"Annali online della Didattica e della Formazione Docente"
Vol. 15, n. 25/2023, pp. 354-378 – ISSN 2038-1034

Knowledge about disability and inclusion: results from an online teachers' training program

Fabio Sacchi, Nicole Bianquin, Mabel Giraldo, Sabrina Panesi, Lucia Ferlino

Abstract – *The paper presents the outcomes of a training program carried out by the UNIBG Special Education researchers in compliance with the Law 'In-service training of teachers' staff for including students with disabilities' (Law no. 178 /2020; Ministerial Decree n. 188/2021) aimed at providing teachers of the Bergamo area with knowledge about disability and inclusion. Specifically, the article investigates and critically reflects on teachers' knowledge to detect any changes that occurred after attending the UNIBG training course, with respect to the disability construct (definition, terminology, typologies) and the teaching strategies useful for supporting school inclusion concerning different types of disabilities, as well as the perceived degree of competence in the direct application of these strategies in the classroom.*

Riassunto – *Il contributo discute gli esiti di una formazione realizzata dalla Cattedra di Pedagogia Speciale di UNIBG in risposta alla legge 'Formazione in servizio del personale docente ai fini dell'inclusione degli alunni con disabilità' istitutiva dei cosiddetti corsi delle 25 ore (L. n. 178/2020; D.M. n. 188/2021) volta a fornire, ai docenti delle scuole bergamasche, conoscenze in merito ai costrutti di disabilità e di inclusione. Nello specifico, l'articolo indaga e riflette criticamente le conoscenze degli insegnanti al fine di rilevare eventuali cambiamenti, a seguito del percorso formativo fruito, rispetto al costrutto di disabilità (definizione, terminologia, tipologie) e alle strategie didattiche utili a supportare l'inclusione scolastica rispetto a differenti tipologie di disabilità, nonché la percezione del grado di competenza nell'applicazione diretta in classe di tali strategie.*

Keywords – teachers' training, inclusion, disability, exploratory research

Parole chiave – formazione docente, inclusione, disabilità, ricerca esplorativa

Fabio Sacchi è Professore Associato di Didattica e Pedagogia Speciale presso l'Università Telematica San Raffaele di Roma. La sua attività di ricerca è attualmente relativa alla disamina dei dati di natura statistica e amministrativa, sia a livello internazionale sia nazionale, delle persone con disabilità e alla loro modalità di raccolta. Altri temi di studio sono l'inserimento lavorativo delle persone con disabilità, la figura professionale del disability manager, le tecnologie assistive per il lavoro e la scuola e la didattica speciale con particolare riferimento a quella delle discipline STEM.

Nicole Bianquin è Professoressa Associata di Didattica e Pedagogia Speciale presso il Dipartimento di Scienze Umane e Sociali dell'Università degli Studi di Bergamo. La sua attività di ricerca è orientata allo studio della pedagogia speciale in relazione ai processi inclusivi e alla progettazione individualizzata sia nell'ambito scolastico sia nell'extra-scuola. I suoi principali temi di studio sono l'applicazione del modello bio-psico-sociale proposta dall'*International Classification of Functioning, Disability and Health* (OMS, 2001, 2007), la valutazione e l'autovalutazione della qualità dei processi inclusivi, la didattica speciale e il gioco e i giocattoli inclusivi e accessibili.

Mabel Giraldo è Ricercatrice a tempo determinato presso il Dipartimento di Scienze Umane e Sociali dell'Università degli studi di Bergamo. I suoi interessi di ricerca riguardano l'area della disabilità e in particolare: l'approfondimento delle principali tematiche legate all'autodeterminazione e all'empowerment della persona adulta con disabilità, con specifico riferimento ai processi di inclusione e partecipazione sociale nei diversi contesti di vita

(abitare, tempo libero, ecc.); il dibattito culturale, sociale e pedagogico della disabilità; l'esplorazione delle valenze pedagogiche ed educativo-didattiche del binomio teatro-disabilità, con una particolare attenzione alla dimensione corporea.

Sabrina Panesi è Assegnista di ricerca presso CNR-ITD di Genova e professoressa a contratto presso il Dipartimento di Scienze della Formazione dell'Università degli Studi di Genova. La sua attività di ricerca è orienta allo studio della psicologia dello sviluppo e dell'educazione e allo studio delle tecnologie digitali a supporto dell'apprendimento e di abilità cognitive trasversali, soprattutto in ottica inclusiva. I suoi principali temi di studio riguardano l'uso di tecnologie per indagare lo sviluppo cognitivo in contesti educativi e clinici con bambini a sviluppo tipico e atipico e l'accessibilità di giochi analogici e digitali per promuovere e supportare lo sviluppo cognitivo.

Lucia Ferlino è Laureata in Pedagogia presso l'Università di Genova e Ricercatrice presso l'Istituto Tecnologie Didattiche del Consiglio Nazionale delle Ricerche, dove svolge attività di studio e ricerca nell'ambito delle risorse didattiche digitali, dell'e-learning, dell'e-inclusion in ambito educativo. È Docente *del Laboratorio di Tecnologie Didattiche per le Disabilità* nel corso di Scienze della Formazione Primaria e nei corsi di specializzazione per gli insegnanti di sostegno del Dipartimento di Scienze della Formazione dell'Università degli studi di Genova. È responsabile di Essediquadro, il Servizio di Documentazione e orientamento sul Software Didattico e altre risorse digitali dell'ITD-CNR, nell'ambito del quale realizza proposte formative sul tema "Tecnologie, didattica e inclusione". La sua attività si inserisce nelle seguenti linee di ricerca dell'Istituto: E-inclusion e Innovazione nella formazione universitaria e professionale.

1. Introduction

A truly inclusive school is founded on the quality of its teacher's staff. Some of the main supranational organizations underline how improving teacher professionalism represents the action most likely to favor the development of more inclusive communities and support the student's learning processes, allowing them to live socially significant learning experiences[1].

In 2007, the Commission of the European Community, in the communication *Improving the quality of teacher training*, underlined that the changes taking place at a social and educational level have led to a growing heterogeneous classes composed by students with different disabilities whose needs require adequate responses from teachers. Such an objective can only be achieved, according to the EU document, only if teachers can benefit from both initial high-quality training and a continuous personal learning keeping them updated and equipped with the necessary skills[2].

The strategic role assumed by teacher training for the realization of the inclusive process of students with disabilities is also acknowledged in the *World Report on Disability*[3] stating that training courses should be not limited to exploring the values and attitudes of the teachers towards disability and inclusion and the behaviors to be adopted in the classrooms. On the

[1] Commissione delle Comunità Europee, *Migliorare la qualità della formazione degli insegnanti*, 2007, pto. 1.3. https://eur-lex.europa.eu/legal-content/IT/TXT/HTML/?uri=CELEX:52007DC0392&from=EL (accessed 23 June 2022).

[2] *Ibidem*.

[3] WHO, *Rapporto Mondiale sulla Disabilità*, 2011, in https://www.disabili.com/medicina/articoli-qmedicinaq/rapporto-mondiale-dalloms-i-disabili-nel-mondo-sono-1-miliardo (accessed 23 June 2022).

contrary they might provide functional knowledge for the development of those skills required to respond to the needs of learners with disabilities.

According to these foundations, the request to update the inclusive professional profile of teachers (curricular and support ones) represents a widely discussed issue in Italy as well[4], where specific regulatory provisions have guided an inclusive school system, ever more equitable and attentive to everyone's needs. Precisely Law n. 104/92[5] represents the milestone for this concrete commitment, at a political, educational, and social level[6], establishing the right to education and training of the students with disabilities (art. 3) and recognizing the crucial role of teachers' training to support the process of integration of everyone into mainstream schools.

From the Nineties, in Italy further dedicated policies have been approved to respond to the need of an updated and qualified inclusive teachers' profile. It's the case of the Law n. 53/2003 and related Decrees aimed at regulating teachers' training in relation to the issues of "school integration of students with disabilities", and the *Guidelines for the integration of students with disabilities* of 2009, which urges the Regional School Offices to "organize training activities for school managers and school staff (including ATA staff) to implement and disseminate the culture of inclusion and "taking charge" of the disabled pupil by the school system". Once again, the Ministerial Decree n. 249/2010, establishes that initial teacher training should also be dedicated to disability and inclusion issues. Nevertheless, only recently (Law n. 107/2015, the so-called "Buona Scuola") the in-service training of tenured teachers becomes "mandatory, permanent and structural". This mandate is also reinforced by the Decree n. 66/2017, recalling school institutions to promote specific training programs for in-service staff on the issues of disability and inclusion, also in relation to pedagogical, methodological and teaching choices that are inclusive and consistent with individualized study plans.

