RMJ Ramathibodi Medical Journal

Rama Med J | Review Article

Key Elements of Screening Checklists for Needs of Augmentative and Alternative Communication

Wansiya Kamonsitichai

Department of Communication Sciences and Disorders, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

With the use of augmentative and alternative communication (AAC), people with complex communication needs could participate in social situations even if they had severe speech impairments. Even though speech-language therapists in Thailand are aware of AAC, they still mainly teach young children with complex communication needs to mainly use speech as a means to communicate. This could lead to fewer opportunities for people with complex communication needs to use AAC systems. Therefore, this article aimed to analyze and classify the items related to communication success, as a guideline to generate a screening checklist for determining whether individuals with a communication impairment would benefit from using AAC. Three previously available screening checklists pertaining to communication success were analyzed to identify the 3 domains: 1) verbal communication intelligibility, 2) verbal functional communication, and 3) verbal communication comprehension. These 3 domains were divided into 2 aspects: 1) familiar/unfamiliar communication partners, and 2) familiar/unfamiliar settings. To create a standard screening checklist that speech-language pathologists in Thailand could utilize, more research would need to be done in the future.

Keywords: Speech-language pathologists, Complex communication needs, Augmentative and alternative communication, Screening checklist

Rama Med J: doi:10.33165/rmj.2023.46.3.263780

Received: June 22, 2023 **Revised:** August 11, 2023 **Accepted:** September 15, 2023

Corresponding Author:
Wansiya Kamonsitichai
Department of Communication Sciences and Disorders,
Faculty of Medicine
Ramathibodi Hospital,
Mahidol University,
270 Rama VI Road,
Thung Phaya Thai, Ratchathewi,
Bangkok 10400, Thailand.
Telephone: +66 2201 2425
Fax: +66 2201 2208
E-mail: wansiya.kam@mahidol.ac.th

Introduction

Augmentative and alternative communication (AAC) system is "an area of clinical practice that supplements or compensates for impairments in speech-language production and/or comprehension, including spoken and written modes of communication".[1] AAC systems can be any form of communication other than speech, such as vocalization, gestures, manual signs, communication boards, speech-generating devices, and picture-exchange communication systems (PECS), etc. As such, various types and methods of AAC could be used together as a form of multimodal communication to maximize a patient's communication abilities.

AAC has mainly played significant roles in enabling individuals who cannot solely rely on speech, or individuals with severe expressive and receptive communication difficulties to engage with everyday communication situations from fulfilling basic social interaction to employment. Those communication impairments can result from congenital disabilities (cerebral palsy, autism spectrum disorders, and developmental apraxia of speech) or acquired disabilities (traumatic brain injuries, and disability following surgeries).[1-7] Individuals, whose speech performance or intelligibility is insufficient to communicate in daily situations would be considered as individuals with complex communication needs.

Depending on the issues and requirements of patients, AAC could be used as either an alternative communication method or an addition to existing speech performance. Thus, the use of AAC as a complement to support preexisting speech is referred to as "augmentative". In contrast, the term "alternative" refers to the use of AAC in place of, or as a supplement to speech when speech is not functioning.

AAC could also be used either on a temporary or permanent basis. It is typically temporarily used while a patient is receiving rigorous postoperative care. On the other hand, AAC should be used permanently for patients who would be unable to rely only on speech, possibly throughout an individual's lifetime. However, depending on how intact a patient's language and cognition would be at the beginning of the impairment and during its evolution, the AAC requirements for people with acquired disabilities could change over time.

AAC systems are tailor-made for an individual based on that individual's capabilities, such as communication abilities, physical abilities, and cognitive condition, as well as the individual's demands. An individual's AAC system must also be adaptable in order to consider changes in a patient's requirements and abilities over time. Consequently, AAC systems should maximize the patient's communication efficacy and efficiency in varied contexts and among a variety of communication partners, as well as increase independence in daily living activities.[2, 8]

The benefits of effective AAC intervention in individuals with complex communication needs have been documented in several studies. Those benefits include promoting expressive language,[9, 10] receptive language skills,[11-13] literacy skills,[14] functional communication skills,[15-17] as well as for reducing challenging behaviors.[18-20]

