Applying Alternative and Augmentative Communication to an inclusive group

Bez, Maria Rosangela¹, Passerino, Liliana Maria²

¹ Universidade Federal do Rio Grande do Sul - UFRGS, Brazil, rosangelabez@sinos.net
² Universidade Federal do Rio Grande do Sul - UFRGS, Brazil, liliana@cinted.ufrgs.br

Abstract: Based on the main concepts about Alternative and Augmentative Communication (AAC) and considering literacy as a process of world appropriation, a methodology was outlined to help develop language in individuals with pervasive developmental disorders, especially in Cornelia de Lange syndrome, providing conditions for a quality inclusion. This article aims at discussing such methodology and analyzing its application based on the analysis of a concrete case of AAC application to an inclusive group in the municipal public teaching network in the metropolitan area of Porto Alegre, Brazil.

Keywords: Alternative and augmentative communication, inclusion, literacy, methodology.

1. Introduction

“...technologies are not mere external help, but internal changes of awareness, especially when they affect words...” Walter Ong

AAC was for a long time simply seen as a group of resources and technologies to facilitate communication of people with disabilities. However, we believe that every technology can be much more than a mere instrument, especially considering it as social technology. In this sense, AAC can be thought of as a technology that promotes social inclusion by which all individuals, either with or without disabilities, can communicate.

This study is part of the SCALA project (System of Alternative Communication for Literacy Learning for Individuals with Autism), which aims at developing a Brazilian AAC system using free software and adaptable to communicative needs of individuals with communication deficits.

This study is part of the observations and analyses of AAC use in the interaction of individuals in their literacy stage.
This article aims at discussing such methodology and analyzing its application based on the analysis of a concrete case of AAC application to an inclusive group in the municipal public teaching network in the metropolitan area of Porto Alegre, Brazil.

2. Alternative and Augmentative Communication

In human development, language plays a major role, as it represents a crucial element for acquisition of symbolic systems, such as writing, reading and mathematics and to develop interpersonal relationship skills and thinking (Vygotsky, 1998). Language development deficits cause deficits in other development areas, such as cognitive, emotional and social. For such people, AAC systems may be important resources to foster their development. We believe these resources should be implemented since early schooling. To do so, it is important to have the necessary theoretical background about literacy, as will be described next.

Literacy is more than alphabetizing; according to Pereira (2005), it is teaching to read and write within a cultural context. Writing as cultural practice is dynamic, not restricted to paper, involves several types of media, such as letters, short stories, classified ads, newspapers, scientific articles, e-mails, chats, blogs, etc. Literacy extrapolates the alphabet, as it is centered on the teaching of communication competences in a globalized world permeated by multiculturalisms that coexist and change cultural practices, whether they are face to face or mediated by information and communication technologies (ICT). Literacy is the “front door” of inclusion (Pereira, 2005), since language appropriation also includes appropriation of reference systems in the world. In this sense, use of AAC as a support in the literacy process of people with special needs (PSN) creates conditions for acquisition and appropriation of reading and writing, both in the child’s individual process and as a facilitator of her social practice. Unfortunately, there are few studies on use of AAC for literacy. One of the few examples found in Brazil on literacy using AAC includes deaf children (Lebedeff, 2008). Effective use of AAC during literacy required a theoretical study, as will be described next.

Development and use of AAC do not have a known date, but the first studies on this issue can be traced back to the 1970’s, such as that carried out at the Ontario Crippled Children's Centre, Toronto, Canada, in 1971. It aimed at producing an alternative form of communication for children with neuromotor disorders with no functional speech. Such system was based on an international symbolic system created by Charles K. Bliss, based on the Chinese logographic writing and on the ideas by philosopher Leibniz; it was called Blissymbolics - Bliss Communication System (Chun & Moreira, 1997). In Brazil AAC started in São Paulo in 1978 at a school for special children and rehabilitation center for people with cerebral palsy.
Applying Alternative and Augmentative Communication ..., IFIP WCCE 2009

