Picture Exchange Communication System as a teacher's effort to provide augmentative and alternative modes of communication for children with complex communication needs

Muhammad Kholid Ni'amul Ludfi[1]*, Devina Rahmadiani Kamaruddin Nur[2], Endang Pudjiastuti Sartinah[3], Jevie Kusumawati[4], Nur Alfa Laila Romadlona[5], Pamuji[6], Nur Jannah[7]

[1,2,3,6] Universitas Negeri Surabaya, Special Education Departmen
[4,5,7] SLB Negeri Cerme, Gresik, Jawa Timur

*Corresponding Author
✉ ludfi1105@gmail.com[1]

Abstract: Communication is an important aspect of human life. Communication is needed to carry out social interactions between humans in every social environment. Students also need communication in carrying out their social interactions at school. Students with complex communication needs (CCN) have difficulty communicating with other people, so special school teachers must be able to provide and develop communication skills students with (CCN). If teachers cannot do this, then efforts need to be made so the teachers can provide appropriate services and support accessibility for their students. One form of effort that can be made is by providing training to teachers about the Picture Exchange Communication System (PECS) as augmentative and alternative communication (AAC) for students with CCN. This research describes the training of teachers regarding the implementation of PECS as a means of AAC for CCN. The research used a qualitative case study method, data was collected by observation, interviews and documentation of two teachers who had students with CCN.Data were analyzed using the Miles and Huberman technique. The results show that there is an impact on the teacher's ability to provide communication modes using PECS to CCN students through the training that has been implemented.

Keywords: PECS, Augmentative and Alternative Communication, Children With Complex Communication Needs

INTRODUCTION

The quality of teachers greatly impacts the development and success of students in achieving their goals. Therefore, teachers must have the ability to provide appropriate educational services to students. Improving teacher quality is one of the main factors in education reform, if teachers have high abilities, are willing to make sacrifices, and have a high level of effort in educating their students then

this is an important solution for the success of educational reform (Dolprasit, Sirisuthi & Chantarasombat, 2023). A teacher must have the ability and have the effort to provide educational services to their students by paying attention to the abilities, needs, characteristics and obstacles of thems, especially teachers in special schools who teach students with special needs and indeed have characteristics, abilities, needs. as well as very diverse obstacles. One of the students at the special school is a child with Down syndrome.

Down syndrome is one of the most common chromosomal abnormalities in humans which is caused by cell division errors, trisomy of chromosome 21 is the most common type of chromosomal abnormality, this condition is lifelong, or cannot be treated and usually has an impact on most body systems , intellectual obstacles ranging from mild to severe, distinctive facial characteristics, growth and development obstacles, and other complex obstacles (Thomas & Arjuan, 2020; Maclennan, 2020). Because of this, usually in some cases, Down syndrome experiences communication barriers. This condition is often called Children with Complex Communication Needs (CCN) so they need alternative communication methods, strategies, tools and techniques. Augmentative and alternative communication (AAC) is a term to describe a set of techniques, strategies, and tools that can help children with communication barriers who may have little or no intelligible speech, AAC can include manual signs or symbol systems , words or letters that can be used to structure messages and convey meaning (Griffith, Clarke & Price, 2022).

Picture Exchange Communication System (PECS) is a form of augmentative and alternative communication (AAC). PECS was first developed by Andrew Bondy and Lori Frost in 1985 and was introduced to the public in 1994 in the United States. PECS is an approach, system, or medium for training communication skills using exchanging images with desired objects according to the image (Bondy & Frost 1994). Communication strategies for students with special needs often involve the use of images, objects, and symbols (Klefbeck, 2021). Special school teachers must provide alternative modes of communication for students who experience complex communication barriers or CCN in an effort to facilitate and develop their communication skills. Communication plays an important role in life. Communication is used by every individual in his life to carry out social interactions. Communication plays an important role in life. In carrying out his activities, an individual will definitely carry out social interactions, in social interactions there is communication. Communication can be defined as the act of sharing data, information, views from one person, place and group to another person, when communicating there are two parties involved, the first is the sender of the data, and the second is the recipient of the data, the message conveyed can be in the form of emotions, views, discussions, etc. (Saxena, Rastogi, Gupta, & Nasamoni, 2022).