In Thailand, Kamonsitichai and Goldstein[21] reported that all Thai speech-language pathologists who responded to their questionnaire were aware of AAC. Nevertheless, a number of Thai speech-language pathologists persistently used speech to improve communication abilities for young patients with complex communication needs even if AAC could benefit those patients. Despite the fact that many speech-language pathologists work with young patients, the range of AAC systems is still limited in Thailand. This could be the case because Thai speech-language pathologists were hesitant to offer AAC interventions to people with complex communication needs. Therefore, this article's objective was to identify the key elements of screening checklists for needs of AAC to assist Thai speech-language pathologists in determining whether a patient would benefit from AAC or not. As a result, Thai speech-language pathologists would be more knowledgeable about implementing AAC systems for individuals with complex communication needs. These individuals would also have a greater chance of accessing the AAC systems and benefiting from them.

Types of AAC

According to the American Speech-Language-Hearing Association (ASHA), AAC comes in 2 primary varieties including unaided forms and aided forms.[1]

Unaided Forms

Unaided forms of AAC do not require external instruments. Individuals using this form of AAC would mostly rely on their motor control and movement. Unaided forms of AAC include gestures, physical signals, facial expressions, vocalization, verbalization, body language, etc.

Aided Forms

Aided forms of AAC require external instruments. This type of AAC could be light-, mid-, or high-tech. In light-tech AAC systems, the instruments do not require batteries. This type of AAC would include pictorial-symbol communication boards (Figure 1), PECS, writing, line drawing, photographs, objects, etc. Mid-tech AAC systems are battery powered systems. This type of AAC would include Go Talk devices, single-message switches (Figure 2), etc. High-tech AAC systems are more advanced electronic forms of AAC and include speech-generating devices (SGDs) (Figure 3), as well as AAC software enabled on tablets, computers, or smartphones, for example.

In addition, each type of AAC system has different distinct advantages and disadvantages. Therefore, to choose the most appropriate AAC for a person with complex communication needs, AAC clinical specialists would consider both the individual's needs and current capabilities. For instance, a person with spastic cerebral palsy would frequently have a limitation of motor control. Instead of an unaided type of AAC that would depend on an individual's motor skills, assisted high-tech forms of AAC, including SGDs with an eye-tracking system, could be recommended. On the other hand, those with complex communication needs who have intact body

Figure 1. Pictorial-Symbol Communication Board

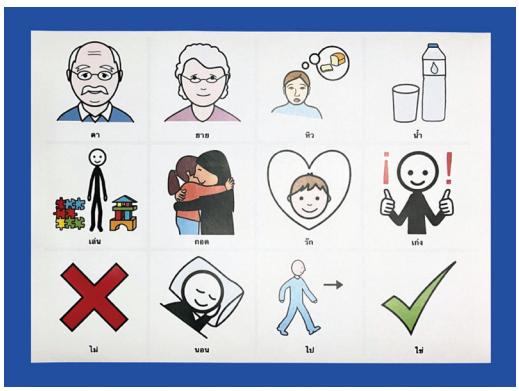
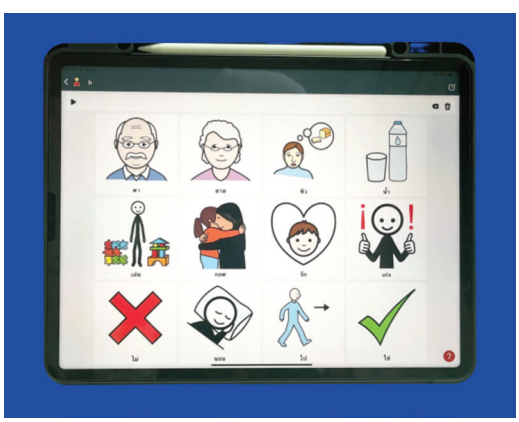


Figure 2. Single-Message Switches

Figure 3. Speech-Generating Devices



movements might be able to use either unaided or aided forms of AAC. Not only would the needs and existing abilities of the individual be considered when selecting the most appropriate AAC system for them, but also their preferences and the acceptance of their communication partners.[1]

Who is Accountable for Identifying Those Who Might Benefit From AAC Intervention?

