# THE USE OF AUGMENTATIVE AND ALTERNATIVE COMMUNICATION WITH PUPILS OF SPECIAL SCHOOLS IN THE CZECH REPUBLIC

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**Abstract**

The paper examines the current state in the use of augmentative and alternative communication (hereinafter AAC) with special primary schools pupils in the Czech Republic. It defines the systems of AAC that are currently used at special primary schools in the Czech Republic as a tool of communication and education of pupils with a greater degree of intellectual disabilities. It describes the contribution of such tools to the development of specific segments of personality of the individuals with a greater degree of intellectual disabilities. It defines the preferred aspects for the choice of the communication system of the given target group, and it identifies the range of specialists that participate in the selection of the AAC system for special elementary schools pupils in practice. Furthermore, the paper describes the current state in the use of technical and non-technical devices that work on the basis of AAC, and it maps current situation in the area of further education of pedagogues that deal with AAC. The paper also discusses individual problems encountered by pedagogues of special primary schools during the application of AAC in practice.

**Key words**

Augmentative communication, alternative communication, functional communication, diagnostics, special primary school, pupil, intellectual disabilities, communication skills, social skills.

## The importance of communication for humans

Communication is one of the basic human needs. Nevertheless, we often meet people whose ability to communicate verbally is considerably disrupted as a result of a severe health disability. (Lechta, 2002) It is essential to realize that these people should also be enabled to become active participants in communication. The systems of augmentative and alternative communication serve for such purposes. These systems are designed to minimize the

emerging communication deficit and to create new supportive or alternative communication channels that would enable people with severely disrupted expressive speech component to become equal communication partners. (Laudová in Škodová, Jedlička et al., 2007)

According to Linda J. Burkhart (2012) AAC can be defined as "a set of tools and strategies that an individual uses to solve every day communicative challenges. Communication can take many forms such as: speech, a shared glance, text, gestures, facial expressions, touch, sign language, symbols, pictures, speech generating devices, etc. Everyone uses multiple forms of communication, based upon the context and our communication partner. Effective communication occurs when the intent and meaning of one individual is understood by another person. The form is less important than the successful understanding of the message."

One group that should be paid particular attention to within the area of AAC is the group of individuals with a greater degree of intellectual disabilities (i.e. with moderate, severe and profound intellectual disabilities). (Klenková, 2000)

**A brief description of selected AAC systems**

Static and dynamic communication systems based on AAC are used in practice of special elementary schools for persons with intellectual disabilities. The static communication systems mainly consist of real objects and their miniatures, photographs, images, icons and pictures/symbols of PECS (picture exchange communication system). The dynamic communication systems most often include Sign language and Makaton for individuals with intellectual disabilities. (Bendová[1], 2011)

Within the introduction regarding the issue of using AAC in special elementary schools, we will try to briefly define the AAC systems, which are described in the literature and are used by people with intellectual disabilities, i.e. pictographs, PECS, Makaton and Teng Til Tale.

- Pictographs: they represent a maximum simplified view of objects, activities and characteristics that are comprehensible to all categories of people in terms of culture, disability, nationality and age. (Krahulcová, 2002) In special education practice pictographs have especially the substitution and supportive role in the speech development in children with severe intellectual disabilities, resulting in significantly impaired communication skills. (Kubová, 1997)

