iPad in the classroom: perspectives of inclusiveness

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Abstract
This paper is a discussion on Technological solutions to promote inclusion in the classroom for students with disabilities and dyslexia. In its research on iPad for inclusion, CeDisMa – Research Center on Disability and Marginality – investigates the effects of a pedagogical approach in using iPad at school. CeDisMa's main interest areas are: developing knowledge on education, learning, teaching and training professionals in the field of special education needs. The Centre primarily deals with education, special needs and social inclusion. It cooperates with local administrations on projects financed by the EU Structural Funds for equal opportunities. It currently organizes post-graduate courses on care, education and training based on European programs. Since its release in 2010, iPad has attracted much attention as a learning tool for all level of education. Before implementing iPads in the classroom, teachers deserve a training that focuses on Special Education to teach more inclusively with iPad. The research describes an iPad project in Italy from primary to secondary schools. The pedagogical inclusive approach represents and interesting way to use iPad in the classroom.

Keywords: special education, technology for inclusion, iPad, well-being, differentiation, classroom management.

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Introduction

Recently, the role of teaching has become more difficult than in the past (L.d'Alonzo, 2012). In Italy, each classroom is filled with students with disabilities, students with dyslexia, students with different learning approaches. Every student deserves a specific approach to feel engaged in the teaching-learning process. The role of teachers is essential to promote and encourage inclusion, creativity and well-being for all (Carruba, 2016). Technology could be a support for teachers to personalize the approach and the access to learn in a more interactive and immersive way. When students are more engaged, in fact, they perform better as they are more motivated and active during the process.

Child development is the result of reciprocal interactions between maturational processes and the individual's active participation in the context. Assistive and inclusive technology represents a tool to promote participation of children and students with disabilities or dyslexia and to overcome difficulties determined by personal characteristics that they do not and cannot choose.

By using inclusive technology, people with disabilities or dyslexia are able to take part to educational processes, work experience and be part of society. Neuroscience and Special education can collaborate to define and explain the relationship between assistive technology and self-perception, motivation and learning process. When students have tools that support them during the learning process, they feel good and competent in the classroom (Pianta, 2001). A person who has found solutions to overcome personal difficulties at school can became a person who works to find the strategies and solutions to have an active role not only at school but also in society.

In the field of education, the well-being of students is a necessary condition to make them feel included, accepted, part of the class and therefore ready to learn.

Technology and Special Education can work together by focusing on:

- users' experience;
- accessibility;
- classroom and learning context design;
- creativity for all.

Since its release in 2010, iPad has attracted much attention also in Italian schools. because it is a really flexible learning tool for all level of Education, from kindergarten to University. Our Research Center decided to study the iPad's effects in the teaching learning process to identify a pedagogical approach to adopt this solution for inclusion. iPad has a menu to personalize the users' experience based on their needs.

The Accessibility section is helpful for:

- visual impairments;
- motor disability;

- hearing impairments;
- dyslexya;
- assistiveTouch and others options.

Italian Schools System has a long experience about inclusion in the classroom since the 1970s (Canevaro, d'Alonzo, Ianes, 2009). In recent years, also in European directives (2015) about education, digital skills have become really important in school. It could be useful to help teachers to become part of this challenge of education. According to the italian best practices in special education, as an educational expert, every teacher deserves to understand the power of technological solutions to:

- make the teaching-learning process more interactive;
- support students to personalize their devices based on their needs;
- promote inclusion and a collaborative learning context;
- reflect about the link between technology and special education.

Materials and Methods

The theoretical framework of this research is based on:

- Classroom Management (Kounin, 1970; Jones, 2012; Marzano *et al*., 2003);
- Universal Design of Learning but also Differentiation (d'Alonzo, 2017);
- Technology for inclusion (Carruba, 2014).

A positive learning context encourages effective teacher-student relationships. According to Everton and Weinstein (2016), Classroom Management is a set of actions to support students during their learning process. Based on their research, it is possible to identify the five actions to manage the classroom successfully:

- developing supportive students-students but also teachers-students relationships;
- giving clear instructions to students during the activity;
- using cooperative learning methods;
- employing appropriate interventions to support students with specific needs;
- promoting an interactive and immersive lecture to engage students.

By using Classroom Management strategies, as Kounin (1970) pointed out, teachers promote students' engagement:

- withitness (teachers' ability to know what is going on in the classroom);
- overlapping (to be able to present a new topic while preventing misbehaviors);
- momentum and smoothness (to be able to "roll-with-the-punches" and to keep on a plan or course action);
- focus group (the teachers' ability to engage the whole class).