Starting from these recommendations, the *National Teacher Training Plan for the three-year period 2016-2019* (and its §4.5 specifically dedicated to disability and inclusion) aims to "guarantee training courses for all teachers also to deepen specific knowledge in relation to individual disabilities" and "to strengthen the inclusive skills of all curricular teachers, through the application of methodologies and strategies to favor inclusion and experimentation models of collaboration and cooperation of teaching teams" and schools (e.g., the so called "Scuole Polo", in English "School Centre").

[4] Cf. M. De Angelis, *Valutare le competenze del docente inclusivo: revisione sistematica nei corsi di specializzazione sul sostegno in Italia*, in "Form@re", 21(1), 2021; A.M. Ciraci, M.V. Isidori, *Insegnanti inclusivi. Un'indagine empirica sulla formazione specialistica degli insegnanti di sostegno*, in "Journal of Educational, Cultural and Psychological Studies", 16, 2017; A. Canevaro, D. Ianes, *Un altro sostegno è possibile. Pratiche di evoluzione sostenibile ed efficace*, Trento, Erickson, 2019; D. Ianes, A. Canevaro, *Orizzonte inclusione: Idee e temi da vent'anni di scuola inclusiva*, Trento, Erickson, 2016; D. Ianes, *L'evoluzione dell'insegnante di sostegno*, Trento, Erickson, 2014; S. Nocera, *Gli insegnanti curricolari hanno diritto alla formazione sull'integrazione scolastica*, in "L'integrazione scolastica e sociale", 1(5), 2002.

[5] Law n. 104/1992, *Legge-quadro per l'assistenza, l'integrazione sociale e i diritti delle persone handicappate*

[6] Cf. A, Canevaro, R. Ciambrone, S. Nocera (a cura di), *L'inclusione scolastica in Italia. Percorsi, riflessioni e prospettive future*, Trento, Erickson, 2021; F. Magni, *Dall'integrazione all'inclusione: il nuovo profilo del docente di sostegno*, Roma, Edizioni Studium, 2018.

In 2018 these goals were reaffirmed in the *Dossier Professional development and quality of in-service training* which confirms continuous training as one of the levers for enhancing teacher professional profile, underlining how school inclusion should no longer be conceived as support teacher task and urging a cultural turn in thinking teaching in relation to the personal needs of each student.

This regulatory framework results in the recent Law Decree n. 36/2022[7], which completely reforms teachers' training and their recruitment process in order to build high-quality schools based on principles of inclusion and equality, with particular attention to the psychophysical well-being of students with disabilities.

Nevertheless, despite this forty-year experience and the huge economic and formative investment provided by the Italian Ministry of Education, recently strengthened by the *National Recovery and Resilience Plan* (PNRR), the goal of a fully inclusive Italian school system is still far from being achieved[8]. This is confirmed by some national data[9]: the number of support teachers enrolled does not cover the huge demand that, every year, increases (e.g., in the 2019/2020 school year the students with disabilities were over 13,000 more than the previous year). To respond to this shortage, the 37% of support teachers are selected from a list of curricular teachers and they generally lack specific training or skills on the issues of inclusion and disability. Therefore, even the enrollment of non-specialized teachers responds to organizational necessities, it generates a training/formative need within the Italian schools to foster specific professional skills/competences suitable for supporting quality inclusive processes, often worsened by insufficiently targeted recruitment paths.

Therefore, training, and in-service courses aimed at all school personnel is more urgent than ever. Indeed, at the present various national and international research have strongly recognized its strategic role[10]. They highlight that teachers' training on disability and inclusion is strictly functional to the realization of the inclusive process and positively influences the teaching effectiveness and the quality of the educational relationship[11]. Teachers who joined specific training courses are more performing and open to experiment an inclusive-oriented

[7] Decree n. 36/2022 art. 2, co. 3.

[8] Cf. N. Bianquin, F. Sacchi, *Disabilità e curricolo: come promuovere atteggiamenti positivi nei confronti della disabilità a scuola. Una proposta per la scuola secondaria di primo grado*, in "Nuova Secondaria Ricerca", 7, 2018.

[9] CENSIS, *La scuola e i suoi esclusi*, 9 giugno 2020, in https://www.censis.it/formazione/1-la-scuola-e-i-suoi-esclusi/lascuola-e-i-suoi-esclusi (accessed 23 June 2022).

[10] Cf. E. Avramidis, B. Norwich, *Teachers' attitudes towards integration/inclusion: a review of the literature*, in "European journal of special needs education", 17(2), 2002; A. Hadadian., L. Chiang, *Special Education Training and Preservice Teachers*, in "International Journal of Special Education", 22(1), 2007; K.D. Swain, P.D. Nordness, E.M. Leader-Janssen, *Changes in preservice teacher attitudes toward inclusion*, in "Preventing School Failure: Alternative Education for Children and Youth", 56(2), 2012; R.A. Allday, S. Neilsen-Gatti, T.M. Hudson, *Preparation for inclusion in teacher education pre-service curricula*, in "Teacher education and special education", 36(4), 2013; T. Van Steen, C. Wilson, *Individual and cultural factors in teachers' attitudes towards inclusion: A meta-analysis*, in "Teaching and teacher Education", 95, 2020; H. Elhoweris-N. Alsheikh, *Teachers' attitudes toward inclusion*, in "International Journal of Special Education", 21(1), 2006.

[11] Cf. A. Fiorucci, *Gli atteggiamenti degli insegnanti verso l'inclusione e la disabilità: uno sguardo internazionale*, in "Italian Journal of Special Education for Inclusion" 2(1), 2014.

instructional approach. In this sense, training represents a capital and cultural heritage that does not belong only to his/her professional and personal baggage but represents a tool at the service of the school context[12]. Moreover, this professional learning can be improved through different types of training activities, and it can be considered as a so-called *apprenticeship of the head* (knowledge), *hand* (skills/know-how) *and heart* (behavior/opinions)[13]. Furthermore, as Castagna underlines with reference to lifelong learning, training programs for adults can effectively use the frontal lesson as it allows many topics to be addressed in a limited time with large groups in order to provide basic knowledge[14].

Concluding, in relation to the challenges presented so far and the broad pedagogical debate developed in recent years, this paper presents the main results of an exploratory research aimed at investigating the effectiveness of the '25 hours" teachers' training program (in compliance with Law n. 178/2020 and the Ministerial Decree n. 188 of 21 June 2021), conducted by the Chair of Special Education of the University of Bergamo (UNIBG) in order to analyze the modification and promotion of the knowledge perceived by the participants regarding disability and school inclusion. The training course is characterized as a 'lead apprenticeship' aimed at providing initial knowledge about the constructs of disability and inclusion and related instructional strategies through asynchronous frontal video lessons, addressed to teachers at schools in the Bergamo area.

2. The '25-hours' training program

Recently Italian Law no. 178 of 2020[15] made mandatory specific in-service teachers' training interventions aimed at promoting school inclusion and guaranteeing the principle of co-ownership in taking charge of the students with disabilities. The general structure of these programs (timing, methods, contents, modalities, etc.) was subsequently regulated at the national level by the further Ministerial Decree n. 188 of 21 June 2021. It was established that the whole training course should not last less than 25 hours (hence the expression "25-hour training course") of which 17-hour of training, in presence or at distance, and 8 of in-depth studies to be carried out according to one or more of the following methods: "b. documented didactic experimentation and research/action; c. network work; d. personal and collegial study; And. documentation and forms of return/reporting; f. design". Moreover, to support the design of these programs, the Decree provided specific and transversal objectives and an example of the possible articulation of the training proposal[16].

[12] Cf. C. Forlin, *Future directions for inclusive teacher education*, Abingdon, OX, Routledge, 2012.

[13] Cf. L. Florian, D. Camedda, *Enhancing teacher education for inclusion*, in "European Journal of Teacher Education", 43(1), 2020.

[14] Cf. M. Castagna, *La lezione nella formazione degli adulti*, Milano, FrancoAngeli, 2007.

[15] Law n. 178 del 2020, *Bilancio di previsione dello Stato per l'anno finanziario 2021 e bilancio pluriennale per il triennio 2021-2023*.

[16] Ministero dell'Istruzione-Dipartimento per il sistema educativo di istruzione e di formazione, *Nota ministeriale*

The training programs were provided by each "School center for training" or by networks of schools and were approved in accordance with the Regional Technical-Scientific Committee (CTS), which included head teachers at the pole schools and the regional interinstitutional working groups.

2.1. UNIBG teachers' training program

For the realization of the "25 hours" training courses, Bergamo schools requested the scientific consultancy and collaboration of the Special Education Chair of the University of Bergamo, in accordance with the recommendations of MIUR and the national Technical-Scientific Committee. The topics of the UNIBG training proposal followed the regional Technical-Scientific Committee directions[17].

