

SOCIAL NETWORKS FOR THE ASSESSMENT OF COMMUNICATIVE NEEDS OF PEOPLE WITH PIMD: A CASE STUDY

SOCIAL NETWORKS E ASSESSMENT DEI BISOGNI COMUNICATIVI DELLE PERSONE CON PIMD: UN CASO DI STUDIO



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ABSTRACT

In recognizing communication as a fundamental right, Special Pedagogy aligns with the main international references (Maes et al., 2007; Nind & Strnadova, 2020; Sigafos, 2021, 2025), highlighting the need to ensure equal communication opportunities for people with Profound Intellectual Multiple Disabilities (PIMD). From this perspective, Augmentative and Alternative Communication (AAC) emerges as a strategic approach to building inclusive educational pathways, fostering the development of contextualized communication skills. This paper analyzes the role of AAC in designing individualised interventions, focusing on using the Social Networks (Blackstone & Hunt Berg, 2003) as an assessment tool for detecting communicative needs and interactive dynamics. The proposed research aims to highlight the importance of using complex communication needs assessment procedures within the educational intake in order to improve the participation and self-determination of people with PIMD.

Riconoscendo la comunicazione come un diritto fondamentale, la Pedagogia Speciale si allinea con i principali riferimenti internazionali (Maes et al., 2007; Nind & Strnadova, 2020; Sigafos, 2021, 2025), sottolineando la necessità di garantire pari opportunità comunicative per le persone con Profound Intellectual Multiple Disabilities (PIMD). Da questa prospettiva, la Comunicazione Aumentativa e Alternativa (CAA) emerge come un approccio strategico per costruire percorsi educativi inclusivi, favorendo lo sviluppo di competenze comunicative contestualizzate. Il presente lavoro analizza il ruolo della CAA nella progettazione di interventi individualizzati, concentrandosi sull'utilizzo dello strumento delle Reti Sociali (Blackstone & Hunt Berg, 2003) come strumento di valutazione per individuare i bisogni comunicativi e le dinamiche interattive. La ricerca proposta si prefigge di mettere in evidenza l'importanza di adottare procedure di valutazione dei bisogni comunicativi complessi all'interno dell'accoglienza educativa, al fine di migliorare la partecipazione e l'autodeterminazione delle persone con PIMD.

KEYWORDS

Augmentative and Alternative Communication; people with PIMD; Quality of Life; assessment.

Comunicazione Aumentativa Alternativa; persone con PIMD; Qualità di Vita; assessment.

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Introduction

The recognition of communication as a primary right and need of every person (Tomasello, 2009) has made it possible for the research and reflection related to Special Pedagogy (Gousso, 2011; Caldin, Cinotti & Serra, 2017; D'Angelo, 2020a; Caldin & Pileri, 2021; Removed for peer review) to question the planning and operational guidelines to be implemented for people with Profound Intellectual Multiple Disabilities (PIMD) or more generally with Complex Communicative Needs (CCN) (Gousso, 2009; Caldin, Visentin, 2010; Nakken, Vlaskamp, 2007; D'Angelo 2020b). Communication opportunities for people with PIMD are, in fact, mediated by the presence of contextual facilitators. In this sense, it is of relevant pedagogical interest to question the operational modalities capable of supporting the fundamental right, '[...] to influence, through communication, the conditions of [one's] life' (NJC, 1991, p. 42).

In this regard, the recommendations of the National Joint Committee for the Communication Needs of Persons With Severe Disabilities (NJC) allow for the identification of lines of intervention to support the right to communication of persons with CCN (Brady et al., 2016), with respect to which pedagogical research is also resulting in advances (Simacek et al., 2018). Among the main aims are the analysis of effective communication strategies in interactive contexts with different interlocutors, the promotion of the development of communication skills that go beyond the mere formulation of requests, the enhancement of the understanding of communication processes and the mechanisms underlying the construction of meaning, and the development of guidelines to improve communication skills and literacy skills.

In light of these guidelines and the complexities that emerge with regard to their implementation in the context of the Communicative Needs of people with PIMD, in this article we present a case study concerning the application of the Social Networks (SN) tool (Blackstone & Hunt Berg, 2003). As we will elaborate, in fact, the Functioning Profile of persons with PIMD is characterised by an idiosyncrasy with language, which makes the activities of enhancing alternative channels for communication as well as the use of assessment procedures to detect communicated needs complex. In this framework, research highlights how SN (Blackstone & Hunt Berg, 2003) can represent a useful tool, capable of gathering information on the characteristics of communicative contexts and communicative partners, thus facilitating the definition of targeted interventions based on the strengths and opportunities offered by the reference environment.

