INCLUSION AS SEEN BY FUTURE SPECIAL EDUCATION TEACHERS: AN AI-ASSISTED STUDY

L'INCLUSIONE NELLA PERCEZIONE DEI DOCENTI DI SOSTEGNO IN FORMAZIONE: UNO STUDIO ASSISTITO DALLA IA

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ABSTRACT

The article explores the perception of the inclusion construct among special education teachers in training. The study involved a sample of pre-service special education teachers who were administered an open-ended questionnaire to probe their meaning of inclusion, the strategies they consider effective in promoting it, and the competencies they deem essential for an inclusive special education teacher. the analysis of responses was conducted with the assistance of artificial intelligence.

L'articolo esplora la percezione del costrutto di inclusione da parte dei docenti di sostegno in formazione. Ad un campione di corsisti del TFA – Sostegno è stato somministrato un questionario a risposte aperte volto ad indagare la loro idea di inclusione, le strategie didattiche ritenute efficaci per i processi di inclusione e le competenze necessarie ai docenti di sostegno. L'analisi delle risposte è stata condotta con l'intelligenza artificiale.

Introduction

The three processes of *insertion*, *integration*, *inclusion* have accompanied the legislative process over time to ensure the presence of pupils with disabilities in curricular classes. This is not a mere change in terms, but it represents a transformation that has changed the approach in which pupils with disabilities were welcomed into the classroom. Accepting the schematisation proposed by Canevaro and Ianes (2017, p. 112), we can start by giving a different meaning to these three concepts: ''insertion: the presence of a subject with specific characteristics in an ordinary context; integration: the presence of a subject with specific characteristics in an ordinary context that is adapted to the needs of the integrated subject; inclusion: the presence of a subject with specific characteristics in an ordinary context that is connected to other contexts, in an ecosystemic process that cannot be defined a priori''.

The difference is a substantial one, not only lexical: etymologically, the term inclusion derives from the Latin verb includo, which implies to keep closed, almost sealed, in an enveloping manner, so as not to let escape. Therefore, this word also contains in itself the value of the word *integrate*, which indicates the individual in its entirety (just think of the Latin adjective *integer*, which means 'whole', 'intact'). That being said, what are the implications of the idea of inclusion?

The term itself, as Loredana Perla notes, is full of different meanings and values (Perla, 2014a): it can indicate, in more general terms, the process through which the necessary relationship between the part and the whole, i.e. between the individual and society, is conceptualised; however, by further specifying the term inclusion just from this first definition, it indicates "the process of involving children with disabilities in normal schools and in the complex of social life", aimed at providing "the human prerequisites for children's appropriate involvement in everyday life" (Suzic, 2009, pp. 16-17). Inclusion, in accordance with the most recent international documents on this topic, can then be defined as "the intentionally organised response to the need/right to education of all children, young people and adults at risk of social marginalisation and exclusion" (Perla, 2014b, p. 38). It is, therefore, a definition that does not strictly and exclusively concern the disabled, but that looks at minorities in general: the elderly, the unemployed, foreigners, non-literate adults, individuals generally living in deprived socio-cultural and economic contexts, individuals facing a contextually difficult time.