Communication is very necessary for everyone, even though some individuals do not use spoken language, communication comes in various forms, conventional or unconventional, linguistic or non-linguistic, but every individual communicates in various ways. (Biggs & Meadan, 2018). Developing communication skills is very important to provide accessibility in schools and communities for all

students (Klefbeck, 2021). If teachers have not been able to facilitate the provision of alternative communication methods for students with CCN, then efforts must be made to teachers so that teachers can do this as a form of educational service and provide accessibility for their students. Providing training to teachers related to PECS as augmentative and alternative communication is one form of effort that can be made so that teachers have knowledge so they can provide techniques, strategies, methods or means of communication for students with complex communication barriers. This study began with the discovery of a case at the special school where the research was conducted that there were students with Down syndrome accompanied by complex communication barriers who had not received services in the form of communication modes in carrying out interactions and learning activities at school and it turned out that teachers also did not understand about augmentative and alternative communication. for CCN students.

METHOD

This research was conducted using a qualitative approach. Qualitative research is very important in educational research to answer research questions about "how" and "why", making it possible to understand more deeply about existing experiences, phenomena and contexts (Lichtman, 2023).This research uses a qualitative approach. Qualitative research methods are an approach to involving the researcher in an atmosphere and trying to understand it either in a group, community, or during an interview. Qualitative researchers deliberately examine and note down small cues to determine how to behave, as well as understanding the context and building relevant knowledge. broader, bigger picture and paying close attention is the key to success in qualitative research (Tracy, 2020).

The research design in the qualitative research method used is a case study research design. Case study research is a qualitative social research strategy that is often used in several social science disciplines. A case study is research that specifically aims to explain and understand the object being studied specifically as a case (Fitrah & Luthfiyah, 2017). In a case study design, the researcher develops an in-depth analysis of a case, often a program, event, activity, process in one or more individuals, which in these cases is limited by time and activity, then the researcher collects complete information by collecting data based on the time that has passed. determined (Stake & Yin in J. W. Creswell, 2014). The first stage carried out in this research was collecting initial data regarding the problems and difficulties experienced by teachers at one of the special schools in the district. Gresik is the place where the research was carried out. Next, based on the data obtained, the researcher designs or formulates a program so that treatment can be carried out to overcome the problems that occur.. In general, the stages carried out in case study research can be described as follows:
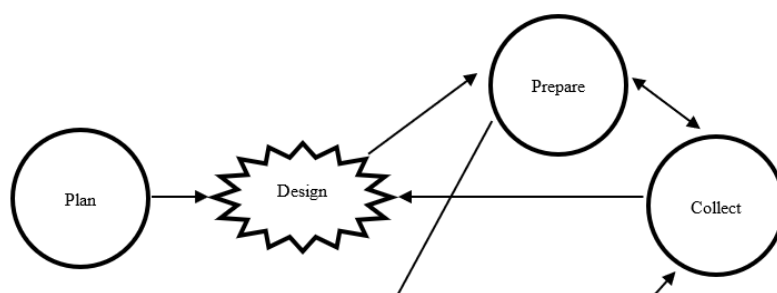
Figure 1 <Case Study Research Design>

(Yin, 2018, p. 57)

In the case study research design that must be carried out by the researcher according to (Stake, 2005), namely: (1) Determine the boundaries of the case and create a concept of the research object; (2) Selecting an appropriate phenomenon, problem, or theme, which is framed in the research question; (3) Looking for patterns in the data to develop problem focus; (4) Carrying out triangulation to support data interpretation; (5) Identify alternative interpretations for further study; (6) Develop generalizations or statements from the cases raised.

The place where this research was carried out was at one of the special schools in Gresik district, East Java. Two teachers at the SLB where the research was conducted who taught students with complex communication barriers were the subjects of this research. The phrase qualitative method is a general concept that includes interviews, whether group or individual, participant observation directly or online, and textual analysis via paper or electronics (Tracy, 2020). The purposive sampling technique is a sampling technique that is carried out by taking subjects not based on strata, random or area but on the basis of certain objectives that are chosen deliberately in accordance with specific criteria set by the researcher or in other words a sampling technique with certain considerations from the researcher (Creswell , 2014).