1. Taking care of people with Complex Communication Needs: outstanding issues

The specificities of communication in people with PIMD are intrinsically linked to their cognitive, sensory and motor abilities, as well as the ways in which their interaction partners interpret their gestures and communicative signals (Cigale & Lustek, 2019). Although a shared code is essential for effective communication, its absence or incompleteness can make the process of meaning construction particularly complex (Bunning, 2009), as is often the case with people with PIMD who have difficulty using formal linguistic codes.

Several studies have shown that for effective communication, it is crucial to be able to establish shared attention with the communication partner (Adamson & Russell, 1999; Mundy & Newell, 2007; Seemann, 2011). However, this aspect is not always present in people with PIMD.

Difficulties in sharing and organising the language code can also hinder effective communication. For example, some people with PIMD may pronounce simple words without giving them a coherent meaning or use vocalisations that do not fit the context (Yoder & Warren, 2001). To understand their message, it is therefore necessary to complement the analysis of paraverbal elements with the observation of facial expressions and proxemics (Bunning, 2009; Cigale et al., 2018). The presence of stereotypes can also further complicate the decoding of interaction patterns (Chiang, 2008; Bunning, 2009). This can also be an obstacle to understanding the expressions of pleasure/pain, assent/disagreement, which are fundamental elements of all caring relationships.

The communication modes of people with PIMD are, therefore, highly variable and closely related to the individual Functioning Profile and the characteristics of communicative contexts. Careful observation of these dimensions allows for a design that also considers the role of communication partners, making it possible to identify factors that favour or limit their right to communication. In this regard, studies on the communication needs of people with PIMD have highlighted several lines of intervention considered fundamental by caregivers and personal service providers (Petry & Maes, 2007; Rensfeldt Flink et al., 2020; Sigafoos et al., 2021). Communication support focuses on the development of basic communication skills, such as making requests, expressing assent or denial and making eye contact (Petry & Maes, 2007). Another key aspect concerns the promotion of the independent use of language or communicative symbols in order to foster the expression of one's needs and desires (Rensfeldt Flink et al., 2020). Furthermore, it is essential to

increase the person's awareness of their communicative intentions, helping them to recognise and use their signals more intentionally (Rensfeldt et al., 2020). Finally, the improvement of socio-communicative interactions is a further objective, aimed at enhancing the ability to initiate and maintain communication with different partners and in various contexts (Rensfeldt Flink et al., 2020).

In this regard, our reflection focuses on Alternative Augmentative Communication (AAC) procedures, which can complement educational planning with reference to the above-mentioned aspects. As described by Beukelman and Mirenda (2014), AAC is an area of research and practice aimed at improving personal communication skills. In this context, the use of alternative communication modes is a strategy aimed at enhancing both expression and comprehension, adapting to the specific needs of the person. AAC interventions have the main objective of expanding existing communication skills by enhancing natural communication channels, hence the term 'augmentative'. When these are not sufficient, alternative tools or modalities, often based on assistive technologies, are used to ensure effective communication (Beukelman & Ray, 2010).

In line with the ICF paradigm (International Classification of Functioning, Disability and Health) (WHO, 2001), the design of AAC interventions is based on work conducted on the detection of the person's participation and communication needs within their life contexts. In this regard, the evaluation of AAC interventions is to be integrated within the broader educational project of the person, with the aim of aligning objectives and resources and defining target priorities (Corradi et al., 2017). The aim is to detect differences in participation by checking for the presence of opportunity barriers and/or access barriers that may contribute to the generation of such differences (Schlosser & Lee, 2000). 'Barriers of opportunity' are defined as restrictions related to environmental factors (policies, working practices, attitude of communication partners, etc.), while the term 'barriers of access' refers to aspects of the person's own Functioning Profile. The analysis of these elements is accompanied by an assessment of the opportunities for communication and participation needed to build real opportunities for social interaction and participation (Corradi et al., 2017). The ultimate goal of AAC interventions is, in fact, to support the development of the communicative competence of people with CCN, so that it is possible for them to influence their living environment and be an active participant in it (Beukelman & Mirenda, 2014). Communicative competence is, therefore, an essential aspect in determining the levels of Quality of Life that people with CCN can experience (Lund & Light, 2007), increasing the perception of

