

COOPERATIVE LEARNING AS A RESOURCE TO ENGAGE STUDENTS IN INCLUSIVE EDUCATIONAL ECOSYSTEM

L'APPRENDIMENTO COOPERATIVO COME RISORSA PER COINVOLGERE GLI STUDENTI IN UN ECOSISTEMA EDUCATIVO INCLUSIVO



Alessia Gargano
Università degli Studi RomaTre
ale.garganostud@gmail.com



Double Blind Peer Review

Citation

Gargano, A. (2025). Cooperative learning as a resource to engage students in inclusive educational ecosystem. *Giornale italiano di educazione alla salute, sport e didattica inclusiva*, 9(2).

Doi:

<https://doi.org/10.32043/gsd.v9i2.1317>

Copyright notice:

© 2023 this is an open access, peer-reviewed article published by Open Journal System and distributed under the terms of the Creative Commons Attribution 4.0 International, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

gsdjournal.it

ISSN: 2532-3296

ISBN: 978-88-6022-510-8

ABSTRACT

In an ever-changing educational context, the adoption of Universal Design for Learning principles enables a natural inclusion process, in which the focus shifts from intervention on the difficulty to its prevention (Zhang et al., 2024). In the context of the Istituto Comprensivo Tivoli I, the importance of the teachers' role in consolidating adaptive and flexible teaching approaches is explored, with particular attention to the use of Cooperative Learning (CL). The results that emerged highlight improvements in the teaching effectiveness, and in students' participation and relational and cognitive development.

In un contesto educativo in continua trasformazione, l'adozione dei principi dello Universal Design for Learning consente un processo di inclusione naturale, in cui l'attenzione si sposta dall'intervento sulla difficoltà alla sua prevenzione (Zhang et al., 2024). Nell'ambito dell'Istituto Comprensivo Tivoli I si approfondisce l'importanza del ruolo delle insegnanti nel consolidamento di approcci didattici adattivi e flessibili, con particolare attenzione all'uso del Cooperative Learning (CL). I risultati emersi evidenziano miglioramenti nell'efficacia didattica, nella partecipazione e nello sviluppo relazionale e cognitivo degli studenti.

KEYWORDS

Teacher training and role transformation; Inclusive learning environments; Cooperative Learning (CL)

Formazione degli insegnanti e trasformazione del ruolo; Ambienti di apprendimento inclusivi; Cooperative Learning (CL)

Received 29/04/2025

Accepted 16/06/2025

Published 20/06/2025

Introduction

In the current educational context, where challenges related to diversity, inclusiveness, and adaptability are increasingly prominent, schools are called upon to enhance and renew their teaching strategies to ensure accessible education for all.

One of the most significant responses to this need is the introduction and development of the Universal Design for Learning (UDL) concept. This model, developed by the Center for Applied Special Technology (CAST, 2011), aims to "educate educators" (Morin, 1997), providing operational guidelines to rethink teaching practices from a perspective of inclusiveness and flexibility.

In this scenario, both initial and ongoing teacher training represent strategic levers to improve the quality of teaching and learning processes and to contribute to achieving Goal 4 of the 2030 Agenda: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." Training not only offers opportunities for technical updating but also plays a crucial role in promoting cultural and professional change, enabling educators to act on educational beliefs — that is, the convictions and attitudes that unconsciously guide classroom practices (Pajares, 1992; Borko, 2004).

Training offers opportunities for technical updating. It also plays a crucial role in promoting cultural and professional change, by helping educators reflect on the educational beliefs that unconsciously guide their classroom practices (Pajares, 1992; Borko, 2004).

Numerous studies have shown that changing educational strategies requires professional development programs capable of integrating theory and practice, fostering processes of situated professional reflection (Schön, 1983; Avalos, 2011). In this sense, the teacher is no longer merely an executor of predefined methodologies but becomes a reflective practitioner (Schön, 1983) who acquires tools to design more accessible, flexible, and inclusive learning environments through training.

Studies show that the UDL approach recognizes the diversity of students' cognitive styles. It highlights the need to use various tools and strategies to ensure equal access and participation for everyone (Al-Azawei, Serenelli & Lundqvist, 2016; Rao, Ok & Bryant, 2014; Novak & Rodriguez, 2018).