- Picture exchange communication system – PECS: is a pictorial communication system aimed at achieving the bipolar communication act between a child with intellectual disabilities and a person whom they communicate with in the form of image exchange as a reward. PECS is based on the visual discrimination of various symbols and understanding of the importance of the content, as well as the child's ability to manipulate symbols and organize them into simple (1 and multi-word) sentences. The use of PECS contributes to increasing the autonomy and independence of children with intellectual disabilities on the social environment. (Knapcová, 2003)
- Makaton: is a dynamic communication system, which consists of a set of 350 characters and symbols that have been modified so that they can be easily physically recognizable and meaningful. (Janovcová, 2003) The application of MAKATON into practice is associated with the signing of key words in a sentence, while the signing is accompanied by a rhythmic language, mimic elements, speech modulation and symbol demonstration. (Kubová, 1996) The use of MAKATON is often combined with the use of images, photographs and pictographs for young children. (Krahulcová, 2002) Adult users usually learn the symbols and signs with the help of the MAKATON guide (Language Program Manual).
- Teng til tale (TTT): is a visual motor communication system, which basis is the application of gestures and involving facial expressions of individuals with severe impaired communication ability. (Beerová, 2005) TTT is used by individuals with intellectual disabilities as a supplement to speech. (Janovcová, 2003) It is an open communication system of natural signs, which can be modified and supplemented according to individual client needs. Individual gestures are very simple and illustrative, respectful of individual reductions in the levels of motor, visual and cognitive functions of the system users. (Kubová, Pavelová, Rádková, 1999) TTT gestures are in usual communication supplemented by spoken language or symbols – photos, pictures, most often pictographs to increase the understanding of messages. (Kubová, 2002) The aim of TTT use is primarily to facilitate and encourage the development of verbal speech of individuals with impaired communication abilities, gradually eliminate the frequency of gestures in speech and move to the spoken language. As the secondary end points we can consider the development of fine motor skills, sense of rhythm, imitation ability and movement co-ordination. (Kubová, Pavelová, Rádková, 1999)

**Specific research presentation**

The aim of the specific research survey conducted at the University of Hradec Králové in March to October 2011 was to analyse the current situation as for the use of AAC with pupils with a greater degree of intellectual disabilities by means of a comprehensive survey. For this purpose, an anonymous questionnaire was created which was distributed to 160 special primary schools in the Czech Republic (hereinafter SP schools). Seventy-six SP schools from all over the Czech Republic participated in the survey. The questionnaire was addressed to managers of SP schools, i.e. directors of these school facilities, with a request to forward the questionnaire to a teacher within the school, who uses AAC in their practice, preferably – in a long term. The survey respondents are therefore SP school teachers. (Note: The overview of the number of SP schools involved in the research according to districts of the Czech Republic – see Table No. 1).

**Table 1:** Overview of the number of SP schools involved in the survey according to individual regions

| region | number of SP schools involved in the research | number of SP schools involved in the research in % |
|---|---|---|
| Central Bohemia Region | 16 | 21.10 % |
| Prague Region | 10 | 13.16 % |
| Ústí nad Labem Region | 10 | 13.16 % |
| Hradec Králové Region | 8 | 10.50 % |
| Pardubice Region | 7 | 9.20 % |
| Vysočina Region | 6 | 7.89 % |
| Zlín Region | 6 | 7.89 % |
| Plzeň Region | 5 | 6.59 % |
| South Moravia Region | 4 | 5.3 % |
| Liberec Region | 4 | 5.3 % |
| Karlovy Vary Region | 0 | 0 % |
| South Bohemia Region | 0 | 0 % |
| Moravian – Silesian Region | 0 | 0 % |
| Olomouc Region | 0 | 0 % |

**Use of AAC in special primary schools**

All the SP schools participating in the research use AAC tools on the basis of alternative communication as well as on the level of augmentative (supportive, supplementary) communication. (Bendová[1], 2011)

The responses of the respondents, i.e. special pedagogues from SP schools that are involved in the education of pupils with a greater degree of intellectual disabilities, indicate that – in relation to the overall proportion of pupils in these schools – with approx. 20–30 % of SP school pupils prefer the use of AAC tools based on alternative communication, and 35–80 % of pupils prefer the use of supportive/augmentative communication. Note: In the use of supportive communication means, it can be observed for pupils with moderate intellectual disabilities a considerable variance in % representation in using those means of communication. The answers of the respondents indicate that the utilization rate of the augmentative means of communication is influenced mainly by the level of impaired communication abilities of SP school pupils. With regard to the level of impaired communication abilities and speech intelligibility of pupils, augmentative communication means are used less in some schools (e.g. about 35 % of pupils) and more in other schools (e.g. up to 85 % of pupils).