well-being of the professionals in charge (Milberg et al., 2004; Shoji et al., 2016; Nieuwenhuijse, Willems & Olsman, 2020). The possibility of accessing effective forms of communication, i.e. capable of influencing one's surroundings is, moreover, a precondition for the exercise of one's self-determination (Nieuwenhuijsen et al., 2017; Munde & Vlakamp, 2019) which, as reconstructed in the reference literature (Removed for peer review; Del Bianco, 2019), has a direct reciprocal relationship with the entire construct of Quality of Life.

In order to proceed in the design of effective interventions and to monitor their progress, one cannot disregard the adoption of assessment methods capable of detecting the communicative levels of persons with PIMD.

As noted in the introduction, the literature asserts that communication of people with PIMD is, in general, at a pre-symbolic or proto-symbolic level (Maes et al., 2007; Nakken & Vlakamp, 2007; Iacono et al., 2009; Chadwick et al., 2019; Wessel et al., 2021). Consequently, the evaluation of their communication must be addressed with reference to these levels of communication. As we will elaborate in the next section, the literature (Brady et al., 2018; Chadwick et al., 2019; Pepper, 2020) points to a lack of clarity in the selection and use of communication assessment procedures for people with PIMD. This critical issue is compounded by the scarcity of specific tools for the detection of pre- and proto-symbolic communication skills, limiting the possibility of adopting effective educational interventions by those who work to improve the communication of people with PIMD (Chadwick, Buell & Goldbart, 2018). In this context, new perspectives emerge in the field of Augmentative and Alternative Communication for educational design, in particular through the adoption of the Social Networks tool, which integrates Beukelman & Mirenda's (1998) participation model and offers new opportunities to guide the assessment of the communicative needs of people with PIMD.

2. Evaluation of communication of people with PIMD: critical issues and perspectives

The assessment of communication skills is the first step in planning interventions to improve Quality of Life (Schalock & Verdugo Alonso, 2002; D'Angelo, 2020). Communication assessment is crucial to understand a person's needs and desires, thus allowing the most appropriate supports to be defined (van der Putten et al., 2017; Chadwick, Buell & Goldbart, 2018).

Although communication assessment is fundamental, for people with PIMD it is often not possible to use standardised tests, which have been validated for other groups with Complex Communicative Needs (Vlaskamp & Cuppen-Fonteine, 2007; Wessels & van der Putten, 2017).

Among the few studies available in the literature on the topic (Bunning, 2009; Pepper, 2020; Wessel et al., 2021), the one by Chadwick et al. (2019) represents the first attempt to systematically collect information on the communication assessment procedures used by speech therapists and therapists for children and adults with PIMD. Although referring to the British context, the study makes it possible to identify the most commonly used tools in clinical practice and to highlight a trend also found in other research (Bunning, 2009; Pepper, 2020; Wessel et al., 2021): the preference for non-formalised methods of data collection, such as in-context observation and interviews with caregivers.

Chadwick et al. (2019) point out that 90% of professionals employ unpublished assessment tools with both adults and children with PIMD. Furthermore, 76.4% combine different methodologies, integrating published and unpublished tools to create a single evaluation profile. Only 10% rely exclusively on standardised tools.

A flexible evaluation approach has emerged, aimed at adopting detection procedures that can be adapted to the specific profiles of each person with PIMD, as well as to their social and physical context. Although non-standardised approaches offer significant advantages, it is essential to take certain precautions. As highlighted above, the environment influences communication and, if not properly designed, this may limit a person's opportunities to express their communication skills (Pepper, 2020). Furthermore, the complexity of communication in these individuals can make it difficult to clearly and unambiguously interpret communicative signals (Bellamy et al., 2010; Chadwick, Buell & Goldbart, 2018; Wessels et al., 2021). It is important to emphasise that these survey procedures are based on the perceptions of caregivers and professionals, whose different backgrounds may lead to different interpretations of the person's needs and wishes. For this reason, an interdisciplinary approach to assessment is recommended, involving several professionals and adopting triangulation procedures (Lyons et al., 2016).