According to ASHA, speech-language pathologists would be crucial to the screening, evaluation, diagnosis, and treatment of people who would need AAC intervention. Additionally, speech-language pathologists play an essential role in assisting individual family members to communicate with the individual more effectively by using AAC.

However, a multidisciplinary team would be required even though speech-language pathologists would be a key component of assessing and providing AAC intervention. A multidisciplinary team could include a teacher, occupational therapist, neurologist, pediatrician, speech-language pathologist, etc.[1]

Key Elements of Screening Checklists for Needs of AAC

AAC is frequently used by people with complex communication needs, or by individuals whose speech, language, and communication is not able to address all of their communication needs for their age and culture.[22, 23] These impairments could be a result from congenital disabilities (cerebral palsy, autism spectrum disorders, and childhood apraxia of speech) and/or acquired disabilities (acquired brain injuries and disability following surgery).[1] For those who would be completely unable to produce speech, AAC would be considered as an option to replace spoken language. On the other hand, for those who would be able to speak but their speech intelligibility would still be poor (an individual who could speak 1-2 syllable words with fair intelligibility, but with poor intelligibility when speaking up to 3 syllable words), AAC could be considered as a speech and language supplement.[24]

Furthermore, individuals with complex communication requirements would normally be at significant risk not only in functional communication abilities but in several areas of their development, including cognitive skills, literacy capabilities, social engagement, access to education, access to healthcare needs, employment, and general quality of life.[5, 25-29]

Therefore, speech-language pathologists would need to first determine whether the individual is thought to have communication impairments rather than delayed speech-language development. Then, the speech-language pathologist would need to decide if the individual has a communication impairment that would be regarded as having complex communication needs. If it was determined that they had complex communication needs, AAC could be the communication method that would enable the individual to successfully communicate in society. Nevertheless, there is currently no checklist for speech-language pathologists to utilize to assess whether an individual would be considered to have complex communication needs and would benefit from AAC technology or not for the Thai people. Consequently, this article's goal was to analyze existing screening checklists in order to pinpoint the key areas that they could share and might potentially be developed as screening checklists in Thailand to be utilized as a reference for determining whether a patient would need AAC.

The available checklists regarding include Tobii Dynavox's communication success screening,[30] AAC finders checklist from Assistive Wave,[31] and Intelligibility in Context Scale (ICS).[32] The important areas listed on these 3 checklists are primarily related to communication success of an individual with communication impairments. Questions in these checklists could be categorized into 3 main domains: 1) the extent to which an individual's verbal communication would be understood by different communication partners, 2) the degree to which an individual could functionally communicate verbally, and 3) the degree to which an individual would understand

verbal communication from different communication partners. These are described as follows:

1) *The extent to which an individual's verbal communication would be understood by communication partners*: This domain consists of 3 items associated with the intelligibility of an individual's verbal communication, such as familiar/unfamiliar communication partners, noisy/quiet environment, familiar/unfamiliar settings, and the number of words understood by the communication partners.

When the spoken communication of the patient is insufficient as the primary method of communication in order to meet the patient's varied communication demands, AAC systems would be suggested. Some individuals with complex communication needs would be able to speak, but their speech would be difficult to understand. As such, the speech-language pathologist could use the response of the domains in this domain to guide their decision on whether AAC would be beneficial for those individuals as a supplement to or replacement for spoken communication.[1, 2]

2) *The degree to which an individual could functionally communicate verbally*: This domain is composed of items pertaining to demonstrating communication difficulties even in communicate basic needs (difficulties in initiation and/or responding during conversation, and difficulties to communicate independently), displaying frustration and challenging behavior when unable to communicate with others, and use of gestures or pictures to communicate better than speech.

