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War and refugees: the welcome contribution of Augmentative and Alternative Communication. Technologies for school

La guerra e i rifugiati: il contributo di accoglienza della Comunicazione Aumentativa e Alternativa. Tecnologie per la scuola

by

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Abstract:

The growing immigration wave of populations fleeing wars, famines and poverty highlights the need to create tools for welcoming children to schools in countries unknown to them. Language can represent a great barrier to inclusion and integration, causing children to suffer especially for the lack of communication means. Augmentative and Alternative Communication (AAC) is based on the use of symbols to share meanings, and it is a resource for both children with disabilities and foreign children. The article analyses the best free resources that can be useful for building games and

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language learning activities for every child in Italian schools; knowledge of these opportunities is essential for school staff's updating and for educators' pre-service training.

Keywords: Augmentative and Alternative Communication, Assistive Technologies, Refugees, School Inclusion, Language Learning

Abstract:

La crescente ondata migratoria delle popolazioni in fuga da guerre, carestie e povertà mette in luce la necessità di costruire strumenti per l'accoglienza dei bambini nelle scuole di paesi per loro sconosciuti: la lingua può rappresentare una grande barriera all'inclusione e all'integrazione, causando nuove sofferenze all'infanzia, soprattutto per la mancanza di strumenti per comunicare. La Comunicazione Aumentativa e Alternativa (CAA) si basa sull'uso di simboli per condividere significati ed è una risorsa sia per i bambini con disabilità, sia per i bambini stranieri. L'articolo analizza le migliori risorse gratuite che possono essere utili per costruire attività di gioco e apprendimento della *language* per ogni bambino nella scuola italiana; la conoscenza di queste opportunità è fondamentale per l'aggiornamento del personale scolastico e per la formazione pre-service degli educatori.

Parole chiave: Comunicazione Aumentativa e Alternativa, Tecnologie Assistive, Profughi, Inclusione scolastica, Apprendimento della lingua.

1. Introduction¹

Since the middle of last century, educational institutions and pedagogical research took increasing care in calibrating the teaching-learning paths on the real educational and training needs of each pupil. Likewise, guaranteeing “quality, equitable and inclusive education and learning opportunities for all” (UN, 2015, art. 4) has for years been one of the key objectives of national and international policies, aimed at identifying strategies that can favour sustainable development and greater inclusion. The right of each and everyone to education implies the provision of adequate interventions that recognize the importance of accessibility to the physical, social, economic and cultural environment and the crucial role of any person's activity and involvement in every life situation. The phrase “special educational needs”, highlights the various difficulties that can arise in relational and learning paths (Ianes, 2015). According to Galdieri & Todino (2021), far from labelling and medicalising, it invites schools to know how to recognize and promptly accept the signs of discomfort, with the aim of focusing the didactic action on a set of good practices, also mediated by the use of technologies, designed not for the individual student but, in a transversal way, addressed to the entire class group, to foster teaching-learning processes and inclusive education in formal and non-formal contexts. The very concept of inclusion has increasingly identified “the ability to provide a framework in which

¹ The manuscript is the result of a collective work of the authors, the specific contribution of which is to be referred to as follows: introduction (1), paragraphs 3, 3.1 and 4 are attributed to Cristiana Cardinali; paragraphs 2, 2.1, 2.2, 5, 5.1, 5.2 and conclusions are attributed to Giuseppina Castellano.

pupils - regardless of ability, gender, language, ethnic or cultural origin - can be equally valued, treated with respect and provided with equal opportunities at school” (Dovigo, 2008, p. 13).

To achieve this, there is an imperative need to plan itineraries capable of exploring the pedagogical strategies and teaching approaches that best support learning and are effective in increasing the success of all students, trying to conceive, from the beginning, a project for everyone, taking into account the differences, but aiming to promote each one’s best opportunities for personal growth.

Promoting an inclusive pedagogical approach is particularly significant for highlighting the perspectives, potentials and opportunities of assistive technologies, for understanding how legal and socio-ethical benefits increase and how these contribute to achieve *assistive inclusion* (EPRS, 2018) and, consequently, full inclusion, in European countries and in every nation in the world. However, it is necessary to verify in advance which and how many technologies can really be defined as “inclusive”, amplifying the person’s physical, sensory and cognitive resources, supporting their right to choose and decide in every context of life (Galdieri & Todino, 2021). Contributing to improving people’s quality of life and, consequently, providing them with real opportunities for inclusion, can make everyone capable of making choices and carrying out an individual project, certain that this “drive to self-determined actions characterizes all individuals, regardless of their abilities and skills, and it is one of the basic conditions on which the very quality of everyone’s life is founded” (Cottini, 2016, p. 16).

In this particular moment, in which our country is the crossroads for the salvation of refugees, displaced people and forced migrants, education is seen as a mechanism to socially integrate these young people into their new communities and transform them into productive citizens (Beirens et al. 2007), while school becomes a constant in their existence, even when, in most aspects of their life, they experience instability (Wiseman et al., 2019).

However, in most cases, education systems and educators are not prepared for the unique needs and challenges of refugee, displaced or migrant students.