Universal Design for Learning and Differentiation Approaches allow teachers to differentiate the activities during the teaching-learning process

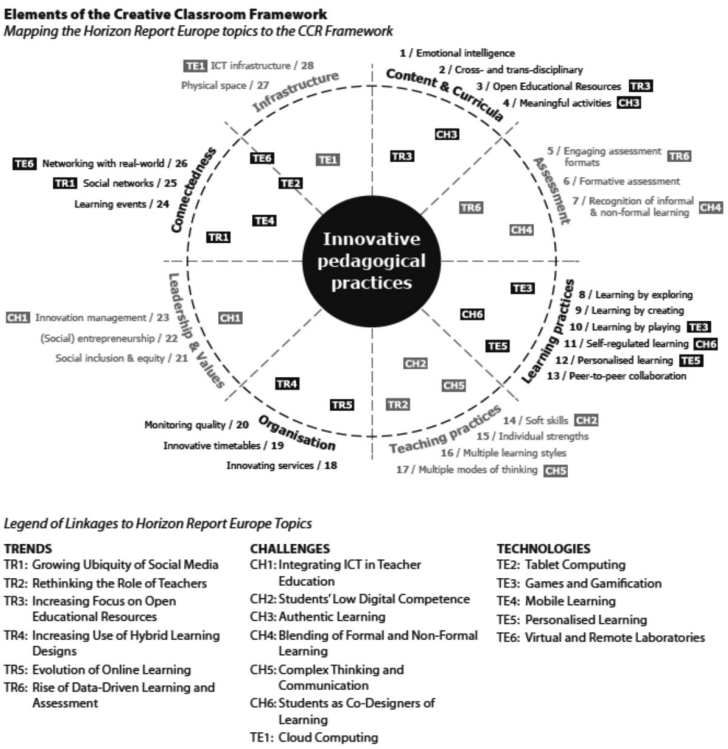
(d'Alonzo, 2017) according to specific students' needs. When teachers prepare the activities for their students, they need to answer these questions:

- How can I promote access for all in this activity?
- How can I help my students to overcome their difficulties?
- How can I differentiate some part of this activity to include everybody?
- How can I choose the right learning tools based on my students' needs?

Technology solutions, especially iPad, allow to differentiate the activity, but it is more important to use different tools for education based on the activity teachers want to propose to their students.

Nowadays, Italian schools use technology (Avvisati *et al.*, 2013) in the classroom, but as some studies prove, often teachers have not received training to use these solutions in the appropriate way. On the other hand, students are not really able to use technological solutions in the learning process, either (as opposed to the use they make of them in their free time).

By using technological solutions, every school could promote social equality and allow all students an opportunity to develop life skills and be active not only in the classroom but also in society. This is the innovative pedagogical approaches to use technologies according to the Horizon 2020's point of view:



Legend of Linkages to Horizon Report Europe Topics

TRENDS
- TR1: Growing Ubiquity of Social Media
- TR2: Rethinking the Role of Teachers
- TR3: Increasing Focus on Open Educational Resources
- TR4: Increasing Use of Hybrid Learning Designs
- TR5: Evolution of Online Learning
- TR6: Rise of Data-Driven Learning and Assessment

CHALLENGES
- CH1: Integrating ICT in Teacher Education
- CH2: Students' Low Digital Competence
- CH3: Authentic Learning
- CH4: Blending of Formal and Non-Formal Learning
- CH5: Complex Thinking and Communication
- CH6: Students as Co-Designers of Learning
- TE1: Cloud Computing

TECHNOLOGIES
- TE2: Tablet Computing
- TE3: Games and Gamification
- TE4: Mobile Learning
- TE5: Personalised Learning
- TE6: Virtual and Remote Laboratories

In this research project we use following research tools:

- Teachers' Training process;
- Observations in the classroom;
- Questionnaire for students;
- Questionnaire for teachers.

Samples:

- 2 classes of primary school;
- 2 classes of middle school;
- 2 classes of secondary school.

The goals of this project:

- identify the iPad inclusive potential;
- train the teachers on inclusive approach to use the iPad for special education;
- explain the pedagogical approach to use iPad for differentiation and classroom management.

The CeDisMa team identified the sample based on these preconditions:

- Appropriate teachers' preparation on Special Education and Inclusion, but also classroom management, differentiation and Universal Design for learning;
- Teachers' experience in using iPad in the classroom (at least two years);
- Teachers' availability to get involved in this research and spending time on it.

The projects were started with the training process for teachers. During this training program, teachers could learn information about:

- Accessibility Section on iPad: for visual impairments, learning disabilities, hearing impairments, motor disability, dyslexia;
- Classroom Management and technological tools;
- Differentiation and Application to differentiate the activity in the classroom;
- Universal Design for Learning.

The training areas:

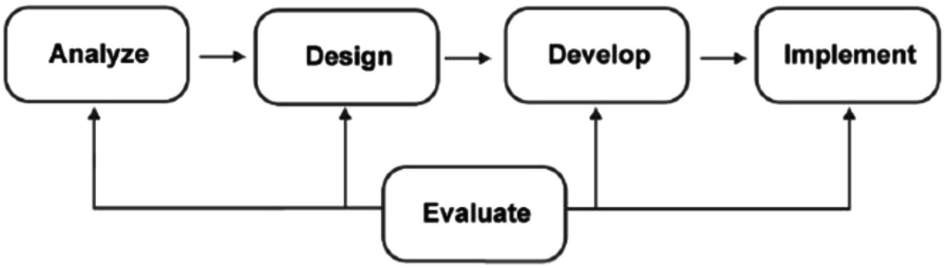
- presentations of the contents;
- taking notes;
- making concept maps;
- using creativity;
- technological tools for teachers;
- technological tools for all students;
- monitoring and evaluating tools.

