Inclusive Digital Education: The Case of Italy
On the Use of Digital Technologies to Foster Inclusion in Italian Classrooms

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Abstract

Notwithstanding Italy’s longstanding tradition of inclusive school policies and structures, and the efforts and investments made in the last years to boost schools’ digital transformation, much remains to be done for an effective systematization of a digital inclusive education in the country. The current chapter reports the analysis of five good practice examples, collected in Italy, in the context of the Erasmus+ project DigIn, regarding the use of digital technology to foster inclusive processes in class (i.e., to enhance learning and participation of students with and without Special Educational Needs). The results of the study aim to outline promising strategies and identify areas of possible intervention to build digital learning environments capable of welcoming every student.
The Italian school system and inclusive education

In Italy, there are 10 years of compulsory education (usually from age six to 16), which consists of primary and lower secondary education and the first two years of upper secondary school. Since the 1970s, all students between the ages of six and 14 attend one mainstream school, regardless of their (dis)abilities or other individual or socio-economic characteristics. Before and after that age, the educational career of children and students is not unified as pre-primary education is not compulsory. Moreover, at the upper secondary level, students can choose between vocational schools, technical institutes, and lyceums. Nevertheless, nobody can be excluded from either kindergartens or upper secondary schools because of individual characteristics, social backgrounds, or learning results. From this point of view, the Italian school system can be described as egalitarian, with a fully inclusive structure.

To support students with Special Educational Needs (SEN) – and more specifically, students with disabilities (Category A), students with learning disabilities (Category B), and students with socio-economic, linguistic and cultural disadvantages (Category C) – the school legislation assures specific measures and resources (Law 104/1992; Law 170/2010; Ministerial Directive of 27 December 2012; and Ministerial Circular no. 8 of 6 March 2013). Students with physical, intellectual, or sensory disabilities are enrolled in classes with their peers but follow an individual educational plan (IEP) with differentiated learning goals (if necessary) and differentiated teaching/learning methods. In classes attended by students with disabilities, a support teacher works alongside the subject-teachers for some hours. Although learning goals remain the same for all and no extra personnel resources are foreseen, students with learning disabilities, such as dyslexia or dyscalculia, and students with social disadvantages have also the right to learn according to an IEP with differentiated teaching/learning methods. Finally, specific guidelines for the so-called “foreign students” (i.e., students with different linguistic backgrounds and citizenship) state their right to get support in learning the language used at school.

Research on the effectiveness of the Italian school system in terms of inclusion is still limited (Begeny & Martens, 2007; Marsili, Morganti & Signorelli, 2021; Ianes, Demo & Dell’Anna, 2020). However, based on the existing data, some general trends can be outlined. On the one hand, the actual inclusion-oriented structure of the system has led to some achievements. The school careers of people with disabilities are getting longer, a fact that is linked with higher satisfaction in the perceived quality of adult life (Ianes, Demo & Zambotti, 2014). The long experience of “Integrazione Scolastica” (School Integration) has also produced some benefits on teachers’ attitudes, who generally recognize the value of the presence of students with disability in mainstream classes (Sharma et al., 2018; TreeLLLLe Association, Caritas & Agnelli Foundation, 2011). Furthermore, the presence of students with disabilities in schools seems to have led to some positive developments for all students in terms of variety of teaching methods, which in turn are connected with
higher perceived learning results by teachers (Ianes et al., 2014). On the other hand, there are still ongoing challenges. The persistence of an individual-medical model in school legislation seems to be connected to the risk of developing exclusionary practices (Ianes et al., 2020). Moreover, existing funding strategies stress labeling and othering processes (Banks et al., forthcoming). Finally, the lack of evaluation practices undermines the process of quality improvement of inclusion (Dell’Anna, 2021).

Digital education in Italy: Specific focus on students with SEN

Digital competence is defined within the Italian education system in accordance with the European key competence framework for lifelong learning (Recommendation of 18th December 2006 of the European Parliament and Council), as a transversal competence that must be acquired for people to become competent and active citizens. Besides the acquisition of technical knowledge and skills, school policy documents emphasize the development of a critical attitude and greater awareness about the social and cultural effects of the use of digital technologies. This is also reflected in the National indications for the curriculum of kindergartens and the first cycle of education (MIUR, 2012). Among the student’s competences foreseen at the end of the first cycle of education (primary and lower secondary school) this document states:

[The student] has good digital competences, uses consciously digital media to search for and analyze data and information, to distinguish reliable information from information that needs to be deepened, checked and verified, and to interact with different subjects in the world (MIUR, 2012, p. 10).