Considered from this perspective, therefore, inclusion is a human right for all because it is linked to the equal value of the person and to the valorisation of the individual, regardless of his or her personal and social condition, because it is closely interconnected with the affirmation of everyone's civil rights, as affirmed by Italian Constitution. This is no coincidence: Italian Constitution establishes the general lines of the principle of inclusiveness of the Italian school. Inclusiveness, then, takes on a more purely social value, aiming, among other goals, at "widespread cultural and political growth in respect to differences" (Ianes, 2014, p. 14) . Therefore, this is not just a simple lexical shift, but it is a real revolutions that have affected the way people with disabilities are considered not only at school, but in the social context as a whole: just as the word 'integration' replaced the simpler noun 'insertion', establishing that the person with disabilities had the right to live his or her life as fully as possible, practically in the aftermath of Law 104/92 and thanks to the approval of the UN Convention on the Rights of Persons with Disabilities, the concept of 'inclusion' took over. This change of perspective was initially greeted with diffidence, as it was considered a step backwards with respect to the concept of integration; on the contrary, on closer inspection, it brings with it a series of important steps: "inclusion concerns all people (with disabilities or not) and the human condition, which can present difficulties in life and situations of disability" (Milani, 2020, p. 7). In other words, the idea of inclusion concerns every individual and everyone, because it wants to enhance the difference and the role that each person can play within his or her own social and cultural context: "The concept of inclusion leads to the acknowledgement of a right as a form of contrast to its opposite, exclusion, to affirm that the strategies and actions to be promoted must tend to remove those forms of social marginalisation from which people with disabilities suffer in their daily lives' (Antia, Sabers, Stinson, 2007, pp. 158-171): the concept of inclusion does not deny the fact that everyone is different or deny the presence of disabilities or impairments that must be treated appropriately, but it shifts the focus of analysis and intervention from the person to the context, in order to identify the obstacles and work towards their removal" (Ibid.).

1. **"Special normality"**

This paradigm shift, therefore, has two important consequences. First of all, it is a perspective that starts from the role of a teacher who is asked to design and act by

looking not only at what happens inside the school walls, but by projecting these actions to the construction of personal and professional identities outside the school and after it, in the perspective according to which the inclusive school only comes into being within a social context that is itself inclusive, in which each person occupies his or her role as a citizen according to his or her abilities and skills. In this sense, then, it is necessary to create a 'virtuous circle': good practices for an inclusive pedagogy (which is inclusive in every aspect) can only start from an idea of truly inclusive citizenship, which, in turn, can only be substantiated in educational pathways to a citizenship of all and for all, right from the first school levels. On the contrary, the education of the individual and the citizen, according to the dictates of the Constitution, an education to an open, dialectical, negotiated democracy, is the school's priority task: as an "agency of reflective criticism", it can act more effectively and for longer, since it touches the years in which civic awareness is formed in each subject (Cambi, 2011); it is no coincidence that Piero Calamandrei stated: "Transforming subjects into citizens is a miracle that only the school can perform".

In second place, the inclusive school, as mentioned above, is the one that plans and acts not wanting to remain closed in on itself, but being able to transform education and training courses into a 'life project'. Life Project, born with Ministerial Note no. 4274 of 4 August 2009 (Guidelines for the school integration of pupils with disabilities), is an integral part of the IEP and defines the figure not only of the student with disabilities, but of the person who, after finishing school, can live his/her life as fully as possible, realizing -using the document's words- "the raising of the quality of life of the pupil with disabilities, also through the provision of interventions/actions/activities aimed both at developing a sense of self-efficacy and feelings of self-esteem, and at predisposing the attainment of the skills necessary to live in shared contexts of experience".

Putting the issue in these terms, it is clear that the focus of attention shifts from disabilities to individual differences, regardless of pathological differences, without, however, denying pathology in the name of 'we are all different'. On the contrary, inclusive education is an education that, moving precisely in the direction of the recognition of individual differences (and thus, in the awareness also of disabilities), moves by identifying and implementing individualised and personalised teaching strategies. Therefore, inclusion means taking charge of differences in learning, in building relationships, in worldviews, in personal styles, on the one hand, and

taking note of all the obstacles to participation, citizenship, education, training, learning for all.