Complex communication needs would include severe speech impairment. Severe speech impairment could range from being completely unable to talk to speaking with poor intelligibility, which could cause frustration due to unsuccessful communication.[1] In order to lessen the negative impacts resulting from severe speech impairments, people with complex communication needs could use AAC to support or replace their speech.[19, 20] Speech-language pathologists could also use the domains in this theme to determine whether AAC would be needed to facilitate communication, so that people could achieve their basic requirements.[1, 2, 22, 23]

3) *The degree to which an individual would understand verbal communication from different communication partners*: The following items are related to this domain: familiar/unfamiliar speaker, types of questions asked by communication partners (yes/no questions and wh-questions), and different types of communication functions received by the individuals (giving instructions, storytelling, lectures, and commenting, etc).

AAC systems could also be used to facilitate individuals who have difficulties comprehending verbal communications.[1-7] Therefore, it would be advised to take into account the domains associated with this theme in order to determine AAC for assisting the person's comprehension of speech from the communication partners.[1, 2, 23, 24]

Discussion

This article was to highlight the key elements that were suggested to be included in screening checklists for AAC needs to help Thai speech-language pathologists decide whether an individual might benefit from AAC. The screening checklist for determining whether individuals with communication impairment would receive benefits from using AAC has not yet been available in Thailand. According to a review of studies and available checklists for AAC needs that have been utilized in foreign nations, the individuals' success in communicating was given significant weight in the screening checklists. Verbal communication intelligibility, verbal functional communication, and verbal communication comprehension with different communication partners and settings would be the key domains related to communication success. However, there have not been many research studies or checklists published about the need for AAC. For the future research, the screening checklist for AAC needs would be developed for Thai speech-language pathologists.

Conclusions

The 3 main domains were suggested to be included in screening checklist for AAC needs: verbal communication intelligibility, verbal functional communication, and verbal communication comprehension. To decide whether an individual was required AAC to replace or supplement his or her verbal communication or not, Thai speech-language pathologists were advised to consider those domains when evaluated the individuals' communication success.

References

1. American Speech-Language-Hearing Association. Augmentative and Alternative Communication. Accessed June 22, 2023. https://www.asha.org/practice-portal/professional-issues/augmentative-and-alternative-communication/#collapse_1
2. Beukelman DR, Mirenda P. *Augmentative and Alternative Communication: Supporting Children and Adults with Complex Communication Needs.* 4th ed. Paul H. Brookes Publishing; 2013.
3. Doyle M, Phillips B. Trends in augmentative and alternative communication use by individuals with amyotrophic lateral sclerosis. *Augment Altern Commun.* 2001; 17(3):167-178. doi:10.1080/aac.17.3.167.178
4. Light J. Interaction involving individuals using augmentative and alternative communication systems: state of the art and future directions. *Augment Altern Commun.* 1988; 4(2):66-82.
5. McNaughton D, Light J, Groszyk L. "Don't give up": employment experiences of individuals with amyotrophic lateral sclerosis who use augmentative and alternative communication. *Augment Altern Commun*. 2001;17(3):179-195. doi:10.1080/aac.17.3.179.195
6. Mathy P, Yorkston KM, Gutmann ML. AAC for individuals with amyotrophic lateral sclerosis. In: Beukelman DR, Yorkston KM, Reichle J, eds. *Augmentative and Alternative Communication for Adults with Acquired Neurological Disorders*. Paul H Brookes Publishing; 2000:183-232.
7. Murphy J. "I prefer contact this close": perceptions of AAC by people with motor neurone disease and their communication partners. *Augment Altern Commun.* 2004; 20(4):259-271. doi:10.1080/07434610400005663
8. Drager K, Light J, McNaughton D. Effects of AAC interventions on communication and language for young children with complex communication needs. *J Pediatr Rehabil Med.* 2010;3(4):303-310. doi:10.3233/PRM-2010-0141
9. Binger C, Kent-Walsh J, Berens J, Del Campo S, Rivera D. Teaching Latino parents to support the multi-symbol message productions of their children who require AAC. *Augment Altern Commun.* 2008;24(4):323-338. doi:10.1080/07434610802130978.
10. Binger C, Light J. Demographics of preschoolers who require AAC. *Lang Speech Hear Serv Sch*. 2006; 37(3):200-208. doi:10.1044/0161-1461(2006/022)
11. Ganz JB, Simpson RL. Effects on communicative requesting and speech development of the picture exchange communication system in children with characteristics of autism. *J Autism Dev Disord.* 2004;34(4):395-409. doi:10.1023/b:jadd.0000037416.59095.d7
12. Prizant BM, Wetherby AM, Rubin E, Laurent AC. The SCERTS model: a transactional, family-centered approach to enhancing communication and socioemotional abilities of children with autism spectrum disorder. *Infants & Young Children.* 2003;16(4):296-316. doi:10.1097/00001163-200310000-00004
13. Sevcik RA, Barton-Hulsey A, Romski MA. Early intervention, AAC, and transition to school for young children with significant spoken communication disorders and their families. *Semin Speech Lang*. 2008;29(2):92-100. doi:10.1055/s-2008-1079123
14. Light J, Drager K. Early intervention for young children with autism, cerebral palsy, down syndrome, and other disabilities. Updated February 4, 2019. Accessed June 22, 2023.

