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Augmentative and Alternative Communication (AAC) in educational and school services: socio-pedagogical professional educator and the transdisciplinary approach to *complexity*

La Comunicazione Aumentativa e Alternativa (CAA) nei servizi educativi e scolastici: l'educatore professionale socio-pedagogico e l'approccio transdisciplinare alla *complessità*

di

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Abstract

Within the Italian educational and scholastic contexts, the commitment of the socio-pedagogical professional educator, as well as all the other specialties present in the multi-professional team of Augmentative and Alternative Communication (AAC), represents an essential point of observation. Therefore, the present article focuses on what kind of training and competences this professional figure requires in order to effectively contribute to the participation of the Person with Complex Communicative Needs (CCN) by supporting an effective use of AAC and, at the same time, it

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identifies in a transdisciplinary approach towards the complexity, intrinsic to educational work and severe disability, the way to foster a “rethinking” in the direction of improving the quality of inclusive processes.

Keywords: Augmentative and Alternative Communication (AAC), Socio-pedagogical Professional educator, Complex Communication Needs (CCN), Transdisciplinarity, Complexity

Abstract

Nei contesti educativi e scolastici italiani, l’impegno dell’Educatore professionale socio-pedagogico, al pari di tutte le altre specialità presenti nell’*équipe* multiprofessionale di Comunicazione Aumentativa Alternativa (CAA), rappresenta un punto di osservazione irrinunciabile. L’articolo riflette su quale formazione e di quali competenze necessita tale figura professionale per contribuire efficacemente alla partecipazione della Persona con Bisogni Comunicativi Complessi (BCC) sostenendo un uso efficace della CAA e individua in un approccio transdisciplinare alla complessità, insita nel lavoro educativo e nella disabilità grave, la strada per favorire un “ripensamento” nella direzione del miglioramento della qualità dei processi inclusivi.

Parole chiave: Comunicazione Aumentativa e Alternativa (CAA), Bisogni comunicativi complessi (BCC), Educatore professionale socio-pedagogico, Transdisciplinarietà, Complessità

1. Introduction¹

Augmentative and Alternative Communication (AAC) considers communication as a primary human need and adopts the Participation Model (Beukelman & Mirenda, 1988) as a reference framework for the evaluation and implementation of interventions aimed at increasing the opportunities for participation and communication of people with Complex Communication Needs (CCN) in their life contexts. Under the supervision of AAC specialists, the interventions, with the collaboration of the family and caregivers, promote the integration of different professionals involved in various ways in the team for a global and integrated “taking charge” of the habilitative/rehabilitative project of the person with CCN.

In particular, focusing our attention on educational and school contexts, the Socio-pedagogical Professional Educator complements the other figures involved in the creation of inclusive educational contexts where the use of AAC systems represents one of the main developmental trajectories for inclusive Special Education (Hewitt & Nye-Lengerman, 2019). In this framework, the figure of the socio-pedagogical professional educator outlined in Law 205/2017 as an effective link between the parts of the education, schooling, training system and the person, is affirmed as a professional profile who can facilitate the construction of educational practices that, carried out

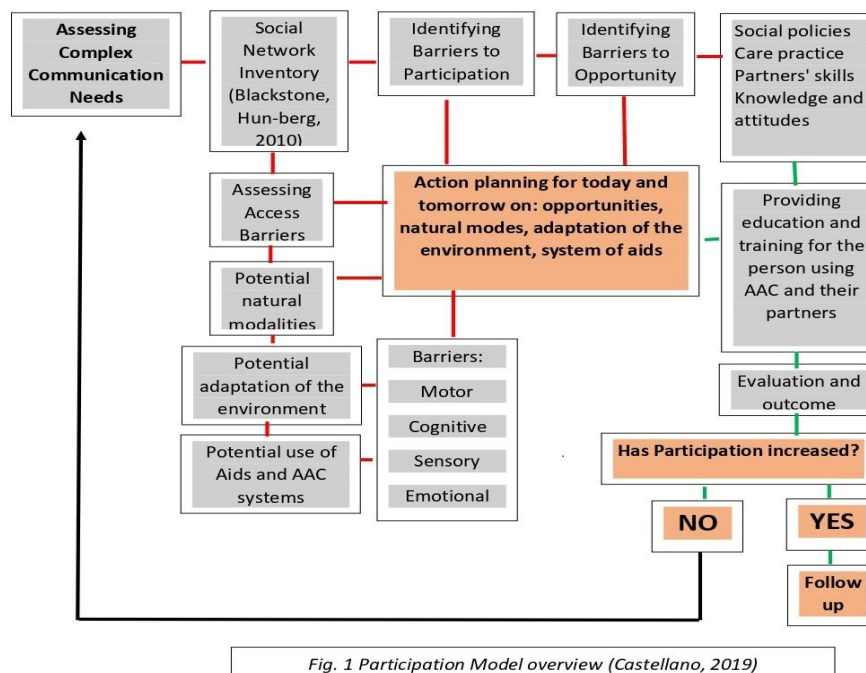
¹ The manuscript is the result of a collective work of the authors, the specific contribution of which is to be referred to as follows: introduction (1), paragraphs 4 and 5 are attributed to Cristiana Cardinali; paragraphs 2, 3 and conclusions are attributed to Giuseppina Castellano.