Findings from sector studies highlight that the UDL approach is founded on three core principles:

- the active engagement of students,
- the introduction of new means of representation,
- and the role of emotions in the learning process.

The first principle, active engagement, focuses on students' motivation and the need to create stimulating and personalized learning experiences (Meyer, Rose & Gordon, 2014). While this approach is crucial for enhancing access to content, personalized teaching also demands specific resources and skills from teachers, raising questions about its practical feasibility, especially in large classrooms or contexts with limited differentiation possibilities.

The second principle, means of representation, emphasizes the importance of offering content through multiple modalities — visual, auditory, textual, and experiential — to ensure access for all students, respecting their different learning styles. This approach is based on solid evidence concerning cognitive functioning and individual differences in information perception and processing (Kuhl & Ramirez, 2019). Providing a plurality of channels allows students to access, understand, and process educational materials more effectively.

Finally, the third principle, studied in neuroscience, addresses the role of emotions in learning. Immordino-Yang and Damasio (2007) highlight that emotions are central elements in information processing and knowledge construction. In this perspective, Tomlinson (2006) emphasizes affectivity as a motivational lever, confirming a statistically significant correlation between emotions and learning (Immordino-Yang & Damasio, 2007). The greater the emotional engagement of students in learning processes, the better their achievements.

Within this framework, the fundamental role of teachers emerges clearly: they are called upon to build, facilitate, and share strategies that foster inclusiveness and the active participation of all students (Meyer, Rose & Gordon, 2014; CAST, 2018). In recent years, many scholars and researchers in inclusive education have focused on the importance of adopting effective methodologies that enhance individual differences and promote active involvement, in order to guarantee authentic participation and academic success for every student (Fossey et al., 2017; Bocci et al., 2020; Ianes et al., 2024).

The shift from an integrative to an inclusive didactic perspective has particularly highlighted the centrality of Cooperative Learning (CL) as a methodology aligned with the needs identified by the UDL framework. Cooperative Learning is a teaching-learning method in which the significant variable is cooperation among

students. This methodology is distinguished by its emphasis on peer collaboration, positive interdependence, and mutual support among students.

Engaging in CL activities — through different models such as Learning Together, Student Team Learning, and Jigsaw — enables students to develop and strengthen key transversal skills, such as communication, conflict management, and teamwork (Johnson & Johnson, 1999). From this perspective, the student's role as a co-constructor of knowledge is emphasized: interacting and collaborating to solve problems, explore concepts, and achieve shared goal. This learning modality is particularly effective in addressing classroom diversity, including cognitive, emotional, and social differences.

Cooperative Learning practices allow each student to learn at their own pace and to contribute meaningfully to the group's success, regardless of their starting point (Slavin, 1995).

A review of national and international literature on Cooperative Learning shows that this methodology, through specific operational strategies, is widely used as an inclusive tool in school contexts, positively influencing classroom climate. Organizing an environment where students actively participate in communication about a specific topic helps build a shared space where everyone's skills can be valued.

Cooperative Learning significantly enhances learning outcomes (as seen in studies by the Johnson brothers, Sharan, and Slavin: see Sharan et al., 1998), self-esteem, and self-efficacy. It is an inherently inclusive approach that has proven particularly effective with students who have learning difficulties (Comoglio et al., 1996; Cacciamani, 2008; Martinelli, 2017).

This approach was selected to integrate and enrich traditional classroom teaching, allowing the implementation of educational activities where students can deepen their understanding, interact with peers, and engage with teachers even outside formal lesson time.

Peer interaction, indeed, is not only critical for learning but also for students' personal and social identity development (Vygotsky, 1978). Furthermore, CL offers a powerful tool for addressing the challenges posed by the presence of students with Special Educational Needs (SEN), as it fosters an inclusive environment that accommodates individual diversities without separating students. The cooperative approach is based on the idea that each student, regardless of their difficulties, has a meaningful contribution to offer the group through mutual support and the strengthening of social bonds (Ferrer, 2009).