Specifically, the UNIBG training course was composed of 32 frontal video lessons recorded by UNIBG researchers and associates. The videos were usable in asynchronous self-study mode and, in order to make the training program personalized, they were organized as follows: n. 17 lessons for all school degrees and n. 15 specific for each school degree. UNIBG supplied a list of topics and the "School center for training" evaluated them within their own teaching boards and identifies, alongside the topics required by Law, those responding to the training needs of their teachers. Subsequently, the "School center for training" proceeded to develop a unitary content proposal dividing the topics into 3 groups: a) mandatory by ministerial legislation for all school levels; b) mandatory for a specific school grade; c) optional according to school grade, freely selectable by each user. To conclude and obtain validation of the training program, each user had to choose at least 17 lessons according to the defined rules and made a final assessment test, which was prepared by the university team and correlated to the path taken individually.

Moreover, an eLearning platform was realized and managed by Istituto Tecnologie Didattiche (ITD) of Genoa to make video lessons available to the teachers enrolled in the training program. This platform included the following sections, coordinated and moderated by UNBIG team: a) *Forum* (a virtual community for discussion and question, posted by both users and UNIBG moderators); b) *Frequently Asked Questions* (a section to collect main questions/answers that have emerged in the "Forum" section); c) *Lessons* (including 32 videos and related slides); d) *Clips* (short presentations to integrate topics addressed in the training program.

Furthermore, a reflective self-evaluation model was adopted aiming at identifying (and possibly measuring) the changes triggered by the UNIBG program in schools towards the school

0027622 del 6 settembre 2021, p. 2. https://usr.istruzione.lombardia.gov.it/wp-content/uploads/2021/09/AOODGP-ER.REGISTRO-UFFICIALE.2021.0027622.pdf (accessed 11 November 2022).

[17] For the in-depth presentation of the lines of intervention issued by the Lombardy Region and their connection with the UNIBG proposal, see: F. Sacchi, M. Giraldo, S. Panesi, N. Bianquin, L. Ferlino, *La formazione inclusiva dei docenti a trent'anni dalla Legge n. 104/1992. Studio esplorativo di un percorso formativo per la scuola secondaria di II grado,* in "Nuova Secondaria", 4, 2022.

inclusion of students with disabilities. In addition, more traditional assessment of the knowledge acquired by the participants was used, detected through multiple-choice tests related to each video lesson.

Finally, alongside the program the users were supported by 2 tutors to manage and monitor the technical aspects and to support users in using the platform and verify the effective completion of individual training courses.

3. Research Design: objectives, methods, and tools

As part of the UNIBG training proposal described above, the research presented here aims at investigating the knowledge of the teachers involved in the program to detect any changes occurred with respect to their initial/final knowledge regarding the constructs of disability and inclusion. Specifically, with reference to the first, the definition of disability provided by the participants and the terminology used are investigated; as regards the second, the knowledge concerning the teaching strategies useful for supporting school inclusion with respect to different types of disabilities is examined, as well as the perception of the degree of competence in the direct application of these strategies in the classroom.

To meet these objectives, an exploratory study was conducted[18]. The planned intervention between the pre- and post-test phase is the training course (independent variable); the dependent variables concern: the knowledge of the participants regarding the constructs of disability and inclusion and the related teaching strategies.

3.1. Online Questionnaire

The surveys (pre and post) were carried out through an online questionnaire composed of open- and closed-ended questions specially prepared by UNIBG researchers and aimed collecting ideas, opinions and reflections from the teachers involved in the "25-hours" training program on their knowledge in relation to: a) the issues of disability and b) the main teaching strategies useful for supporting school inclusion with respect to different types of disabilities, as well as the perception of the degree of competence in the direct application of these strategies in the classroom. The same questionnaire has been submitted in the pre- and post-test phases.

The questionnaire included 3 sections[19]: a) personal and professional data (age, education, qualification, school degree in which they work, years of service, other training courses attended in regarding the issues of disability and inclusion, previous work experience in the research field); b) section relating to the construct of disability (15 questions, including 7 multiple choice,

[18] Cf. R. Trinchero, *I metodi della ricerca educativa*, Roma Bari, Laterza, 2004.

[19] For more information and some sample questions for each section of the questionnaire, cf. F. Sacchi, M. Giraldo, S. Panesi, N. Bianquin, L. Ferlino*, La formazione inclusiva dei docenti a trent'anni dalla Legge n. 104/1992. Studio esplorativo di un percorso formativo per la scuola secondaria di II grado,* in "Nuova Secondaria", 4, 2022.

1 Likert scale and 7 open-ended questions); c) section relating to the construct of inclusion (15 questions, including 7 multiple choice, 1 Likert scale and 7 open-ended questions).

3.2. Data analysis

Data collected were subjected to a descriptive and inferential statistical analysis and, according to the research design, for this paper only closed-ended questions of the questionnaire were considered and analyzed.

To define the level of professional training, the answers provided to the following questions in Section 1 "Personal Data" were taken into consideration (the value 1 was assigned to each "Yes" answer, while the value 0 was assigned to the answer "No): i) if you have a degree, we ask you to indicate whether you have taken exams in Special Pedagogy (Yes/No) or Special Didactics (Yes/No); ii) if you are a university student, we ask you to indicate whether you have taken exams in Special Pedagogy (Yes/No) or Special Didactics (Yes/No); iii) if you have obtained the 24 credits for teaching, have you taken exams in special pedagogy and/or special teaching? Special Pedagogy (Yes/No) or Special Didactics (Yes/No); iii) before this training, participation in training activities on the issues of inclusion and disability (Yes/No). Based on the answers provided to the above queries, each respondent has been assigned to one of the following subgroups: None (total value 0), Low (total value between 1 and 2), Medium (total value between 3 and 4), High (total value between 5 and 7). For the definition of the experience as support teacher, the queries concerned: i) years of service (none, less than 1 year, from 1 to 10 years, more than 10 years); ii) experience as curricular teacher (none, less than 1 year, from 1 to 10 years, more than 10 years); iii) other experiences in disability (Yes/No).

To analyze responses to queries related to Section 2 "Disability", pre-test and post-test data were examined using descriptive statistics (frequency analysis). These analyses were conducted with the SPSS 20.0[20] statistical software by grouping the participants into specific subgroups in relation to the level of training and professional experience.

To analyze questions relating to the construct of inclusion (Section 3), 3 composite variables were preliminarily established: a) knowledge of teaching strategies, b) skills of teaching strategies and c) knowledge of topics. For each of them, the scores on the Likert scales (from 1 to 5) have been summed. Subsequently, paired Student's t tests were conducted to compare the mean pre- and post-test scores for the three variables. The data were anonymous, to each participant was assigned an identification code (alphanumeric string) to associate the answers of the initial and final tests[21]. This also permitted to contain the risk of social desirability of the answers. These analyses were conducted as previously for all subgroups (level of training and levels of experience) of teachers. Finally, for each of these variables, 3 variables relating to the difference between the mean pre- and post-test scores was calculated.

[20] Cf. J. L. Arbuckle, *IBM SPSS Amos 20 User's Guide*, SPSS Inc., Amos Development Corporation, 2011.

[21] Each participant independently generated his or her own identification code when registering on the platform using the information provided for its construction (e.g., year of birth, height, initial of his or her name).

4. Results

4.1. Participants

2377 teachers (84.5% female) aged between 19 and 66 years (M = 44.04; DS = 10.14) participated in the UNIBG "25-hours" training program. Participants differed in level of training and professional experience in the field of disability/inclusion (see Tables 1 and 2).

Training Level	Participants	Percentage
None	899	37.8%
Low	1088	45.8%
Medium	291	12.2%
High	98	4.1%
Very high	1	0%
Total	2377	100%

Table 1 – Level of training

According to Table 2, 78.96% (1987 out of 2377) of the teachers responding to the questionnaire received or not basic training on the issues of inclusion and disability. Only 4.1% had a high level of education.

Experience	Numbers	Percentage
Experience as support teacher		
None	1125	47.3
<1 year	297	12.5
1-10 years	882	37.1
>10 years	73	3.1
Experience as curricular teacher*		
None	271	11.4
<1 year	199	8.4
1-10 years	891	37.5
>10 years	1015	42.7
Other experience in disability sector **		
No	2133	89.7
Yes	242	10.2

Note: *1 missing data; ** 2 missing data

Table 2 – Level of professional experience

Also, regarding professional experience, Table 2 highlights that 47.3% of participants did not have any type of teaching experience as support teachers; 3.1% instead had more than ten years of experience. Compared to curricular experience, the trend was reversed: 42.7% of teachers had more than ten years of experience, while 11.4% declared they had no experience.

A significant data concerned previous work experience in the field of disability: 89.7% of the responding teachers stated that they had no experience.

4.2. Knowledge about disability

Table 3 shows the descriptive statistical analyses (number of subjects and percentages) for the query 'In your opinion, disability is': 1. a problem of the individual caused by a pathological condition (medical definition)[22]; 2. a condition of disadvantage caused by barriers in society (social definition)[23]; 3. the result of the relationship between the individual's state of health and his/her living environments (bio-psycho-social definition)[24]; 4. other. The results are presented

[22] The medical model, sometimes also referred to as the medico-individual model, interprets disability as a problem of the individual, caused by a pathological condition linked to neurobiological determinants. According to this model, disability represents an individual's own characteristic originating from a disease that results in an impairment defined as any loss or abnormality in psychological, physiological or anatomical structures or functions, which represents the concretization of a pathological state and reflects the deficit at an organic level (cf. L. Cottini *Didattica speciale e inclusione scolastica*, Roma, Carocci, 2017).