through a methodology guided by synergistic and shared approaches, can contribute to the realization of the inclusive educational process (UNESCO, 2000; OECD/CERI, 2005) even in CCN situations. Nevertheless, in the light of the existing studies presented in the literature (Tönsing & Dada, 2016; Soto et al, 2001; Kent-Walsh, 2003), which show difficulties on the part of teachers and educational team in achieving full inclusion of students with AAC needs due to the lack of specific training, space/time for team planning with consequent limitations of opportunities for participation (Beukelman & Mirenda, 2014), we believe it is necessary to ask: what training and what skills does the Professional Educator need for the inclusion of the person with CCN and the effective use of AAC? This is the question on which this contribution reflects, identifying in a transdisciplinary approach to the complexity - inherent in the educational work and in severe disabilities, the way to encourage a “rethinking” in the direction of improving the quality of teaching-learning processes, opening reflections on the potential to support a more inclusive education (Contini et al., 2006; Rivoltella, 2012; Damiani, 2012).

2. The Participation Model in Augmentative and Alternative Communication

Augmentative and Alternative Communication (AAC) is a multidimensional approach addressed to communication disabilities, i.e., functional limitations in the use of oral language as a result of developmental or congenital pathologies of populations in the age of development or adulthood. The spectrum of pathologies that can affect the population includes Neurodevelopmental Disorders, among which Autistic Spectrum Disorders (ASD), which AAC interprets as a condition of Neurodiversity (Singer, 2017): a broader meaning as subsequently expressed in the DSM V, precisely in order to recognise the importance of individual Adaptive Functioning with respect to the history of interactions between the Person and the Environment. People affected by rare diseases can often be limited in the quality of their performance of Activities of Daily Living (ADLs) and of Participation due to structural and functional impairments caused by the phenotype of their disease. As it can be observed, there is a large population of people who can benefit from correct clinical, educational and AT-supported practices to improve their performance in Communication and thus improve their active Participation in community life. Since the 1970s, AAC has been developed and is now practised in 56 countries around the world, and the United Nations has recognised the Right to Communication as inalienable in the Declaration of the Rights of Persons with Disabilities. Many states have ratified the UN Convention and should guarantee all training, health, educational and social systems to develop the communicative potential of all persons with disabilities who are totally or partially unable to use oral language. Even the World Health Organization (WHO) has included in the International Classification of Functioning, Disabilities and Health (ICF) Communication within the domain of Activity and Participation, both for Adults (2001) and for the Age of Development (2007). According to the WHO paradigm, health status is the result of balancing the structural and functional conditions of the human person in relation to occupational performance and activities in the living environment, taking into account the necessary reasonable adjustments: a concept found in the UN Convention on the Rights of Persons with Disabilities. The environment is considered as the set of systems on which human life is developed (from social policies, to systems of education, care, technologies and opportunities to access resources). AAC finds its full implementation and theoretical foundation in this paradigm and has developed its scientific research in all the disciplines here mentioned. AAC does not recognise any prerequisite to be able to communicate: according to Watzlawick’s five axioms, as a