However, in order for Cooperative Learning to be successfully implemented, a profound change is required in how teachers conceive and manage their role. In a traditional educational model, the teacher is seen as the sole holder of knowledge, responsible for transmitting content. In a Cooperative Learning context, however, the teacher takes on the role of facilitator, guiding students through a collaborative learning process and stimulating their problem-solving skills, creativity, and self-regulation. The teacher is no longer the sole reference point for learning but becomes a constant support, encouraging students to work together, engage in dialogue, and learn from one another (Slavin, 1995; Dillenbourg, 1999). In this framework, the concept of positive interdependence takes on particular significance, as it is a key element of Cooperative Learning: it occurs when each student's achievement is closely linked to the success of the other group members, promoting genuine collaboration and a shared sense of responsibility (Deutsch, 1962; Lotti, 2020).

For this reason, it is essential in teacher training to emphasize the need to consciously design and manage activities that foster positive interdependence, avoiding mere group work and promoting effective cooperative dynamics instead. This shift in the teacher's role also entails a transformation in assessment methods, which no longer focus solely on individual results but also reward the collaborative process and the contribution of each group member (Johnson & Johnson, 1999). In a context marked by increasing educational and social inequalities, teacher training assumes an emancipatory value and becomes a lever for steering schools toward educational justice, reinforcing ties between school, community, and territory. The development of educational relationships, together with quality communication and the design of cooperative and inclusive environments, today represents a key factor for building schools capable of supporting learning processes and promoting activities that contribute to the holistic development of students.

1. Research Methodology

This study explores the results of an exploratory research project conducted at the Emilio Segrè Comprehensive Institute — Tivoli I.

The unit of analysis involved 17 teachers participating in a 10-hour synchronous training program, during which innovative practices for promoting inclusive learning environments were explored, alongside the students of Class 1D.

The training and professional development activities focused on topics related to school inclusion, professional growth, and the use of active teaching methodologies, with particular emphasis on a competency-based approach.

The main objectives were:

- To enhance teachers' knowledge and skills in the use of active methodologies;
- To promote the ability to design educational activities using collaborative strategies;
- To raise awareness of a transversal inclusive approach applicable to all educational activities;
- To assess whether, and to what extent, teacher training and the designed activities impacted the students' educational experience.

Throughout the training course, all participating teachers were asked to design and implement a teaching activity consistent with the principles learned, particularly focusing on Cooperative Learning.

Among the collected experiences, this study specifically concentrates on the activity carried out in Class 1D, which demonstrated a high level of quality both in the design phase and in the concrete management of collaborative classroom dynamics. The teachers of this section showed particular commitment in adapting the methodology to the characteristics of the class and promoting an inclusive and participatory learning climate.

The activity, based on an experiential and interdisciplinary approach, integrated digital tools and participatory methodologies to stimulate interest in local heritage from historical, geographical, social, and economic perspectives.

From an academic performance standpoint, the class was heterogeneous, with students falling into two distinct levels:

- a medium-high group characterized by consistency and consolidation of skills, and
- a medium-low group facing participation and autonomy difficulties.

This variability required the adaptation of teaching strategies to ensure educational success for all.

The study, initiated in the 2024/25 school year, is still ongoing and in an advanced state of progress. Official completion is expected by the end of the school year (June 2025).

Throughout the year, various instruments were used with both teachers and students. The tools used during the training with teachers included:

- A learning diary, useful for documenting the training process, reflecting on educational choices, and monitoring the evolution of teaching practices;
- Systematic supervision activities, aimed at providing targeted feedback during activities, particularly in remote learning contexts;
- A final questionnaire, aimed at collecting teachers' perspectives on the sustainability of their educational planning and the perceived impact on students' learning outcomes.

Within the educational activities managed by teachers, consistent with the study objectives, all participants agreed to use:

- a shared evaluation grid;
- a final student questionnaire, followed by reflection sessions between teachers and students on the experiences carried out.

Building on the initial exploratory framework, the next section illustrates the main results emerging from the training course addressed to the participating teachers and also presents the most significant outcomes related to the educational experience conducted in Class 1D.

2. Main Results

2.1 The Training Course

As previously mentioned, the study is part of a broader training program aimed at teachers of the Emilio Segrè Comprehensive Institute – Tivoli I, designed to promote innovative and inclusive teaching practices. The training, organized into five sessions (ten hours), represented the first phase of the project and served as the theoretical-methodological foundation for the subsequent classroom teaching activities.

The course was designed to guide teachers in discovering and adopting active methodologies, cooperative strategies, and digital tools to create adaptive learning environments capable of meeting students' diverse needs. Each session addressed a specific aspect, from inclusive teaching principles to assessment tools, alternating between theoretical presentations and hands-on workshops.