[23] In the social model, the disabled person is not disabled because of his/her impairments, but is made disabled by a society with barriers, policies, attitudes and cultures that marginalize, even intentionally, certain individuals.

[24] The *International Classification of Functioning, Disability and Health* (ICF), approved by the World Health Organisation (WHO) in 2001, introduced a different model for approaching the person's functioning, the concept of

for the sample and for the different groups created according to training and professional experience level.

According to Table 3, regardless of the group they belong to, as regards both the level of training and the level of professional experience, the percentages of subjects providing a bio-psycho-social definition in the post phase increase, and those relating to the medical and social definition decreased. In fact, if in the pre-test phase in the various groups 1396 participants (equal to 58.7% of the sample) provided the bio-psycho-social definition, in the post-test phase this value rises to 1951 (equal to 82.1% of the participants). Moreover, 301 subjects (out of 428) who provided a medical definition change their response by providing a biopsychosocial one and 298 subjects (out of 431) who provided a social definition in the pre phase subsequently provided a biopsychosocial one.

Table 4 and Diagram 1 show the descriptive statistical analyses (number of subjects and percentages) related to the queries: i) "If you think of a person with a disability, what type of disability do you think of first?"; ii) "In your opinion, what is the most common type of disability present in children aged 0-6 years/6-11 years/12-18 years?" Participants could choose one of the following options: (1) motor impairments; (2) intellectual disability; (3) visual impairment; (4) hearing impairment; (5) autism spectrum disorders; (6) developmental disorders; (7) other (specify).

The analysis of the results attested that most respondents both in the pre (921 out of 2377 or 38.7% of the sample) and post (904 out of 2377 or 38%) phases stated that when they thought of a person with a disability they especially thought of "intellectual disability", followed by "motor impairments" (pre: 856, 36%; post: 837, 35.2%). Important to acknowledge, the detachment of these two types from the others, including autism spectrum disorders. A much lower figure was recorded for both sensory disabilities.

In response to the query "In your opinion, what is the most widespread type of disability present in children aged 0-6 years/6-11 years/12-18 years?", developmental disabilities received the highest number of answers for all age groups, in both the pre and post phase, with the exception in the latter of the 6-11 year age group where intellectual disability was perceived as the most widespread. Moreover, according to Table 4 intellectual disability was second followed by autistic spectrum disorders.

Finally, a last query concerned the degree of the participants knowledge in relation to the different above-mentioned types of disability, using a 5-point Likert scale: (1= I have no knowledge at all; 5= I feel I know fully). The participants (Diagram 2), in the post phase, declared an increased knowledge of all types of disabilities; in particular, for sensory disabilities, both visual and auditory, for which there is an increase of 0.22 in the final average value. Similarly, the same trend occurred for autism spectrum disorders, although a smaller increase of 0.20 between the average pre-test and post-test value was registered.

health and the disability. It includes the bio-psycho-social model of health that overcomes the opposition between the medical and social models integrating and enriching them. In this classification, the person's functioning integrates the biological and psychological components and those relating to the influences exerted by the environments in which the person lives.

	PRE				POST			
	Medical def.	**Social def.**	**Bio-psycho-social def.**	**Other**	**Medical def.**	**Social def.**	**Bio-psycho-social def.**	**Other**
Sample	428 (18.0%)	431 (18.1%)	1396 (58.7%)	120 (5.0%)	142 (6%)	231 (9.7%)	1951 (82.1%)	43 (1.8%)
Level of training								
None	138 (10.0%)	160 (11.61%)	550 (39.9%)	49 (3.55%)	49 (3.55%)	90 (6.53%)	741 (53.81%)	16 (1.16%)
Low	216 (15.68%)	193 (14.0%)	623 (45.2%)	50 (3.63%)	61 (4.4%)	103 (7.8%)	900 (65.3%)	18 (1.3%)
Medium	52 (3.8%)	53 (3.8%)	171 (12.4%)	15 (1.1%)	22 (1.6%)	25 (1.8%)	239 (17.4%)	4 (0.3%)
High	20 (1.5%)	24 (1.7%)	48 (3.5%)	5 (0.4%)	9 (0.6%)	12 (0.9%)	71 (5.2%)	5 (0.4%)
Very high	1 (0.07%)	0	0	0	0	1(0.07%)	0	0
Professional experience								
As support teacher								
None	203 (14.8%)	197 (14.3%)	676 (49.1%)	57 (4.1%)	62 (4.5%)	103 (7.5%)	931 (67.6%)	24 (1.7%)
<1 year	51(3.7%)	54 (3.9%)	172 (12.5%)	20 (1.4%)	16 (1.2%)	29 (2.1%)	247 (17.9%)	4 (0.29%)
1-10 years	160 (11.6%)	166 (12.0%)	515 (37.4%)	40 (2.9%)	57 (4.1%)	92 (6.7%)	718 (52.1%)	11 (0.8%)
>10 years	14 (1.0%)	14 (1.0%)	42 (3.0%)	3 (0.2%)	7 (0.5%)	7 (0.5%)	55 (4.0%)	3 (0.2%)
As curricular teacher								
None	41 (3.0%)	51 (3.7%)	159 (11.5%)	20 (1.4%)	14 (1.0%)	27 (2.0%)	222 (16.1%)	6 (0.3%)
<1 year	40 (2.9%)	39 (2.8%)	109 (7.9%)	11 (0.8%)	8 (0.6%)	25 (1.8%)	164 (11.9%)	0
1-10 years	172 (12.4%)	166 (12.0%)	509 (37.0%)	42 (3.0%)	60 (4.4%)	89 (6.5%)	720 (52.3%)	20 (1.4%)
>10 years	175 (12.7%)	175 (12.7%)	618 (44.9%)	47 (3.4%)	60 (4.4%)	90 (6.5%)	845 (61.4%)	16 (1.2%)
Other experience in the field of disability								
Yes	24 (1.7%)	46 (3.3%)	156 (11.3%)	16 (1.2%)	8 (0.6%)	15 (1.1%)	217 (15.7%)	1 (0.07%)
No	232 (16.8%)	224 (16.3%)	679 (49.3%)	72 (5.3%)	81 (5.9%)	119 (8.6%)	974 (70.7%)	27 (2.0%)

Table 3 – Descriptive statistics of the query "According to you, disability is…"

	PRE	POST
Motor impairments	856 (36%)	837 (35.2%)
Intellectual disability	921 (38.7%)	904 (38%)
Visual impairment	9 (0.4%)	16 (0.7%)
Hearing impairment	5 (0.2%)	2 (0.1%)
Autism spectrum disorders	247 (10.4%)	273 (11.5%)
Developmental disorders	139 (5.8%)	132 (5.6%)
Others	199 (8.4%)	203 (8.5%)

Table 4 – Descriptive statistics of the query "If you think of a person with a disability, what type of disability do you think of first?"

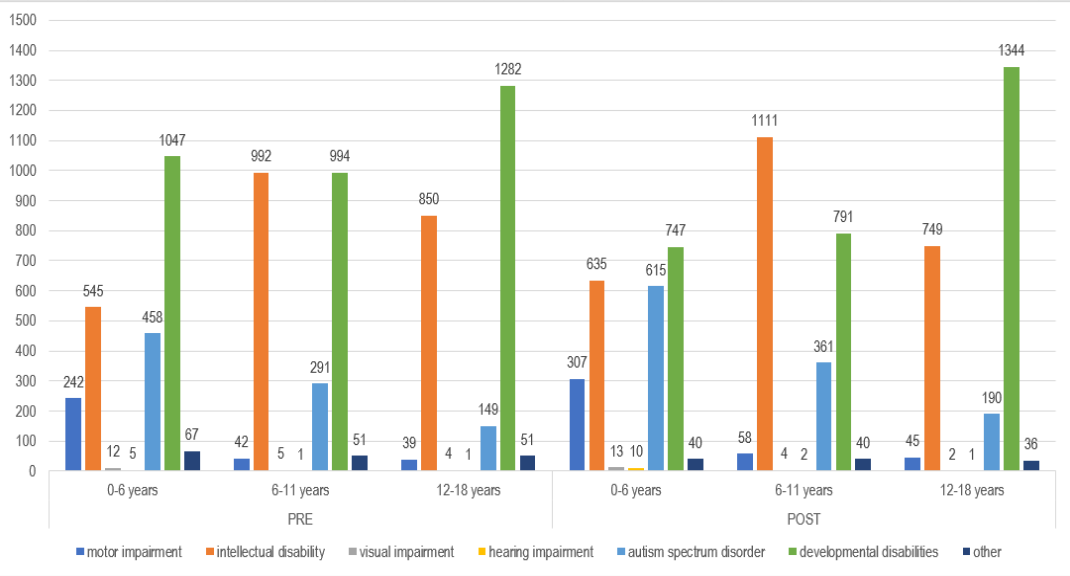

Diagram 1 – Descriptive statistics of the query "In your opinion, what is the most widespread type of disability present in children aged 0-6 years/6-11 years/12-18 years?"

