

The Use of Alternative And Augmentative Communication (AAC) In Classroom Settings: A Case Study

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Abstract—The lack of Malaysian Speech-Language Therapist (SLT) in school settings created higher demand among the students who needs Alternative and Augmentative Communication (AAC) intervention for communication. This paper provides a collaboration of SLT, teacher and parent to utilize the use of student's AAC at classroom settings. The aims was to examine the type of AAC usage and to determine teacher's and parent's perception after implemented of the AAC. **Method:** This was a single case study of the student who use AAC in daily special needs intervention. A data collection of student's communication profile was collected. The Picture Communication System (PCS) and applications of Voice Output Communication Aid (VOCA) were implemented. **Result:** The result showed that the communication of students has improvement. A likert-scale data of parent's perception showed that for 9 items-related, parent's mostly agreed that their children performed and participates well in her classroom activity. A set of questionnaire was given to the student's classroom teacher. Teacher reported that they need knowledge to use AAC and they agreed that collaboration with SLT is important in conduct assessments and match a specific AAC to the student. **Conclusion:** This study revealed that experts and professionals collaboration is essential in order to create effectiveness of AAC usage in the classroom settings.

Keywords—AAC; communication; speech language therapist; teachers; classroom; single case study

I. INTRODUCTION

Communication plays vital role in people's life. It indicates how the message will be deliver to the other people appropriately. The Alternative and Augmentative Communication (AAC) provides a chance for the people with communication difficulties to inclusively be in community surround them [1]. One of the community sceneries is classroom or school settings. Classroom offers spaces and chances for student to be able to share; receive and learn new ideas. It encompass the receptive and expressive language skills as well as social communication skills. For special education needs (SEN) students; they most probably has difficulty to communicate verbally with other people. Therefore; use of AAC brought new dimensions to their

communication aspects and helps to improve their quality of life.

Malaysia has several of classroom settings for special needs children to learn. We have government school that consists of inclusive education/classroom; special education classroom or special needs school. We also has private special needs center; international school as well as homeschooling.

AAC is an essential communication method for child with children difficulties. To evaluate the AAC usage; SLT involves in the assessment and setting the goals. However; K.Ahmad et.al [2] stated that for the long time ago; SLT still in hard phase to graduated and give services to more people. The School of Rehabilitation Sciences lecturer in UKM's Faculty of Health Sciences [5] mentioned there were only 300 speech therapists in Malaysia currently with mostly served in government hospitals. According to Ministry of Education; SLT services are still not well establish in school settings [4]. Malaysia currently has 3PK center with SLT services that only available in four states including Johor; Kuantan; Perlis and Putrajaya. With the lack of SLT services; it is created gap in managing AAC management. In addition; present challenges for teachers due to difficulty in selecting appropriate AAC systems; and difficulty to get collaboration also effects the implement of AAC at school [3]. Thus; the demand of execution of communication for special needs children in classroom/school is challenging.

II. LITERATURE REVIEW

Communication is central to classroom learning because it is the medium through which instruction takes place; meaning is generated; and knowledge and skills are shared and demonstrated [3]. The used of AAC as medium to communicate has been widely used not only in home and clinical settings; but classroom settings as well. The involvement of speech language therapist; student; parent and teacher remarks a good collaboration in enables communication for special education needs (SEN). [4]

Children with cerebral palsy (CP); the incorporation of AAC is one aspect of a larger focus on supporting and

developing a child’s full range of communication skills [5]. Thus; demand to use AAC among them is higher especially to build their communication on skills with the support system by the people surround them.

Teacher’s active involvement for student’s communication embark significant potential in the student development. To achieve that; teachers and speech language therapist (SLT) need to have worthy communication in apply AAC among the students. Subihi [6] concluded that pre-service special education teachers do not receive adequate training and coursework in AAC during their preparation programs. Therefore; it is important to make sure the collaboration works among each other.

III. METHODOLOGY

A. Participant

Mia is a 17-year-old teenager with Spastic Dystonic Quadriplegic Cerebral Palsy - GFMCS IV. Miya was referred by Pediatric Rehabilitation Medical Officer; UMMC with the concern on her communication difficulties. Mia is attending a non-government organizations (NGO) which is Spastic Centre that is a special daily class offers frequent learning and comprehend instruction in varied settings to foster independence in the community.

B. Data collection

1) Communication baseline

An informal and descriptive language assessment has been conducted. Caregiver had no concern on hearing and visual as the tests has been done when she was young. She was received occupational therapy and physiotherapy as well at Rehabilitation Medicine; UMMC for several years.

The history taking also revealed patient has drooling issue since children; tolerating orally on solid food with no concern on dysphagia; currently no medication needed and able to handle her wheelchair minimally by herself. She has difficulty in manage her drooling at first. She always be reminded by her mother to have self-clean on her drooling. She comes from a middle-income family. Her mother is a housewife and his father has a small business. She was having difficulty in managing her communication with other people surround him such as family members; friends and classmates. Mia started to use simple facial expressions and vocalizations before begin speech therapy. She loves sports and represents her school in a competition. She is an active; cheerful and cooperative patient.

Mia spontaneously shared her intentions through nonverbal means; which included facial expressions (e.g.; looking toward people to request a snack); some physical movement like waving (but difficulty to move due to her spasticity) and vocalize. She was able to comprehend instructions (for example close eyes); response yes or no gesturally and able to identify familiar objects surrounds her.

She has intentions to communicate with people and started to body gesture when being asked. She likes to acknowledge her impression and excited when other people can guess her message. Because Mia could not meet her needs through verbal communication; AAC was considered.