The training course was delivered entirely online in a synchronous mode, using a shared Padlet platform coordinated by the expert trainer as a space for discussion and material collection.

The table below summarizes the objectives and contents of the training program across the five sessions.

Session	Training Objectives	Contents and Activities
Session 1: Introduction to Inclusive Education	Promote a shared vision of inclusion and identify learning barriers.	Presentation of the course; analysis of teachers' training needs; key concepts of inclusion and Universal Design for Learning (UDL).
Session 2: Cooperative Strategies and Active Learning	Understand the principles of Cooperative Learning and its potential for active participation.	Exploration of Cooperative Learning; case study analysis; group management techniques.
Session 3: Interdisciplinary teaching Design	Develop inclusive educational planning, oriented towards peer cooperation and meaningful learning.	Project workshop: definition of objectives, operational phases, evaluation criteria; connections with subjects (Italian, History, Geography, Civic Education).
Session 4: Digital Tools and Personalization	Integrate educational technologies to facilitate accessibility and engagement.	Overview of digital tools for collaborative work and personalized learning (e.g., Google Workspace, digital mapping, tools for Special Educational Needs - SEN).
Session 5: Evaluation, Monitoring, and Reflection	Learn to monitor the effectiveness of activities and collect data for didactic reflection.	Construction of evaluation and observation grids; introduction to survey questionnaires; teacher discussion on designed activities.

Table 1 — Teacher Training Program (10 hours)

In the first session, key concepts related to inclusive education were introduced, laying the theoretical foundations to understand UDL principles. Teachers were encouraged to recognize and address learning barriers within their classroom

realities.

This session proved the most challenging in terms of organization and communication: aligning all teachers, coordinating timeframes, and facilitating the use of digital tools (such as the shared Padlet) required careful mediation and clarification. However, it was a crucial moment for building a common language and fostering a collaborative environment for the following sessions.

In the second session, the focus shifted to active teaching strategies, particularly Cooperative Learning, Peer Tutoring, and Collaborative Problem Solving. Concrete examples and simulations were presented to illustrate these strategies' potential in promoting active participation and inclusion.

The third session was predominantly characterized by a hands-on, laboratory-based approach: teachers worked on interdisciplinary teaching designs, integrating cooperative strategies with disciplinary content. This activity marked the transition from theoretical knowledge to practical application.

During the fourth session, digital tools useful for personalized teaching and collaborative work were explored, with particular attention to students with Special Educational Needs (SEN). Teachers showed curiosity and a proactive attitude towards experimenting with innovative solutions.

Finally, the fifth session focused on assessment strategies for collaborative activities, proposing evaluation grids and introducing the survey questionnaire to be administered to teachers and students.

3.2 Main Outcomes of the Classroom Experience: Class 1D

Among the various experiences carried out, the one implemented in Class 1D stood out for the depth of analysis, the quality of the planning, and the effective management of classroom activities. For this reason, the present study focuses on the experience realized by the teachers and students of Class 1D, detailing the methods used for the implementation of the classroom experimentation, with particular attention to the tools adopted and the adaptations introduced to meet the special educational needs of the students.

The table below, specifically developed for this study, provides a summary of the project guidelines outlined by the teachers for the 'Loving the City'.

Phase	Activities Carried Out	Teaching Tools Used	Adaptations for Students with Special Educational Needs (SEN)
1. Awareness-Raising	Lesson on the importance of the neighbourhood to introduce the topic.	Slides, videos, concept maps	Use of visual maps and graphic organizers
2. Direct Observation	Field trip to the neighbourhood data collection, photography, observations.	Cameras, smartphones, notebooks	Support in selecting and recording materials
3. Group Organization	Creation of heterogeneous groups of 3 students; classroom arranged into islands.	Island-style desks, observation grids	Careful group composition and arrangement of accessible spaces
4. Cooperative Work	Analysis of collected materials and production of final project.	Posters, Canva, Google Slides	Assignment of tailored tasks (e.g., organizing photos, writing titles)
5. Final Presentation	Sharing of group products with the class, evaluation, and reflection.	Evaluation rubrics, self-assessment questionnaires	Use of guiding questions; support from special education teacher

Table 2: Project Guidelines Defined by the Teachers for the "Loving the City" Project

Students were involved in an introductory meeting on the importance of the neighbourhood (Phase 1) as a social and cultural context and were then guided in analysing everyday life spaces through concept maps, multimedia presentations, and visual materials. To support comprehension, graphic organizers and compensatory tools were used for students with learning difficulties.