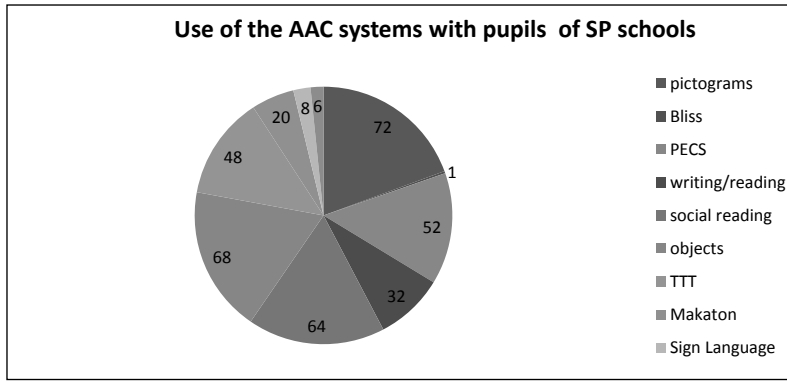
Among the schools that represent the research sample, significant differences are present regarding the length of practice of AAC use/application in practice/work with pupils with a greater degree of disabilities. The dispersion is 2-12 years; 28 SP schools (i.e. 36.9 %) have been using the AAC tools for communication and education purposes for approx. 10 years; 20 schools (i.e. 26.3 %) for 12 years or more; 20 SP schools (i.e. 26.3 %) have been applying the AAC tools in practice for 5 years, and 8 SP schools (i.e. 10.5 %) have been using these tools for 2 years. (Note: When determining the length of the use of AAC in individual schools, the length of the use of AAC systems vs. the length of existence of the institution was not regarded). As for the obtained results, they correspond with the length of the AAC systems use in the Czech Republic as well as with the current trends in special pedagogy and in society, i.e. elimination of communication and information barriers in relation to disabled people (Note: mainly in the last decade). (Krahulcová, 1998)

**Preferences of the AAC systems among pupils with intellectual disabilities**

Among other things, the survey studied preferences of the AAC systems among pupils of SP schools. The analysis of the collected data indicates that most individuals with intellectual disabilities attending SP schools communicate with the support of pictographs and use the method of global learning. This fact was stated by 72 out of 76 respondents (i.e. 94.7 %), i.e. SP schools pedagogues representing the research sample. Further, 68 respondents (i.e. 89.5 %) employ objects for communication. At 64 SP schools (84.2 %) the method of social reading is applied, 52 schools (i.e. 68.4%) apply Picture Exchange Communication System (PECS), 48 (i.e. 63.2 %) use Teng Til Tale, 32 schools (i.e. 42.1 %) can use reading/writing while communicating on the basis of AAC, in 20 cases (i.e. 26.3 %) the Makaton system is preferred. Six schools (i.e. 7.9 %) use other communication devices based on AAC (i.e. Baby Signs in 2 institutions, photographs in 4 institutions). In one case communication on the basis of AAC is carried out with the support of the Bliss system (i.e. 1.3 %).

**Table 2:** Use of AAC systems with pupils in SP schools

| AAC system | number of schools where the AAC system is used | number of schools where the AAC system is used % |
|---|---|---|
| pictographs | 72 | 94.7 % |
| Bliss system | 1 | 1.3 % |
| PECS | 52 | 68.4 % |
| writing/reading | 32 | 42.1 % |
| social reading | 64 | 84.2 % |
| Objects | 68 | 89.5 % |
| TTT | 48 | 63.2 % |
| Makaton | 20 | 26.3 % |
| Sign Language | 8 | 10.5 % |
| Other | 6 | 7.9 % |




**The choice of the AAC system**

The choice of the appropriate AAC system for the individuals with a greater degree of intellectual disabilities is a crucial moment for the formation of functioning AAC-based communication between the intellectually disabled person and his/her immediate as well as broader communication environment. (Knapcová, 2005) Within the research we attempted to quantify the most commonly considered terms in the choice of the AAC system in SP school pupils. In this context it should be pointed out that in selecting an appropriate AAC system for a particular SP school pupil it is always necessary to proceed individually and take into account specific characteristics of the potential user of AAC.