However, a more recent ministerial document on the National Curriculum pointed out the lack of a clear and detailed description of digital competence and suggested adding more precise indications about digital-related learning outcomes, evaluation criteria, etc. (MIUR, 2018). Revising the national curriculum in this direction was one of the several objectives of the National Plan for Digital School (PNSD; MIUR, 2015), which has been the main national strategy for digital education in schools in Italy since 2015. The PNSD was established within the Law no. 107/2015 and is still the Ministry of Education’s main action for promoting school innovation and digitalization in our country. It consists of a multi-annual plan meant to concretely direct the activities of the public administration in four main areas: (1) instruments and access, (2) competences and contents, (3) teachers’ and other school professionals’ training, and (4) accompanying schools in the challenge of innovation. Each area has several specific objectives and is translated into concrete actions. Some of the most important are: ensuring internet access to all schools; implementing laboratorial/project-based teaching and learning through the use of digital technologies; updating the national curriculum based on the development of a common framework for

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2 In Italy, digital education is included at all school levels both as compulsory “separate” subject and as cross-curricular competence (i.e., integrated into the curriculum of other subjects).
students’ digital competences and media education; reinforcing pre- and in-service teacher training around teaching innovation and digital technologies; and the introduction of a “digital facilitator,” a school reference person for its digitalization (MIUR, 2015).

Besides this key strategy, there are also more recent policies that have given an impulse to digital education in Italy. Law no. 92/2019, for example, (re)introduced the subject “Citizenship Education” at all school levels. Specifically, “Digital Citizenship” constitutes one of the three pillars around which the subject is based. The Guidelines for the Teaching of Citizenship Education (MIUR, 2020b, p. 2) defines this as “the ability of an individual to make conscious and responsible use of virtual means of communication.”

During the COVID-19 pandemic, moreover, the government issued the Guidelines for Integrated Digital Education (MIUR, 2020a). After an initial period of generalized distance learning (all schools were closed between February and June 2020), the government adopted the Integrated Digital Education, a highly flexible system of blended education, which alternated between distance (digital) and classroom instruction. The guidelines were thus meant to support schools in the adoption of a plan for the implementation of blended learning. In this regard, the guidelines suggest starting by analyzing a school’s demand in terms of digital infrastructure (e.g., internet connection, digital tools, etc.), and then develop a shared pedagogical and methodological framework for the design of teaching and learning in a blended format.

Against the backdrop of students with SEN experiencing acute difficulties during the period of “hard” distance learning, the guidelines call for particular attention to be paid to the “most vulnerable learners” as well as their access and participation in teaching and learning activities, both in presence and online (MIUR; 2020a). Nevertheless, it also stresses that in-person attendance should be preferred for students with disabilities/SEN, which reveals a cautious stance toward the effectiveness of digital education for those learners.

Despite this position, Italian policymakers seem to recognize the inclusive potential of the application of digital technologies in teaching and learning. Students with disabilities and SEN are specifically mentioned, for example, in the PNSD, where digital technologies – together with active teaching and learning – are identified as pivotal agents for the realization of an all-round inclusion:

Enabling technologies and active methodologies are decisive factors in removing the obstacles to a full inclusion, including the difficulties related to disabilities, other special educational needs, or for the students who are unable to attend school normally. A broader way of reading e-inclusion in which innovative and informal environments integrate not only dedicated technologies, but also assistive solutions, benefitting everyone and facilitating relationships and processes regardless of individual characteristics (MIUR, 2015, p. 94).
Moreover, the plan also specifies students with disabilities when discussing digital learning materials and resources, emphasizing the importance of considering their effective usability for this group of learners. Nevertheless, only generally formulated indications (like the ones described above) are outlined in the text (i.e., no specific measures and actions are provided).

In this sense, much remains to be done for an effective systematization of digital inclusive education to occur. As other authors have pointed out, more evidence is needed to outline useful indications on the effectiveness of digital technologies for inclusive teaching and learning (e.g., Calvani, 2020; Morganti et al., 2016). Such evidence could inform policymakers, and policies are ultimately the main tool governments have to shape digital transformation in inclusive education (European Agency for Special Needs and Inclusive Education, 2022).