Through the decades, AAC was no longer focused on the therapy and became an interdisciplinary research area in which studies focused on development of oral and written language are conducted. AAC comprehends a wide repertoire of representative elements, from iconographic to more complex and abstract. Among the main systems composed by linear drawings (pictograms) are Picsyms (Carlson, 1985) for speech difficulties; Pictogram Ideogram Communication (PIC) (Maharaj, 1980) for individuals with difficulties in picture-background discrimination; Picture Communication Symbols (PCS), which is a visual graphic system with simple drawings and widely used nowadays. Among the main systems combining pictographic, ideographic and arbitrary symbols are the Rebus System and the Bliss System. The latter is a graphic and visual symbolic system able to represent abstract concepts, with varied expression forms from simple to complex phrases. In Brazil only in the past decades there was development of research and products at a national level, such as the Comunique\textsuperscript{1} software in 1994, whose objective was to develop alternative communication and writing of children with motor disorders, and the Amplisoft\textsuperscript{2} software in 2003, which aims at providing an alternative communication system using techniques or word and symbol prediction including voice synthesizer and scanning.

The meaning of AAC is used to define different forms of communication, such as using gestures, sign language, facial expressions, use of alphabet boards or pictographic symbols, even sophisticated computer systems using synthesized voice (Glennen, 1997).

Miranda & Gomes (2004) point to the importance of AAC as a resource that, when used with communicative techniques and strategies, gives PSN the opportunity to become self-sufficient in their communication situations, providing interaction opportunities with others and avoiding social exclusion and isolation. Smith & Ryndak (1999) described that ACC may aid the process of inclusion and school learning as they aim at creating an effective integration between subjects and their social environment. Capovilla & Nunes (2003) stress that as AAC systems become part of individuals’ everyday life, aiming at efficient social exchange, such devices tend to develop their cognition and language and are, therefore, important resources to insert individuals with cognitive and communicative deficits in school and society.

From the educational perspective, approach to an AAC system should not be seen only between teachers and students, but as a visual symbol to support construction of signs that help language acquisition, understanding the meanings generated in relationships and in contextualized environments. To do so, definition of an adequate methodology is crucial in this process of AAC insertion, so that AAC can be implemented in an inclusive school.

\textsuperscript{1} Pelosi, 1998.
\textsuperscript{2} PUC-PR, 2008
3. Method to implement AAC in an inclusive school

Providing a form of AAC for people who cannot express themselves through speaking and/or writing results in improvement in quality of life may enable greater autonomy, increasing self-esteem and giving the opportunity of a feeling of equality in society. Therefore, it enables social and school inclusion.

Field research is being developed in two case studies, based on individuals included in the public teaching network of a town in Greater Porto Alegre, Brazil. The studies involve two children with pervasive developmental disorders (PDD), who are in the early literacy period. Among IDD included in this study is Cornelia de Lange syndrome.

Deep knowledge of students, including their diagnosis, is a key element when choosing the most adequate AAC.

Choice of AAC should take into account improvement in daily life and leading users to feel more autonomous. For that reason, choice of an alternative system should consider each one’s overall situation. Language and communication teaching should occur concomitantly with other forms of intervention that are already being used.

According to Browning (2008) communication causes an impact on people in terms of independence, initiative, productivity, self-esteem, integration, and learning. Therefore, AAC should be introduced as early as possible. As soon as deficiencies between receptive and expressive language are noted, or when the child’s speech and/or writing begins to show a delay in relation to her colleagues’ speech and/or writing, or when motor deficiency prevents learning.

According to Tetzchner & Martinsen (2000), evaluation using standardized tests for individuals with AAC needs is not adequate because, in general, such tests are based on the assumption that people can see, listen, understand instructions, speak and handle several types of objects. For that reason, Verzoni (2007) warns to

---

3 Pervasive developmental disorders (PDD), according to the Diagnostic and Statistic Manual of Mental Disorders, Fourth Edition (DSM-IV-TR), comprehends “a wide spectrum of developmental disorders characterized by presence of behavioral disorders early in life with varied degrees of severity and associated deficits, which have in common reduction or loss of social, communication, imagination and behavioral skills and presence of repetitive and restricted interests. Therefore, there is impairment of three domains: social, communication and behavior” (VALENTE & VALERIO, 2004, p 42). The characteristic of such disorders consists of a specific developmental disorder that is often manifested by absence of development in certain areas.