Following the responses of survey respondents, the aspect of the AAC system which is preferred is the existing verbal expression of the intellectually disabled individual, his/her communication potential and his/her intellectual level. The list of aspects that are further considered comprises upper limb motor activity, the overall level of motor skills, coordination of upper extremities, then the vision and hearing quality of the disabled individual. (Bendová[1], 2011)

Other aspects that were mentioned within the choice of the AAC system by the respondents comprises of the needs of the client and his/her family (Note: Detailed overview of individual aspects of the choice of AAC system – see Table No. 3).

**Table 3:** Diagnostic aspects of the choice of AAC systems with pupils of SP schools

| aspect of the choice of AAC systems | degree of influence on the choice | | | | |
|---|---|---|---|---|---|
| | number of respondents | | | | |
| overall level of motor skills | 1 | 2 | 3 | 4 | 5 |
| | 4 | 4 | 36 | 4 | 8 |
| upper limb motor activity | 1 | 2 | 3 | 4 | 5 |
| | 4 | 4 | 12 | 16 | 24 |
| coordination of upper extremities | 1 | 2 | 3 | 4 | 5 |
| | 4 | 4 | 12 | 20 | 25 |
| verbal expression | 1 | 2 | 3 | 4 | 5 |
| | 4 | 4 | 16 | 20 | 32 |
| communication potential | 1 | 2 | 3 | 4 | 5 |
| | 4 | 0 | 8 | 20 | 52 |
| intellectual level | 1 | 2 | 3 | 4 | 5 |
| | 8 | 0 | 16 | 32 | 12 |
| vision | 1 | 2 | 3 | 4 | 5 |
| | 0 | 4 | 12 | 24 | 20 |
| hearing | 1 | 2 | 3 | 4 | 5 |
| | 0 | 0 | 8 | 16 | 20 |
| other | 1 | 2 | 3 | 4 | 5 |
| | 0 | 0 | 8 | 4 | 4 |

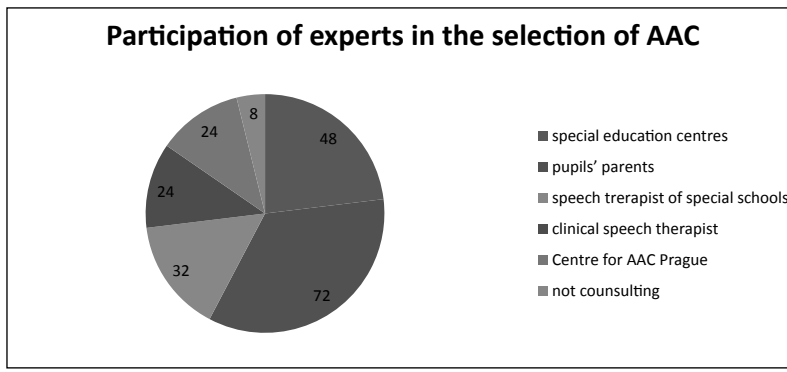
Explanatory note: 1 – minimal influence on the choice of AAC (= 5–20 %);
2 – below-average influence (= 25–45 %);
3 – average influence (= 45–65 %);
4 – moderately high influence (= 70–85 %);
5 – maximum influence (= 90–100 %).

Concerning the participation in choosing the appropriate ACC-based communication system, the pedagogues from SP schools cooperate most often, i.e. in 72 cases (94.7 %), with pupils' parents, in 48 cases (63.2 %) they discuss their choice with consultants in special education centres (Note: mostly it concerns consultants in special education centres for intellectually disabled pupils and for pupils with autistic spectrum disorders). Thirty-two respondents (42.1 %) discuss it with speech therapists of SP schools. In 24 cases (31.6 %) the choice of the AAC system is discussed within the consultations

provided by specialists from the Centre for Alternative and Augmentative Communication – Prague. Eight pedagogues from SP schools (10.5 %) state that they do not consult the choice of the AAC system with anybody and that they rely exclusively on the erudition of school specialists.