As noted, the decision to adopt mixed assessment methodologies is related to the scarcity of assessment tools specifically certified for people with PIMD. A review of the tools currently published and used with persons with such disabilities is available in the study by Chadwick et al. (2019) (Table 1)

1. PreVerbal Communication Schedule (PVCS; Kiernan & Reid, 1987)
2. Affective Communication Assessment (ACA; Coupe et al., 1985)
3. Checklist Of Communication Competencies (Triple C; CCC; Iacono et al., 2005)
4. Individualised Sensory Environment (ISE; Bunning, 1996, 1998)
5. Pragmatics Profile of Everyday Communication (Dewart & Summers, 1988, 1996)
6. St Margaret's Curriculum (No reference available)
7. Early Communication Assessment (ECA; Coupe-O'Kane & Goldbart, 1998)
8. Supporting Communication through AAC (Hazell & Larcher, 2006)
9. Test of Receptive Grammar (TROG; Bishop, 2003)
10. Receptive-Expressive Emergent Language Test (REEL; Bzoch, League, & Brown, 2003)
11. See What I Mean (SWIM; Grove, Bunning, Porter, & Olsson, 1999)
12. Communication Profile (For People with learning disabilities; McConkey & Valentine, 2008)
13. Clinical Evaluation of Language (CELF; Wiig et al., 2004)
14. Derbyshire Language Scheme (DLS; Knowles & Masidlover, 1982)
15. Renfrew Action Picture Test (RAPT; Renfrew, 2011)
16. Redway School's Communication Assessment (no reference available)
17. Object Related Schemes (Coupe & Levy, 1985)
18. Assessing and Promoting Effective Communication (APEC; Bolton, 2004; Latham & Miles, 1996, 2001)
19. Boehm-Test of Basic Concepts (Boehm, 1986)
20. Communication Matrix (Rowland, 2013)
21. Do-Watch-Listen-Say (Quill, 2000) Living Language (Pre-language record book; Locke, 1985)
22. Preschool Language Scales (PLS; Zimmerman, Steiner, & Pond, 2011)
23. Reynell Developmental Language Scales (RDLS; Edwards, Letts, & Sinka, 2011)
24. Symbolic Play Test (SPT; Lowe Costello, 1988)
25. Communication Assessment Profile (CASP; van der Gaag, 1988)

Table 1. Assessment tools used by professionals caring for people with PIMD
(Source: Chadwick et al. 2019)

The study by Chadwick et al. (2019) focuses exclusively on the experience of speech therapists and clinicians, without including pedagogues and educators, key figures in the definition of educational plans. At present, there are no systematic national or international studies on the assessment models used by these professionals.

This analysis shows the need to clarify communication assessment procedures for people with PIMD by improving the dissemination and knowledge of survey methodologies among professionals. This critical issue is part of a broader problem of poor transmission of scientific knowledge in educational practices. As pointed out by Wessels et al. (2021), in addition to the limited availability of certified tools for people with PIMD, many professionals are not aware of them (Wessels et al., 2021).

Reflection must therefore continue on the merits of those approaches to assessing the communication of persons with PIMD that can be respectful of the epistemological frameworks guiding individualised educational planning. The quality of assessment methods is, in fact, inherent to the extent to which they are able to reflect current reading models of human functioning (WHO, 2001), individualised support (Removed for peer review; Ratti et al., 2016) and Quality of Life (Schalock & Verdugo Alonso, 2002). This translates into the need to opt for approaches that place the person's capabilities, wishes and expectations, as well as the facilitators present in the communicative context, at the centre of both detection and design.

In this regard, in the next section we examine the opportunities offered by the Social Networks tool, which is useful both for the initial phase of the communicative needs assessment, as well as in the subsequent phase of educational planning, addressing the communicative contexts of persons with PIMD.

2.1 Social Networks

In line with this project framework and in response to the communicative needs of persons with PIMD, the Social Networks (SN) tool, due to its structuring and the participation model (Beukelman & Mirenda, 1998) on which it is based, can be a valid support in the definition of educational actions with reference to the communicative contexts of the person (WHO, 2001).

Specifically, the SN tool, as pointed out by Blackstone and Berg (2010), is a useful tool both in the comprehensive evaluation in the clinical practice of AAC and in the planning and monitoring of educational interventions. In this sense, SN makes it

possible to consider personal preferences for different communicative modes expressed in various life contexts, to guide the selection of AAC technologies and to support individualised programming.