Among those students who have access to education, many of them will have to overcome several other challenges: past trauma, unstable domestic environments and socio-cultural instability will have a huge weight on the relevant outcomes. All factors combine, giving rise to frequent and persistent risks, which will affect their psychological and social well-being (Hadfield et al., 2017).

2. The right to communicate

In December 2006, the United Nations approved the Declaration on the Rights of Disabled Persons, which is now law in many countries of the world. This document is an international treaty which is part of the UN Declarations on the Defense of Human Rights (1948), of the Rights of the Child (1959), with the aim of contrasting any violation and discrimination. In the current tragic historical moment, humanity is suffering wars, racial conflicts, famine. Entire populations migrate in search of safe places, nations that can welcome people forced to leave their homeland, their history and culture, often without knowing the language of the host country. The difficulty or impossibility of communicating with the citizens of the host countries is often added to the suffering of populations struck by disasters. It can be observed that even people who cannot use oral language due to a complex pathology suffer from the same social and relational isolation. For this reason Augmentative and Alternative Communication (AAC) uses (graphic and pictographic) symbols, which allow the exchange of meanings and messages between people who use oral language and people with

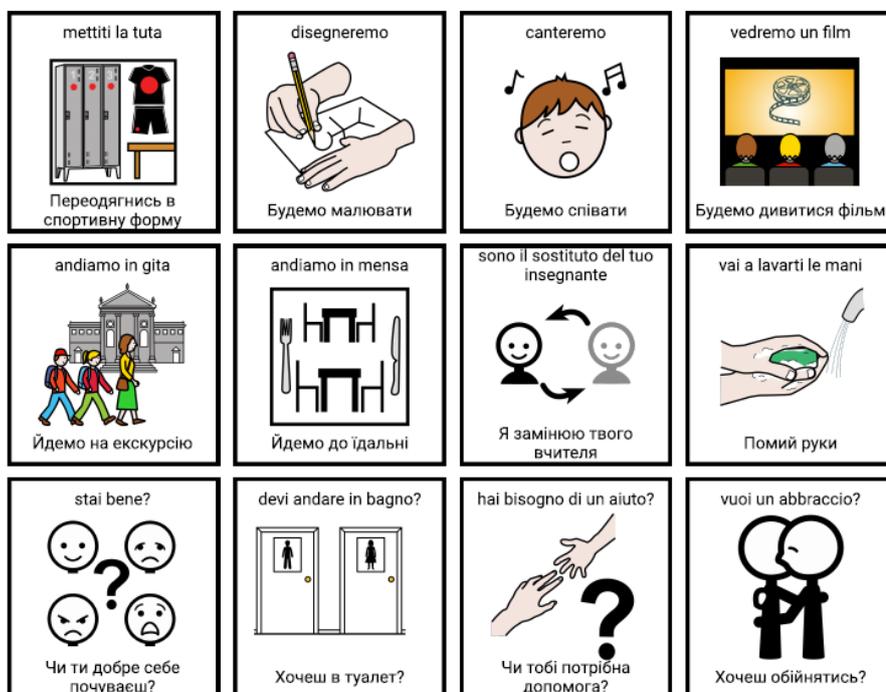
disabilities, who have *language* limitations. AAC was born at the end of the 1970s, by developing the study of non-verbal communication: a cultural movement that allowed the encounter between the work of Charles Bliss (1965) and the first Canadian pedagogists who understood the great potential of symbolic communication. Charles Bliss was a Ukrainian engineer of Jewish origin. During Nazism he managed to survive extermination camps and dedicated his life to a project characterized by a strong ideality; he elaborated and created a symbolic communication system, with the idea that communicating through a language based on symbols, by applying logic and semantics, would allow humanity to overcome any language barrier, racial prejudice and cultural belonging. The Bliss Language is made up of 50 internationally approved basic symbols, plus 30 symbols with characteristics of modifiers applied with specific rules, and the numbers, which contribute to the linguistic modifications necessary for the correspondence between symbol and meaning. The Bliss Language evokes Chomskj's Transformational Generative Grammar (1970), because the combinatorial property of symbols allows to generate thousands and thousands of meanings. In the early 1970s, the Bliss Language was used at the Ontario Crippled Children's in Toronto, to cure children with Infantile Cerebral Palsy who could not use oral language. The results were surprising: Shirley McNaughton and the other experts contacted Charles Bliss to purchase his book and subsequently invited him to their center to train and supervise. Thus the first Augmentative and Alternative Communication system was born. Ganzaroli (2021) writes "Blissymbolics has the ability to give shape to what is abstract, it allows to touch and see what concepts are really made of; when put into words, they sometimes do not reveal their true meaning". After this exceptional event, an international movement of research and experimentation on non-verbal communication developed. In 1982 it led to the foundation of the International Society for Augmentative and Alternative Communication (ISAAC). During the 80s and 90s, pictographic symbolic codes and an ever-increasing technological production also developed, so to give a voice to people with disabilities, who were completely or in part unable to use oral and written language. The aspect of writing with symbols or translating into symbols also increasingly developed.