https://aackids.psu.edu/index.php/page/show/id/1/

15. Bartman S, Freeman N. Teaching language to a two-year-old with autism. *Journal on Developmental Disabilities*. 2003;10(1):47-53.
16. Hustad KC, Keppner K, Schanz A, Berg A. Augmentative and alternative communication for preschool children: intervention goals and use of technology. *Semin Speech Lang.* 2008;29(2):83-91. doi:10.1055/s-2008-1080754.
17. Sigafoos J, Drasgow E, Reichle J, O'Reilly M, Green VA, Tait K. Tutorial: teaching communicative rejecting to children with severe disabilities. *Am J Speech Lang Pathol.* 2004;13(1):31-42. doi:10.1044/1058-0360(2004/005)
18. Speech-language pathologists' roles in the delivery of positive behavior support for individuals with developmental disabilities. *Am J Speech Lang Pathol.* 2004; 13(1):5-19. doi:10.1044/1058-0360(2004/003)
19. Carr EG, Durand VM. Reducing behavior problems through functional communication training. *J Appl Behav Anal.* 1985; 18(2):111-126. doi:10.1901/jaba.1985.18-111
20. Mirenda P. Supporting individuals with challenging behavior through functional communication training and AAC: research review. *Augment Altern Commun.* 1997; 13(4):207-225. doi:10.1080/07434619712331278048
21. Kamonsitichai W, Goldstein H. Speech-language pathologists' perceptions of augmentative and alternative communication in Thailand. *Augment Altern Commun.* 2023;1-11. doi:10.1080/07434618.2023.2208222
22. Light J, Mcnaughton D. Designing AAC research and intervention to improve outcomes for individuals with complex communication needs. *Augment Altern Commun.* 2015;31(2): 85-96. doi:10.3109/07434618.2015.1036458
23. Porter G, Kirkland J. *Integrating Augmentative and Alternative Communication into Group Programs: Utilising the Principles of Conductive Education.* Spastic Society of Victoria; 1995.
24. Hustad KC, Miles LK. Alignment between augmentative and alternative communication needs and school-based speech-language services provided to young children with cerebral palsy. *Early Child Serv (San Diego).* 2010;4(3):129-140.
25. Blackstone SW, Pressman H. Patient communication in health care settings: new opportunities for augmentative and alternative communication. *Augment Altern Commun.* 2016;32(1):69-79. doi:0.3109/07434618.2015.1125947
26. Foley B, Wolter JA. Literacy interventions for transition-aged youth: what is and what could be. In: McNaughton D, Beukelman D, eds. *Language, Literacy, and AAC Issues for Transition-Age Youth*. Brookes; 2010:35-68.
27. Hart B, Risley TR. *Meaningful Differences in the Everyday Experience of Young American Children.* Paul H. Brookes Publishing; 1995.
28. McNaughton D, Bryen DN. Enhancing participation in employment through AAC technologies. *Assist Technol.* 2002;14(1):58-70. doi:10.1080/10400435.2002.10132055
29. Mcnaughton D, Bryen DN. AAC technologies to enhance participation and access to meaningful societal roles for adolescents and adults with developmental disabilities who require AAC. *Augment Altern Commun.* 2007;23(3):217-229. doi:10.1080/07434610701573856
30. Tobii Dynavox. Communication Success Screening. Tobii Dynavox LLC; 2015. Accessed June 22, 2023. http://download.mytobiidynavox.com/Resources%20for%20Pros/td-communication-success-screening.pdf
31. Assistive Ware. AAC finder checklist. Accessed June 22, 2023. https://download.assistiveware.com/aac/1.5-AAC-finders-checklist.pdf
32. McLeod S, Harrison LJ, McCormack J. The intelligibility in context scale: validity and reliability of a subjective rating measure. J *Speech Lang Hear Res.* 2012;55(2):648-656. doi:10.1044/1092-4388(2011/10-0130)