As stated by Galdieri and Sibilio (2021, p. 72), ‘the purpose of this approach stems, in fact, from the need to find out as much information as possible about the person with Complex Communicative Needs (CCN), [in order] to plan a network of interventions that go beyond diagnostic certification and difficulties (O’Brien & Pearpoint, 2007) and instead enhance strengths, or identify those areas that need to be addressed in order to set up more inclusive contexts’.

The design of a longitudinal educational pathway which fosters interactions between the person with PIMD and their communicative partners (Sigafos et al., 2021) must take into account the role of communication contexts that may change over time. In this process, the use of SN is particularly useful (Blackstone & Berg, 2010). Besides being a valuable support for AAC specialists, this tool can contribute to educational planning, helping to ‘assess, develop and support the social networks’ (Blackstone, 2003, p. 1) of people with CCN.

Going into its structuring (Blackstone & Berg, 2010), SN represents a data collection tool that allows practitioners to obtain information both on the person’s modes of expression and on the composition of so-called *Circles of Communicative Partners* (Beukelman & Mirenda, 1998) (Figure 1).

The division into circles makes it possible to gather information on the main stakeholders, allowing one to observe any shortcomings in relations and identify partners who could benefit from training in interaction and communication strategies.

The Circles of Communicative Partners identify people involved in the life of the person with CCN (key informants), such as family members (1st circle), friends and relatives (2nd circle), neighbours and acquaintances (3rd circle), professionals (4th circle) and non-family communicative partners (5th circle). SN allows professionals to systematically collect and organise information on the use of the various modes of communication. It also allows one to take into account a person’s preferences within various contexts, activities and partners, before making decisions on AAC technologies and training approaches.

In this perspective, the tool makes it possible to highlight the central role that communicative partners play in the interaction process, as they can facilitate or, on the contrary, hinder the person’s communicative efforts.

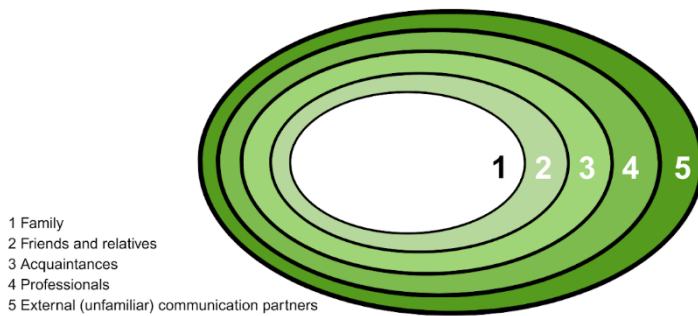


Figure 1. Circles of Communication Partners, Social Networks (Beukelman & Mirenda, 1998)

Data collection takes place through the compilation of a survey, a process that takes about an hour for each respondent. The interview is conducted by a professional expert in the AAC tool and methodologies. Generally, at least two or three people from the first and fourth circles are involved and, when possible, the target person is also involved.

The survey is divided into nine sections. The first one collects the biographical data of the interviewees, while the following ones focus on the functional competences (second section), the arrangement of the communicative partners in the circles (third section) and the person's modes of expression (fourth section). The fifth section deals with representational strategies and consists of two steps: first, the types of strategies used are identified (photographs, pictograms such as PCS and Makaton, Bliss symbols, written words, hand signs or AAC voice output), then concrete examples are given for each strategy adopted.

In the sixth section, the selection techniques used by the person and their effectiveness in communication are analysed. The seventh section delves into the strategies adopted by communication partners to support interaction and understanding. The eighth section collects the main conversation topics in the different communicative circles. Finally, the ninth section makes it possible to classify the person's communication into one of three categories: emergent, context-dependent or independent.

In light of the relevance of the SN tool in terms of individualised educational planning, it was tested within a residential facility for adults with PIMD. The intention was to be able to integrate the already existing, non-formalised communication needs observation strategies within the service.

3. Presentation of the case study

Building on the considerations made above, this case study illustrates the application of the Social Networks tool in relation to A., a young adult with PIMD who has been residing in a care facility for about four years. In accordance with the guidelines set out in Blackstone & Berg's (2010) Data Collection Dossier, the tool was administered to three key informants, selected on the basis of their being in A.'s first and fourth social circles. The interview was conducted by the pedagogical coordinator of the facility.