In 2007, the initiative of the Government of Aragon to make available a Creative Commons BY-NC-SA License for the free worldwide use of a large library of graphic and pictographic symbols for communication, gave birth to ARASAAC (2007): a symbolic system to overcome any barrier to inclusion, 12,000 pictographic symbols and the possibility to modify and share new symbols. ARASAAC symbols are coloured or black and white, they can be descriptive or schematic, translated into sixteen languages. The communication materials that can be produced with ARASAAC symbols are infinite: from routines, to social skills, to displays and layouts for technological devices. They can be used for learning, for school and for any life context.

2.1 AAC as a universal language

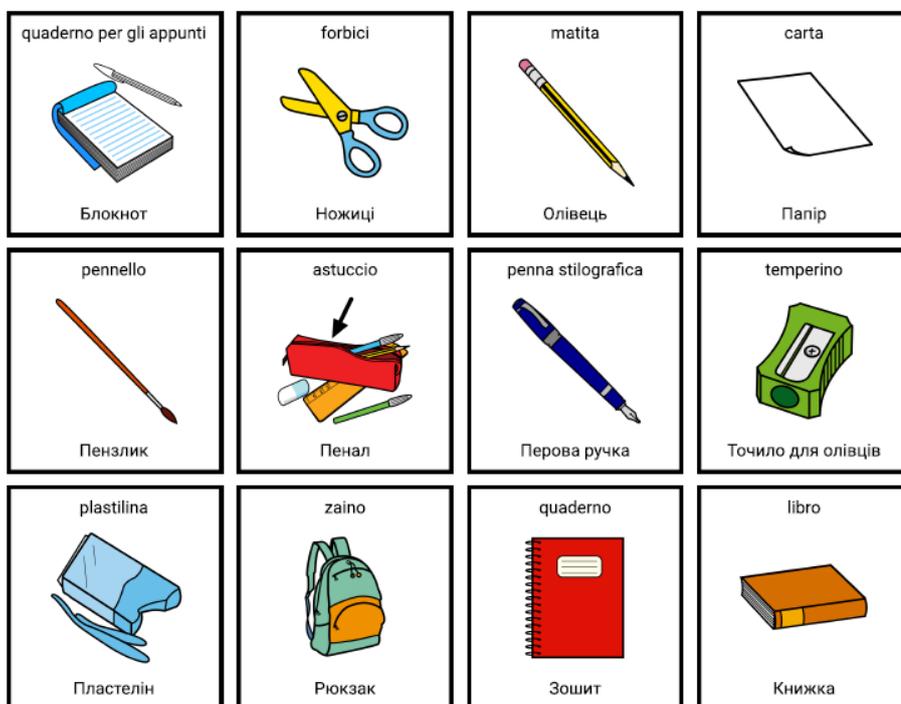
Since its origin, Augmentative and Alternative Communication proved to be a valid tool for facilitating dialogue, language learning and above all understanding between people. Due to the recent conflict between Russia and Ukraine, many refugees arrived to Europe. Therefore, ISAAC International published on its institutional website free online materials in ARASAAC symbols, translated into Ukrainian language and several other European languages. Ukrainian children and young people, who often do not know our language, arrived in Italian schools, and so it is possible for teachers and Italian children and teenagers to communicate through symbols to share their daily

activities (Fig. 1). Symbols can also be useful for a first basic vocabulary (Fig. 2). The same vocabulary can also be adapted in the healthcare sector (Fig. 3). Since ISAAC is also present in Italy as a third-sector association, these materials have been distributed as much as possible in schools and hospitals. Knowledge of AAC can also help local social services in managing conversations with no linguistic mediators, especially for instructions and information that must be given to refugees.




 Мультиязычне графічне графічне за мовної грати Анджіні і Зольді у мовознавстві проєкт Сергіо Рівалі діла АНУАААААА (http://www.avasas.org) а розроблено на на мовні Ліонія Олівія Сомпіа ВУАААААА (http://www.avasas.org) Автор розробки: Сергіо Рівалі, Зольді АНУААААА (http://www.avasas.org) Ліонія Олівія Сомпіа ВУАААААА (http://www.avasas.org)

Figure 1 Daily activities WWW.ISAAC-ONLINE.ORG




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Figure 2 A first basic vocabulary WWW.ISAAC-ONLINE.ORG

