is used on behalf of practice in some resources. All of these terms are used for the same purpose, which is closing the gap between research and practice (Earles-Vallrath, 2011). This paper uses the term evidence-based practice/intervention which is the most often used in the literature of special education. The term evidence-based practice first mentioned in the field of medicine and gained attention in 1990s (National Autism Center [NAC], 2009). By that time, although research had led to improvement in medical treatment, physicians were not always aware of these improvements and sometimes had continued to use medical procedures or medications which were no longer considered as effective and appropriate (NAC, 2009). Thus, the result of the research that was not considered by physicians did not have any meaning and did not contribute to people's life in practice. The circumstance was quite similar in the field of education. There had been considerable amount of research about the practices, but there was no clear understanding of what practices were scientifically supported by research (NAC, 2009).

In 1999, the Campbell Collaboration was established in the United States in order to assist those who are in education and social sciences regarding to determine what works based on high quality research (Odom et al. 2005). Furthermore, What Work Clearinghouse (WWC) (2012) that is jointly managed by the Campbell Collaboration and the American Institute for Research have reviewed educational practices supported by research and made their report available for practitioners and researchers via web-based databases. İn addition, Training Center on Early Childhood Development, which is funded by the U.S. Department of Education, has conducted research synthesis on the effectiveness of practices for young children and infants with disabilities and their families (Odom et al., 2005).

In order to close the gap between research and practice through using evidence-based practices, the principles of good science have made their way to general education via No Child Left Behind (NCLB) act, which was later replaced by Every Student Succeed Act (ESSA), and special education via Individuals with Disabilities Education Act (IDEA) (2004). Both ESSA and IDEA require teachers "to use interventions that have evidence of working with the

population they are targeting" (Polloway, Patton, & Serna, 2009, p.15). ESSA requires the use of peer review policies and strategies for testing and confirming whether practices are scientifically-based. The IDEA requires educators to use "scientifically based instructional practices, to the maximum extent possible" when working with students with disabilities (IDEA, 2004).

Evidence-Based Practices to Teach Communication Skills

There is no systematic review of the literature that specifically analyzed the studies on evidence based-practices for communication skills. However, there are systematic reviews that specifically analyzed the evidence-based practices for children with ASD who are characterized by difficulties with persistent deficits in social communication and interaction including deficits in social-emotional reciprocity and nonverbal communication behaviors (American Psychiatric Association, 2013). The National Autism Center launched two extensive literature review projects, phase 1 and phase 2, that provide critical information about what practices are proven by research as effective for individuals with ASD (NAC, 2015). Phase 1 of the Project included review of intervention literature associated with ASD that was published between 1957 and 2007. Phase 2 of the project included review of intervention literature published between 2007 and February 2012. Both phases 1 and 2 of the project were published in 2009 and 2015 respectively and results of the original findings of the phase 1 were updated along with the results of the phase 2. In these projects, 10 developmental skills, including communication, were identified as target skills to increase and four areas of challenge, including problem behaviors, were identified as target skills to decrease by intervention providers. Some nonfunctional and inappropriate behaviors arise as result of a child's form of communication attempt (Downing, 2005). Thus, considering that some problem and nonfunctional behaviors are associated with communication skills, the interventions that are effective in decreasing problem or nonfunctional behaviors are emphasized in Figure 1. Phase 2 of the project came up with the result of 14 established interventions that are proven as effective by research for children with ASD. See Table 1 for the list of interventions (Adapted from NAC, 2015).

Table 1.
Established Interventions for İndividuals with ASD

Established Interventions for Individuals with ASD		
Interventions (Practices)	Increase Communication	Decrease Problem/nonfunctional Behaviors
Behavioral interventions	✓	✓
Cognitive Behavioral İntervention Package		✓
Comprehensive Behavioral Treatment for young children	✓	✓
Language Training (Production)	✓	
Modeling	✓	✓
Natural Teaching Strategies	✓	
Parent Training		✓
Peer Training Package	✓	✓
Pivotal Response Training	✓	
Schedules		
Scripting	✓	
Self-Management	✓	✓
Social Skills Package	✓	✓
Story-based Intervention	✓	✓

Note. This table was created by author based on the information in NAC (2015)

Of those 14 established interventions in the Table 1, only schedules, parent training, and cognitive behavioral intervention package were not identified as evidence-based in increasing communication skills. İn addition, nine interventions were identified as effective in decreasing problem and nonfunctional behaviors. It is important to note that although there is no systematic review of studies regarding evidence-based practices specifically for communication skills, there are many studies examined effectiveness of individual interventions on communication skills (e.g. Conklin & Mayer, 2011; Mancil & Boman, 2010). These individual studies may not be enough to decide whether an intervention is evidence-based, however, they may help the researcher and implementer regarding the effect of intervention on targeted skills, and behaviors.

Conclusions

Many children with severe disabilities are having difficulties in communication (Downing, 2005). These difficulties limit their communication and social interaction with their peers. In order to prevent these children from developing inappropriate communication behaviors and teach them more functional and acceptable communication skills, a comprehensive assessment is needed. Ecological assessment provides detail information about a child's present levels of communication skills (Evans & Evans, 1990). In addition, using communication matrix helps teachers and parents to obtain information about the child's behaviors that occurs within the child's natural environment (Rowland, 2011). There are many interventions to teach communication skills for children with severe disabilities. While some of these interventions have enough support by research to be proven as effective, some of them do not have enough support. Implementers should aware of using interventions that are supported by research, which are evidence-based.

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