**Table 4:** Participation of experts in the selection of the AAC system

| counselling object | number of respondents | number of respondents in % |
|---|---|---|
| special education centres | 48 | 63.2 % |
| pupils' parents | 72 | 94.7 % |
| speech therapist of SP | 32 | 42.1 % |
| clinical speech therapist | 24 | 31.6 % |
| Centre for AAC Prague | 24 | 31.6 % |
| do not use consulting services in the selection of AAC | 8 | 10.5 % |




**Support of counselling services in the field of AAC**

Moreover, the survey examined whether pedagogues are provided with methodical support of special education centres for intellectually disabled pupils (special education centres for pupils with autistic spectrum disorders or with combined disorders) during the application of AAC in the process of education of pupils with a greater intellectual disabilities, with regard to the Decree No. 116/2011 Coll. on the provision of counselling services in schools and school counselling facilities.

In this respect the survey mapped the contentment of SP school pedagogues with the quality of the support provided.

Eight respondents (i.e. 10.5 %) state that they are not provided with any methodical leadership and support while launching the AAC systems in the education process of pupils in SP schools. 4 respondents from SP schools (5.3 %) are not introduced to any methodical support because they do not require any, and 64 respondents (i.e. 84.2 %) indicate that they are offered methodical leadership by special education centres in the application process of AAC. Regarding this support, 12 respondents are 100% satisfied with the services of the special education centres, 8 respondents are 75% satisfied, 44 respondents are 50% satisfied, 12 respondents are 25% satisfied and none of the respondents participating in the survey is dissatisfied.

**Table 5:** Support for SPC in AAC

| methodological support for AAC | number of respondents | number of respondents in % |
|---|---|---|
| methodological support is not provided | 8 | 10.5 % |
| methodological support is not provided/ AAC user does not require it | 4 | 5.3 % |
| methodological support is provided | 64 | 84.2 % |

**Table 6:** Satisfaction of educational institutions with the intervention of AAC by SPC

| satisfaction rate | number of respondents | number of respondents in % |
|---|---|---|
| 100% satisfaction | 12 | 15.9 % |
| 75% satisfaction | 8 | 10.5 % |
| 50% satisfaction | 44 | 57.7 % |
| 25% satisfaction | 12 | 15.9 % |
| 0% satisfaction | 0 | 0 % |

**The implementation obstacles of AAC in practice**

To optimize the usability of AAC systems in practice of SP schools, the survey examined the obstacles that the pedagogues encounter in SP schools. In 48 cases (63.2 %) the respondents mention the limited usability of AAC systems, or the use and usability of AAC in the school environment. Thirty-

two respondents (i.e. 42.1 %) refer to insufficient material background for the use of AAC, 24 respondents (i.e. 31.6 %) are not satisfied with the offer of the available AAC based materials. 20 respondents (i.e. 26.3 %) point out the lack of trained pedagogues, 20 out of 76 respondents (i.e. 26.3 %) refer to the lack of the interest in AAC-based communication/education in pupils' parenes. 20 respondents (i.e. 26.3 %) are not satisfied with the methodical support of special education centres. 1 respondent (1.3 %) stated that he/she considered the current AAC training offer insufficient, and one respondent did not identify any obstacles that would limit the use of AAC in SP schools practice.