It seems obvious, therefore, that we need to start from 'special normality', from a perspective, in other words, that starts neither from a biomedical, 'normalising' approach, nor from an intervention centred 'exclusively' on the pupil: what is exclusive is in itself excluding, as is also evident from the circumstance that exclusive and exclusion belong to the same semantic sphere. On the contrary, special normality is that approach "which overcomes, at the same time, the condition of separation/segregation typical of special classes (more or less explicit), on the one hand, and, on the other, the improvised normality, often pietistic and lacking in economic, professional, methodological, technological resources, in which to place the disabled pupil, with the hope that simply 'being with others' will set in motion a process of integration" (Sarracino, 2022, p. 138). This didactic approach, therefore, looks at the classroom, which is by its nature a complex entity, as Vygotsky reminds us, and at the 'specialities' within it in a 'normal' manner: "In order to achieve a good quality of school integration of pupils with disabilities and an effective inclusive action for the many more pupils with Special Educational Needs we need to make the 'normality' of everyday schooling more and more 'special'. [...] For the disabled pupil or pupil with Special Educational Needs, the normality of relating to and learning with all the other pupils, which gives them identity, belonging, security, self-esteem, etc. (and which is a right well expressed in our legislation) can also be effective in producing learning and in providing concrete help with their specific problems, even complex ones. In fact, the pupil with disabilities/Special Educational Needs has both the right to integration and the right to specific and effective responses. The two are in no way contradictory, just as normality and speciality are not, if we combine them in special normality" (Ianes, 2006, p. 22).

2. Inclusion and Special Educational Teachers

It must be said, as Lascioli (2014) points out, that the inclusive paradigm has difficulty in taking off especially within a social framework that still looks at people with disabilities from a biomedical perspective; people cannot imagine, therefore, contexts of life and self-realization for all. We find ourselves in the condition whereby educational and social contexts still suffer from what Medeghini (2006, p.

119) calls a "pathology of normality," in relation to which school spaces and times "would seem to have been subjected to an additive process, in which normality has been juxtaposed with specialness, rather than to a relational, multiplicative process, in which the dynamics of interaction could have led to a restructuring of the entire system and the renegotiation of the conditions of participation" (Manno, 2019, pp. 466-467). This perspective, however, is hardly reconciled with the idea of inclusion brought forward by the ICF (International Classification of Functioning, Disability and Health); this document, while posing as a complement to the ICD-10 (an acronym for International Statistical Classification of Diseases and Related Health Problems), does not include reference to disease, but looks at the functionality of the subject in its entirety and its ability to interact with the environment. Moreover, "Functioning," the ICF writes, "is an 'umbrella term' that covers all bodily functions, activities and participation. Furthermore, the document warns that the translation of the English-speaking term functioning is more precise and specific than the original meaning, indicating function more generally.

From this definition, we can understand that there are two strengths for inclusive pedagogy and education:

1. special educational needs should be considered not as a function of the individual's disabilities; that means that the individual's pathology and points of weakness are not taken into consideration, but it must be considered the individual's strengths and functioning, so that it is precisely from these that one can work together with the individual in a 'positive' and - above all - individualized direction of teaching;

2. special educational needs should be analyzed according to the environment and the individual's interaction with the environment itself, which can provide facilitators or barriers, as the situation may be, in the individual's learning and development; in other words, even the same pathology can be more or less severe depending on the environmental impact of the individual.

Therefore, the ICF has provided a new language, definitely positively oriented, aimed at looking at "not disability but residual and vicarious potential, activity and participation, while setting the stage for overcoming an interpretation of disability only in the light of limitation. The model introduced by the ICF, bio-psycho-social, thus takes into consideration the multiple aspects of the individual, correlating the health condition and its context, thus arriving at a definition of disability as "a health condition in an unfavourable environment" (Perla, 2014b, p. 26).

This aspect is particularly important when placed in relation to the teacher's possibilities for educational action and intervention: in fact, teachers become aware that it is possible for them to act first of all on the environmental conditions in which the student with disabilities finds himself.

At this point, it is necessary to ask a question: what should be the skills of a teacher who can build a teaching and educational process for an inclusive school?

To answer this question we can start from the insights gathered in the Profile of the Inclusive Teacher compiled by the European Agency for Development in Disabled Pupil Education in 2012. That document articulates the competencies of the support teacher starting from the sphere of values and declining it into four macro-dimensions (Assessing pupil diversity; Supporting pupils; Working with collegues; Continuing personal professional development); each dimension is specified in precise areas of competence, and each of these areas is divided into three components, through which the four core values can be transformed into effective actions and interventions. This requires, among other things, that teachers radically change the language for inclusion, sharing a vocabulary that is "positively connoted" (Cottini, 2020, p. 29): Indeed, the words and the meanings we attribute to them reflect the way in which we build relationships and define the cultural products we go about producing: as long as the word 'inclusion' is not attributed the right meaning, it will remain one of the 'empty words' in the school lexicon.