matter of fact, it is not possible not to communicate (Watzlawick et al., 1971) and therefore both Unaided Communication and Aided Communication employ strategies with a high educational content for the Person with Disability and for all his/her life partners. In AAC (Beukelman & Mirenda, 2014) strategies are understood as the set of alternative modalities to speech, including the use of symbols; strategies support and increase the understanding of Complex Communicative Needs (CCN) and allow to implement alternative forms of teaching, literacy, reading and writing. AAC therefore has a strong potential for the social inclusion of people with disabilities and contributes to the development of social skills necessary for cooperation between individuals. These features of AAC imply the development of Intersubjectivity (Stern, 2005) in compliance with extensive scientific studies on Attachment Models and the generative capacity to cooperate in the understanding of people's CCN, in order to achieve the understanding of meanings, expressed through speech or in an alternative way (symbols, non-verbal communication). It is therefore possible to argue that AAC has a restorative potential with respect to traumas or pathologies that can compromise understanding between people: just consider, for example, the serious difficulties in the development of Safe Attachment Models when the child with disabilities is unable to communicate his or her CCN and the parents find themselves immersed in a dramatic difficulty of relating both affectively and educationally to their child. In the same way, the difficulty spreads to the peer community causing loneliness, frustration and barrier attitudes towards the person with disabilities. Adults who, due to acquired pathologies, lose the ability to use the spoken language have a further damage due to the consequent loss of their social role: think, for example, of the dramatic consequences in daily life in cases of aphasia following cerebrovascular events that affect the population of working age. Therefore, we can say that the Model of Participation in AAC (Fig. 1) is the theoretical reference for every AAC project, whether it is addressed to a single person or to a community. AAC is not only an educational tool for people with disabilities, but it also addresses the environment in its broadest sense. There are many care systems and services developed according to these principles. In Italy, AAC officially appeared in 2002, with the creation of the Italian Chapter of the International Society for Augmentative and Alternative Communication (ISAAC).



3. Tools for the multidisciplinary team

An AAC project could be considered as a life project, therefore extended to all ages in the history of the Person with Disability and his/her partners. Doing is the basis of everyday life and relationships; doing is the set of occupations that within them have a multiplicity of simple and complex tasks (Piergrossi, 2006). Doing is therefore the basis of health, as defined in the ICF Theoretical Model. Therefore, the assessment of performance, capabilities, opportunities and barriers is necessary for the overall project of each service and partner involved in the life course of the person with disabilities. It is a complex assessment that requires an observation-oriented, formal, and specialised synthesis of the Person's Adaptive Functioning. In this respect, all professions, whether in the health, social or educational sector, can contribute to defining the representation of both the difficulties and the potential of the person in every activity of his/her life. The Survey of Areas of Participation (RAP) tool (Fig. 2) that is being tested since 2019 (Castellano, 2019) provides multidisciplinary teams and individual professionals in every social field with the possibility of identifying the fields of intervention and the necessary actions in the design of any operational plan, be it educational, social, health, care. As far as AAC is concerned, there is, as a matter of fact, a specific focus on Communicative Functions, which can be assessed within the framework of Pragmatic Language Functions, i.e., in the Communication Activity; in particular, the RAP tool allows the description of oral language comprehension, expression, conversation, narration and communicative intentionality. The respective ICF or ICF CY codes highlighting abilities and performance in each activity, we can define with a transdisciplinary language the Person's Adaptive Functioning. Each profession can therefore contribute to this definition and ultimately to the overall planning. The commitment of the professional educator, of the community educator, as well as all the other specialities present in the multi-professional team, represents an indispensable point of observation in the family, school and social context. The comparison between various RAPs

compiled over time provides evidence of the outcome of the project, showing us the possible progression towards autonomy and independence of the person in activities in relation to the modification of barriers and opportunities, even in the case where there are unsurmountable structural barriers related to the clinical aspects of the pathology. The RAP therefore proposes itself as a guide to an overall analysis of the state of health of the Person with disabilities from the point of view of the ICF, thus including the social and educational assessment, capable of overcoming the segregation of disciplines, the summation of treatment and care interventions without a systemic-relational vision of Man. The dimension of intervention within the “here and now” in the perspective of tomorrow (Beukelman & Mirenda, 2014) is central to the Participation Model and this is precisely the measure of the outcome of the projects, not only of AAC. The reference to the General Theory of Systems (Von Bertalanffy, 1977), now widely shared in the scientific world, now allows the dissemination of models of intervention also on the correct process of identification of Assistive Technologies most useful to solve problems and difficulties in the performance of People with disabilities. Among all, we mention Marcia Sherer’s Matching Person & Technology (MPT). The proposed tool defines the steps necessary to implement the process of choosing the assistive solution, involving the Person and all those who deal with their needs and requirements, focuses on the expectations, activities and interests, especially of the Person with disabilities; it provides operational tools dedicated to the assessment of the various areas of participation in relation to Technology. The importance of MPT lies in the possibility of measuring the process itself that led to the final decision, thus being able to validate or not the pathway followed and not only measure the satisfaction of the end-user, while maintaining a client-centred approach (Corradi & Sherer, 2013). One of the most significant aims of MPT is described by the authors, who, referring to ICF and WHO documents, write that the ultimate goal of the selection/assignment process is to improve the performance and quality of life of the individual, where quality and well-being mean the whole universe of domains of human life, including physical, mental and social aspects, which constitute what can be called a ‘good life’. If aids do not achieve this goal, they will not, or rather should not, be used. Through the widespread, consistent, and coherent application of these tools, the cooperative nature of teamwork relies on a solid foundation of evidence that can take on, over time, a statistical dimension on which to base judgements of effectiveness and appropriateness of clinical, social and educational work; a broader analysis and a statistically significant sampling on the process outcomes of services to the person, could thus provide evidence on the need to allocate resources in the university and operational training sphere with regard to the social and educational policies of a national community, and finally could lead to a systematic review of the systems of care, assistance and education of the population in terms of quality.