4 It is a genetic disease of unknown cause. Although no gene has been identified as cause, many affected individuals have a translocation of chromosome 3 and in others there is a “suspicion” zone with a rupture point in the long arm of the same chromosome. There is no single criterion to identify this syndrome and diagnosis is dependent on presence of a number of signs and symptoms (COSTA, 2008).
important considerations before using AAC, such as a detailed evaluation and joint approach with an interdisciplinary team, which will determine important aspects of the process of using AAC. Among them is the need of developing skills prior to application of a communication system, by selecting the basic repertoire to be introduced, by choosing the most adequate communication system and by choosing the right speed of symbol introduction.

Tetzchner & Martinsen (2000) suggest use of inventories “in a set of questions about the person and the environment in which she lives” (p. 97) and that these are filled based on observations and information obtained from interviews with people that are close to the individual. There are several types of inventories. Some were developed with the aim of describing competences (Sparrow, Balla & Cicchetti, 1984), while others intend to facilitate definition of diagnosis (Rimland, 1971; Schopler et al., 1980). Use of inventories is significantly useful in the evaluation of individuals’ competences and in the context of their daily life. Comprehending a detailed level of different competences, it includes areas such as autonomy level, social interaction, behavioral and communication problems. Inventories are used to formulate concrete questions involving common activities in the natural setting (Tetzchner & Martinsen, 2000). A good inventory should include varied questions about each area, obtaining a detailed performance in each situation. Information on activities and situations in which individuals need help to perform and in which they can perform autonomously should also be obtained. After collecting all these data, an analysis should be made to plan a proper intervention.

Conversations and interviews with parents, teachers and people close to the individual are a rich source of information that may significantly complete the inventories. Tetzchner & Martinsen (2000) claim that information obtained from interviews are more detailed and directly significant to the person and her environment than the data obtained from inventories. Interviews not only complement inventory data, but provide knowledge of how the environment understands and values the person.

Systematic observations are also an important part in evaluation, whatever the type of deficiency. Individuals should be observed, either alone or in company, in different situations and attitudes. Videos stand out in observations and recordings of activities. Such recording can be used to find information that might have gone unnoticed during observation and also serve for comparison with further results. A movie recording can be seen as many times as desired, enabling more people to watch it and make group comments, resulting in more than one opinion, which can collaborate in a more efficacious choice of communication for each individual. Use of CDs allows recording of reports, including information as texts and videos (Tetzchner & Martinsen, 2000).

According to Carmo & Ferreira (1998) there is the need of creating observation strategies, choosing forms of data collection that optimize research studies. They describe that, before making observations, researchers need to know the answers to
many questions, such as: “What should be observed? Which instruments will be used to record observations? Which observation technique will be chosen? (p.1).”

To Browning (2008) evaluation consists of identifying the individual’s needs so that he can communicate, obtaining general information from interviews with his family, as well as with the entire team. Individuals should be observed, interviewed, and his language should be evaluated as an attempt to combine existing skills with system characteristics. The system should be implemented and results evaluated. The author also indicates resources that can be used in evaluation: interviews, standardized evaluations, specific formal evaluations, questionnaires for routine analysis at home and/or school. She also suggests evaluating the individual in his natural habitat, in the environment in which the individual is expected to act, and such evaluation should focus on what the individual can and cannot do. The author suggests the following questions to be used in interviews:

- How and what does the individual communicate?
- When does the individual communicate? Who does the individual communicate with?
- What are the individual’s visual, hearing, motor and perceptive skills? What is his attitude toward communication?
- Does the individual know any system(s) of alternative communication?
- What does he need to communicate? What is he not able to communicate? When? Where?
- What is the ideal communication system?

Evaluation should also have structured and/or non-structured activities trying to know how the individual relates with the rater and how such communication takes place. Motor (overall and fine-tuned), sensory and perspective function should be observed. Cognitive and learning functions should be evaluated, trying to find how the individual learns best, whether he recognizes photographs, drawings, abstract forms, letters, ability to discriminate simple words, as well as his attention, understanding of cause and effect, ability to express preference, ability to make choices, understanding of object permanence, having symbolic representation (Browning, 2008).