Approaching a concrete vocabulary capable of guiding teachers' actions by overcoming false beliefs and prejudices would imply, on the part of the teacher himself, a more mature awareness of his role and the skills needed to perform it. "As Winston Churchill said, 'We shape our buildings, but afterwards our buildings shape us'. the representation (even the lexical one) that we give to the figure of the support teacher, therefore, determines the ways in which this professional figure will act in the school context (sometimes) in spite of the skills profile that we have assigned to him or her" (Sarracino, 2022, p. 28).

The social and professional perception of the special education teacher, in fact, is a teacher with less strength and less characterized skills than the curricular teacher (while, on the contrary, he is a specialized one), often lacking the dignity of sharing the desk with the curricular teacher, sitting in a desk next to 'his/her' pupil, whose 'care' he/she alone must 'take care of' (often confusing assistive care with didactic care), creating an 'exclusive' relationship that, as we have already stated, becomes exclusionary: a representation that, however, is responsive to the profile outlined also by the Italian legislation, which provides that, which speaks of training courses

for the attainment of specialization in educational support activities for pupils with disabilities: it endorses, in practice, the creation of that exclusive and exclusionary link mentioned above.

The realization of the competency profile mentioned by the European Agency for Inclusion, on the other hand, inevitably passes through the overcoming of a didactic action that is always the same, often anchored to merely bureaucratic burdens and preferred to new and innovative approaches because it is reassuring, although not responsive to what are the demands of the pupils.

3. The research: the meaning of "inclusion" according to future special education teachers.

Within the Morinianly complex panorama that we have described in the previous paragraphs, in the awareness that, as Raffaele Laporta (1970) wrote, it is the teachers who interpret the transformations of the school, between innovative drives and resistant actions, the research wanted to investigate what was the perception of the construct of inclusion among teachers in training: «If it is true that a structuring of the teacher training procedures will be necessary for this purpose, it is also true that no procedure can change, if people are not convinced and prepared for the change. From whatever side you look at the question of obstacles and aversions, it presents itself as a question of men. Men who are persuaded of the greater means needed by the school, men who understand the need to modify the school structures in general and especially those intended for the training of new educators, men finally who make the means and structures effective by starting now to transform themselves and to transform that minimum number of educators necessary to set in motion the entire renewal process" (Laporta, 1970, p. 19).

For this reason, given the centrality of the need for all teachers, the only actors capable of producing change, to be bearers of an inclusive *habitus* (Bourdieu, 2005), we thought of reading the constructs that determine their didactic action. For Bourdieu, the *habitus* "is a system of embodied dispositions, learned patterns of thought and behavior, that are shaped by an individual's social position and experiences. It functions as a set of perceptual schemes and generative mechanisms that influence how individuals perceive, understand, and act in the world. *Habitus* is not simply a collection of individual habits, but rather a system of

socialized norms and tendencies that are internalized and influence an individual's actions. [… habitus refers to] "a subjective but not individual system of internalised structures, schemes of perception, conception, and action common to all members of the same group or class" (Bourdieu, 2005, 86). The *habitus* operates at an often implicit level, silently guiding our way of perceiving, evaluating and acting on the basis of the experiences we have accumulated. This implicit identity opens the way for us to perform various tasks, since it allows us to use, almost naturally, effective thought and action patterns in situations with a similar structure, but, at the same time, it shapes our way of seeing the world, judging situations and behaving (Magnoler, 2011).