3.1 Selection of informants

The informant designated in A.'s first social circle does not belong to A.'s household, but is another resident of the facility, whom we will call Enrico. This is motivated by the fact that A.'s daily life takes place predominantly within the facility, with constant interaction with other residents. Direct contact with family members is very rare, making it more appropriate to choose an interlocutor with whom A. interacts more frequently.

Specifically, Enrico is a 30-year-old man who has known A. for about five years and they regularly interact in different contexts at the facility. Not being a paid member of staff, Enrico was able to provide direct and contextualised information on A.'s communication methods with regard to the first circle of communication partners. With regard to the fourth social circle, the informants identified were an educator and a social and healthcare worker who already had prior knowledge of A., dating back to before he entered the facility. Both had previously participated in surveys on A.'s Quality of Life, making them suitable for providing detailed information on the dynamics of the fourth social circle.

3.2 Configuration of A.'s Social Network

The analysis of A.'s social network revealed a configuration characterised by incompleteness and imbalance, with a prevalence of partners belonging to the third and fourth social circle. There is a high concentration of paid professionals, while spontaneous relationships are limited.

Specifically:

- The third social circle is mainly composed of former educators and healthcare workers who, although currently working in other facilities of the same service, maintain a link with A.
- The main figures in the communication network are two service educators with whom A. spends the most time.
- The most knowledgeable communication partner is the educator F., who has been present since A.'s entry into the facility and who had access to direct information from the parents on A.'s communication preferences.
- However, A.'s preferred communication partners are Enrico and Chiara, both residents of the facility, suggesting a preference for peer-to-peer interactions over those with operators.

3.3 A.'s communicative modes

The analysis conducted with the SN tool also showed that A. relies predominantly on non-symbolic forms of communication in all social circles, using facial expressions, gestures and vocalisations. Despite the use of such communicative modes in all circles in which communicative partners were identified (1st circle, 3rd circle, 4th circle), A.'s communication is not always effective and efficient, making it necessary to delve deeper in order to understand the underlying communicative intentions. The following table (Table 2) summarises A.'s main modes of expression, relating them to the informants' perceptions of the frequency of their use, the extent to which A.'s communication succeeds in achieving the desired purpose (effectiveness), and the speed and simplicity with which A. manages to communicate message (efficiency).

Ways of expression	Frequency	Effectiveness	Efficiency
Facial expressions/body language	Most of the time	A few times	Sometimes
Gestures	Most of the time	A few times	Rarely
Vocalisations	Sometimes	A few times	Rarely

Table 2. A.'s main modes of expression

3.4 Analysis of communication strategies

The analysis of the strategies adopted to support expression and understanding in each social circle revealed significant criticalities. Informants pointed out that A.'s interactions are predominantly prompted by communication partners, with few spontaneous initiatives.

Current strategies are mainly based on verbal communication, with simple and often requesting phrases ('comb my hair', 'wipe my dribble'), accompanied by the presentation of objects or direct actions to change the setting.

It was not possible to identify recurring topics of conversation beyond the communication of basic needs. Furthermore, the absence of an alternative augmentative communication system affects A.'s difficulty in initiating and sustaining meaningful interactions.

4. Discussion of results

The study confirms what has been reported in the literature (Chadwick, Buell & Goldbart, 2018; Galdieri & Sibilio, 2021; Maes et al., 2021) regarding the prevalence of the use of proxies in the detection of communication needs of people with PIMD.

However, this modality has among its main limitations the hetero-evaluation, which can be influenced by the subjective perception of informants and their role in the person's life context (Cummins, 2002; Bertelli et al., 2017). As pointed out in the literature on the topic (Cummins, 2005; D'Angelo, 2020), the different levels of agreement between the different proxies (Bertelli et al., 2017) suggest that the accuracy of their assessments might be influenced by the perceived distance between the person's functioning and the expectations of the context (Cummins, 2002). To overcome these limitations, it would be appropriate to compare the evaluations of several proxies in order to obtain a more accurate reading of A.'s well-being and communicative abilities. In this sense, the triangulation of the perceptions of several evaluators turns out to be a highly functional procedure for understanding the communicative needs of persons with PIMD, making it possible to improve both the care of the person with disabilities and the educational planning (Luijkx, 2017a). For these reasons, triangulation turns out to be a fundamental moment of alignment of the different professional perspectives in the

care of persons with complex disabilities, allowing for the co-planning of life trajectories.

Within this framework, the case study makes it possible to reflect on three key aspects.