**Table 7:** Barriers in the use of AAC in SP schools

| satisfaction rate | number of respondents | number of respondents in % |
|---|---|---|
| limited usability of AAC systems | 48 | 63.2 % |
| limited supply of AAC materials usable in teaching | 24 | 31.6 % |
| lack of trained teachers | 20 | 26.3 % |
| lack of interest of the pupils with intellectual disabilities' parents to communicate on the basis of AAC | 20 | 26.3 % |
| dissatisfaction with the methodological guidance | 20 | 26.3 % |
| insufficient supply of training in AAC | 1 | 1.3 % |
| no gaps / barriers | 1 | 1.3 % |

Concerning the opinion of 20 respondents (26.3 %) that refer to "the lack of trained pedagogues in the field of AAC", it is necessary to point out the fact stated by 44 of 76 respondents (i.e. 57.9 %) that pedagogues of SP schools participate in AAC-focused trainings/train up seminars "only" to a limited extent. 32 out of 76 respondents (i.e. 42.1 %) do not participate in such seminars at all.

**Table 8:** Participation of teachers in the training of AAC

| participation in training of AAC | number of respondents | number of respondents in % |
|---|---|---|
| limited participation in training of AAC | 44 | 57.9 % |
| do not participate in training of AAC | 32 | 42.1 % |

The above mentioned facts imply that the increased activity of SP school teachers within further education in the field of AAC could significantly contribute to the optimization of the AAC use at these types of schools.

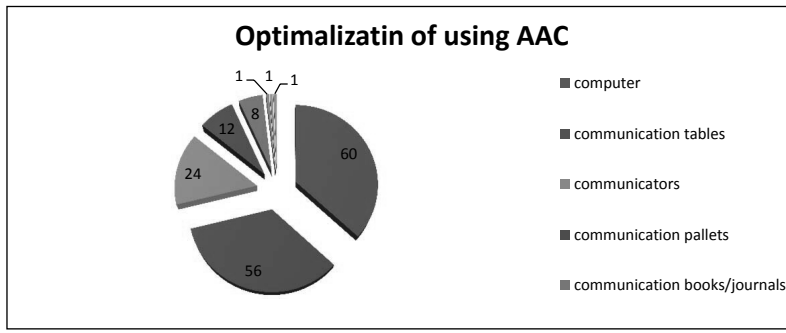
Moreover, the responses indicate that in case the pedagogues participate in further education/train up seminars in the field of AAC, the education/trainings take place most often under the auspices of the Institute of Pedagogical-Psychological Consulting of the Czech Republic, as well as the Association Helping People with Autism Prague (APLA Praha), Centre for Augmentative and Alternative Communication Prague (CAAK Praha), National Institute for Further Education (NIDV) and some special education centres for intellectually disabled pupils. (Bendová[1], 2011)

**The optimization of the communication potential of the individuals with greater forms of intellectual disabilities**

The research outcomes show that within the optimization of the communication potential of the individuals with greater forms of intellectual disabilities SP schools use a variety of technical devices: 60 SP schools (78.9 % of the research sample) use computers, 56 SP schools (73.7 %) use communication tables, 24 SP schools (31.6 %) use communicators, 12 SP schools (1.8 %) use communication pallets, in 8 SP schools (14.3 %) pupils use special communication books/diaries, 1 school (1.3 %) uses photo albums in order to support the pupils' communication competences. At 1 school (1.3 %) a communication notice board is used for the same purposes. 1 school (1.3 %) works with another non-specified methodical material. (Zikl, Bendová, 2011)

**Table 9:** Optimization of communication using AAC

| means of optimization of AAC use | frequency of use of supportive means | frequency of use of supportive means in % |
|---|---|---|
| computer | 60 | 78.9 % |
| communication tables | 56 | 73.7 % |
| communicators | 24 | 31.6 % |
| communication pallets | 12 | 15.8 % |
| communication books/journals | 8 | 14.3 % |
| photo album | 1 | 1.3 % |
| communication notice board | 1 | 1.3 % |
| unspecified communication material | 1 | 1.3 % |




Twenty-eight SP schools (36.9 % of the research sample) use special software within the implementation of AAC in SP school practice. Such software is used for the formation of communication tables, for training of work with communication symbols, etc. Such special software comprises of programmes such as Boardmarker, SymWriter, Altík and Méďa. (Bendová[2], 2011)