The recipients of the research were trainee teachers, participants in the ICT pathway of the IX Cycle of the Training Course for obtaining specialization in teaching support activities for students with disabilities at the Suor Orsola Benincasa University of Naples. The questions were collected anonymously and spontaneously through the administration of a Google Forms and concerned various aspects of the teacher's professional profile. The questions were proposed at the beginning of the training course, in the form of a questionnaire to analyze training needs. The questions were formulated starting from the analysis of the results of similar questionnaires administered at the beginning of each training cycle and from the analysis of the sector literature. In particular, in the formulation of the questions, the results of the research conducted by Daniela Manno on trainee teachers for teaching support activities for students with disabilities were taken into account, aimed at the «thematization of inclusive education starting from the semantic-conceptual analysis of the term and its possible perimeters hermeneutically analyzed in relation to the opposite category, that of exclusion» (Manno, 2021). Manno's study highlights, among other things, the training needs of future teachers: cross-cutting training on inclusion, formalized, structured, and extended to the entire teaching staff. The questionnaire was introduced by the following premise: «Dear participant, we ask you to answer the following questions in a detailed manner. This is a questionnaire (administered anonymously) aimed at collecting, before the start of the ICT activities, your opinions, your points of view, your expectations, your doubts, your educational and training needs related to the topics that will be addressed in this course».

In this paper, we present the analysis of the answers provided by trainee teachers for upper secondary school to the questions concerning the concept of inclusion: "During your training courses, you have repeatedly encountered the term

'inclusion'. Beyond the definitions found in the literature, what does the word inclusion mean to you (and/or, possibly, what should it mean)?"; "Starting from the reflections developed in the previous answer, in your opinion, how should 'inclusion' be 'done'? What interventions should be put in place, what devices and what approaches should be used to ensure that 'inclusion' is not just one of the many words in the school lexicon, but that it becomes concrete daily action?".

The administration of the questions took place in July 2024. 936 responses were collected out of 1122 participants enrolled in the course for upper secondary school. The sample, aged between 23 and 62, was composed of 82% women and had an average age of 37.2 years. The sample, almost entirely made up of graduate students (only a small percentage equal to 3% held only a technical-professional diploma), included 9% of participants who already possessed specialization for another school level. Responses of a tautological nature, not consistent with the questions, or expressing an uncritical definition (e.g.: "include everyone in activities", "give space to others", "yes"; "make the inclusion of students concretely possible with targeted and daily actions", "ICT is useful to everyone", "through activities", "school") were eliminated from the responses.

At the end of the screening phase, 91 and 102 responses remained to be analyzed for each question, respectively.

The current exploration of the use of artificial intelligence (AI) in the field of educational and didactic research mainly focuses on applications and practices for teaching and learning, as highlighted by the existing literature that emphasizes its potential (Panciroli & Rivoltella, 2023; Cuomo et al. 2024). This literature describes experiments, experiences, and practical suggestions. Another application area of AI, no less interesting, is, however, that of supporting research activities in order to improve sustainability in the analysis of complex and lengthy documents, experimenting with further automatisms for semantic analysis. From this perspective, to analyze the research data, a pre-trained generative system, ChatPDF present in the OpenAI Plus application suite, was examined. This tool can read documents in PDF format, both textual and tabular, and answer questions posed by the user, building a semantic index of the text. To verify whether the issue of reliability compromised the quality of the answers given by the AI, a small selection of documents (10 sets of answers) was chosen to compare the answers provided by the AI with those of the researchers (Hassani & Silva, 2023). This 'control' process was put in place since the literature reports limitations regarding the use of AI: the chatbot's responses are not always reliable and can produce

errors or "hallucinations" (Alkaissi & McFarlane, 2023): these "errors" depend, however, strictly on the quality of the prompts provided (White et al., 2023). This process made it possible to improve the prompt provided to the AI through successive approximations (some fragments of the answer were ignored), reaching a general coherence in the results: this process led to the choice of selecting the recurring keywords in the answers.

Once the 'adjustment' process of the prompts was completed, the questionnaire responses were then fed to the AI (the ChatPDF of the AI-pro version of Open AI was used), which was asked to select the recurring keywords in the various responses. The keywords were then grouped by semantic areas. Starting from the semantic areas, the different responses relating to each of them were selected, and finally, the AI was asked to summarize them. "The attached document contains a series of answers to the question "xx". Analyze the answers and select three/four semantic areas that group them. For each semantic area, explain the meaning that emerges from the answers present in the document, reporting the citations that explain these concepts".