After the theoretical phase, students participated in a territory exploration activity (Phase 2): each group selected a neighbourhood to analyse, taking photographs and identifying strengths and critical issues.

The documentation work was subsequently re-elaborated through posters or digital products uploaded to Google Classroom.

Students with Special Educational Needs (SEN) received personalized support in selecting and organizing materials.

To ensure effective cooperative learning dynamics, students were then divided into heterogeneous groups of three members (Phase 3). The classroom layout was

reorganized into work islands, promoting collaboration and reducing distractions. Each group analysed the collected materials and built a final presentation in digital or paper format (Phase 4).

The last phase (Phase 5) involved the presentation of the projects to the class, with the active participation of the special education need teacher to facilitate the presentations of students with learning difficulties.

The design of experiential and collaborative educational activities allowed teachers to develop advanced professional skills, making teaching more dynamic and student-centred. This activity enabled them to gain solid expertise in creating integrated projects aligned with inclusivity criteria, actively engaging students in constructing their own learning paths. Additionally, the design of interdisciplinary projects stimulated continuous reflection on how to adapt content and methods to respond to the needs of all students.

The study highlights that the approach used by the teachers after the training proved effective in educational practice, as it allowed students to acquire knowledge in a participatory way, fostering collaborative learning. The hands-on activities, such as the exploration of the territory, offered a concrete experience that strengthened the development of students' transversal skills, namely problem-solving, critical thinking, and collaboration.

Moreover, active involvement in practical activities fostered a greater interest in the topics addressed, clearly demonstrating how innovative teaching methodologies can enrich the educational process.

The design of group activities provided an opportunity to work on multiple competencies in a personalized manner, adhering to the principles of Universal Design for Learning (UDL). Each student was able to contribute to the group's activities according to their preferred learning style. For example, some students chose to focus on more practical tasks, such as data collection and documentation, while others engaged more in analytical tasks, such as drafting texts and critical reflection. This approach facilitated the integration of different skills, promoting a more equitable and targeted learning process.

The territory exploration activity offered a privileged opportunity for direct engagement with the social, historical, and cultural context of the local community. This type of activity allowed students to gain a more concrete and immediate understanding of their surrounding environment and stimulated reflection on the

value of the territory as a strategic educational resource for enhancing teaching processes. Direct contact with the territory enabled students to apply the theoretical knowledge acquired in the classroom, transforming it into meaningful experiences that enriched their learning process.

In order to evaluate the work carried out by each group during the cooperative activities, this study provided for the creation of an evaluation grid. Each column corresponded to a group member (e.g., No. 2, No. 3, etc.), while the rows represented various evaluation indicators, divided into specific areas.

The semi-structured format typically allows for data collection in a guided manner (with predetermined specific areas of observation), thereby ensuring a balance between qualitative and quantitative data.

	No.1	No.2	No.3	No.4	No.5
Quality of the final product	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely
Technical requirements of the presentation	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Quality of shared reflections	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Quality of oral presentation	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Adherence to timing in oral presentation	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely
Overall assessment	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely	Not at all Partially Completely

Table3: Student evaluation grid

The results reported by the teachers of class 1D indicate that all members of the five groups attained a minimum threshold of sufficiency.