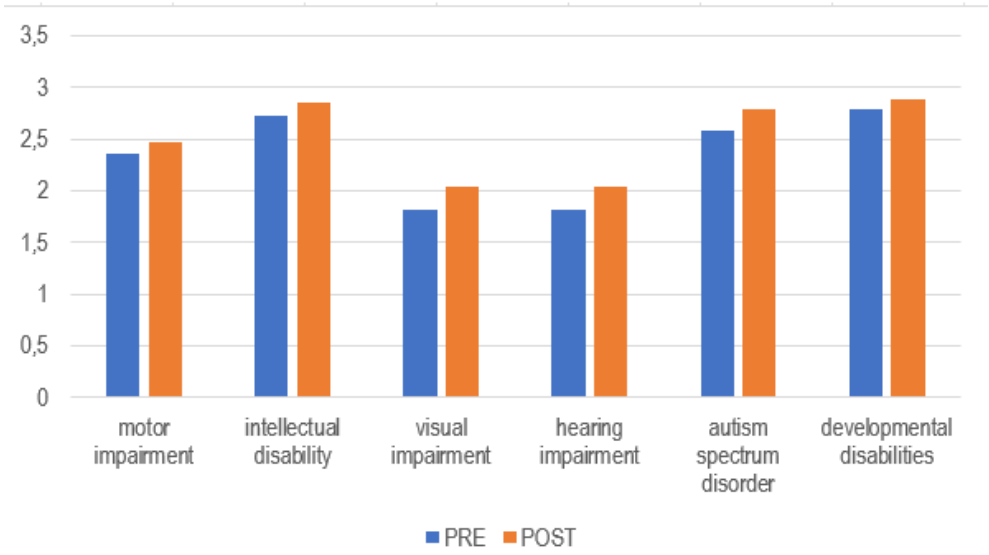

Diagram 2 – Descriptive statistics of the query
"Could you indicate your level of knowledge with respect to each of the disabilities indicated below? Express your degree of knowledge using the 5-point Likert scale (1= I have no knowledge; 5= I think I know fully)"

4.3. Knowledge about inclusion

Diagram 3 shows the descriptive statistical analysis (number of subjects and percentages) related to the question "Which of the following types of disability do you consider to be the most challenging to achieve inclusion in pre-school/primary school / secondary school / secondary school". Respondents could choose one option among the given ones: (1) motor impairments; (2) intellectual disability; (3) visual impairment; (4) hearing impairment; (5) autism spectrum disorders; (6) developmental disorders; (7) other (specify).

In general, in both pre and post-test, autism spectrum disorders were perceived as the most challenging disabilities in preschool (rising from 1002 to 941 participants) and primary school (rising from 860 to 818) years; whereas developmental disabilities in other next two school degrees (low secondary school: from 927 to 1060; upper secondary school: from 823 to 1015). In reverse, the disabilities considered less challenging in both the pre and post-test phases were once again sensory disabilities: their perception as challenging diseases decreased with the increase of the school degrees. A similar trend was noticed for motor impairments, which were considered more challenging in pre-school (both pre and post-test, going from 391 to 412 participants) and progressively less challenging.

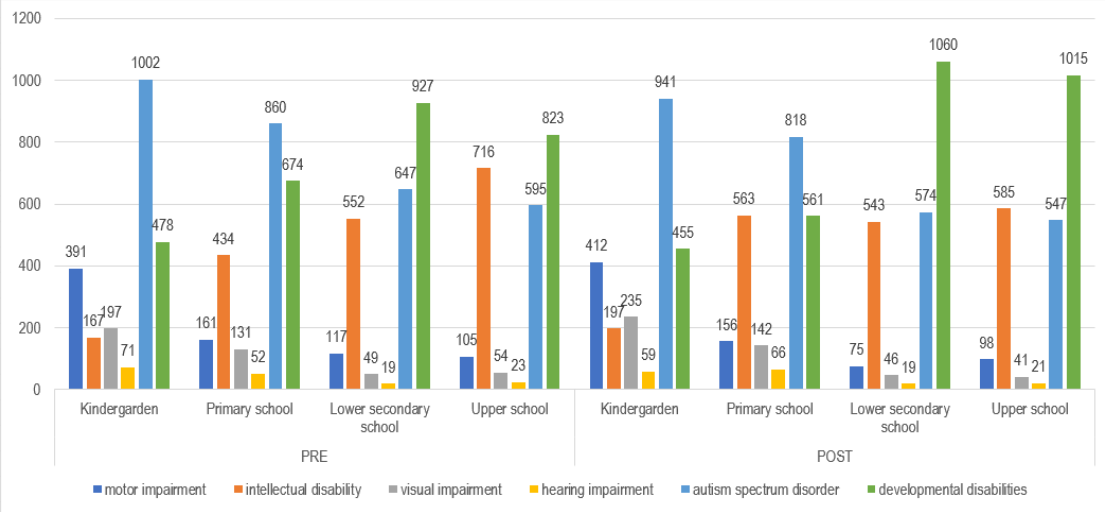

Diagram 3 – Descriptive response to the query "Which of the following types of disability do you consider to be the most challenging to achieve inclusion in pre-school/primary school / secondary school / secondary school?"

With reference to the degree of knowledge of instructional strategies useful to support school inclusion in relation to the different types of disabilities, the participants were asked to express a score on a 5-point Likert (1= I have no knowledge; 5= I think I fully know), declared to have more knowledge, both pre and post-test, in relation to intellectual disability (pre: 2. 67; post: 3.24) and developmental disabilities (pre: 2.60; post: 3.22) and autism spectrum (pre: 2.42; post: 3.09). Furthermore, the most significant increase between the pre and post-test phases occurred for autism spectrum disorders (from 2.42 to 3.09 as the average value) and hearing impairment (from 1.76 to 2.43 as the average value) followed by visual impairment (from 1.76 to 2.40 as average value) and developmental disabilities (from 2.60 to 3.22 as average value).

As shown by Diagram 4, a general increase for all types of disability was recorded concerning the perception of knowledge of instructional strategies for inclusion. A similar trend was registered for the participants' competences ("Could you indicate your degree of competence (i.e. relative to direct application in the classroom), in the use of instructional strategies useful to support school inclusion in relation to the following disabilities?"). Looking at the data, the participants stated to have greater competence, both in the pre and post-test, in relation to intellectual disability (pre: 2.59; post: 3.12) and developmental disabilities (pre: 2.52; post: 3.06) and autism spectrum disorders (pre: 2.34; post: 2.94). Furthermore, the most significant increase between the pre and post-test occured for autism spectrum disorders (0.60) and hearing impairment (0.58) followed by visual impairment (0.55).

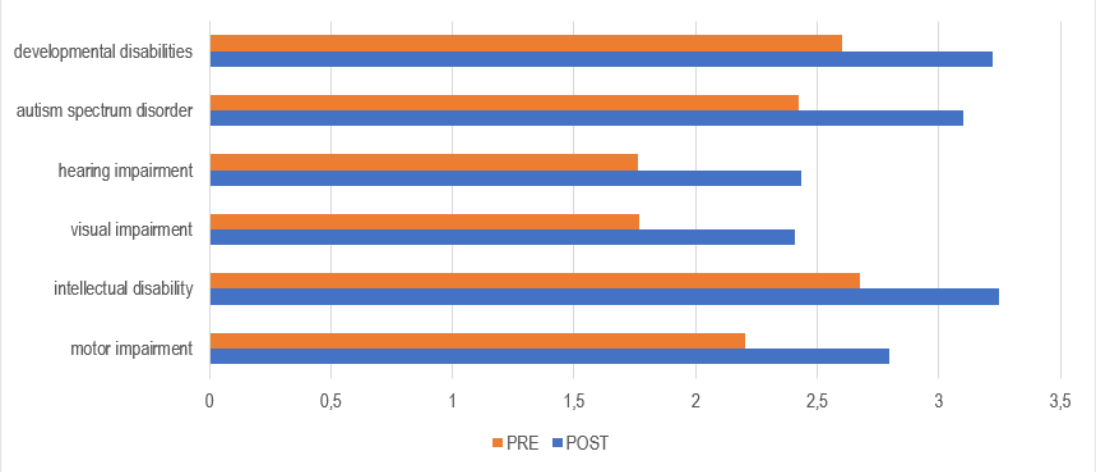

Diagram 4 – Descriptive response to the query "Could you indicate what you consider to be your level of knowledge with regard to teaching strategies useful to support school inclusion in relation to the following disabilities?"