Below are the thematic areas identified by the AI for each question.

Question 1. What does the word inclusion mean?

Semantic Area 1. *Belonging and Participation*

Many responses emphasize that inclusion means "being part of a group," "feeling an integral part," "belonging to a community." Inclusion is seen as the possibility of "actively participating" in activities, both school and social, and of being "involved." This implies that inclusion is not just being physically present in a context, but also having an active role and feeling part of it. "Being able to give everyone the opportunity to be part of something, inclusion does not only happen in the school environment, but in sports, at work, or in everyday life we are called to inclusion, being part of a group and being able to help or even simply participate in it is inclusion for me."

Semantic Area 2. *Acceptance and Respect for Diversity*

Another central semantic area is acceptance: "feeling accepted," "welcomed," "respected" are recurring expressions. Inclusion implies "respect for individual differences," valuing "diversity" as a resource and promoting a "welcoming" environment where everyone feels comfortable. This means overcoming prejudices and discrimination, recognizing the uniqueness of each person. "[...] Inclusion, for

me, means creating an environment where every individual, regardless of differences, feels accepted, respected, and valued"; "[…] …recognizing the other person according to their uniqueness […] accepting and valuing differences, recognizing and respecting the diversity of each person, whether related to disability, culture, or other."

Semantic Area 3. *Equal Opportunities and Equity*

Several responses highlight how inclusion is linked to "equal opportunities" and "equity." The need to "guarantee everyone the same opportunities" for access to education, work, and social life, "without distinctions" or "barriers," is emphasized. This may require "adapting" activities and tools to different needs, to allow everyone to reach their potential. "[…] Being part of a community without discrimination […] thus giving equal opportunities to all, trying to adapt a social context and society in general as much as possible to the needs of each person."

Semantic Area 4. *Breaking Down Barriers*

Many responses mention the importance of "breaking down barriers" that can hinder participation and inclusion. These barriers can be physical ("architectural barriers"), but also social, cultural, economic, and didactic. Inclusion implies an active commitment to remove these obstacles and create an accessible environment for all. "[…] This word means giving equal opportunities to everyone […] through the elimination of social, economic, and cultural barriers that often limit relational exchange."

Question 2. How should 'inclusion' be 'done' at school?

Semantic Area 1. *Inclusive and Collaborative Teaching Methodologies Supported by Technologies*

Many responses suggest the adoption of teaching methodologies that promote active participation, collaboration, and interaction among students. Group work, cooperative learning, peer tutoring, laboratory teaching, and the use of practical activities and real-world tasks are frequently mentioned. The importance of moving beyond frontal lessons and rote learning, favoring approaches that value the strengths of each individual and that allow everyone to feel an integral part of the learning process, is emphasized. "[…] use of applications, use of computers and tablets, together with an educational approach that encourages the individual or the class group to include those with difficulties"; "ICT also allows working both in

groups and individually and allows learning by doing both through relationships with peers and autonomously."

Semantic Area 2. *Personalization of Learning and Use of Compensatory Tools*

Another relevant semantic area is that of the personalization of learning, which implies adapting teaching to the individual needs of students, taking into account the diversity present in the classroom. The use of compensatory and dispensatory tools, diagrams, concept maps, multimedia supports, and assistive technologies to facilitate learning and ensure equal opportunities for educational success for all is suggested. "Working with diagrams and concept maps that promote learning and understanding; making extensive use of multimedia supports, with audio and video to support the lesson."

Semantic Area 3. *Training and Awareness of School Staff*

Many responses highlight the crucial role of training school staff on inclusion, diversity, and classroom management. The need to raise awareness not only among teachers but also among students and families on the themes of inclusion, mutual respect, empathy, and the valuing of differences is emphasized. "Inclusion should not only refer to students, but, conversely, also to support teachers who should be included in the teaching team, as they are often considered too much on the sidelines; their figure and their professionalism, the result of a serious training path, should be valued, as they could be helpful not only to the whole class but also to the teaching team."