**Inclusive digital education in Italian classrooms: Analysis of lessons**

In this section, we present the analysis of five lesson examples about digital technology use in class from an inclusive perspective – collected in Italy in the context of the DigIn project – to outline promising strategies/approaches for the enhancement of digital inclusive education.

**Method**

The five examples were collected between May and September 2022 by means of qualitative semi-structured interviews with six teachers\(^3\) working in the Piedmont region. These teachers were selected through the authors’ personal contacts and a snowball procedure. The participants were four support teachers and two class teachers (four females and two males, with an average age of 45 years). Five of them were interviewed online following a shared protocol developed by the DigIn team, which also guided the analysis of the collected experiences. The interviews were audio recorded, transcribed, and analyzed through directed qualitative content analysis (Flick, 2014). To ensure reliability, the data extracted was independently coded by the two authors. The results of the variables relevant for the analysis were summarized in a matrix and, in case of different interpretations, discussed until an agreement was reached.

Considering only the categories reported in the findings section, we highlight: (1) context of realization of the practice, (2) primary target (e.g., all the students in the class, specific pupils, etc.), (3) main objectives (e.g., subject-specific knowledge, socio-relational aspects, etc.) and goals in the competence areas (referring to the four education pillars and the competence areas important for educational quality according to Delors [1996] and

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\(^3\) One interview was conducted jointly by two support teachers who implemented the practice together.
Inclusive Digital Education: The Case of Italy

Schratz & Weiser [2004]); (4) teaching approach adopted (e.g., workstations, cooperative learning, etc.); (5) digital tool(s) used; (6) level of integration of digital tools according to the SAMR model (Puentedura, 2013); (7) benefits for students with and without disabilities/SEN; and (8) challenges encountered in the implementation of the practice. An excerpt of the result matrix is shown in Table 2 at the end of the next section.

Findings and discussion

Description, realization context, and target of the practice

The collected examples are quite different: Table 1 briefly summarizes them. They refer to actions implemented both in primary and secondary schools (see Table 2). All took place in presence and in highly heterogeneous classrooms. In four classes, there were students with specific learning disabilities, in three classes there were students with disabilities (physical and intellectual), and in two there were students with a formally recognized socio-economic, linguistic, or cultural disadvantage (SEN Category C). Despite this, four of the described interventions were directed to the whole class, which shows an inclusive orientation that goes beyond responding to individual’s special needs and aims instead to activate participatory processes for all the students present in the classroom.

Table 1: Description of the collected practices

<table>
<thead>
<tr>
<th>N.</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Creation of stories contextualized at the time of the Sumerians to create an illustrated comic book (printed and digital).</td>
</tr>
<tr>
<td>2</td>
<td>Series of strategies and methods applied and repeated over a year for the study of different civilizations (subject history), including the creation of digital maps, books, quizzes, games, etc.</td>
</tr>
<tr>
<td>3</td>
<td>Project aimed at constructing a LEGO® MINDSTORMS® robot to mathematically and geometrically map the cracks, damp stains, and other anomalies of the school building walls to write a technical-scientific report for the municipality.</td>
</tr>
<tr>
<td>4</td>
<td>Step-by-step creation of an escape room (starting from the selection of the content to the creation of the games for each room) on the topic of environmental sustainability (digital citizenship).</td>
</tr>
<tr>
<td>5</td>
<td>Production of a collaboratively written story and creation of a website to publish the drawings and illustration works of a student with disability for the application in a higher school for graphic designers-cartoonists.</td>
</tr>
</tbody>
</table>

Learning objectives and teaching method

Although very different, all of the collected practices broke down teacher-centered frontal teaching by leveraging more student-centered approaches (see Table 2), often conveyed by cooperative learning activities to be carried out in heterogeneous groups (consciously constructed by the teacher) and aimed at exploiting the activation of peer tutoring and
participatory processes to foster everyone’s inclusion. In all practices, moreover, such collaborative approaches overlapped with the use of digital technologies. The results show that the parts of the activities that most directly involved the use of digital tools were carried out in groups, confirming a strong association between the two teaching strategies (like in practice no. 2 where the realization of historical digital maps, quizzes, games, etc., always occurred in groups).