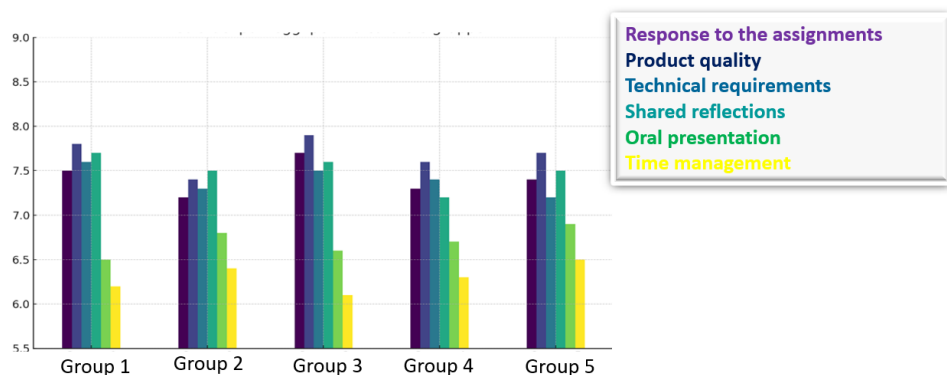


Figure 1. Average values of scores per indicator and group

The graph shows the average value of the scores for each indicator in the grid, broken down by group. As can be seen, all groups achieve averages between 7 and 8 for the indicators relating to response to deliveries, product quality, technical requirements and shared reflections. On the other hand, common criticalities can be seen in the two indicators ‘Quality of oral presentation’ and ‘Respect for time’, where all groups report lower average values (between 6.1 and 6.9).

The analysis of the data collected through the evaluation grid shows that all 21 students involved achieved sufficiency, with an overall average of between 7 and 8 in most indicators. It would thus seem that initial training in the use of active methodologies and collaborative strategies enabled teachers to promote participative and inclusive learning, in line with a transversal approach attentive to individual differences. However, the graph also highlights two areas of improvement shared by all groups: the quality of oral presentation and adherence to time during presentation. These elements suggest the need to strengthen activities related to oral communication and time management in future lesson planning. In conclusion, the findings show that teacher training appears to have had a significant impact on the students' learning experience by promoting an active, collaborative and inclusive learning environment.

In order to further emphasise the importance of Cooperative Learning as an innovative teaching methodology, capable of enhancing the value of the peer group as a strategic educational resource, a questionnaire was purposely constructed for the study and submitted to the students of class ID. Analysis of the data collected through the questionnaire provided valuable insights into the perceived

effectiveness of the teaching activities designed by the teachers in relation to active methodologies and collaborative strategies. The results show that most of the students involved (13 out of 21) show a clear preference for group or pair work, confirming the initial objective of increasing collaborative skills and promoting cooperative learning environments.

In line with what emerged in the graphs, the perception of good school performance by 75% of the students is an important indicator, which confirms their confidence in their educational path and constitutes a solid base on which to graft Cooperative Learning strategies. The data relating to perceived improvement after group activities, with 57% of the students declaring themselves to have improved 'quite a bit' and 25% 'very much', suggest that collaboration among peers has had a concrete impact not only on the cognitive level, but also on the relational and motivational ones.

How you assess your school performance?

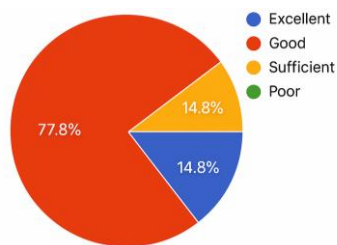


Figure 2. Students' Subjective Perception of Their Academic Performance (n = 27)

These results demonstrate that the proposed activities contributed to verifying the effectiveness of teacher training, confirming that instructional planning guided by the principles of learning by doing and Cooperative Learning can generate significant impacts on students' educational experiences.

The active involvement of students in diverse roles (organizational, supportive, operational) also highlights effective attention to the heterogeneity of the classroom group and the adoption of an approach aligned with the principles of Universal Design for Learning (UDL).

Through the two open-ended questions included in the questionnaire, it was possible to collect valuable personal reflections from the students on the project carried out. The qualitative analysis of these responses highlights some recurring

and significant themes: the perception of roles within the group, the emotions experienced, and the importance of the climate of trust established during the cooperative work. The students' answers show strong engagement and general enthusiasm towards the activities, along with an awareness of some critical aspects that deserve reflection, such as managing initial anxiety. A first result concerns the clear attribution and perception of diversified roles: many students described how each member assumed specific roles based on their skills, organizing the work, providing direct support to classmates, or contributing operationally to data collection. This flexibility allowed everyone to feel useful and valued. As one student expressed: *"Working in a group allowed me to help and be helped. Moreover, taking photos around the neighbourhoods and discovering places and areas made me appreciate even more the place where I live."* This comment highlights both the dual role of each member as helper and learner, and the added value derived from practical activities. Group work fostered a two-way exchange of knowledge and skills, encouraging students to take responsibility and strengthening mutual trust.