| R.A.P. <i>Rilevazione Aree Partecipazione</i> <i>Survey of Participation Areas</i> | | | | | Name Surname Age | | | | | |
|---|------------------------------------|-----------------------|-------------------|-------------------------------|---|----------------------------------|------------------------------------|-------------------------|---------------------------|---------------------------|
| | | | | | Diagnosis | | | | | |
| | | | | | Date | | | | | |
| | | | | | Time of detection: 1 <input type="checkbox"/> 2 <input type="checkbox"/> Follow up <input type="checkbox"/> | | | | | |
| Participation features | Level of autonomy and independence | | | | Opportunities | Relational barriers | Functional and structural barriers | | | |
| | Independent | Partially Independent | Partner-dependent | Partner and context-dependent | Resources | | | | | |
| Activity Participation | | | | | Competent partners (facilitators) | Barriers of individual attitudes | Motor access barriers | Sensory access barriers | Cognitive access barriers | Emotional access barriers |
| Self-care | | | | | | | | | | |
| Mobility | | | | | | | | | | |
| Job | | | | | | | | | | |
| Learning | | | | | | | | | | |
| Play and leisure | | | | | | | | | | |
| Communicative intentionality | | | | | | | | | | |
| Understanding | | | | | | | | | | |
| Expression | | | | | | | | | | |
| Conversation | | | | | | | | | | |
| Narration | | | | | | | | | | |
| Reading | | | | | | | | | | |
| Writing | | | | | | | | | | |
| Use of assistive technology | | | | | | | | | | |
| Favourite activities | | | | | | | | | | |
| New interests and activities | | | | | | | | | | |

Fig. 2 RAP Rilevazione Aree Partecipazione - Survey of Participation Areas (Castellano, 2019)

4. The socio-pedagogical professional educator and Alternative Augmentative Communication: the contribution to the multi-professional team

Among assistive technologies, Alternative Augmentative Communication (AAC) systems foster the development of communication skills in people with complex communication needs (CCN) (Beukelman & Mirenda, 2014) and represent one of the main opportunities for the development of inclusive educational contexts (Cook & Odom, 2013; Cottini & Morganti, 2015; Kent-Walsh & Binger, 2018; Hewitt & Nye-Lengerman, 2019). In this perspective, it is necessary to refer to AAC systems, both as elements of communicative facilitation for the expression of one's needs and desires, and as assistive technologies able to foster the understanding of environmental instances (Reichle, 2011; Simacek et al., 2018). On the other hand, the concept of "human functioning" presented in the bio-psycho-social model of the ICF and ICF-CY (WHO, 2001, 2007, 2017) emphasises that it does not depend exclusively on personal characteristics, but is determined by the

positive or negative interaction with the multiple environmental factors in which the person lives, studies, works and operates and which can serve as barriers or facilitators; hence the need, at an operational level, to adopt a multidimensional reading of functioning, the result of the joint activity of a team of operators who, using shared tools, take part in all the various work phases. As a consequence, the entire educational community is committed to monitoring, through rigorous procedures of systematic observation, the effect of environmental factors and to “re-understand” their facilitating or hindering role, for the purposes of the activity and participation of each Person (Chiappetta Cajola & Traversetti, 2018).