RMJ Ramathibodi Medical Journal

Rama Med J | Original Article

ปัจจัยสำคัญที่เกี่ยวข้องในแบบคัดกรองความต้องการการใช้การสื่อสารทางเลือก

วรรษิญา กมลสิทธิชัย

ภาควิชาวิทยาศาสตร์สื่อความหมายและความผิดปกติของการสื่อความหมาย คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย

การสื่อสารทางเลือกสามารถช่วยให้ผู้ป่วยที่มีความบกพร่องทางการพูดสื่อสารรุนแรงมีส่วนร่วมในการเข้าสังคมได้ อย่างไรก็ตาม แม้ว่านักแก้ไขการพูดในประเทศไทยรู้จักการสื่อสารทางเลือก แต่การกระตุ้นการสื่อสารให้แก่ผู้ป่วยที่มีความบกพร่องทางการพูดสื่อสารรุนแรง ยังคงใช้วิธีการพูดเป็นหลักเช่นเดิม ซึ่งอาจมีผลทำให้ผู้ป่วยมีโอกาสในการเข้าถึงการสื่อสารทางเลือกลดลง ดังนั้น บทความนี้จึงได้วิเคราะห์และจัดหมวดหมู่ของปัจจัยที่เกี่ยวข้องกับความสำเร็จในการสื่อสาร ซึ่งเป็นตัวชี้นำที่ช่วยในการจัดทำแบบคัดกรองเพื่อช่วยตัดสินว่าผู้ป่วยที่มีความบกพร่องในการสื่อสารจะได้รับประโยชน์จากการใช้การสื่อสารทางเลือกหรือไม่ ปัจจัยหลัก 3 ด้าน ที่สรุปได้จากแบบคัดกรองที่ถูกเผยแพร่แล้วจำนวน 3 ฉบับ ได้แก่ 1) ระดับความชัดเจนในการพูดสื่อสาร 2) ประสิทธิภาพในการพูดสื่อสาร และ 3) ความเข้าใจการพูดสื่อสารของคู่สนทนา ซึ่งทั้ง 3 ปัจจัยนี้ถูกแบ่งพิจารณาออกเป็น 2 มุมมอง ได้แก่ 1) สื่อสารกับคู่สนทนาที่คุ้นเคย/ไม่คุ้นเคย และ 2) สื่อสารในสภาพแวดล้อมที่คุ้นเคย/ไม่คุ้นเคย ทั้งนี้ การจัดทำแบบคัดกรองการใช้สื่อสารทางเลือกที่เป็นมาตรฐานสำหรับนักแก้ไขการพูดในประเทศไทยยังจำเป็นต้องมีการทำวิจัยเพิ่มเติมต่อไป

คำสำคัญ: นักแก้ไขการพูด ความบกพร่องทางการพูดสื่อสารรุนแรง การสื่อสารทางเลือก แบบคัดกรอง

Rama Med J: doi:10.33165/rmj.2023.46.3.263780

Received: June 22, 2023 **Revised:** August 11, 2023 **Accepted:** September 15, 2023

Corresponding Author:
วรรษิญา กมลสิทธิชัย
ภาควิชาวิทยาศาสตร์สื่อความหมายและความผิดปกติของการสื่อความหมาย
คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี
มหาวิทยาลัยมหิดล
270 ถนนพระรามที่ 6
แขวงทุ่งพญาไท เขตราชเทวี
กรุงเทพฯ 10400 ประเทศไทย
โทรศัพท์ +66 2201 2425
โทรสาร +66 2201 2208
อีเมล wansiya.kam@mahidol.ac.th