Such approaches can be traced to the inclusive objectives underlying the implemented initiatives: All of them oscillate between moving students towards educational success and promoting more positive interactions among peers, with and without SEN (for a summary, see Table 2). This second aim is clearly visible in the practices that were collected (mentioned by all interviewees), pursued exactly through the use of digital technologies in cooperative learning activities.

Finally, considering the education pillars that are important for educational quality according to Delors (1996) and Schratz and Weiser (2002), all of the collected examples can be ascribed to more than one competence area. As can be deduced from the objectives described by teachers, all five actions refer to the pillar learning to do (and, above all, the aspect of learning to work together) and four to learning to know (1, 2, 3, 4; where subject/content-related learning was explicitly sought). Learning to learn is tackled in three (2, 3, 4; aimed at making cross-disciplinary connections and drawing theoretical inferences) and so is learning to understand (2, 3, 4; both in terms of understanding others and content) and learning to be (1, 3, 5; like in action no. 5, aimed at realizing the life project of a student with physical disability).

**Digital tools and their level of integration**

On the technological front, the range of digital tools employed in the five examples is very broad (see Table 2 for the full list). Among them, we can find applications and programs for common use (like PowerPoint, Google Documents, etc.) and more specific ones (like the programs used in action no. 3). Regarding their integration level in teaching and learning in accordance to the SAMR Model (Puentedura, 2013), all of the five actions can be ascribed to the transformation modality. This means that, in the examples presented, technology took on the role of a transformative agent and gave rise to innovative teaching activities. More specifically, the collected practices can be divided between the levels modification (1, 2, 5) and redefinition (3, 4). The former refers to those situations where the use of technology leads to a rethinking and redesigning of teaching activities (e.g., in the case of a digital tool used for collaborative writing, like in practice no. 5). The latter describes those cases where technologies enable the creation of scenarios and activities that would have otherwise been unimaginable (e.g., the creation of the games for the escape room in no. 4).
But the digital tools themselves are not the main focus here. Rather, we want to stress their contribution in achieving clearly designed learning objectives and goals. In the five examples collected, digital technology use was indeed always accompanied by a careful analysis of students’ needs and a clear definition of learning objectives and corresponding teaching strategies. As pointed out by Vivanet (2017), it is a matter of identifying the conditions – that is, with which students, for what purposes, through which strategies, etc. – under which digital resources lend themselves to foster learning and participation processes. It is not the “effectiveness of technologies” per se that is the point but rather the “effectiveness of the uses of technologies” (Vivanet, 2017, p. 87).

Benefits and challenges

In terms of the benefits produced, all of the collected practices resulted in the construction of more accessible and inclusive environments, with positive repercussions on students with SEN. The use of digital technologies enabled two processes. First, it let teachers meet students’ individual needs in terms of access to learning contents and activities (like in the case of text-to-speech functions for students with learning disabilities). Second, it also helped foster participatory processes that valued the contribution of each single student by enabling the differentiation of personal tasks and roles within common activities and learning objectives. Specifically, using technologies in group work seems to have brought particular benefits. All of the teachers involved reported active participation on the part of students. They also reported that all learning goals were achieved, and they observed a general improvement in peer relations. In terms of learning outcomes, these results are in line with other studies that show digital technologies are more effective when used collaboratively and with an augmentative (rather than substitutive) function (Hattie, 2009; Higgins et al., 2016).

Finally, regarding the difficulties encountered in the implementation of the five practices, some recurring elements stand out from the analysis. These revolve largely around organizing activities despite school space and time constraints as well as the resistance by colleagues to dedicate part of their lesson hours to these activities (4/5 practices). To a lesser extent, adequate technological infrastructures and teachers’ digital competences also emerged as challenging issues. These outcomes reaffirm the need for the development, in the school community, of a widespread inclusive digital culture and expertise (MIUR, 2015) aimed at promoting the integration of (digital) interventions at different levels, including teaching and learning in relation to students’ special needs, classroom methodology, and organizational and structural aspects of the school (Cottini, 2020).
Table 2: Analysis matrix of categories no. 1, 2, 3, 4, 5