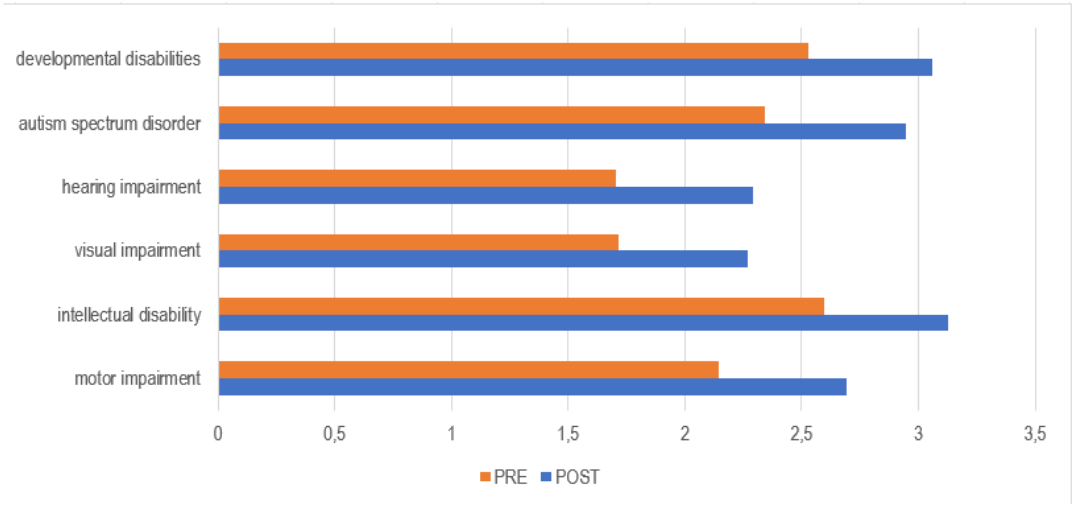

Diagram 5 – Descriptive response to the query "Could you indicate your degree of competence (i.e., related to direct application in the classroom), in the use of teaching strategies useful to support school inclusion in relation to the following disabilities?"

Diagram 6 shows the descriptive statistical analysis (number of subjects) for the query "Could you indicate what your level of knowledge with regard to the following topics?". Respondents could choose a score on a 5-point Likert scale (1= I have no knowledge; 5= I feel I have full knowledge) corresponding to the following given options: (1) School inclusion; (2) ICF model and participation construct; (3) Disability construct; (4) Adjustment of objectives and evaluation criteria; (5) Working in team strategies (co-teaching, team teaching, …); (6) Differentiated teaching strategies; (7) Curricula and/or inclusive learning units; (8) Inclusion regulatory framework; (9) Reading and interpretation of the diagnostic documentation.

The participants claimed knowledge on (in decreasing order): Working in team strategies (co-teaching, team teaching, …) (3.55 a.v.), Adjustment of objectives and evaluation criteria (2.97 a.v.), School inclusion (2.90 a.v.), Disability construct (2.86 a.v.), Differentiated teaching strategies (2.81 a.v.), Curricula and/or inclusive learning units (2.56 a.v.), Reading and interpretation of the diagnostic documentation (2.67 a.v.), Inclusion regulatory framework (2.35 a.v.) and, finally, ICF model and construct of participation (2.08 a.v.). Furthermore, the most significant increase between the pre- and post-test phase occurred for the following topics: ICF model and construct of participation (1.4 a.v.), Inclusion regulatory framework (0.78 a.v.), Curricula and/or inclusive learning units (0.69 a.v.) and Disability construct and School Inclusion both 0.65 (a.v.).

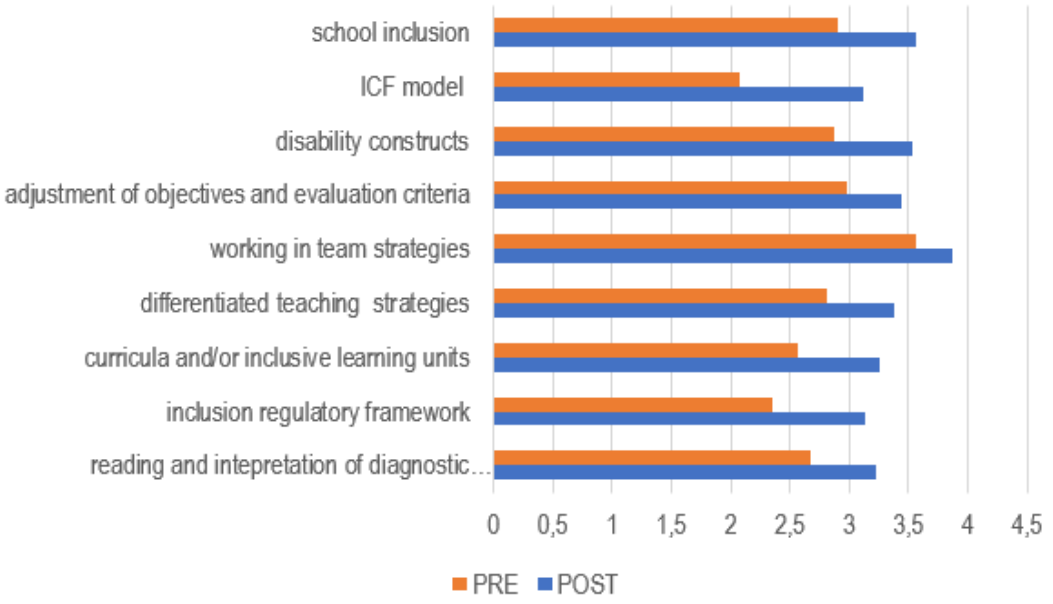

Diagram 6 – Descriptive response to the query "Could you indicate your level of knowledge with regard to the following topics?"

Table 5 shows average values, standard deviations, and results on paired Student's t-tests comparing the total scores on the pre and post-tests given by the participants concerning knowledge and competences related to instructional strategies and knowledge about specific topics. The results are presented for the whole sample and for each subgroup of participants divided according to levels of training and professional experience. For this analysis, three variables were created with composite scores (sum of the individual scores given to the items on a Likert scale; score range: from 1 "I have no knowledge/competence" to 5 "I feel I fully know/feel I am fully competent").

The results showed that the difference between the average values in the pre and post-test phases was statistically significant for each variable in all groups analyzed. Furthermore, all scores were higher in the post-test phase, attesting a general perceived learning relating to instructional strategies and an increase in their knowledge of the topics.

		PRE		POST			
		M	DS	M	DS	t	*p*
Sample	*Knowledge on instructional strategies*	13.43	4.29	17.24	4.40	43.83	<.001
	Competence of instructional strategies	13.03	4.25	16.42	4.50	39.80	<.001
	Knowledge on topics	24.22	7.07	30.24	6.43	46.05	<.001
Training							
None	*Knowledge of instructional strategies*	13.70	4.41	17.57	4.76	-11.22	<.001
	Competence of instructional strategies	13.31	4.61	16.67	4.69	-10.11	<.001
	Knowledge on topics	23.90	7.71	30.40	6.91	-12.20	<.001
Low	*Knowledge of instructional strategies*	13.13	4.95	17.10	5.12	-13.68	<.001
	Competence of instructional strategies	12.72	4.59	16.09	5.09	-12.49	<.001
	Knowledge on topics	23.48	7.29	29.02	7.11	-13.25	<.001
Medium	*Knowledge of instructional strategies*	12.74	4.06	17.32	4.45	-8.52	<.001
	Competence of instructional strategies	12.62	4.07	16.50	4.39	-7.61	<.001
	Knowledge on topics	23.61	7.03	29.53	7.20	-8	<.001
High	*Knowledge of instructional strategies*	12.55	4.53	17	4.21	-4.35	<.001
	Competence of instructional strategies	12.75	5.23	16.60	4.23	-3.46	<.001
	Knowledge on topics	24.40	9.20	31.15	6.54	-4.64	<.001
Professional experience							
As support teacher							
None	*Knowledge of instructional strategies*	13.85	4.43	17.98	4.76	-14.97	<.001
	Competence of instructional strategies	13.57	4.57	16.99	4.94	-12.20	<.001
	Knowledge on topics	24.46	7.15	30.56	6.73	-14.49	<.001
<1 year	*Knowledge of instructional strategies*	12.84	5.18	16.16	4.97	-5.79	<.001
	Competence of instructional strategies	12.49	4.77	15.64	4.61	-6.03	<.001
	Knowledge on topics	22.94	8.29	28.73	7.82	-7.17	<.001
1-10 years	*Knowledge of instructional strategies*	13.07	4.62	17.05	4.95	-11.67	<.001
	Competence of instructional strategies	12.88	4.51	16.06	4.77	-10.10	<.001
	Knowledge on topics	23.47	7.36	29.19	7.37	-11.30	<.001
>10 year	*Knowledge of instructional strategies*	13.63	4.55	17.79	4.73	-14.22	<.001
	Competence of instructional strategies	13.28	4.66	16.93	4.82	-12.55	<.001
	Knowledge on topics	24.23	7.70	30.50	6.86	-13.99	<.001