Semantic Area 4. *Creation of an Inclusive Environment and Breaking Down Barriers*

A further semantic area concerns the creation of a welcoming, respectful, safe, and inclusive school environment for all students. Emphasis is placed on the importance of breaking down barriers that can hinder participation and learning, whether physical (such as architectural barriers), social, cultural, communicative, or didactic. "Creation of inclusive environments: it is necessary to ensure that the school environment is welcoming, respectful, and safe for all students, regardless of their characteristics. This can include physical adaptations, such as ramps for disabled students, but also a school culture that promotes acceptance and diversity."

3.1 Discussion

The responses from prospective teachers regarding the concept of 'inclusion' converge on several key notions: feeling welcomed and an integral part of a group

in all social contexts, overcoming barriers to participation, ensuring equal opportunities for all, and respecting and valuing individual differences. In relation to the practice of inclusion within schools, the responses highlight the importance of 'active and collaborative teaching methodologies', supported by technology. Furthermore, the necessity of personalised learning, the utilisation of compensatory tools, and the training of school staff are emphasised. The creation of a welcoming environment and the dismantling of both physical and didactic barriers are considered fundamental for promoting effective inclusion.

Despite the positive intentions articulated by the prospective teachers, an analysis of the responses reveals that inclusion is still perceived as an 'empty word', associated with processes that do not address pedagogical interventions holistically. Teachers' attention is predominantly focused on the assistive and enabling dimensions of information and communication technologies (ICT) and didactic devices, rather than on the inclusive dimension stemming from the documentation and 'framing' possibilities that ICT offer. Inclusive processes are perceived as external to their own actions and not as a characteristic of a professional habitus, but rather as actions or devices externally imposed.

A strength of this research lies in the application of Artificial Intelligence (AI) for data analysis, which has facilitated an innovative exploration of the perceptions of the inclusion construct among trainee teachers. AI's capacity to select and group recurrent keywords by semantic area provided a comprehensive overview of the responses, highlighting their defining elements. However, the research exhibits several limitations, such as the low engagement of prospective teachers with the investigated topics, evidenced by the limited number of 'valid' responses (approximately 10% of the total). The substantial number of discarded responses reflects a largely non-inclusive professional habitus and demonstrates a limited interest in reflective practice. The analysis yielded no significant elements of variability based on the age, gender, training, or experience of the sample, suggesting a strongly traditional, frontal, and transmissive pedagogical conception, shared by all participants in the research.

The pedagogical implications of this research are significant. There is a clear need for training programmes that foster an inclusive habitus in teachers, moving beyond a merely theoretical understanding of inclusion and encouraging the adoption of innovative and personalised teaching methodologies. It is crucial that training is not limited to providing tools and devices but aims for a profound

transformation in the perception of the support teacher's role, valuing their professionalism and fully integrating them into the teaching team.

The replicability of this research in other educational contexts is desirable. The methodological approach, which combines the administration of open-ended questionnaires with AI-assisted analysis, could be applied to investigate perceptions of inclusion in diverse samples of trainee teachers, both in Italy and other countries. This would facilitate the comparison of results and the identification of any cultural or systemic specificities influencing the understanding and practice of inclusion. The use of AI could be further refined to overcome the identified limitations, for instance, by improving the quality of prompts to elicit more detailed and coherent responses. In conclusion, whilst the path towards the full realisation of inclusion remains long, particularly in the perceptions of prospective teachers, this research offers valuable insights for guiding training programmes and promoting a necessary shift in perspective for a truly inclusive school and society.

Conclusions

The answers to the question "What does the word inclusion mean?" converge on some key concepts. Inclusion means feeling welcomed and an integral part of a group, not only at school but in every social context. It also means overcoming the barriers that limit participation and guaranteeing equal opportunities for all, respecting and valuing individual diversity.