<table>
<thead>
<tr>
<th>N</th>
<th>Context &amp; target</th>
<th>Objectives</th>
<th>Teaching method</th>
<th>Digital tool(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4th grade primary school (20 students, included 1 with intellectual disability and 4 with SLDs) Target: all learners</td>
<td>(1) Strengthening students’ relationships (2) Fostering the development of social skills of the student with cognitive disability (3) Enhancing written production</td>
<td>(1) Circle time (2) Cooperative learning in heterogeneous groups for the creation of the stories</td>
<td>(1) Storyboard that (2) PowerPoint</td>
</tr>
<tr>
<td>2</td>
<td>5th grade primary school (19 students, included 3 with SLDs and many foreign students) in a highly multiethnical context. Target: all learners</td>
<td>(1) Supporting students’ learning (2) Promoting students’ motivation</td>
<td>(1) Frontal lesson (2) Individual work on the textbook (3) Cooperative learning in heterogeneous groups (creation of digital maps, games, books and quizzes)</td>
<td>(1) Wordwall (2) Worksheet (3) Learning apps (4) Educaplay (5) Mentimeter (6) Genially (7) Book Creator (8) Timeline</td>
</tr>
<tr>
<td>3</td>
<td>5th grade primary school and 3rd grade lower secondary school (60 students, including many students with SLDs and many foreign students) Target: all learners</td>
<td>(1) Enhancing students’ mathematical skills (2) Drawing theoretical and cross-disciplinary inferences (3) Strengthening students’ relationships and collaborative skills</td>
<td>(1) Cooperative learning in heterogeneous groups (clear roles assigned) (2) Peer tutoring between older and younger students (3) Workstations (4) Circle time at the end of each task</td>
<td>(1) Autodraw (2) Cabriexpress (3) Vex code vr (4) ImageMeter (5) Text editors (6) Google Workspace (7) Vocaroo and Audacity</td>
</tr>
<tr>
<td>4</td>
<td>1st grade lower secondary school (22 students, including 1 with a disability, 3 with SLDs, and 1 foreign student) Target: all learners</td>
<td>(1) Developing the ability of the student with disabilities to work in group and take responsibility (2) Developing collaboration among students (3) Deepening the topic of digital citizenship</td>
<td>(1) Preliminary frontal lesson on the use of web resources (2) Cooperative learning with heterogeneous groups (research work; writing stories and creation of games for the single rooms)</td>
<td>(1) ChatterPix (2) Google Classroom (3) Google Documents (4) LearningApps (5) Toontastic (6) Wordwall (7) ThingLink:</td>
</tr>
<tr>
<td>5</td>
<td>4th grade upper secondary school (22 students, including 1 with a physical disability and 1 with a socio-cultural disadvantage) Target: student with physical disability (but involved the whole class)</td>
<td>(1) Supporting the student with physical disabilities in her adult life project (2) Improving students’ relationships</td>
<td>(1) Presentation by the student with disability of her draft of the story (2) Brainstorming on how to continue the story (3) Cooperative learning (collaborative writing in groups) (4) Collective creation of the website</td>
<td>(1) PowerPoint (2) Google Sites (3) Google Drive (4) Text Editors</td>
</tr>
</tbody>
</table>
Conclusion

Digital technologies have entered inclusive discourse in their role of “access equalizer” and as a sometimes-indispensable requirement for students with SEN to be able to participate in school life. However, their inclusive potential does not end in their compensatory function. Digital tools can indeed become a valuable resource to foster everyone’s inclusion and success when they are used to address the plurality of interests, strengths, needs, and styles of all students (Cottini, 2020). This relates to the opportunities they provide in terms of personalizing and differentiating teaching and learning, while allowing each student to actively participate according to his/her abilities and resources in class activities. All of this is reflected in the findings discussed above. Moreover, the results of our study seem to suggest that digital tools are particularly effective when applied to cooperative learning.

We are aware that, from an evidence-based perspective, good practices constitute the least solid data to draw recommendations from (Perkins, 2010). However, our aim was not to provide practices of proven efficacy, but rather to offer a range of possible strategies to be evaluated by teachers for the application in their specific context. In this sense, the outcomes of the study constitute a starting point for outlining the possible contribution of digital technologies for inclusive teaching and learning with a view of meeting not only the specific needs of learners with disabilities/SEN, but to also respond to the vast heterogeneity present in each classroom and, therefore, to build learning environments capable of welcoming everyone.

References


Perkins D. (2010), Fidelity–adaptation and sustainability, presentation “The ‘why and the what’”, organized by the Centre for Effective Services, Dublin, Cork and Galway.


