

Use of augmentative and alternative communication in special needs education schools for children in Japan

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Introduction: In Japan, AAC is currently included in the guidelines for education of students with special needs, and it has therefore become widely recognized. Although AAC is actively used in some special needs education schools, its practicality is still of concern in some cases. With rapid increases in the types and availability of AAC systems in recent years, for AAC to be a practical means of communication, it is important to consider the following factors when selecting appropriate AAC systems and assessing their use: users' intellectual ability, communication ability, willingness to communicate, physical ability to operate a device, and physical and human environment.

In this study, we investigated the use of AAC and aspects related to AAC introduction in special education schools that provide continuous education for elementary, junior high school, and high school students in Japan, in efforts to achieve practical use of AAC.

Methods: A questionnaire was sent to the principals of 350 special education schools across Japan in March, 2013. The questionnaire was composed of items related to basic characteristics of the school, use of ACC, introduction of new AAC systems, assessment of suitability of AAC, students' handicaps, and AAC system types.

Results: Among the 444 responses received (Table 1). Status of AAC use: 87.2% of responders indicated use of AAC at school and/or home, 51.6% of whom reported the practical use in their daily life, 13.4% limited use in specific settings, and 35.0% incapable of using effectively (Fig.1). Furthermore, 32.4% of responders believed that some children were not using optimum AAC systems. As the reason of misfit, 65.3% of responders thought "Poor understanding of Yes/No concept" and 52.1% thought "Inconsistency between communication outputs and student's intentions" (Fig.2).

When they introduce new AAC systems, 70.9% of them reported previously encountering problems or were expecting to encounter problems. As the reason of it, 70.2% selected "There was no procedure for selecting AAC systems suited to the individual user's intellectual and language development" (Fig.3). About necessity of evaluation system to select AAC, 71.9% of responders thought "extremely necessary or necessary" (Fig.4).

Different AACs according to handicap, for physically challenged students, there are four kinds of high-tech AACs in the top 20, including BigMac, which is 4th (Table 2).

About ISAAC, only 13.1% of responders have knowledge of it.

Table 1. Responses received

444 / 1050 schools (42.3%)		
Kinds of schools	Number of Responses	%
Elementary	147	33.1
Junior high	152	34.2
High	141	31.8
N.R.	4	0.9
	444	100.0

Does your school have any students who use AAC?

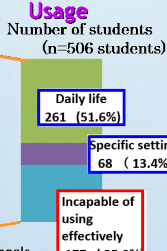
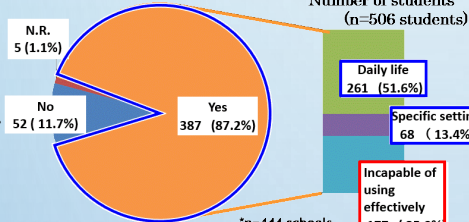


Figure 1. Status of AAC

Does the AAC system used fit the students' needs?

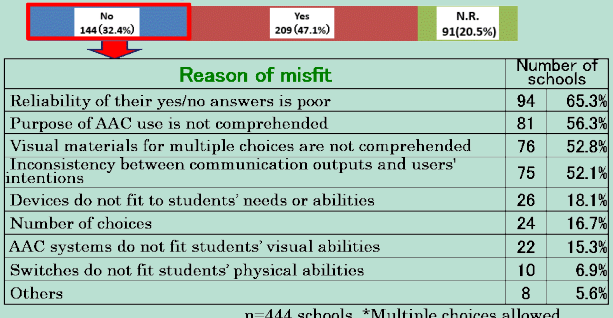


Figure 2. Fitting of AAC system

Content n=315 *Multiple choices allowed

Content	Number of schools	%
Suits user's intellectual and language development	221	70.2%
Financial constraints	158	50.2%
Cannot try before buying	126	40.0%
Lack of information	117	37.1%
No one to give advise	61	19.4%
Agreement cannot be reached among teachers	29	9.2%
Physical limitations	28	8.9%
Agreement cannot be reached among families	23	7.3%
Others	9	2.9%

Table 2. Kinds of AAC systems according to the handicap - Top20

	Mentally challenged		Physically challenged		Others	
	Utterances	Number of students	Utterances	Number of students	Utterances	Number of students
1	Utterances	3330	Utterances	1219	Utterances	44
2	Photos	3275	Eye-gazing	1054	Photos	45
3	Picture cards	3143	Photos	918	Finger pointing	36
4	Finger pointing	2259	Big (Little) Mac	860	Eye-gazing	35
5	Eye-gazing	2190	Picture cards	786	Picture cards	34
6	Nodding	2083	Actual objects	783	Raising one's hand	33
7	Raising one's hand	1973	Raising one's hand	719	Letter/word cards	30
8	Gesturing	1799	Nodding	593	Gesturing	29
9	Letter/word cards	1795	Finger pointing	539	Nodding	28
10	Actual objects	1690	Open or closed mouth/eyes	457	Symbol cards	27
11	Symbol cards	1516	Gesturing	370	Original signs	26
12	Open or closed mouth/eyes	807	Miniature objects	332	Communication board	26
13	Original signs	802	Symbol cards	303	Actual objects	23
14	MAKATON sign	768	Step by step	261	Open or closed mouth/eyes	20
15	Miniature objects	691	Tablets	259	MAKATON sign	20
16	Big (Little) Mac	667	Letter/word cards	239	PICOT	12
17	Tablets	343	Original signs	197	Symbols and others	12
18	Communication board	338	Step by step with levels	139	Tablets	10
19	PIC	282	MAKATON sign	85	PIC	10
20	Communication book	261	PCS	81	Communication book	8

Figure 3. Difficulties when introducing new AAC systems

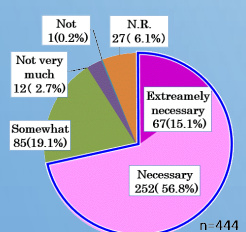


Figure 4. Necessity of evaluation system to select AAC

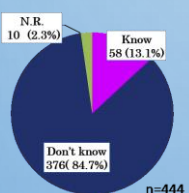


Figure 5. Knowledge of ISAAC

Discussion: Our questionnaire survey revealed over 80% of special schools were using AAC with at least one their students. On the other hand, nearly half of responders had students who did not appear to be fully utilizing AACs to reflect their intentions, because of poor reliability of yes/no answers, and doubt about consistency between communication outputs via the AAC and the user's intentions. These results indicate fundamental problems in the use of AACs suggesting that procedures need to be established to assess how well new AACs work for their students. Furthermore, according to kinds of handicap, there are different AAC systems used. This suggests that the development of an AAC evaluation system include the users' intellectual abilities, physical abilities, and the students' daily life needs.

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