The data collection process in qualitative research methods is carried out by observation, interviews and documentation studies. According to Tracy (2020), the expression qualitative method is a general concept that includes interviews (group or individual), participant observation (in person or online), and textual analysis (paper or electronic). Data obtained based on observations, interviews and documentation studies or triangulation were analyzed descriptively using the Miles and Huberman model analysis. In data analysis activities, the things carried out include three activities, namely (1) data condensation; (2) data display; and (3) Drawing conclusions (Miles, Huberman & Saldaña, 2014).

RESULTS AND DISCUSSION

Teachers' knowledge about children with complex communication needs

The results of observations and interviews conducted with teachers show that teachers do not yet have in-depth knowledge about children with complex communication needs (CCN). The teacher only knows that his student is a child with Down syndrome who cannot speak. In learning activities in the classroom and also in interactions outside the classroom during the research process, it was also seen that the teacher asked the students to make their voices heard and tried to guide the students to imitate what the teacher said. This shows that teachers do not understand that these students are Down syndrome students who have complex communication barriers and require other modes of communication besides verbal communication. A teacher must have knowledge about who the students are being taught, so that the teacher can provide responsive services to the students. Responsiveness, the quantity and quality of communication partners' responses to children's behavior, is a key component in communication development. Responsiveness includes positive interactions, adapted to the child's level of development, in accordance with the child's direct communication (Shalev & Hetzroni, 2020).

Teacher knowledge about augmentative and alternative communication.

Teachers in special schools need to provide strategies, techniques, methods and means of communication to all their students, especially students with complex communication barriers (CCN) who really need augmentative and alternative communication. Students with complex communication barriers really need help and support to develop their communication skills from the people around them, including teachers (Biggs & Meadan, 2018). The assistance and support that can be provided by teachers is by providing accessibility and accommodation in the form of augmentative and alternative communication to CCN students to optimize their abilities and development. This is also a form of service to students by paying attention to their characteristics, abilities, needs and obstacles.

AAC can be classified as manual signs and symbols. Symbols refer to graphic representations or objects of language. Students who have not yet developed literacy, or who experience communication barriers, are usually given a set of symbols or symbol systems. Apart from that, students also need to gain an understanding of the symbolic nature of images, photos or graphic symbols that support their understanding of language and expressive communication through the use of 'reference objects' in daily activities that often occur (Griffiths, et all, 2022).

Based on the results of observations and interviews that have been conducted, it shows that teachers do not yet have knowledge about augmentative and alternative communication. Communication carried out by teachers with students only uses verbal communication, apart from that, in communicating there is also no media used by teachers when communicating with students, complex communication obstacles often result in miscommunication and in this communication what happens is guessing to interpret. the meaning of the message conveyed. Students have not been given alternative modes of communication to express their expressive language, causing students' language skills to be

less developed. AAC is usually considered when children show a "gap" between their receptive and expressive language (Griffiths, et all, 2022). So that the skills and needs of each student can be fully understood and adapted to the appropriate system, the provision of an AAC system must be the result of careful assessment and observation, taking into account the needs of each student.

Objective conditions of communication between students and teachers

Providing communication modes for CCN students is very important, according to Biggs & Meadan (2018) students who have barriers or complex communication needs need access to effective and fact-based interventions that support their individual communication needs and optimize their development outcomes. Augmentative and alternative common education is an effective strategy for teaching vocabulary and improving the symbolic communication skills of children with Down syndrome who are accompanied by complex communication barriers (Quinn, Kaiser & Ledford, 2020). However, the objective conditions that exist in the SLB where the research was carried out based on the data obtained were found to be that teachers do not understand augmentative and alternative communication, do not understand children with complex communication barriers and do not understand PECS.

Communication carried out between teachers and students previously only came from the teacher alone without any two-way communication feedback from students and teachers. In interactions within learning and outside of learning, teachers convey messages to students with complex communication barriers orally, as well as when communicating with other students who do not experience complex communication barriers. If students understand what the teacher conveys verbally then the students can carry out instructions based on the teacher's message, however if the students do not understand it then the students appear confused and mistaken in interpreting the message. When teachers interact with students with complex communication barriers using spoken language, what happens is only one-way communication without getting feedback from students. Students cannot express what they want to convey regarding their opinions, the contents of their thoughts, the emotions they feel and so on. For example, when an observation activity was carried out, the researcher discovered an incident during a learning activity where a student wanted to urinate, so the student suddenly ran out of the classroom just like that. This proves that students cannot communicate to express to the teacher what they want to convey and what their needs are. Every communication is a two-way communication involving two parties, namely the first is the sender of the message, and the other is the recipient of the message, then the message can be in the form of emotions, views, discussions, and so on (Saxena, Rastogi, Gupta, & Nasamoni, 2022).