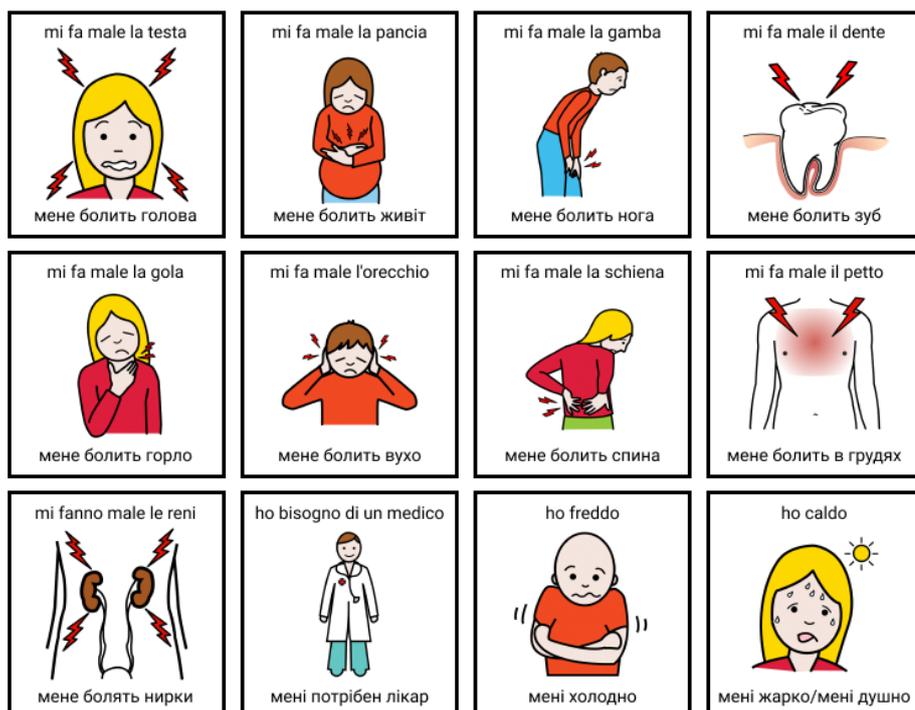


Figure 3 Vocabulary adapted in the healthcare sector WWW.ISAAC-ONLINE.ORG

2.2 The Cooperative Model of Human Communication

The Ukrainian tragedy shows what happens during every war; it is important to consider that solidarity and generosity have been shown by populations of all Europe. This experience is also the proof that the foundations of communication are essentially the expression of a natural need for cooperation: communicating in order to understand each other. This is the purpose of the Cooperative Model of Human Communication (Tomasello, 2009), as non-verbal communication is common to the whole human race. Signs, gestures, posture, proxemics and, above all, the gaze are constitutive elements of a human signaling system: they convey meanings, become instruments of attention and participation, far beyond the use of oral language. On this model, in fact, AAC lays its foundations for the development of *Unaided Communication*, that is, the set of all natural human strategies for communicating between people. It is evident that facing with people who do not understand our language, and being unable to use our interlocutors' language forces us to find alternative means of expression to receive messages and express our contents. Thus the interpretation of the message in the absence of *language* sharing is enriched with those elements which belong to the entire human species, becoming traces of a path of mutual recognition and belonging to a single species: the human species.

3. Translanguaging for the enhancement of refugees' linguistic resources

Language skills are essential for the refugees' acculturation, because proficiency in the language of the host country plays a key role in social, educational, and occupational contexts (Van Tubergen 2010; Liebau et al., 2016). Nonetheless, educational research has hardly focused on problems of traumatic nature related to "forced migration" (Fleckenstein et al., 2021), which challenge and influence the language acquisition process. According to Damaschke-Deitrick & Wiseman (2021), evidence suggests that the unique intersection of trauma, identity, and language issues (TIDAL)

defines the refugee and forced migrant experience, thus educators and researchers working with refugee and forced migrant youth need to take these elements into account. Research has shown how trauma characterizes the experience of children and young people in their country of origin, as they flee and when they resettle and try to adapt to the new community (Fegert et al. 2018). These experiences strain their psychological and social well-being, with the risk of long-lasting developmental disorders. Various studies (Mendenhall & Bartlett 2018; Dryden-Peterson 2015) have also shown how the trauma and losses experienced by refugee children impact their way of learning, relating and interacting with others.

Similarly, the identity of young refugees is undermined. Newcomers often experience feelings of disconnection, social and cultural isolation and a “cultural shock” while settling in host countries (Wiseman & Galegher 2019).

Therefore, although language is one of the main sources for one’s social identity and belonging to a social group and context, the experience of trauma and the feeling of losing the “old” identity can impact a person’s openness and ability to learn a new language. If teachers and educators should not only focus on second language learning, but also on the interrelationship between trauma, identity and language, what could be an effective pedagogical approach?

Research shows that approaches based on the so-called *translanguaging* can enhance students’ existing language skills and help build a bridge between languages (Bajaj & Bartlett 2017).

The term “translanguaging” is often ascribed to Cen Williams (1994, 1996), who first used it to define a pedagogical practice in bilingual classrooms where the input (e.g. reading and listening) is in one language and the output (e.g. speaking and writing) in another language.

Wei (2010) asserts that the concept of translanguaging is based on the psycholinguistic notion of *languaging*, which refers to using language to acquire knowledge, to make sense, to articulate thoughts and communicate about using language. It includes the multilingual language users’ full range of linguistic performances, for purposes that transcend the combination of structures, the alternation between systems, the transmission of information and the representation of values, identities and relationships. Thus the act of translanguaging has a transformative nature. It creates a social space for multilingual language users, by including numberless aspects of their personal history, experience and environment, attitude, belief and ideology, cognitive and physical capacity into one coordinated and meaningful performance, and making it a lived experience. This “translanguaging space” is created both *for* the act of translanguaging and *through* translanguaging. The notion of translanguaging space is particularly relevant to multilinguals, not only because they can use multiple linguistic resources to form and transform their own lives, but also because the space they create through translanguaging has a transformative power. Here, the process of “cultural translation” between traditions takes place. Different identities, values and practices do not simply co-exist, but combine together to re-generate and become new.