The first aspect concerns the competence of communicative partners in recognising and correctly interpreting expressive strategies. This competence is crucial to ensure effective and meaningful interactions. Lack of specific skills on the part of the interlocutors may lead to misunderstandings, misinterpretations or even failure to identify relevant communication signals, thus compromising the effectiveness of the interaction and reducing communication opportunities.

The second aspect concerns the sharing of communication skills. Consistency in the communication modes used in different contexts of life of a person with PIMD is crucial to ensure continuity and effectiveness of interactions (Arena et al., 2020). Consistency in the modes of communication adopted by the various interlocutors – be they family members, educators, caregivers or friends – plays a decisive role in facilitating communication opportunities in environments of interaction. When communication strategies are shared and understood by all communication partners, a fertile ground for meaningful interaction is created. This results in an increased ability to recognise the person's expressive signals, contributing to an experience of communication in different contexts whether at home, at school or in therapeutic activities. Different modes of communication used unconsciously may generate disorientation or confusion, limiting the opportunities for the person to express their needs and preferences.

The third aspect concerns the adaptation of communicative strategies to various living environments. For example, if a person uses gestural signals to express preferences in a residential setting, these same signals should also be recognised and valued in other settings, such as family or therapeutic settings. The integration of these practices is a fundamental step to ensure a conscious and improvement-oriented approach to A.'s Quality of Life.

For this reason, the training of communication partners is essential. In particular, adopting a systematic approach to observing and documenting expressive strategies can improve the ability of interlocutors to respond appropriately to the communicative needs of persons with PIMD.

5. Conclusions

As emerged from the case study presented and in agreement with the relevant literature (Petry & Maes, 2009; Nieuwenhuijse, Willems & Olsman, 2020; Rensfeldt Flink et al., 2020; Sigafoos, 2025), the possibility of access to communication opportunities within the relevant contexts (WHO, 2001), represents a crucial aspect for the achievement of satisfactory Quality of Life levels for persons with PIMD (Schalock & Verdugo Alonso, 2002).

Therefore, consideration has been given to the adoption of approaches to the evaluation of communication capable of using flexible but reliable tools on the one hand, and, on the other hand, of activating joint forms of work, in order to ensure that the process can be longitudinal and shared as much as possible.

With regards to the merits of AAC's own assessment tools, the structure and nature of SN makes it possible to appreciate its use for persons with PIMD, as it allows them to gather information on the characteristics of their interaction contexts and, therefore, to prepare project actions properly informed by the strengths and opportunities offered by these contexts. However, SN, while noting significant effectiveness in the educational practice of AAC, as well as excellent design qualities in the field of Special Pedagogy, has demonstrated a number of limitations in its application in context. The main critical issues emerged in the assignment of the criteria of effectiveness, efficiency and intelligibility of communication signals, which in persons with PIMD are highly idiosyncratic. In this regard, we share with Sigafoos et al. (2021) the need to develop tools for observing pre- and proto-symbolic communicative profiles. In light of what has been created and tested, we can therefore state that the development of further reliable and easy-to-apply strategies for the initial assessment of persons with PIMD is now an urgent prerogative of educational research.

Regarding assessment approaches centred not only on the person but also on their contexts, these should be aligned as far as possible with longitudinal modes of operation, providing for the possibility of integrating the efforts of different professionals and caregivers. In line with the results outlined in the presented case study and in accordance with the reference scientific literature (Beukelman, Ball & Fager, 2008; Galdieri & Sibilio, 2021), it seems, therefore, appropriate to emphasise how the success of a CCN study, also in the educational sphere, depends as much on the preparation of the stakeholders who are involved in the observation of the communication methods, as to their propensity to activate forms of networked collaboration of a co-participated design. All those who are in charge of the person

with PIMD, even if not specifically trained in AAC, represent an essential component in the complex framework of care and educational care, as their role is not limited to mere support, but takes the form of an effective presence that acts as a glue in the interaction between the different communicative partners, supporting the right to communication (Galdieri & Sibilio, 2021). In this perspective, networking between the different professionals involved in various caregiving capacities and the different stakeholders of AAC interventions appears to be fundamental for the success of a livelihood that results in taking responsibility for interacting with the surrounding environment in a holistic way (Removed for peer review).

Author contributions

The present work is a collaboration between the authors. In particular, C. G. wrote the introduction, L. B. wrote the paragraphs 1, 2, 3, 4, 5.

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