The emotions experienced also proved significant: many students reported feelings of curiosity, enthusiasm, and satisfaction for the final product realized together. The experience represented an opportunity for growth both cognitively and emotionally, enabling students to overcome initial feelings of shyness or insecurity. Exploring the local area fostered a sense of belonging, making learning deeper and more meaningful.

A transversal element emerging from the responses is the value attributed to the climate of trust established within the groups: students perceived the group as a safe and respectful environment, where they could express themselves freely without fear of judgment. As one participant stated: *"We listened to and helped each other: I felt free to share my opinion without fear of being judged. M. helped me understand how to upload and share media so we could comment on them in class."* These words clearly show how mutual trust enhanced both learning and individual well-being. Wherever a strong team spirit was built, emotional difficulties were also more easily faced and overcome.

On the whole, the open-ended responses depict an extremely positive picture: students appreciated group work as an opportunity for mutual help and growth, experienced the activities with enthusiasm, and recognized the importance of a collaborative and inclusive environment for the success of the project.

In conclusion, the experience carried out in Class 1D confirms the usefulness of designing and experimenting with educational pathways based on Cooperative Learning, capable of integrating disciplinary content, transversal skills, and inclusion.

Peer collaboration allowed the valorisation of individual differences, working on diversified competencies aligned with the principles of Universal Design for Learning, such as task personalization, flexibility in roles, and multiple modes of expression.

Direct contact with the local territory strengthened the connection between school and community, making learning more authentic and meaningful.

The entire process represented a formative opportunity for the students and a real occasion for professional growth for the teachers, who were able to develop and consolidate the use of collaborative and innovative strategies.

4. Final Considerations

This study aimed to explore how a training program for teachers, centred on active methodologies and inspired by the principles of Universal Design for Learning (UDL), could help promote more inclusive, participatory teaching strategies attentive to individual differences.

The initial objectives — enhancing teachers' methodological knowledge, promoting collaborative planning abilities, raising awareness towards an inclusive approach, and verifying the impact of training on students' experiences — are reflected in the results obtained, despite the limits of an exploratory study involving a small sample of teachers and students.

The activities carried out in Class 1D showed that, when teachers are supported through well-structured training and accompanied during the experimentation phase, it is possible to implement educational pathways based on Cooperative Learning that successfully integrate disciplinary content, transversal competencies, and a focus on inclusion.

The combination of cooperative work, territorial exploration, and the use of digital tools allowed students to experience a motivating school path, where each could contribute according to their resources and learning styles.

The data from evaluation grids and questionnaires show that active student involvement during group work supported positive learning outcomes.

Moreover, peer exchange observed during cooperative activities appears to have fostered, according to both student feedback and teacher observations, an enhancement of interpersonal relationships and motivation towards learning. However, some critical issues also emerged, particularly regarding the quality of oral presentations and time management, suggesting the need to strengthen scaffolding and modelling activities by teachers.

Overall, the experience confirms that cooperative design is an effective tool for enhancing teaching efficacy and an opportunity to generate significant changes in classroom teaching strategies.

In light of these outcomes, it is clear that teacher training, when integrated with field research reflection and practice, can contribute to building inclusive and flexible learning environments, capable of valuing diversity, promoting personalization, and strengthening the connection with the local community. In this perspective, it is essential to continue investing in initial and in-service teacher training, documenting experiences, and disseminating practices that prioritize students' well-being and active engagement.

Despite the positive results that emerged from the experimentation, the study presents some limitations that should be acknowledged. First, the research involved a limited number of teachers (17) and a single class (1D), which restricts the generalizability of the findings. Moreover, the student sample was characterized by a certain territorial and cultural homogeneity, as it was drawn from a specific school context within the Municipality of Tivoli. These conditions may have influenced the students' positive response to cooperative activities, limiting the applicability of the results to significantly different educational contexts. Finally, the variations observed among student groups, particularly in oral presentation skills and time management, highlight the need for further investigation to better understand how individual variables (such as cognitive profiles and language competencies) affect the effectiveness of cooperative strategies.

Regarding reproducibility, the study aims to broaden the research perspective by involving a larger sample of teachers and students. The activity lends itself to replication in other school contexts, provided it is accompanied by adequate teacher training and careful attention to building a collaborative classroom climate.