In this view, language as a *transformative practice* cannot be separated from its users, who are not just accordant supporters of an idealised system but actors that can conform or subvert, create and revolutionise the language while using it (Jørgensen, 2008), and from the context in which they operate. This is in line with the biopsychosocial model of disability, as articulated in the International Classification of Functioning, Disability and Health (ICF; World Health Organization, 2001), which describes human functioning as an interaction between the person (body structures and functions, and personal factors) and the environment. According to Tonsing & Soto (2020, p. 194), considering

language as a practice and not as an abstract system (Fig. 4) is in line with observations and reports of flexible linguistic behaviours in multilingual speakers, who often make full use of all languages they know while interacting with other multilingual (Jørgensen, 2008); with neurolinguistics studies showing the neural interrelationship of different languages in the brain (Hoshino & Thierry, 2011); and with the inability of sociolinguists to successfully draw clear boundaries around languages, linguistic varieties and dialects (Jørgensen, 2008). Therefore, translanguaging, intended as a pedagogical strategy, implies the acceptance and promotion of all the linguistic resources that students possess (Lewis et al., 2012). Translanguaging is consistent with the general approaches and practices of AAC service providers. The acceptance and use of alternative forms of communication and a peculiar attention on multimodality is essential (Zangari, Lloyd, & Vicker, 1994). Translanguaging may therefore be considered fundamental in AAC, encouraging both a variety of communication modalities and also all of the language resources and features the person knows and is exposed to in their environment.

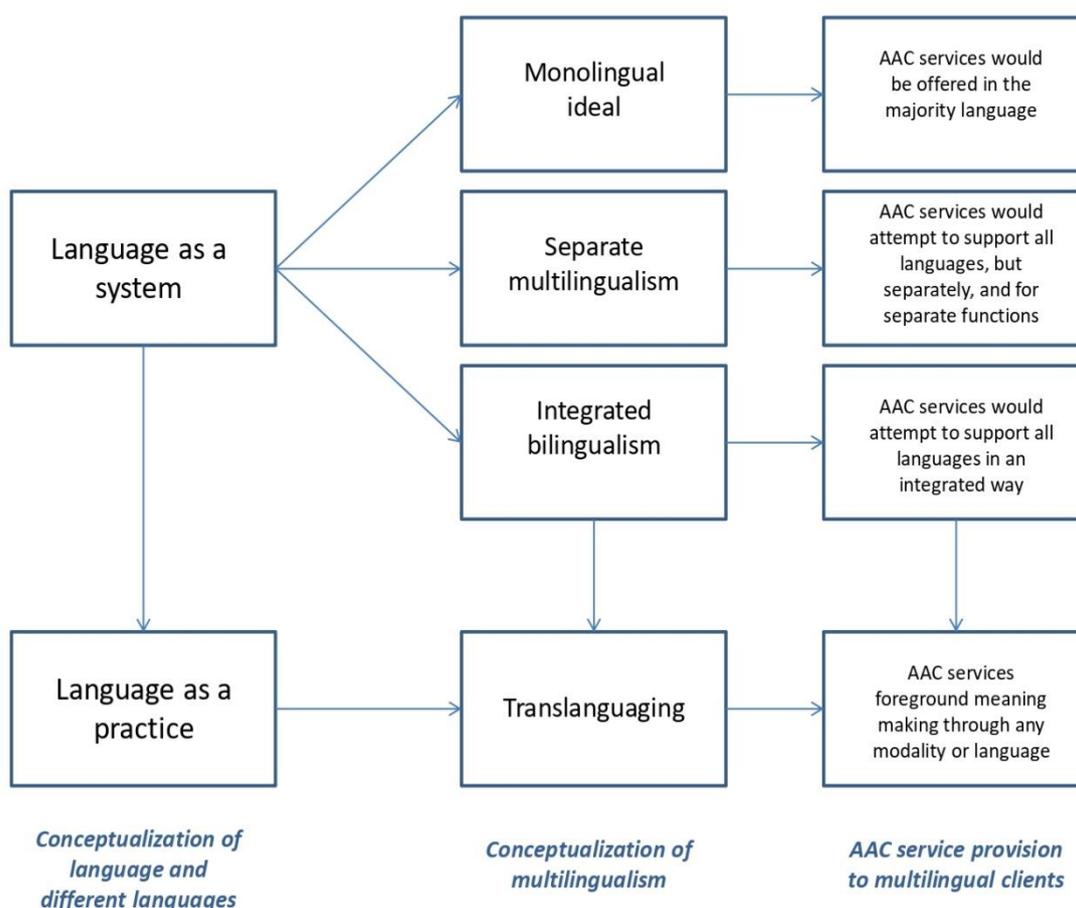


Figure 4
An overview of conceptualizations of language, multilingualism, and possible effects on AAC service provision (Tonsing & Soto (2020))