From this point of view, AAC, which in Italy falls within the rehabilitation area, involves not only trained operators (speech therapists, occupational therapists, physiotherapists, etc.), but also professional educators, psychologists, neurologists and neuropsychiatrists for an overall “taking charge” of the communicative needs of the person with CCN within a comprehensive habilitative/rehabilitative project of the person himself/herself, in order to integrate interventions and competences, agree on overall functional objectives for the life of the person actively involved in such choices (Corradi et al, 2017). The dynamic and progressive nature of a AAC intervention therefore aims, under the supervision of experienced professionals and with a collaborative approach, at the creation of an evaluation team to foster the development of a sharing and participatory culture in the construction of inclusive interventions.

In this team, in the Italian context, the socio-pedagogical professional educator is perfectly placed, whose figure, redefined by Law 205/2017, in line with the objectives of the European Lisbon Strategy (2000), takes on a strategic and rigorously recognised role, as a professional of educational *care* and *help* in social and training contexts, constantly called to renew him or herself in the direction of the inclusive perspective (UNESCO, 2009) to guarantee diversity full rights of belonging and participation (Gaspari, 2018).

In this framework, the educator, a real engine of effective relationships and mediation, can emerge as a professional capable of enriching and supporting that social and educational planning which has long been referred to, which is inclusive and shared and which involves, in a virtuous circle, formal, non-formal and informal educational agencies, within a dialectical and constructive relationship. The educator, in this perspective of inclusive governance (Chiappetta Cajola & Traversetti, 2018), can facilitate the construction of educational practices that, carried out through a methodology guided by synergistic approaches and shared with the other professionals present, can contribute to the development of school and social inclusion even in situations of complex communicative needs (CCN).

This perspective of change, functional to the process of inclusion, which allows the socio-pedagogical professional educator to become a real “facilitating environmental factor” of activity and participation, however, collides with the difficulties of teams in implementing ACC services as the literature points out (Soto, Müller, Hunt, & Goetz, 2001).

Although numerous studies in the school context have confirmed that both regular and special education teachers have important responsibilities in facilitating effective and efficient communication for children with severe disabilities who use AAC (Kent-Walsh & Light, 2003; Giangreco et al. 1993; Locke & Miranda, 1992), other research (De Bortoli et al., 2010; Soto,1997; Soto, Müller, Hunt, & Goetz, 2001) has underlined the important challenges that teachers and other team members face in implementing an inclusive educational process such as: the complex range of technologies that these students often require for learning, mobility and active participation in the

classroom; the fact that they often use multifaceted communication systems that include electronic and non-electronic communication options; the increased demands for their academic involvement in the general education curriculum; and the constant need for a collaborative team to support their active participation as full-time members of general education classes. Therefore, alongside the indicators of success, barriers to full implementation of inclusion are detected, including: lack of training for the people involved, staff turnover, lack of support from administration, lack of time for collaborative meetings, rigid understanding of professional roles, unmanageable workloads, “technophobia” of team members, lack of funding for devices (Soto et al., 2001; Kent-Walsh & Light, 2003; Chung & Stoner, 2016) and also a number of barriers that were related to the attitudes of the people involved in creating an inclusive programme: discomfort with or fear of disability, low mood, personal insecurity, fear of failure, and a sense that one’s contributions were undervalued by other members of the educational team (Soto et al., 2001; Tönsing & Dada, 2016; Radici et al., 2019).

In the light of the critical issues outlined above, we believe it is necessary to ask ourselves what training and skills the socio-pedagogical professional educator needs in order to contribute effectively, within a multi-professional team, to the inclusion and participation of the Person with CCN supporting an effective use of AAC.

This question emerges from a twofold need: on the one hand, since there is no quality inclusion without an adequate level of renewed professional training of all the main protagonists involved in the process (Santi, 2014), it is reasonable to want to reinterpret the training process of the socio-pedagogical educator in order to make him/her more and more responsible and competent in the delicate and complex action of human emancipation of people with severe disabilities and to envisage that, properly trained, he/she can be “one of the points of reference” to disseminate, develop and document good educational practices in the perspective of Evidence Based Education (Calvani, 2012); on the other hand, the adequate recognition of the profession of socio-pedagogical educator, thanks to the Law 205/17, allows the AAC team to make use of the contribution of a renewed professional figure – typical of our country – until now too trivially reduced to generic tasks and skills or, in the worst of cases, welfarist-custodialist (Canevaro, 2018), which, properly trained, can represent not only the specificity, but the added value of an *Italian model* of multi-professional intervention for the development of AAC projects.

5. Augmentative and Alternative Communication, training and complexity: a transdisciplinary perspective

The specificity of the socio-pedagogical professional educator’s training, adequately integrated in the *complexity* of the communicative needs of the People to whom it is addressed, is built on the basis of a careful analysis of the experiences of the AAC teams that research has reported so far.