Implementation of Picture Exchange Communication System for teachers to provide a mode of communication for children with complex communication needs

PECS (Picture Exchange Communication System) is an image exchange system used by children with developmental delays such as autism, Down syndrome and other children associated with communication disorders to replace or complement their limited communication abilities with the help of images (Bondy and Frost, 2011).

PECS includes media-assisted communication techniques in augmentative and alternative communication systems. This means that PECS is part of augmentative and alternative communication media. The relationship between PECS and augmentative and alternative communication according to Bondy and Frost (2011), PECS is a unique augmentative and alternative communication training protocol and has received worldwide recognition because it focuses on the initial components of communication.

PECS augmentative and alternative communication media were chosen because the main focus of using PECS media is to train children's abilities to communicate using images that can be modified according to the child's needs. It is recognized that the demands placed on AAC users will likely mean that these children will learn language differently from their speaking peers, or will develop their use of language at different rates.3 While our understanding in this area is still developing, opportunities These children's language learning may differ from that of their spoken peers and the need to provide responses from a limited set of symbols or choices may affect their opportunities to develop language.

In this study, researchers carried out training for teachers which contained understanding regarding children with complex communication barriers, augmentative and alternative communication as well as the implementation of PECS. This is done because the existing condition is that teachers do not yet have knowledge about augmentative and alternative communication for students with complex communication barriers. According to Bondy & Frost (2011), the application of the PECS method consists of six phases carried out sequentially, namely phase I (initiation in communication), phase II (expanding the use of images), phase III (selecting messages in PECS), phase IV (expanding requests with attributes), phase V (teaching to answer short questions), phase VI (teaching to comment). Based on the training that has been given to teachers three times, it has an impact on the teacher's ability to provide a mode of communication to CCN students using PECS. This can be seen from the observations made that according to the implementation phase of the PECS method, teachers can apply it from phase I to phase III.

In phase I, the teacher was seen implementing initiation in communication, the first thing done by the teacher was that the students were oriented and introduced to PECS. One example is when observing a learning activity, the teacher makes a PECS which is equipped with concrete pictures according to real objects used by students, namely a picture of a school toilet. Teachers instill an understanding in students that toilet images are used to express when students want to defecate or urinate. In this activity the teacher also teaches students to provide these pictures.

In Phase II, it was seen that the teacher had expanded the use of pictures by encouraging students to be able to provide pictures independently so as to raise awareness of communicating using PECS.

Examples that appear to be that initially if a student wants to defecate or urinate then he will immediately go out of the classroom or when the door is locked he will bang on the door so that the teacher misinterprets the student's needs and ends up asking the student to students have to sit down again because they are considered to be doing something that is disruptive during learning. However, currently students can communicate this using PECS.

In phase III, namely selecting messages in PECS, it can be seen that the teacher has taught students to choose images that suit their needs so that students learn to understand that the image is a representation of the object or activity they want. At first, when students wanted to urinate or defecate, they just ran out of the classroom, apart from that, when students felt hot, they just pointed upwards to ask to turn on the fan. However, now if a student wants to urinate or defecate and feels uneasy and wants to ask the teacher for help to turn on the fan, he can show the pictures according to his needs and desires. This is in accordance with the aim of using PECS, namely helping children spontaneously express communicative interactions, helping children understand the function of communication and developing communication skills (Tien, 2008).

CONCLUSIONS

This research reveals that the implementation of the Picture Exchange Communication System (PECS) can improve teachers' abilities in providing augmentative and alternative communication modes for children with complex communication needs. This improvement can be seen through the implementation of Phase I to Phase III of PECS which is observed during the observation process when teachers and students carry out meaningful two-way communication. Furthermore, this research also shows that PECS can improve non-verbal communication in Children With Complex Communication Needs. This is evident from the development of students' ability to choose the right PECS for the desired communication needs so that the communicant can receive the meaning of the message without giving rise to multiple interpretations and miscommunication

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