3.1 AAC as a space for intercultural mediation

If we support the idea that AAC is the “last resource” reserved only for people with Complex Communication Needs (Ronski & Sevcik, 2005), without considering the evolutionary path undertaken by this assistive technology, we certainly cannot appreciate its important contribution to the intercultural field. What we instead argue here is that AAC represents a privileged mediation space between different languages and cultures. First of all, following Newell’s predictions in the 1990s, disabled people can benefit from general technological improvements, but it is also true that the results of applied research for the disabled can be of substantial benefit to all human beings. Nothing is exclusively reserved and for the benefit of a single human condition (Newell, 1990). This said, in the last forty years an increasing attention to participation led AAC’s application to extend beyond the individual user, to respond to the needs and skills of the family and other facilitators, as well as of society in general (Light et al., 2012). For this reason, in light of the demographic changes that have occurred following globalization, recent research orientations highlight the importance of understanding the perspectives of students and families belonging to culturally and linguistically different populations and using AAC devices (Kulkarni & Parmar, 2017). Research has in fact underlined the need to consider the cultural component in the implementation of AAC devices for bilingual students (Bal & Trainor, 2018). Despite the limited number of currently existing studies, this has meant accepting the challenges connected with working with disabled or multicultural and multilingual students, (Soto & Yu, 2014), with the certainty that learning a new language does not represent a deficit, but rather a resource (Kohnert, 2013). According to a sociocultural approach to bilingualism and AAC: “If we conceptualize language as a tool for contextualized meaning-making and not just an abstract mental system, then we are also able to recognize that the use of more than one language, rather than causing confusion, opens up opportunities for the child using AAC to achieve shared meaning” (Soto & Yu, 2014, p. 86). Furthermore, the importance of closely working with families and social networks, constantly required for the implementation of an AAC system, involves the recognition and enhancement of the linguistic and cultural capital of the community of origin (Waterman & Harry, 2008).

Current research perspectives, open to multiculturalism and multilingualism, consider the communicative experiences of the child and the skills acquired with family members as an essential resource to build AAC interventions. With this approach, we definitely move away from the traditional indication of focusing only on a single language for bilingual children, with or without communication disorders (Kohnert, 2013), which removes language from its social context and ignores its fundamental role as a means of inculturation.

4. AAC and intercultural education

The multicultural configuration of today's societies, resulting from the current globalization, puts a strain on every country’s educational systems. Although the heritage of experiences and good practices achieved by schools in recent years represents an extraordinary educational resource, teachers and educators understandably complain that they do not have the skills and tools necessary to manage the entry of foreign children into classrooms. An adequate professional training for teachers and educators to work with students from different cultural backgrounds allows them to recognise and value existing cultural and linguistic skills (Bridges, 2004) and to dismantle any trace of ethnocentrism (Picower, 2009).

According to Fiorucci (2017), teachers and educators should foremost reflect on the attitudes and representations that they assume towards foreign children, and undertake a profound work of cultural revision on themselves. The result is a cognitive decentralization capable of attenuating any trace of ethnocentrism in our educational system, to assume a perspective of *critical ethnocentrism*. The notion of critical ethnocentrism was coined by Ernesto De Martino (De Martino, 1977). It refers to the impossibility and uselessness of leaving one's own cultural tradition, and therefore one's own ethnocentrism which however must become critical, that is, non-dogmatic and aware of the limitation of one's own judgment.

The growing immigration wave of populations fleeing wars further accentuates the need for adequate training to face the unique challenges that forced migration brings. Research suggests that teachers and educators are rarely trained in managing the trauma of refugee students (Wiseman & Galegher, 2019); at the same time, there is a need to develop balanced models of inclusion, to avoid that they are negatively stigmatised or treated exclusively as victims of trauma rather than as resilient individuals (Dryden et al. 2018). Only in this way, school systems can represent a solid and stabilising point of reference for refugee students, a "return to normality", among the many forms of instability that they experience in their life (Damaschke-Deitrick, 2021).

The ability to constructively confront cultural and linguistic diversity has always challenged professionals and families who support students using AAC, with the aim of helping them reach their full potential as communicators and maximise their participation in communities. Therefore both expert and non-expert operators who use AAC, need to become aware of their active role as intercultural mediators, and to promote every effort for adequate pre-service training and relevant in-service refresher training.

5. Materials and methods for inclusive activities in a multicultural environment

LUMSA University's pre-service training model for professional educators (Castellano, Cardinali 2021), students experimented with and deepened principles and practices for competences related to the design of AAC activities at school. The Participation Model (Beukelman & Mirenda 2013) was integrated with the Adaptability Principle enunciated by Feurenstein (Kopciowski Camerini, 2015) contributing to the implementation of inclusive activities (fig. 5).