The need for training for all operators involved in AAC has been widely documented in the literature (Tönsing & Dada, 2016). The need for adequate training, not only regarding the technical skills associated with the operation and maintenance of an AAC system, but also regarding the strategies necessary to enable the communicative needs of the person with severe disabilities to be identified and addressed, emerges in both socio-educational and educational contexts (Soto et al., 2001; Patel & Khamis-Dakwar, 2005).

Although training is considered a fundamental element of a AAC project, empirical evidence supports not only the notion of regular and special education teachers (Kent-Walsh & Light, 2003;

Tönsing & Dada, 2016), but also of speech-language pathologists and occupational therapists (Costigan & Light, 2010), who receive limited pre-service training in augmentative and alternative communication, such that they may be at risk of graduating with little or no exposure to AAC, with little knowledge or skill in AAC service delivery, and may be unprepared for entry-level practice (Srinivasan et al. , 2011).

Moreover, a lack of training prevents the development of skills deemed necessary to effectively address the communication needs of people with CCN² (Da Fonte & Boesc, 2016); among them, research suggest that all practitioners of people with CCN, could benefit from knowledge and skills in AAC (Costigan & Light 2010), specifically in the areas of teamwork and collaborative practices (DePaepe & Wood, 2001). Teamwork and collaborative practices are core competencies and training on these skills is recommended in order to assist all AAC staff in working effectively as a team to make programmatic decisions, plan, and provide services (Fallon & Katz, 2008).

Starting from this evidence, we believe it is useful to dwell on the aspects that, in our opinion, should characterise the training and competences of the socio-pedagogical professional educator, in order to enhance his or her contribution in the multi-professional team of AAC: *a) a pre-service training, b) the acquisition of soft skills, c) a transdisciplinary approach to complexity* (Fig. 3).

² These included training competencies in: (1) communication skill development and interaction, (2) collaborative practices, (3) role and functions of AAC systems, and (4) instructional strategies on the use of AAC and assistive technology.

a) Pre-service training

Despite the fact that there are still no studies specifically focused on the experience of social educationalists working with people who use AAC, *pre-service* training is of primary importance in order to avoid the inevitable *in-service* training deficits that research shows. The training process, even if it is attentive to the technical-specialist competences of a CAA system, must not run the risk of being limited to a sectoral, technical and reductive formulation of the training itineraries. The skills of the educator are not to be understood as theories, methods, techniques and tools already defined a priori, but rather as dialectically constructed, in progress, in the course of experience; for this reason, training must always and in any case guarantee the dialogical and dialectical comparison with the plurality of skills and professionalism called into play to build the chorality of school and social inclusion (Gaspari, 2018) and for the restructuring of the life project of people who are “different”, the focus of the intervention of the socio-pedagogical professional educator (Pavone, 2009).

b) Acquiring soft skills

In order to train a successful professional, even in the field of AAC, it is not enough to have operational experience in the field, but it is also necessary to have done good studies, i.e. an educational pathway not only focused on the acquisition of hard skills, technical knowledge and competences, but also, and above all, on the development of soft skills, the personal and relational characteristics that an individual possesses and that contribute to practical know-how, an aspect on which young recent graduates often appear to be particularly lacking (Cinque, 2017). Soto (2001), in this regard, highlights two types of skills needed to support learners with AAC needs in comprehensive inclusion programmes, namely attitudinal and practical. Attitudinal skills included creativity, spontaneity, open-mindedness, interest in learning, willingness to take risks, enthusiasm, initiative, self-confidence, patience, flexibility, willingness to suspend judgement, persistence, sense of humour, sympathy, humility and a strong commitment to inclusion. Soft skills, therefore, stimulate all the possible interconnections between the cognitive sphere and the emotional sphere, ethics and organisational skills, spirit of initiative and communication skills; investing in meta-competences means seeing reality not in a fragmentary way, but in the totality of its expressions, without letting oneself be drawn into the spiral of over-specialisation (Cinque, 2017) which has often ended up replacing or delegitimising the role of critical and self-reflective competences, without which every “expert” in educational and helping care risks losing its authentic professional identity (Gaspari, 2017). Thanks to the use of special methodologies, pre-service training in AAC, based on the acquisition of soft skills, allows, among other things, to train future professionals in teamwork and collaborative practices, fundamental skills for the success of an AAC project. Kent-Walsh and Light (2003) considered the attitude of professionals towards collaboration as a “critical need”. When professionals value collaboration, they often develop and implement skills that would later lead to effective problem-solving and team planning and an understanding of the roles and responsibilities of all team members combined with a willingness to be flexible about role boundaries (Soto, 2001).