To "do inclusion" at school, the responses highlight the importance of active and collaborative teaching methodologies, supported by technologies. The need to personalize learning, use compensatory tools, and train school staff is emphasized. Creating a welcoming environment and breaking down barriers, both physical and didactic, is considered fundamental to promoting effective inclusion.

Several points for reflection emerged from the analysis of the teachers' responses: The analysis of the responses started from the definition of the constructs rooted in trainee teachers regarding the didactic process (not the subject of this work); this analysis did not provide relevant elements regarding variability based on the sample (age, sex, training, experience): for completeness, it is noted that what emerges is, in almost the entire sample surveyed, an idea of teaching that is profoundly frontal, theoretical, and carried out solely through a transmissive

process from teacher to student, ex-cathedra. A strongly traditional didactics built starting from the knowledge to be taught. The lack of variability in this direction corresponded to a lack of variability also in the themes that are the subject of this work.

Inclusion, despite the good intentions that emerge from the responses of trainee teachers, is still a "word empty of meaning," associated with processes that do not address didactic interventions holistically.

Furthermore, the teachers' attention is focused on the assistive and enabling dimension of ICT and didactic devices and not on the truly inclusive dimension deriving from the documentary and "framing" possibilities that ICT has.

Inclusive processes are perceived as external to one's own actions: they are not felt as characterizing a professional habitus but are always associated with actions or devices imposed from the outside.

The research presents potential biases both in data collection and in the analysis and interpretation of AI-generated content. In the data collection phase, a potential bias arises from administering the questionnaire via Google Forms and anonymously, with the premise stating the goal of analyzing "opinions, viewpoints, expectations, doubts, educational and training needs." Although anonymity may encourage more sincere responses, it could also lead to less detailed or reflective answers, such as those discarded for being "tautological, inconsistent with the questions, or expressing an uncritical definition." This discarding process reduced the number of analyzed responses from 1122 participants to only 91 and 102 valid responses for each question, representing about 10% of the total. Such a low percentage of valid responses may indicate a non-response bias or a lack of interest from participants, leading to a final sample that is not fully representative of all future teachers involved. Furthermore, the number of "discarded" responses reflects a professional habitus that is poorly inclusive of the research recipients, meaning that the analyzed sample may already be biased towards a more "positive" or "aligned" perception of inclusion compared to the entire group of participants. Administering the questions at the beginning of the training course may have captured a pre-existing understanding of inclusion, without considering the evolution of perceptions during the training process itself.

Regarding the analysis and interpretation of AI-generated content, biases can emerge from the use of ChatPDF (OpenAI's AI pro version). Although a "check" process was conducted by comparing AI responses with those of researchers on a small selection of documents (10 sets of responses) to verify reliability, the

literature warns that chatbot responses are not always reliable and can produce errors or "hallucinations." These "errors" depend closely on the quality of the prompts provided. The process of "adjusting" the prompt through successive approximations aimed to improve overall consistency but does not completely eliminate the risk of biases inherent in the AI model. The AI was tasked with selecting recurring keywords, grouping them by semantic areas, and summarizing the responses related to each area. This process, while efficient, depends on the AI's ability to correctly interpret the contextual meaning of words and phrases and may inadvertently favor some interpretations over others, based on the patterns learned from the data it was trained on. In other words, the AI may reinforce existing biases in the language used by participants or in the pre-existing definitions it was "fed," without a deep critical understanding of the pedagogical nuances that human researchers might grasp. The claim that the AI "was able to provide a comprehensive picture of the responses of trainee teachers, highlighting their characteristic elements" must be read with these potential biases in mind, as "completeness" and "characterization" are mediated by the algorithm and its inherent limitations.

In conclusion, the AI was able to return a comprehensive picture of the responses of trainee teachers, highlighting their characterizing elements, but the road ahead for future teachers to be truly inclusive still appears very long.

Author contributions

Ariemma L., Sarracino F.,: Conclusions
Ariemma L.: § Introduction, 2.
Sarracino F.: § 1, 3.

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