As curricular teacher							
None	*Knowledge of instructional strategies*	13.15	5.35	17.11	5.39	-5.23	<.001
	Competence of instructional strategies	12.50	4.66	16.35	5.31	-5.99	<.001
	Knowledge on topics	22.44	7.47	28.77	7.35	-6.58	<.001
<1 year	*Knowledge of instructional strategies*	12.27	4.42	16.17	4.60	-7.13	<.001
	Competence of instructional strategies	11.75	3.98	14.98	4.41	-5.94	<.001
	Knowledge on topics	23.22	6.76	28.43	6.03	-6.41	<.001
1-10 years	*Knowledge of instructional strategies*	13.07	4.62	17.05	4.95	-11.67	<.001
	Competence of instructional strategies	12.88	4.51	16.06	4.77	-10.10	<.001
	Knowledge on topics	23.47	7.36	29.19	7.37	-11.30	<.001
>10 year	*Knowledge of instructional strategies*	13.63	4.55	17.79	4.73	-14.22	<.001
	Competence of instructional strategies	13.28	4.66	16.93	4.82	-12.55	<.001
	Knowledge on topics	24.23	7.70	30.50	6.86	-13.99	<.001
Other experience in disability field							
Yes	*Knowledge of instructional strategies*	15.69	4.07	19.21	4.37	-4.82	<.001
	Competence of instructional strategies	16.08	3.90	17.82	4.05	-2.63	<.015
	Knowledge on topics	28.91	8.26	33.17	6.91	-3.25	<.004
No	*Knowledge of instructional strategies*	13.15	4.66	17.20	4.90	-19.49	<.001
	Competence of instructional strategies	12.77	4.54	16.29	4.87	-17.90	<.001
	Knowledge on topics	23.45	7.35	29.47	7.02	-19.85	<.001

Table 5 – Average values, standard deviations, and test t di Student related to school inclusion (pre and post-test)

5. Discussion

This research investigated the effectiveness of the UNIBG "25 hours" teachers' training program aimed at modifying and promoting the perceived knowledge of participants about issues related to disability and school inclusion. The results highlighted the general effectiveness of the course, in implementing knowledge and competence perceived by the participants with respect to the two analyzed constructs. This training, as well as the continuous updating of teachers on issues relating to didactics and special pedagogy, represented, as Freytag stated, a crucial variable that can positively influence the effectiveness of teaching action and the educational relationship[25].

[25] Cf. C.E. Freytag, *Teacher Efficacy and Inclusion: The Impact of Preservice Experiences on Beliefs*, Paper

Concerning the construct of disability, a general awareness increase emerged related to the more appropriate language to refer to disability, as suggested by the *UN Convention on the Rights of Persons with Disabilities*, and the bio-psycho-social model of disability promoted by ICF. In fact, the expressions used convey personal point of views on the reality and reflect the cultural, as well as conceptual and scientific evolution of the way of approaching different phenomena, including those characterizing disability. Adopting the bio-psycho-social model means adhering to a specific perspective of human functioning and health not limited to individual characteristics (medical approach), but implies considering different life contexts, stages, activities, and stakeholders[26].

Teachers' perceptions on the most widespread types of disability in the different school degrees are particularly significant: the type of disability most frequently mentioned is intellectual disability which, in most cases, is a hidden disability and motor impairments which, unlike the former, is a visible disability. This is even more relevant considering that generally the hidden disabilities (including intellectual disability) are more subject to possible discriminatory attitudes[27], by teachers too[28]. Several research on disability stigma conducted among children, young and adults in school and non-educational settings shows that individuals with hidden disabilities experience more negative stigma compared to individuals with visible disabilities. Goffman explained that stigma experienced by an individual with a disability can be influenced by whether the individual believes or knows about his/her condition (i.e., the condition is visible), or whether his/her condition is hidden to others. According to our study results, the data recorded by the participants might be influenced by their professional experiences and, therefore, by the types of disability encountered in their daily school life. In this regard, as emerges from the latest MIUR Report[29] (2022), in 2020/2021 96.8% of the total number of certified students, across all school degrees, have the so-called "psychophysical disabilities" which include both intellectual and motor disabilities. Whereas only 1.3% of the certified population have a visual impairment and 1.9% a hearing impairment.

One of UNIBG program objectives appears to be achieved: the participants confirm (post-test) that their knowledge of the different types of disabilities is higher than at the beginning. This new teachers' knowledge could have a positive impact on the mastery of the most appropriate instructional strategies to respond to the specific educational needs of students with disabilities and to support the widespread positive attitudes toward them[30]. Regarding the inclusion construct, autism spectrum disorders are considered the most challenging to

presented at the Annual Meeting of the Southwest Educational Research Association (24th, New Orleans, LA, February 1-3, 2001), in https://files.eric.ed.gov/fulltext/ED451180.pdf .

[26] D. Ianes, H. Demo, *Per un nuovo PEI inclusivo*, in "L'integrazione scolastica e sociale", 20(2), 2021, p. 42.

[27] Cf. S. Grimes, E. Southgate, J. Scevak, R. Buchanan, *University Student Experiences of Disability and the Influence of Stigma on Institutional Non-Disclosure and Learning*, in "Journal of Postsecondary Education and Disability", 33(1), 2020.

[28] Cf. C.N. Shpigelman, S. Mor, D. Sachs, N. Schreuer, *Supporting the development of students with disabilities in higher education: access, stigma, identity, and power*, in "Studies in Higher Education", 47(9), 2022.

[29] Cf. MIUR, *I principali dati relativi agli alunni con disabilità a.s. 2021-2022*.

[30] Cf. F. Lautenbach, A. Heyder, *Changing attitudes to inclusion in preservice teacher education: a systematic review*, in "Educational Research", 61(2), 2019.

implement the inclusion process in both the pre and post-inclusion phases across all school degrees. This is confirmed by the literature and could result from the complexity of the disorder phenomenology (with reference to the disruptive behaviors) and the possible barriers characterizing the school environments (e.g., the brightness and noisiness of classrooms/spaces, inaccessible materials or instructional strategies not appropriately addressing the specific needs of these students)[31].

In addition, because of the training program, a general increase in participants' knowledge of ICF bio-psycho-social approach is noticed confirming its widely scientific acknowledgment by scholars as a promising tool to support teachers in approaching disability and designing instructional proposals and interventions to favor the inclusive process of students with disabilities[32]. According to the types of disabilities analyzed in the questionnaire, the least perceived challenging ones are sensory disabilities. This would be due to the fact that for students with these types of disabilities, early interventions adopted from the earliest stages of the child's life, such as the learning of alternative languages such as Braille or LIS, the use of specific assistive technologies and reasonable accommodations that allow for accessibility of learning places and materials would be highly functional in enabling them to quickly regain basic skills and to be included within school contexts up to reducing or completely eliminating the gap with normal typically developing students[33].

Furthermore, the data (obtained from the analysis of the comparison between pre- and post-test phases) shows a declarative trend of increased knowledge and competence in instructional strategies after attending the UNIBG training program (in particular, in relation to intellectual and developmental disabilities). This achievement is even more crucial because, as stated by the literature[34], the knowledge/competence about instructional strategies is strictly connected to the possibility "to avoid marginalization phenomena and instead favor inclusion"[35].

Finally, the results presented here prove the general effectiveness of the UNIBG "25-hours" training program and its modalities (online face-to-face lessons available in asynchronous mode). However, in order to further improve the research and the related teachers' training model, the program should provide, as additional, a guided experiential training (such as workshops, reflection debate on the practices/methodologies adopted at school) in order to improve all teachers' (curricular and support one) knowledge and competence about the

[31] Cf. M. Al Jaffal, *Barriers general education teachers face regarding the inclusion of students with autism*, in "Frontiers in Psychology", 13, 2022, pp. 47-61; A.Curtin, S. Long, *Using visual schedules to support children with autism spectrum disorder*, in "Learn: Journal of the Irish Learning Support Association", 42, 2022.

[32] Cf. M. Silveira-Maia, P. Lopes-dos-Santos, M. Sanches-Ferreira, S. Alves, C. Silveira-Maia, C., *The use of the international classification of functioning, disability and health in an interactive perspective: the assessment and intervention of students' additional support needs in Portuga*l, in "Disability and Rehabilitation", 41(25), 2019.

[33] Cf. J.A. Dela Fuente., *Implementing inclusive education in the Philippines: College teacher experiences with deaf students*, in "Issues in Educational Research", 31(1), 2021; M.A. Belay, S.G. Yihun, *The challenges and opportunities of visually impaired students in inclusive education: The case of Bedlu*, in "Journal of Pedagogical Research", 4(2), 2020.