To support teachers in monitoring, CeDisMa researchers created:

- Teachers' Inclusive lesson plan template to help teachers to develop a more inclusive approach;
- Monitoring digital templates for students to take notes about their new digital skills;
- Guidelines to help teachers as well as students to use the tools created.

Based on the Instructional Design (ADDIE model, Analyse, Design, Develop, Implement, Evaluate), borrowed from Engineering, also teachers can identify their special customers' (all students') needs (Carruba, 2018).

ADDIE model



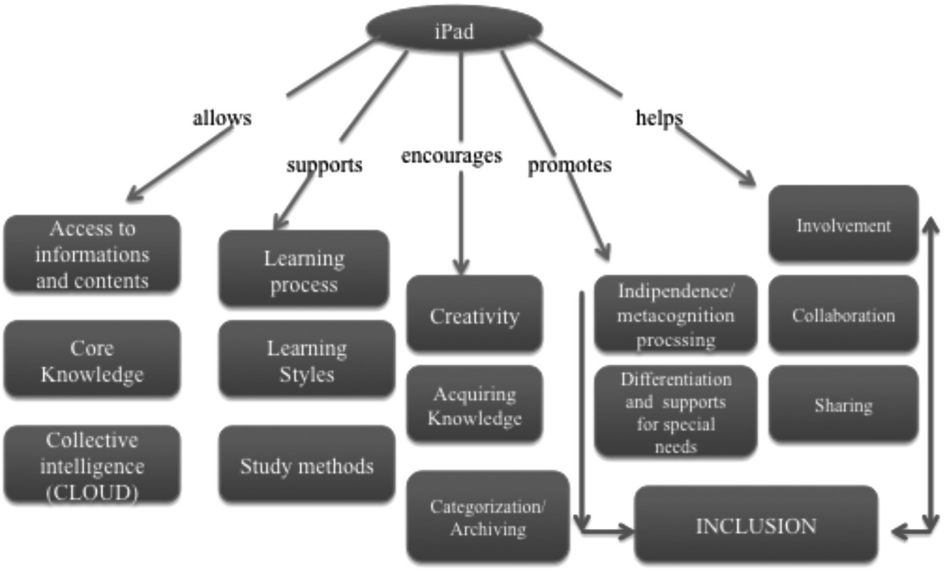
In order to promote inclusion using technological solutions, teachers need to analyze their students' needs, design the teaching-learning process according to special education approach, develop the activities and invite students to collaborate to implement that based on how they feel during this experience and, finally, evaluate it.

Results and Current State

Current State:

- 61 Teachers' Inclusive Lesson Plan Templates received as below:
  - 30 from Primary School
  - 23 from Secondary School
  - 8 from Upper Secondary School;
- 698 Monitoring Plans for students received as below:
  - 416 from Primary School
  - 180 from Secondary School
  - 102 from Upper Secondary School.

CeDisMa Pedagogical approach in using iPad for inclusion:



With an inclusive and critical approach iPad:

- allows access to information and contents to all students;
- assists core knowledge and cloud sharing;
- supports learning process in accordance with students' learning style and study methods;
- encourages students' creativity and digital skills like acquiring but also categorizing and archiving;
- promotes students' independence and help them to reflect on metacognition processes;
- helps students (but also teachers) to differentiate the activity using the accessibility section;
- contributes in involvement, collaboration and sharing.

The inclusive way is especially emphasized in the last two sections of this scheme.

Synthesis about the analysis of data collected until November 2017:

- Both Teachers and Students feel more competent during the teaching-learning process when they use technological solutions after training based on the practical section;
- Both teachers and Students feel better when they use technology with an inclusive approach;
- iPad, provided that is not the only solution to help students to overcome their difficulties during the learning process, is certainly one of the best;

- iPad's Accessibility section allows all students, also the ones with special needs, to differentiate and customize the contents as they need;
- iPad's Accessibility section allows all teachers to meet all their students' needs.

Conclusion

Nowadays schools use technology, but often both teachers and students are not more prepared to use these solutions for their specific needs. The role of teachers is central to promote inclusion and to engage all students during the teaching-learning process. Every student deserves to be active and included in the classroom and to have experience of well-being in the classroom.

In every classroom there are students with special educational needs.

Technology can support teachers to promote inclusion and differentiation and the iPad could be the right tool for this challenge because:

- it allows to customize the approach and has a rich Accessibility section;
- it makes the teaching-learning process more interactive based on a sharing approach;
- it invites students to reflect about their difficulties and find solutions to overcome them;
- it helps teachers to differentiate their activity in the classroom based on their students' needs.

Schools should promote teachers' digital skills but also differentiation, as this pedagogical approach allows them to improve their competence on inclusive education.

Technology is just a tool: as a matter of fact, it is not about technology but about inclusion.

Teachers have a responsibility to ensure that every student, including students with special needs, has the opportunity to improve themselves and be active in society.

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