She had been taught some signs and facial expressions but it is limited especially to be use in school settings. More importantly; her motor imitation skills were limited that it was difficult to differentiate his signs.

Therefore; the Picture Communication System (PCS) and Voice Output Communication Aid (VOCA) was chosen to provide him with a consistent communication system.

2) Type of AAC used

Mia has been introduced with the types of AAC which are (a) Picture Communication System (PCS) and Voice Output Communication Aid (VOCA).

TABLE I. TABLE SHOWS THE COMPARISON BETWEEN USE OF PCS AND VOCA FOR MIA

	PCS	APPS IN VOCA
PICTURE USAGE	<ul style="list-style-type: none"> Up to 50 pictures Has limitation to expand as caregiver needs to print more pictures 	<ul style="list-style-type: none"> Picture based on the apps Patient need to learn more picture and enrich her vocabs Some pictures is not culturally related
SENTENCE STRUCTURE	<ul style="list-style-type: none"> Able to do build up to sentence level Patient would combine picture when being asked 	<ul style="list-style-type: none"> Easy to combine and make sentences But patient has difficulty at first to find for pictures and started use spelling/typing
FUNCTIONAL COMMUNICATION	<ul style="list-style-type: none"> She is able to indicates her needs; greetings and farewell and express her feelings and emotions but within limited range of vocab and only use at home 	<ul style="list-style-type: none"> Use of apps lead her to use variety of words and pictures not only for request but also to describe things and start learn to give instructions to other people

3) Objective and aims

- The student/patient will turn his AAC device on without prompting 70% of the time
- The student/patient will independently use her communication device to request food with 90% accuracy
- The student/patient will use communication device to indicate a choice
- When presented with a instructions/request to describe an item; the student/patient will use communication device to describe the item 4/5
- The student/patient will use communication device to respond to social greetings from adults (teacher) and peers within 15 seconds 4/5

Applications of VOCA that has been used in her classroom settings are (1) “Let Me Talk”; (2) “Tell Me” and (3) “Alexicom”.

She started to use “Let Me Talk” apps at school settings. This is a free downloader apps that available on android and i-os. It consists of many languages i.e Cantonese; Spanish; English; and French; romanese. She started to learn on greet her teacher; requested her needs and answered simple questions. After that; she learned the typing based AAC which is “Tell Me”. It is a free downloaded apps that consists of alphabetical and numerical board with the voice output. Explored more applications lead her to “Alexicom”. This free applications is a complex series of pictorial and included typing function too. It enables the user to combining phrases and create a sentences. It requires more eye-hand coordination as the appearance of picture is small and many at one page.

Apart of using all types and style of applications; Mia communication skills got improvement and implemented in her classroom settings; school day usage; for over a year with her classroom teacher and classmates.

IV. RESULTS AND DISCUSSION

A. Teacher’s feedback

A resource guide has been given to Mia’s classroom teachers regarding Alternative and Augmentative Communication (AAC). Also; a set of questionnaire form was filled by Mia class teachers after two semester’s school. This feedback consisted of 32 questions that the teachers answered by using a 5-point Likert scale. The 32 items pertained to four different areas [3]:

- a) Teacher’s knowledge: 76.7% strongly agreed that teacher needs knowledge regarding the specific characteristics; needs and challenges of students with communication difficulties all. Student’s ability to access; implement and utilize AAC (100% strongly agree)
- b) Teacher’s ability to conduct assessments to determine students’ specific communication needs and match a method of AAC to a specific student (16.67% strongly agreed). In this area; the points contribute to lower percentage are:
 - Special education teachers are fully responsible for teaching student with cerebral palsy (CP)
 - Students CP have limitations in communication and social skills
 - Students with CP have learning difficulties plus communication difficulties
 - Students with CP cannot establish relationships due communication difficulties

c) General perceptions of the use of AAC; such as inclusion of students who use AAC in general classrooms and collaboration with others in teaching those students (100% strongly agreed). Her teacher was strongly agreed the

necessity to collaborate with appropriate professionals in selecting AAC and in teaching students needing AAC; how to use it.

B. Parent’s feedback

A parent feedback has been collected to see parent’s perception on her child’s communication skills. The Family Impact of Assistive Technology Scale for Augmentative and Alternative Communication (FIATS-AAC) has been used. [7] This is a parent-report questionnaire designed to detect functional change associated with augmentative and alternative communication (AAC) interventions for children and youth; ages 3 to 18 years; and their families. It has 13 dimensions to measure overall and domain-specific functioning associated with AAC system use.

TABLE 2. TABLE SHOWS NINE ITEMS RELATED TO THE SCHOOL PERFORMANCE BASED ON FIATS-AAC WHICH WERE

Scale	Items related
Strongly agree	Item 49: My child’s teacher is satisfied with my child’s performance in school Item 55: My child enjoys school Item 70: My child is behaved well at school
Agree	Item 61: My child participants in the classroom Item 66: My child is performing well in school Item 75: My child participates in extra-curricular activities at school Item 78: I am satisfied with my child’s achievement of personal goals at school
Somewhat agree	Item 84: My child is proud of her/his homework
Disagree	Item 87: My child disrupts her/his classmates

C. Current communication skills

Mia exhibit great communication ability with friends and teachers at school by using her VOCA. She confident to use her AAC device independently in her classroom. She preferred used Alexicom apps most of the time to communicate in the classroom. However; Mia still not indicating choice independently but would response appropriately when being asked. She started to request her needs such as food independently. She would able to greet and farewell her friends in sentences i.e Morning; friend. She is still learning more vocabulary to expand her communication ability. Additionally; a visual schedule was used at home and school to aid in transitions and to increase her symbolization. She is now achieving Communication Function Classification System (CFCS) level III.

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