**The influence of the AAC systems on the development of pupils with intellectual disabilities**

When trying to determine the influence of AAC systems in the development of pupils with greater degrees of intellectual disabilities, the research outcomes denote that the greatest importance of AAC is assigned to the development of the social competences of users, then to cognitive abilities

and least to the development of the expressive component of speech. (Krahulcová, 1998)

As for social competences and the significance of AAC in the contribution to their development, 24 respondents consider AAC contributes in 50 %, 24 respondents in 100 %, 20 respondents in 25 %, and 8 respondents in 75 %.

The development of cognitive abilities is closely associated with the development of speech and with the possibilities of its expansion to the surrounding environment and active participation in educational activities. According to 32 respondents, AAC participates in the development of cognitive abilities of an intellectually disabled individual in 50 %, 28 respondents think AAC participates in 75 %, 12 respondents think it participates in 25 %, 4 respondents think the share of AAC is 0 %. No respondent thinks AAC participates in the development in 100 %.

According to secondary literature, the expressive component of speech supported by the AAC systems is developed particularly when AAC the augmentative aspect is used (supportive, developing communication). According to 36 respondents, AAC participates in the development of the expressive speech component not more than 25 %, 28 respondents in 50 %, 8 respondents in 75 %, 4 respondents in 100 %. No respondent thinks AAC does not participate at all, i.e. in 0 %.

Within the context of the development of sub-competences in SP school pupils and the use of the AAC systems, the survey also examined the use of these systems in individual education fields. Seventy-five respondents (i.e. 98.7 %) state that they use AAC equally in all educational fields at the SP schools. One respondent (i.e. 1.3 %) points to the fact that AAC in his/her school is mainly used within intellectual and sensory education. (RVP ZŠS, 2008)

As follows from the text above, the importance of the use of AAC for pupils in SP schools lies mainly in the domain of communication as well as education and integration. (Valenta, Müller, 2009) The opinions of special pedagogues on the influence of AAC in individual areas that are significantly associated with the socialization process of intellectually disabled children are demonstrated in the table below.

**Table 10:** Overview of the evaluation of the importance of AAC for individual areas of socialization of pupils in SP schools

| area of socialization | degree of the importance of the use of AAC for the given area (1 = minimal importance… 5 = highest importance) | number of respondents (%) |
|---|---|---|
| communication | 1 | 4 (5.3 %) |
| | 2 | 8 (10.5 %) |
| | 3 | 4 (5.3 %) |
| | 4 | 12 (15.7 %) |
| | 5 | 48 (63.2 %) |
| education | 1 | 8 (10.5 %) |
| | 2 | 0 (0 %) |
| | 3 | 12 (15.7 %) |
| | 4 | 28 (36.9 %) |
| | 5 | 28 (36.9 %) |
| integration | 1 | 4 (5.3 %) |
| | 2 | 4 (5.3 %) |
| | 3 | 36 (47.4 %) |
| | 4 | 20 (26.3 %) |
| | 5 | 12 (15.7 %) |

**Conclusion**

We can conclude that the methods and means of AAC have become an integral part of communication, education as well as socialization/integration of individuals with greater degrees of intellectual disabilities combined with a severely distorted expressive speech component. At the same time it is vital to point out that the quality of use of AAC there are considerable differences among SP schools in the Czech Republic. The presented research aimed to perform a primary probe into the use of AAC in the special elementary schools in the Czech Republic. Given that only one special teacher from educational institutions surveyed always responded to the sub-items of the questionnaire, the data presented cannot be generalized at this time, but it can be considered as a basis for further implementation of the research in this area.

Despite the limited degree of the questionnaire survey output generalization, it is obvious that in order to improve the use of AAC in education of pupils with greater degrees of intellectual disabilities it is crucial to carry on with the education and with increasing the erudition of SP school staff in the AAC use and its further implementation to the education process of pupils with greater degrees of intellectual disabilities.

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