c) Transdisciplinary approach towards complexity

The intrinsic complexity of phenomena in the field of Educational, together with the complexity of NCCs, needs to be addressed with a transdisciplinary approach, more representative of the variety and unpredictability of the dynamics and evolutionary and educational outcomes (Damiani & Paloma, 2020; Canevaro, 2013). Far from hyper-specialism, which inevitably creates divisions and

incommunicability, transdisciplinarity - which reflects that need for generality and transversality, which grasps the connections between knowledge and creates synergies (Cambi, 2004) - can be found in the reconfiguration of current paradigms on the themes of health, development, learning and educational relations (UNESCO 2030). In this scenario, dynamic and open to contaminations between disciplines, neuroscience can promote a “rethinking” in the direction of improving the quality of inclusive processes (Contini et al., 2006; Rivoltella, 2012; Damiani, 2012). Far from the idea of a simple translation of neuroscientific models and practices in the educational field, neurophysiological studies, which “allow us to recognise the individual biological differences of human action, the systems and structures that operate differently even though they perform the same functions and in each constitute that original identity that expresses analogies and subjective peculiarities (neurodiversity)” (Damiani & Paloma, 2020 p. 95), can contribute to enhancing the ability of the educational team to read complex functioning and the development of more effective projects for the participation of the person with CCN. It should also be noted that in the context of CAA, a transdisciplinary approach is particularly effective in teamwork. In the transdisciplinary model, team members share information with each other so that the boundaries of each discipline are gradually removed and professionals acquire expertise in other areas of practice. In transdisciplinary teams, evaluations are carried out in close cooperation between all team members as peers. Decisions are made in collaboration with colleagues in a similar way to interdisciplinary teams. However, there is typically a team meeting to establish goals and intervention plans after the evaluation. Discussions are enriched by the knowledge gained from working with other professionals (Beukleman & Mirenda, 2005).

Figure 3 Transdisciplinary pre-service training for augmentative and alternative communication (Castellano & Cardinali, 2021)

The presented specificities attempt to find possible answers to our initial question: what kind of training and what kind of competences does the social educationalist need in order to contribute effectively, within a multi-professional team, to the inclusion and participation of the person with CPN by supporting an effective use of AAC?

The intercepted training paths (Fig. 4), combine the complexity of the communicative needs of the person with severe disabilities with the complexity of the work of the socio-pedagogical professional educator, which implies the conduction of a training experience intentionally and formally conceived and designed in order to promote in the “different” person processes of re-motivation and recovery of autonomy, with a view to a new discovery of self and the world, reconstructing innovative existential trajectories (Gaspari, 2017). From this encounter, it follows that “[...] the fundamental competence consists in the possession of an ecological-systemic vision, which implies the ability to grasp the nexuses, the semantic interrelationships, to activate functional and fruitful mediations and negotiations, synergistically linking languages, resources and different professional skills, in order to share objectives, contents and educational strategies” (Gaspari, 2012, pp. 114-115), to promote authentic inclusive and emancipatory paths for each person.

Also, and above all, in the context of AAC, ours is the idea of a formation, the fruit of that “process, already enclosed in the medieval concept of *universitas* [...] which expressed the aspiration to construct a unity of knowledge that can be such both in relation to the culture of the time, and in relation to the synthesis that each person elaborates through his or her own formative path [...], today called *cross fertilisation*, i.e., the ‘contamination’ of ideas by specialists from different fields, which can create phenomena of intersection between several disciplines, fields and fields from which innovation springs” (Cinque, 2017 p. 207).

Developing and building team competencies
Castellano & Cardinali, 2021

Through the Model of Participation, the team develops a dynamic assessment to identify the most appropriate and effective Assistive Technology and communication strategies for the AAC user, the social network and the community.

