

## Conceptual Framework

Nowadays, students have to learn to live in a globalised, digitised, intercultural, and changing society that produces vast quantities of information. Therefore, students' learning needs require ways of teaching that are different from those used 20 years ago [1,2]. For some years, we have been experiencing a transition from an education model centered on teaching and content transmission towards a methodological model focused on the acquirement of competencies. However, school education has traditionally been based on a lecturer-centred educational model that emphasises the transmission of knowledge and its reproduction by the students, the lecturer's lesson, and individual work.

Even COVID19 emergency has dramatically increased the focus on the needs of educational institutions, and schools in particular, of being ready to make full use of digital technologies to provide accessible education to all. On the other hand, schools experimented the difficulties and the challenges that the passage to a fully virtual lessons have caused in dealing with the equally important theme of inclusive education and management of diversity.

During the lockdown period, the students that suffered more have been the ones that already before, were at risk of underachieving at school, students:

- Coming from minorities or immigrants' families, due to linguistic and cultural obstacles
- With learning disabilities that need special support and attention
- Coming from disadvantaged social and economic environments and/or less developed areas

School closures during the COVID-19 crisis had a large impact on magnifying existing and raising novel concerns on inequalities in access to education, mainly because most schools had to rely on digital technologies to continue teaching full-time. Students from vulnerable groups were disproportionately affected as they are already more likely to face additional barriers. Although the existing evidence on the impact of online education on students' outcomes is mixed, in different studies it is possible to observe that participation in full-time virtual schooling can have negative effects on students' cognitive and behavioral outcomes. Indeed, these studies show that children learning in virtual schooling in primary and secondary education experienced significant learning losses and have a lower probability to graduate when compared to those who learn face-to-face. The existing educational divide as an effect of socio-economic status was present already before the COVID19 crisis. When coupled with digital exclusion, it is expected to result in an ever-widening learning gap. Recent studies pointed to a few ways through which the transition from in person to digital learning may further increase existing inequalities.

Firstly, in vulnerable households, there is a lack of access to digital devices. Moreover, in large households, most often the same devices are shared among family members to address competing needs of tele-work and digital education, and frequently alongside

Project Number: 2021-1-ES01-K220-SCH-000034434

limited bandwidth. Secondly, students in low-income households are more likely not to have access to an adequate learning environment in their homes (e.g. a quiet place to study or their own desk).

Finally, those children may lack adequate parental support. Indeed, even when socio-economically disadvantaged families have access to the internet, the amount of time spent and resources available for learning are scarcer than in affluent families.

Even we should have into account that the COVID-19 crisis has affected access to education for students with disabilities. For children with physical disabilities, it could have been easier to attend classes online as they were not required to travel to schools. Yet, for those students with disabilities and who have challenges processing information, or who struggle with concentration, the remote schooling experience may not have been beneficial. Concretely, lack of prior experience with digital learning, lack of support from parents, lack or difficult access to the internet, inaccessible software, inadequate technology or lack of learning materials are likely to have widened the learning gap for students with disabilities. Moreover, in the case of children with disabilities, remote education meant greater and more time consuming involvement of parents. The participation of support teachers in all lessons was mentioned as a best practice to tackle exclusion from education for these children. Nevertheless, in the case of some children with disabilities e.g. with speech disorder, it sometimes turned out that remote education was beneficial and helped them to better fulfil their potential (Ibidem). Digital inequality among students also creates a challenge for teachers to provide access to both basic and assistive technologies needed to support, in particular, students with individualized education plans. Potential of adapting learning online to individual student's needs is well acknowledged. Yet, students with individualized education plans may need adaptive equipment and active methodologies. They will also require different kinds of instructional planning and preparation, including an ongoing evaluation to determine the appropriateness of particular online and hybrid approaches.

Agile methodologies could be an important approach in building a holistic methodological basis for the digital educational process and it determines the essential aspects of managing the cognitive activity of students in a digital environment. We will introduce Scrum like as Agile methodology for organizing the educational process making meaningful learning possible for students and it contributes to the development of motivation in students and individualization of the educational process.

Using Scrum like agile methodology and taking into account one of the strategic objectives of the European Commission in the field of education and Training. ("2030 strategic framework for education and training") is to encourage innovation and creativity, promoting the acquisition of transversal competences, including digital competence, by all citizens.



Digital competence is one of the eight key competencies that every person should have developed upon completion of compulsory education to be able to adapt quickly to a rapidly changing world with multiple interconnections

The DIGCOMP project—the project on Digital Competence launched by the European Commission on the better understanding and development of Digital Competence on Europe—identifies digital competence as a transversal competence; in other words, one that enables us to acquire other competences, and one that is related with the skills of the 21st century that every member of society should acquire to ensure their active participation in society and the economy