Moreover, it is crucial that the proposal be adapted to the specific characteristics of the classroom group, while maintaining the goal of integrating disciplinary, relational, and transversal competencies.

References

- Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). Universal Design for Learning (UDL): A content analysis of peer-reviewed journal papers from 2012 to 2015. *Journal of the Scholarship of Teaching and Learning*, 16(3), 39–56. <https://doi.org/10.14434/josotl.v16i3.19295>
- Avalos, B. (2011). Teacher professional development in Teaching and Teacher Education over ten years. *Teaching and Teacher Education*, 27(1), 10–20.
- Bocci, F., Caldin, R., & D'Alonzo, L. (2020). *Inclusione e innovazione didattica: Prospettive per la scuola del XXI secolo*. Carocci.
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8), 3–15.
- Cacciamani, S. (2008). *Apprendere nella comunità: Il knowledge building e la pedagogia costruttivista*. FrancoAngeli.
- CAST. (2011). *Universal Design for Learning Guidelines version 2.0*. Center for Applied Special Technology.
- CAST. (2018). *Universal Design for Learning Guidelines version 2.2*. Center for Applied Special Technology.
- Comoglio, M., & Cardoso, M. (1996). *Insegnare e apprendere in gruppo: Il cooperative learning*. LAS.
- Coppi, C. (2023). *La scuola come comunità educante: Sviluppo professionale e benessere docenti*. FrancoAngeli.
- Darling-Hammond, L., & Bransford, J. (2005). *Preparing teachers for a changing world: What teachers should learn and be able to do*. Jossey-Bass.
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181–199.

Deutsch M. (1962). Cooperation and trust: some theoretical notes, in Jones M.R. (Eds), *Nebraska Symposium of motivation*, University of Nebraska Press, Lincoln (pp. 275- 320)

Dillenbourg, P. (1999). *Collaborative learning: Cognitive and computational approaches*. Pergamon.

Ferrer, J. G. (2009). Cooperative learning in inclusive education: Educational and social effects. *International Journal of Inclusive Education*, 13(2), 183–196.

Fossey, R., Morrison, J., & Casey, J. (2017). *Equity and inclusion in education: Rethinking accessibility and diversity*. Routledge.

lanes, D., Cramerotti, S., & Demo, H. (2024). *Nuovi paradigmi per la didattica inclusiva: Strategie e strumenti per l'insegnamento personalizzato*. Erickson.

Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain, and Education*, 1(1), 3–10.

Johnson, D. W., & Johnson, R. T. (1999). *Learning together and alone: Cooperative, competitive, and individualistic learning* (5th ed.). Allyn & Bacon.

Kuhl, P. K., & Ramirez, R. R. (2019). Becoming a “native listener”: Language experience and the brain. *Journal of Applied Developmental Psychology*, 59, 15–23.

Lotti A., *Cooperative Learning e didattica interculturale*, in Bochicchio F., Traverso A. (a cura di), *Didattica interculturale. Criteri, quadri, contesti e competenze* (pp. 225-276).

Martinelli, M. (2017). *La scuola inclusiva: Progettare percorsi didattici per tutti*. Il Mulino.

Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal Design for Learning: Theory and practice*. CAST Professional Publishing.

Morin, E. (1997). *La testa ben fatta: Riforma dell'insegnamento e riforma del pensiero*. Raffaello Cortina.

Novak, K., & Rodriguez, K. (2018). *UDL now! A teacher's guide to applying Universal Design for Learning in today's classrooms* (2nd ed.). CAST Professional Publishing.

Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research*, 62(3), 307–332.

Rao, K., Ok, M. W., & Bryant, B. R. (2014). A review of research on Universal Design Educational Models. *Remedial and Special Education, 35*(3), 153–166.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. Basic Books.

Sharan, Y., & Sharan, S. (1998). *Handbook of cooperative learning methods*. Praeger.

Slavin, R. E. (1995). *Cooperative learning: Theory, research, and practice* (2nd ed.). Allyn & Bacon.

Taylor, S. (2016). *Inclusive education: Principles and practice*. Open University Press.

Tomlinson, C. A. (2006). *The differentiated classroom: Responding to the needs of all learners* (2nd ed.). ASCD.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Zhang, X., Li, Y., & Wang, J. (2024). *Digital learning and inclusion: Emerging perspectives on UDL implementation*. Springer.