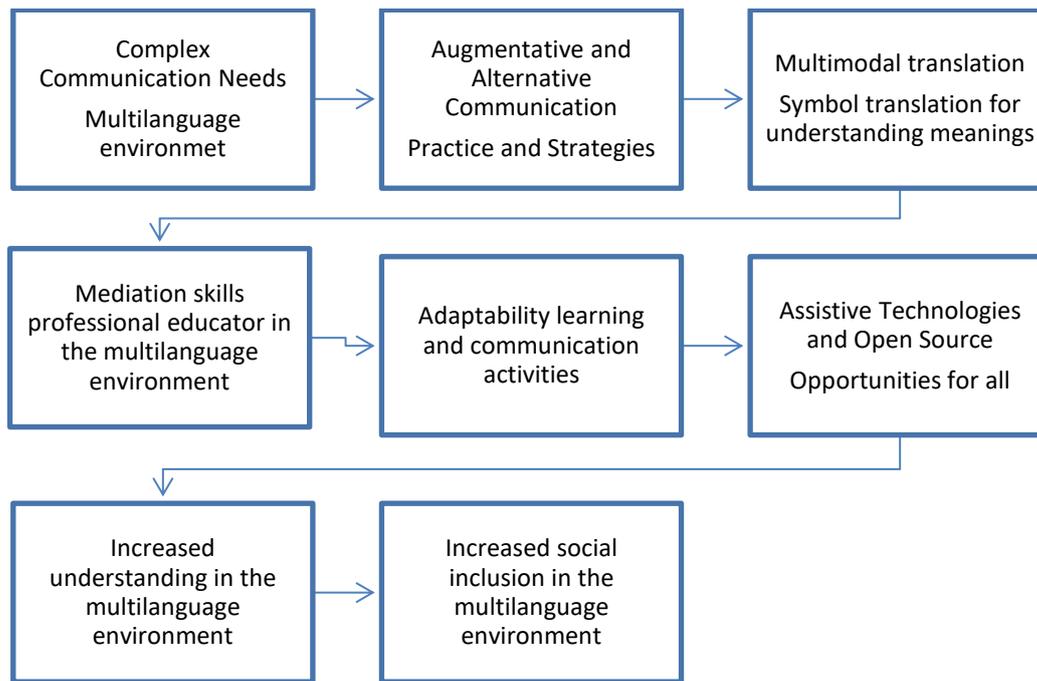


Figure 5 Understanding and inclusion in multilanguage environment process

In fact, we owe the psychologist Reuven Feurenstein the elaboration and development of a method of cognitive recovery and enhancement that all children and young people can benefit from today, helping them overcome trauma and discrimination due to extreme conditions, intellectual disability or other conditions of deprivation. In the 1950s, Feurenstein developed a rehabilitation programme for children who survived concentration camps; in the 1970s, he then contributed to the social inclusion of thousands of Jewish children and young people expelled from Arabic countries. Among the methodological objectives of the training, while referring to the Adaptability Principle, professional educators acquire the ability to adapt to multilingual environment Learning Units to be implemented directly both in the classroom and in small groups, using lap books and translating learning content into symbols, as in AAC practices. The theoretical framework is thus translated into intercultural educational practices intended for Ukrainian children, in order to help them learn and socialize but applicable in various contexts. Contents have been developed on the most popular topics for childhood, such as different foods, music, visual arts, sports and games (fig. 6).



Figure 6 Some of the experienced activities

These tools foster a cooperative learning style that all children can access, whatever their starting condition or language *is*, with the goal for all to educate, modify and enhance their intelligence and cognitive resources. For professional educators in particular, knowledge of AAC and assistive communication technologies are indispensable for designing inclusive activities. These activities are intended for the whole class group and the same tools can successfully be generalized to any linguistic and social context. Students have experienced areas of possible intervention where AAC can be considered as an intercultural tool. The translation of lyrics of famous songs and children's songs into ARASAAC symbols and their transformation into an animated video proved to be particularly effective and inclusive; infact, music is one of the most popular sharing tool especially among young people and children. The design and realisation of games and stories in symbols for learning basic vocabulary was therefore encouraged; as well as the development of topics translated into ARASAAC symbols and dual language (Italian and Ukrainian) to facilitate the acknowledgement of the characteristics and habits of the two peoples in host, school or associative situations. In addition to the symbolic tools of the AAC, the use of open source possibilities has proven to be useful.

5.1 Games, learning, skills development

Communication is also the use of *language* and consequently the learning of an unknown language mainly takes place as a result of fully experiencing the community, of observing habits and customs and of examining the language as an action and not as description (Austin, 1987). Wittgenstein had already declined the new paradigm of the Theory of Language (1999), later developed also by Grice (1991) in the *Theory of non-natural meaning* (1991), i.e. defined not a priori but by contextual rules and shared norms of conversation through which communicative exchanges occur: in *Cognitive Pragmatics* (2009), Bianchi highlighted the value of Social Scripts as a constitutive element of the communication and relational process among people. The observation of such communicative behaviors, just as Wittgenstein (1999) wrote, “leads us to understand that a certain man has said a certain thing to another, and this has resulted in changes in the context”. AAC uses *Social Scripts* as a communication strategy, characterizing communication exchange activities as real experiences of conversation and communication, even using simple assistive technologies (Musselwhite & Burkhart, 2004; Burkhart, 2007). In the current context, we can observe that language learning takes place in the same way for all children (be they Italians or foreigners), people with disabilities or people with normotypical development. It follows that AAC can represent a facilitation of the mutual understanding process and perhaps of oral expression of communication needs far beyond the basic needs. Communicating feelings, emotions, conveying ideas and asking questions: this is the goal of AAC and in general of communication among people. Undoubtedly, games and learning are the most active contexts in schools, and therefore they constitute the basis for the development of individual skills.

5.2 Open Source: evaluation criteria for software and activities

Especially in the most disadvantaged territories or in the absence of complex assistive technologies, there is an obvious need for operating systems, softwares and platforms with public licences, and therefore free of charge. This could become an evaluation criterion for softwares and other resources useful for AAC, learning and inclusion. While ARASAAC symbols with Pictoselector and SimCAA software, are a very important free resource, some software and apps can also be considered easily

accessible assistive technologies. Worldwall is an online platform that allows the teacher or educator to create school activities and learning units in several languages, including Ukrainian, as shown in Figure 7.