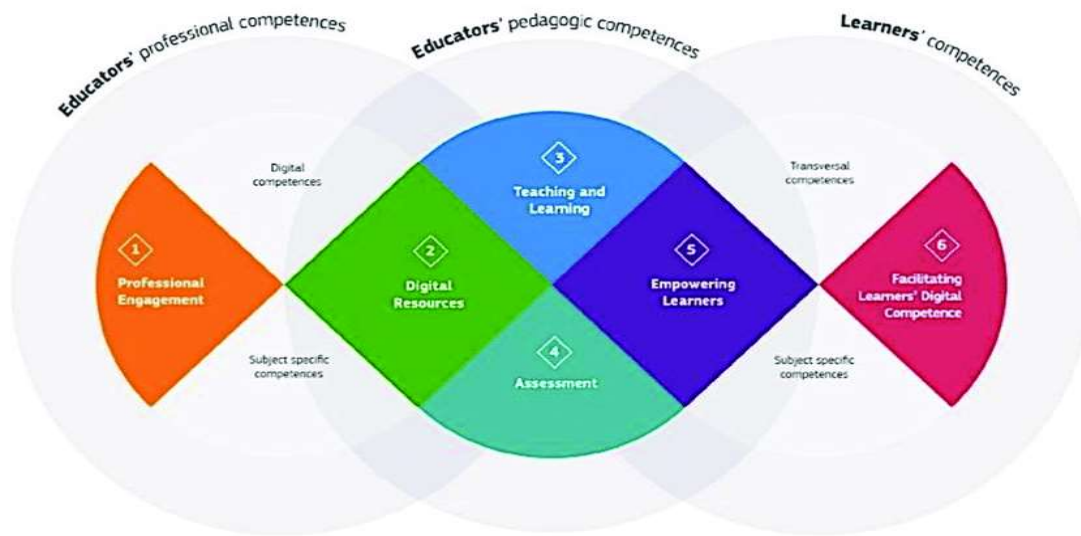
According to the European Commission, digital competence involves safe, responsible, and critical use of digital technologies for learning, working, and participating in society. It involves not only basic technical mastery, but also the development of abilities to: browse, evaluate, and manage information; communicate and collaborate; create digital contents; preserve safety; and solve problems, both in formal, non-formal, and informal learning contexts.



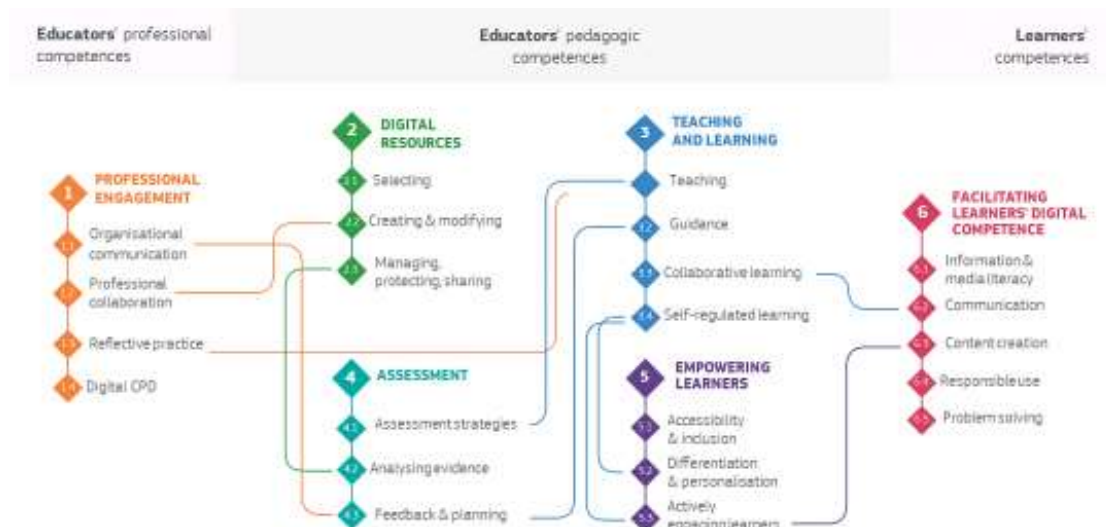
Against this background, education policies have made evident the need to introduce ICT in schools in the hope of achieving improvements in learning and digital literacy.

Correct development of digital competence in the educational system requires teachers to have sufficient training in this competence, as the introduction of ICT in classrooms does not guarantee improved educational quality unless teachers have suitable digital competencies. Teachers' digital competence has been defined as the set of capacities and skills that result in the adequate incorporation and use of ICT as a methodological resource, integrated into the teaching-learning process, thus transforming ICT into Learning and Knowledge Technology with a clear educational application.

Educomp framework has defined an skills level, the logic of progression has been inspired in by Bloom's revised taxonomy which explains the subsequent cognitive stages of any learning progress well, from "Remembering" and "Understanding", to "Applying" and "Analysing", and finally to "Evaluating" and "Creating". Similarly, in the first two stages of DigCompEdu, Newcomer (A1) and Explorer (A2), educators assimilate new information and develop basic digital practices; at the following two stages, Integrator (B1) and Expert (B2), educators apply, further expand and reflect on their digital practices; at the highest stages, Leader (C1) and Pioneer (C2), educators pass on their knowledge, critique existing practice and develop new practices.



The basis of effective teaching with the use of ICT arises from the interaction between content, pedagogy using active methodologies like scrum and technological knowledge which means that teacher digital competence is the teacher’s competency in the use of ICT in a professional with good pedagogical-didactic judgment and knowledge of the implications for learning strategies and digital training of students.



Teachers can use ICT to follow a traditional transition–reception pedagogical model. ICT can also be used to respond to the challenges of contemporary society combined with agile methodologies like Scrum framework that helps teams work together. Much like a rugby team (where it gets its name) training for the big game, scrum encourages teams to learn



This work is licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

Project Number: 2021-1-ES01-K220-SCH-000034434

through experiences, self-organize while working on a problem, and reflect on their wins and losses to continuously improve.



**Funded by  
the European Union**

The European Commission's support does not constitute an endorsement of these contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of this information.