[34] Cf. L.C. Cajola, A.M. Ciraci*, Il docente inclusivo tra bisogni formativi e pratiche didattiche. Un'indagine empirica sulla efficacia dei corsi di formazione*, cit.

[35] *Ibidem*.

construct of disability and inclusion[36], as well as make them more reflective, qualified and skills to promote and support the inclusive process of students with disabilities[37].

6. Conclusions

The UNIBG "25-hours" teachers' training program described had encouraging outcomes, as it allowed to address many topics in a limited time with large groups in order to provide basic knowledge[38]. These results might been have achieved thanks to the high flexibility of the e-learning training environments that guarantees the "anytime, anywhere availability of training contents that allows self-management and self-learning"[39].

At the same time the pre-test results – which represent the initial perceived teachers' knowledge and competence – revealed a critical and negative trend on disability and inclusion. In this sense, the institutional mandate promoted since the 1990s in Italy has been largely disregarded. The efforts seem to be insufficient for promoting a major awareness on disability and inclusion and the standard pre-service teachers' training presents several shortcomings when compared to the main cultural and political changes that have taken place in the scientific debate at the international and national level.

Moreover, the UNIBG exploratory research confirmed the relevance of ongoing teachers' training programs to support teachers' activities as well as to consider inclusion as a constitutive process, not supplementary or accessory, that qualifies their whole professional career. According to this, training both represents a resource and a cultural heritage for the single teacher and his/her professional background and becomes a tool for school contexts designing and experimenting with truly inclusive teaching-learning paths.

In conclusion, in relation to the specific characteristics of the training program and to its self-study mode, UNIBG proposal could further become, once validated, a useful tool for school institutions to make teachers aware of the issues of inclusion, to promote specific knowledge and share an up-to-date culture of disability.

7. References

Al Jaffal M., *Barriers general education teachers face regarding the inclusion of students with autism*, in "Frontiers in Psychology", 13, 2022, pp. 47-61.

Arbuckle J. L., *IBM SPSS Amos 20 User's Guide*, SPSS Inc., Amos Development Corporation, 2011.

[36] Cf. A.M Ciraci, M.V. Isidori, *Insegnanti inclusivi. Un'indagine empirica sulla formazione specialistica degli insegnanti di sostegno*, in "Journal of Educational, Cultural and Psychological Studies", 16, 2017.

[37] Cf. J. H. Stronge, P.D.Tucker, J.L Hindman, *Handbook for qualities of effective teachers*, Ascd, London 2004.

[38] M. Castagna, *La lezione nella formazione degli adulti*, Milano, FrancoAngeli, 2007.

[39] S. Pinnelli, *Tecnologie didattiche e apprendimento*, in L. d'Alonzo, F. Bocci, S. Pinnelli, *Didattica speciale per l'inclusione*, Brescia, La Scuola, 2015, p. 209.

Belay, M. A., Yihun, S. G., *The challenges and opportunities of visually impaired students in inclusive education: The case of Bedlu*, in "Journal of Pedagogical Research", 4(2), 2020, pp. 112-124.

Bianquin N., F. Sacchi*, Disabilità e curricolo: come promuovere atteggiamenti positivi nei confronti della disabilità a scuola. Una proposta per la scuola secondaria di primo grado*, in "Nuova Secondaria Ricerca", 7, 2018, pp. 27-38.

Canevaro A., Ianes D., *Un altro sostegno è possibile. Pratiche di evoluzione sostenibile ed efficace*, Trento, Erickson, 2019.

Canevaro A., Ciambrone R., Nocera S. (a cura di), *L'inclusione scolastica in Italia. Percorsi, riflessioni e prospettive future*, Trento, Erickson, 2021.

Cajola L.C., Ciraci A.M*., Il docente inclusivo tra bisogni formativi e pratiche didattiche. Un'indagine empirica sulla efficacia dei corsi di formazione*, in "MeTis-Mondi educativi. Temi indagini suggestioni", 8(2), 2018, pp. 292-329.

Castagna M., *La lezione nella formazione degli adulti*, Milano, FrancoAngeli, 2007.

Ciraci A.M, Isidori M.V., *Insegnanti inclusivi. Un'indagine empirica sulla formazione specialistica degli insegnanti di sostegno*, in "Journal of Educational, Cultural and Psychological Studies", 16, 2017, pp. 207-234.

Coppa M., Orena E., Storani E., Marziani M. *Preparare l'integrazione attraverso la conoscenza del deficit e la prosocialità*, in "Difficoltà di Apprendimento", 7(4), (2002), pp. 537-545.

Cottini L., *Didattica speciale e inclusione scolastica*, Roma, Carocci, 2017.

Curtin, A. Long, S., *Using visual schedules to support children with autism spectrum disorder*, in "Learn: Journal of the Irish Learning Support Association", 42, 2022, pp. 61-70.

De Angelis, M., *Valutare le competenze del docente inclusivo: revisione sistematica nei corsi di specializzazione sul sostegno in Italia*, in "Form@re", 21(1), 2021, pp. 253-269.

Dela Fuente, J. A., *Implementing inclusive education in the Philippines: College teacher experiences with deaf students*, in "Issues in Educational Research", 31(1), 2021, pp. 94-110.

Fiorucci A., *Gli atteggiamenti degli insegnanti verso l'inclusione e la disabilità: uno sguardo internazionale*, in "Italian Journal of Special Education for Inclusion", 2(1), 2014, pp. 53-66.

Florian L., D. Camedda D., *Enhancing teacher education for inclusion*, in "European Journal of Teacher Education", 43(1), 2020, pp. 4-8.

Grimes S., Southgate E., J. Scevak, J. Buchanan, *University Student Experiences of Disability and the Influence of Stigma on Institutional Non-Disclosure and Learning*, in "Journal of Postsecondary Education and Disability", 33(1), 2020, pp. 23-37.

Ianes D*., L'evoluzione dell'insegnante di sostegno*, Trento, Erickson, 2014.

Ianes D., Canevaro A., *Orizzonte inclusione: Idee e temi da vent'anni di scuola inclusiva*, Trento, Erickson, 2016.

Ianes D., Demo H., *Per un nuovo PEI inclusivo*, in "L'integrazione scolastica e sociale", 20 (2), 2021.

Lautenbach F., Heyder A., *Changing attitudes to inclusion in preservice teacher education: a systematic review*, in "Educational Research", 61(2), 2019, pp. 231-253.

Magni F., *Dall'integrazione all'inclusione: il nuovo profilo del docente di sostegno*, Roma, Edizioni Studium, 2018.

Ministero dell'Istruzione, dell'Università e della Ricerca, *Dossier Sviluppo professionale e qualità della formazione in servizio*, 2018.

Ministero dell'Istruzione-Dipartimento per il sistema educativo di istruzione e di formazione, *Nota ministeriale 0027622 del 6 settembre 2021*. https://usr.istruzione.lombardia.gov.it/wp-content/uploads/2021/09/AOODGPER.REGISTRO-UFFICIALE.2021.0027622.pdf.

Nocera S., *Gli indicatori di qualità dell'integrazione scolastica di alunni con disabilità*, in "L'integrazione scolastica e sociale", 1(4), 2002, pp. 363-372.

Nocera S., *Gli insegnanti curricolari hanno diritto alla formazione sull'integrazione scolastica*, in "L'integrazione scolastica e sociale", 1(5), 2002, pp. 470-472.

Nocera S., Tagliani N., AIPD*, La normativa inclusiva nella "Buona Scuola". I decreti della discordia*, Trento, Erickson, 2017.

Organizzazione Mondiale della Salute, *Classificazione Internazionale del Funzionamento, della Disabilità e della Salute*, WHO, Geneva 2020, 2021.

Pavone M., *Dall'esclusione all'inclusione. Lo sguardo della pedagogia speciale*, Milano, Mondadori, 2010.

Shpigelman C.N, Mor S., Sachs D., Schreuer N., *Supporting the development of students with disabilities in higher education: access, stigma, identity, and power*, in "Studies in Higher Education", 47(9), 2022, pp. 1776-1791.

Silveira-Maia M., Lopes-dos-Santos P., Sanches-Ferreira M., Alves S., Silveira-Maia C., *The use of the international classification of functioning, disability and health in an interactive perspective: the assessment and intervention of students' additional support needs in Portugal*, in "Disability and Rehabilitation", 41(25), 2019, pp. 3016-3024.

Stronge H., Tucker P.D., Hindman J.L, *Handbook for qualities of effective teachers*, London, Ascd, 2004.

Trinchero R., *I metodi della ricerca educativa*, Roma Bari, Laterza, 2004.

Data di ricezione dell'articolo: 22 febbraio 2023
Date di ricezione degli esiti del referaggio in doppio cieco: 18 aprile e 5 maggio 2023
Data di accettazione definitiva dell'articolo: 11 maggio 2023