Evaluation enables knowledge of the individual’s communication skills and needs, expectations held by him, his family, school and teachers. These elements allow for establishment of communication objectives.
Objectives should be specific, concrete and clear, qualitatively and/or quantitatively measurable. They should be guided by the action to be taken to reach a given goal. Objective should also be realistic and reachable, and a starting and ending period should be defined. They need to be in agreement with the individual and everyone involved within the context. An action plan can be established after such information is obtained. The action plan must be known and approved by everyone involved, specifying each member’s task in detail, setting a termination date. The action plan is a planning and evaluation instrument and requires constant follow-up; in case it is not working properly, this plan should be changed for better adequacy. It is also important to know the environment in which individuals are inserted, identifying the facilitating partner, establishing contact and strategies as well as identifying perceived barriers and evaluating the facilitator’s participation (Browning, 2008).

Finally, enabling individuals to learn a new communication system requires time, patience, finding a learning approach, with concrete and well established objectives, because a successful investigation depends on these strategies.
4. Case study: application of AAC in a case of inclusion of a subject with Cornelia Lange syndrome

The school chosen for this study belongs to the municipal teaching network of a town located in the metropolitan area of Porto Alegre, Brazil. The municipal department of education has a Municipal Center of Inclusive Education. It provides all schools with assistance to inclusion, classroom with multifunctional resources, learning laboratory, psychology and psychopedagogy services, social service, and educational guidance. It has professionals of different areas, capacitated and providing their services regarding the policy of inclusive education.

This article will only present the profile of one case followed, namely, subject N., who has Cornelia Lange syndrome.

Subject N. is a 12-year-old girl who lives with her family (mother and father), has a brother that is married and lives in the same district. From the communication perspective, N. started saying her first words when she was 1.5; at 2 she had a car accident and was no longer able to express herself verbally. Her mother reported she had already noticed language delay before that event. The family then sought help of pediatricians and specialists. She is currently undergoing neurological, psychological, and pharmacological treatment. She has autonomy to get dressed and use the bathroom. It is a very active and vain girl, even perfectionist, since everything must be in its right place. She has an established routine for all activities. Communication takes place through some gestures.

Her school is located in the town outskirts and has about 600 students. It provides child and elementary education. She is attending a second-year class, which is composed of 24 students. Students’ socioeconomic level is very low (80% are trash pickers in Porto Alegre), and most families belong to the federal program “Bolsa Família” (financial aid to poor families). Students are very needy; at any sign of attention toward them, they feel valued and return care with many hugs and kisses.

N.’s initial integration in the school was troubled. She had a hard adaptation in the first year, and in the second year she managed to have good social integration with her teacher and classmates. It was a year of great school progress. In addition to the social aspect, she started using a pencil, made drawings all the time and is able to write the letter “A,” mimicking her colleagues as if she were doing the activities assigned by the teacher.

An experiment in N.’s class, in which AAC was implemented in the classroom, will be reported next. The activity was arranged with the teacher as a form of explaining N.’s classmates the presence of researchers in the school and individual treatment provided to her.

The activity was started by writing the following words on the board: inclusion and alternative and augmentative communication; next, simply and clearly, taking
Applying Alternative and Augmentative Communication

5. Analysis of the experience and outcomes

The activity was not only a new experience for these students, but for everyone who participated, as it can be perceived that use of AAC in the classroom yielded results beyond expectation. All students, including N., had active participation, showing interest and enthusiasm. In addition to understanding the meaning of inclusion and AAC, students were also in the “shoes” of someone with special needs. They showed a simple use of AAC. Students also understood that AAC can enable N. to have a better form of communication with them.

After obtaining all the data from observations, videos, conversations, interviews, inventory, anamnesis, and interactions with subjects, a profile was created and an Action Plan including extensive and intensive use of AAC through ICTs was developed to meet communication and literacy needs and expectation of the child being studied. In particular, activities using images (AAC) are being developed through Pecs, sounds, animated videos, software, such as for example the COMUNIQUE software, for the entire class to create boards to N.

References