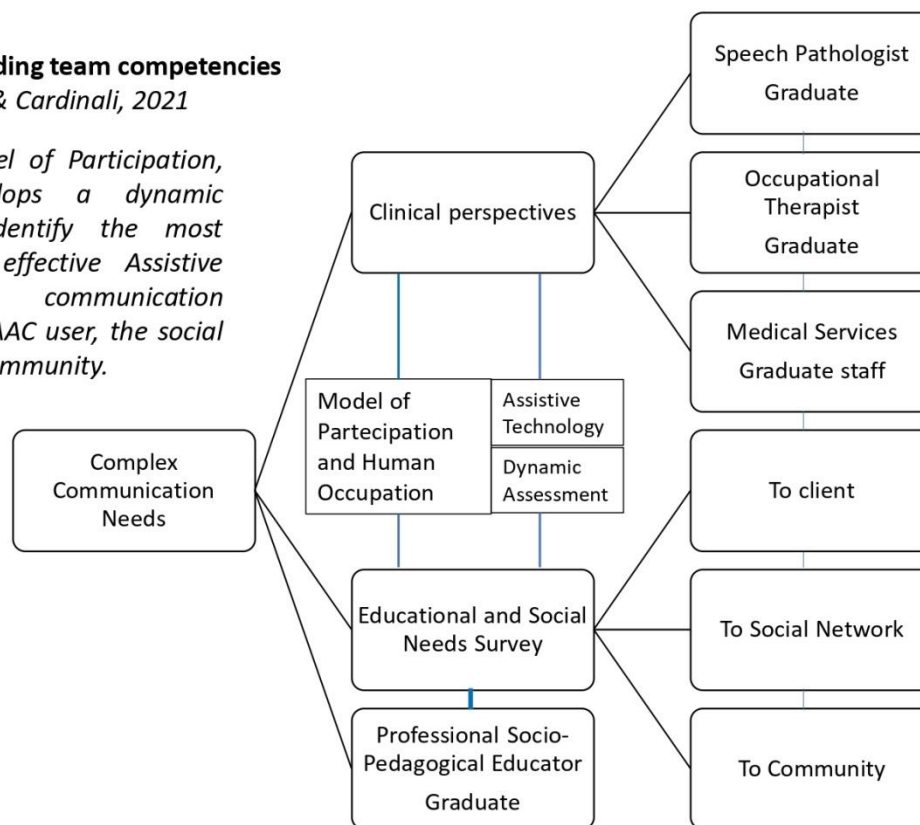


Figure 4 Developing and building team competencies (Castellano & Cardinali, 2021)

Conclusions

AAC has spread in our country involving professionals from the medical, rehabilitation and educational fields. Thanks to the involvement of the families of people with disabilities and the development of associations of users and families, the demand for educational support in schools and families gradually spread more and more. The pedagogical tradition in Italy made it possible to train new generations of educators, namely people who play a fundamental role in the team of multidisciplinary services for people with disabilities. The university pedagogical training, implemented by the training in AAC, makes it possible for our Country today to have the necessary aids and support for the development of AAC projects, as educators adequately trained in AAC can be entrusted with the task of supporting the use of AAC in the daily life of children and adults with disabilities. This aim can be fully achieved when universities pursue a multidisciplinary feature in their training curricula, developing the integration of disciplines and knowledge (Morin, 1998; Morin, 2002). An interesting contamination is being experimented at the LUMSA University of Rome with the creation of a theoretical-practical course on AAC and Assistive Technologies, with experiential laboratories, within the Educational Sciences Course. As a matter of fact, there exists a strong connection between AAC and the use of low- or high-tech-aids; these are devices of varying complexity through which People with Disabilities can express messages related to their CCNs through voice synthesis. These messages can be represented through specific symbolic codes and/or in alphabetical form through writing. It is fundamental for the educator to properly know not only the devices, how they work, their potential and how to implement them; it is also crucial for them to

know how to structure the process so that the person with disabilities can use devices and aids to communicate with the utmost autonomy. The educator is thus an operator in a team of professionals who plan, evaluate and verify the development and the results (outcome) of a AAC project. The educator can convey to the team important information about the daily life and relationships of the Person with Disability and especially information about the context and environment. The educator becomes part of the social network of the Person (Blackstone & Hunt-Berg, 2010) as an active element, supporting the generalization of the most effective communication strategies; in the school he/she plays a facilitating role in the creation of moments of sharing among peers and therefore can support the development of social skills, preventing the phenomena of isolation and bullying, especially in conditions of Intellectual Disability. He/she can support the didactic activity of the teacher by adapting the task for the student with disability in the appropriate ways; for this purpose, AAC has a series of strategies and methods to adapt learning (Literacy and Early Literacy) that are the subject of structured training in AAC. In Italy, the educator does not replace the Occupational Therapist or the Speech Therapist but co-operates in the implementation of the overall project for the improvement of the quality of life.

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