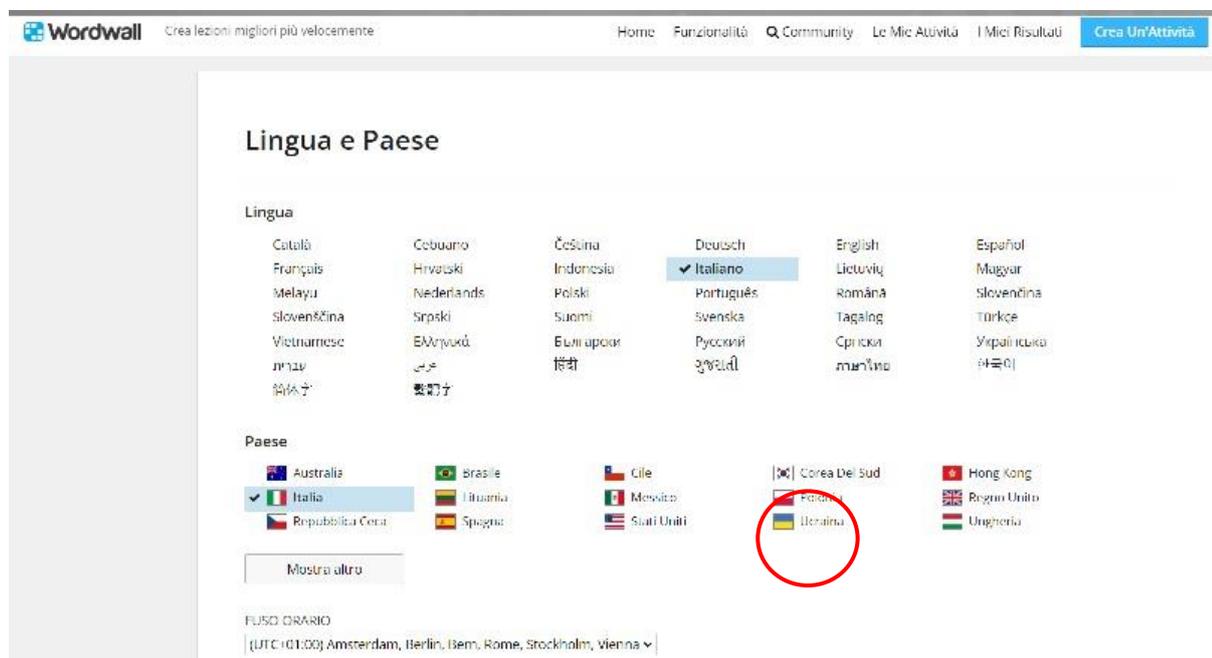


Figure. 7 Worldwall platform <https://wordwall.net/>

Finally, Power Point is undoubtedly a great resource in any PC's operating system; it is an open software in which multimedia can be used for any topic: create reads, concept maps, exercises and games in any language; these contents are compatible with the use of the Interactive Whiteboard (IWB), now present in many Italian schools.

There are also social conditions in which it is not possible to purchase the Office package, containing the main softwares such as Power Point, Word, Excel; in this case the functionalities of free operating systems, e.g. Open Office, can adequately perform the same activities. Open Office is available in 43 languages and has the advantage of being free. LibreOffice is also a very valid alternative to fee-paying softwares: it is an open-source suite managing all PC applications and it is available in several languages. Among the learning softwares that every child can use, it should be noted that a *free educational software* has been present in Italy for many years. The free educational software has the features necessary for learning and not just for practicing, with the option of self-correction: a very important function for the learning process. All open-source softwares and platforms are also accessible to those who want to program and share, making their own personal contribution to the development of platforms and softwares, or to the dissemination of useful information to use free systems, especially in situations of socio-economic disadvantage. Everything produced with open-source softwares and platforms is compatible with the Windows operating system.

Conclusions

Alongside Open Source technologies for communication and learning, educators trained in the LUMSA university course in Rome were able to experiment with devices for AAC, intended to create inclusive activities. These devices can be purchased by every Italian school and are useful for teaching

and for community education, by using AAC techniques and strategies. They are simple technologies with voice output (Voice Object Communication Aid) that all children can activate; from Talking Walls or talking boards, to vocabularies with symbols and simple communicators with different functions: the reproduction of messages according to the Social Script model or the reproduction in randomised mode of messages intended for social activities and group games. The knowledge and use of open access tools in AAC and education makes inclusion possible in any school context and in different situations, even in the absence of complex assistive technologies. The educators are able to set up reading, writing, storytelling and gaming activities, thus creating active and cooperative learning situations which involve every child, both Italian and foreign, children developing in a typical way and children with neurodevelopmental disorders or other conditions. As Buber (2014) argued in *The Dialogical Principle*, the world is not something fixed and unique but depends on our attitude, on our way of approaching the human dimension: recognising I and Thou as the relationship between people means not considering the other as an object but as another declination of Being. In light of this, the educator's activity assumes the values of an ecological thought aimed at the education of the community.

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