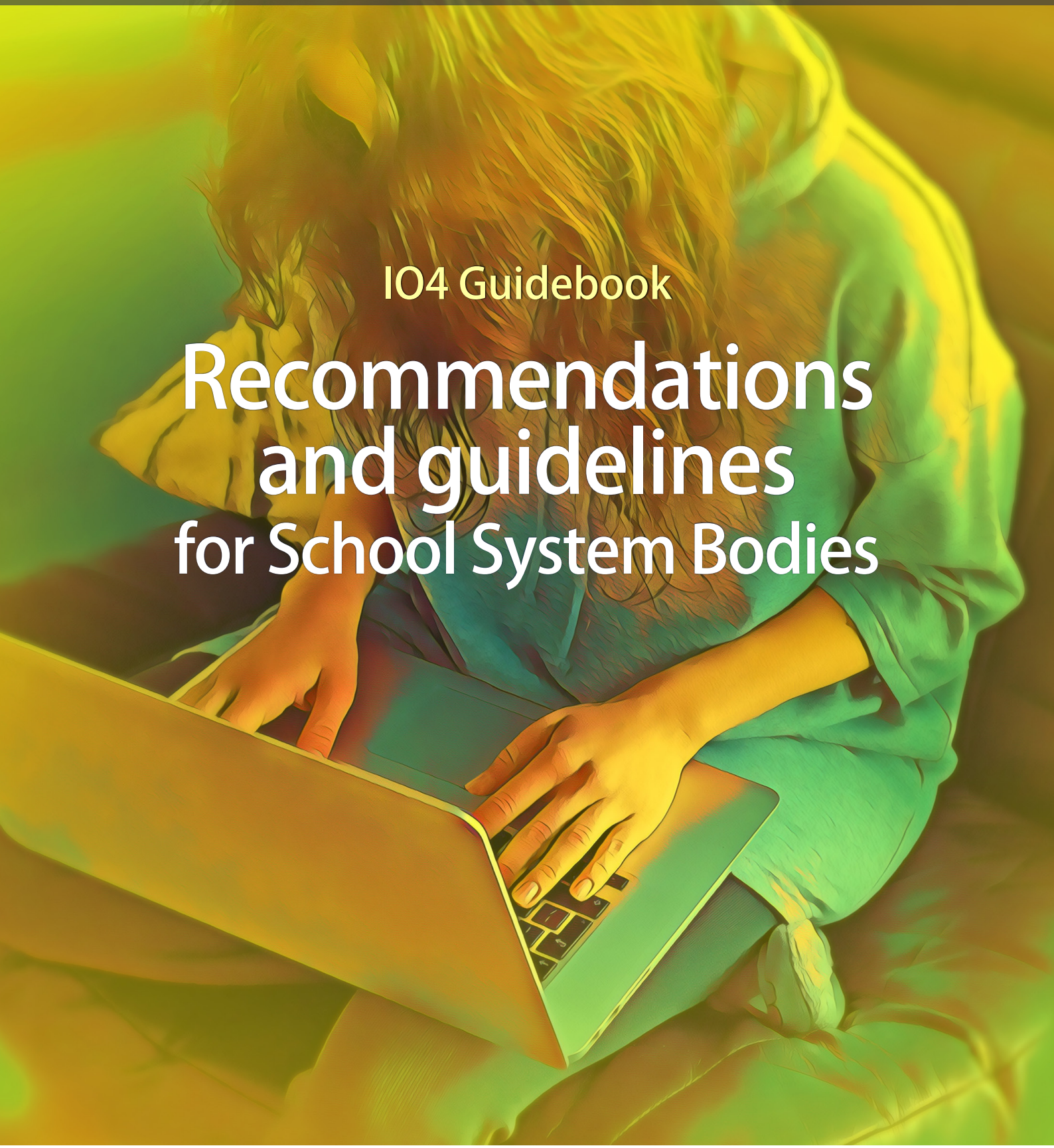
ONLIFE: Empower hybrid Competences for Onlife Adaptable Teaching in School Education in times of pandemic



IO4 Guidebook

Recommendations and guidelines for School System Bodies

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Co-funded by the Erasmus+ Programme of the European Union

"Empower hybrid Competences for Onlife Adaptable Teaching in School Education in times of pandemic"

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Executive Summary

The following report addresses the direct target group of the ONLIFE project which is represented by teachers and educational leaders. The report is intended to provide School System Bodies with a useful framework and guidelines for improving teaching quality, including the enhancement of digital tools and environments in School Education, as requested by all European documents that confer responsibility for quality policy in teaching, research, and third mission on School System Bodies.

Special consideration will be given to the following aspects while developing the Quality Assurance framework for SE:

- e-learning quality requirements for online learning - professional development training for instructors - enhancement of digital tools and environment for LLA, inclusion, diversity, and innovation A novel assessment for improving teaching quality.

This report is organized into three sections and an introduction. The goal of the introduction is to summarize all project references, the first section named Theoretical Framework includes, at a minimum, the following: an introduction and philosophy of the work aimed at sensitizing School System Bodies to their responsibilities regarding the definition of clear shared and spread quality policy for teaching in the digital environment; the issue of online learning quality standards and the comparative framework of e-learning quality standards aimed at building an eLearning EESA; a clarification of emerging teaching skills. The second part of the current report is dedicated to Guidelines for teachers and school bodies on how to successfully implement hybrid learning and teaching techniques in times of crisis while the third section focuses on Policy Recommendations by providing a transversal analysis referring to both the case studies completed and the training tests and activities carried out along ONLIFE project in order to define: a) strengths; b) weaknesses; c) risks and threats; d) opportunity; e) improvement strategy (i.e. a train-the-trainer concept); f) elements of attention to promote the quality culture in teaching and digital innovation for School system bodies.

1.0 Introduction

1.1 Context/Background

The Covid19 pandemic and the more recent emergencies - see the Ukrainian conflicts and the earthquakes in Turkey- have dramatically underlined the necessity for today's education system to be able to follow abrupt change and meet the challenging demands of a globalized technologically driven society. Education, reflecting all the changes imposed by emergency driven situations, is constantly undergoing some kind of reforming: This happens by introducing and applying innovative teaching methods, practices and tools allowing educators and teachers to keep on working and training their learners even under difficult conditions. The educational effort carried on by School System bodies within the EU is based on a hybrid approach to teaching and learning which aims at upskilling students and future citizens so that those are able to adapt to modern developments of the Digital Era.

One of the main current challenges for education, instructors, students, schools and educational authorities is to be able to conduct Teaching and Learning activities in a Hybrid format, that is, to combine physical, online, and remote learning in a blended process -hybrid. Teachers must use and adapt to new technology and surroundings in order to be flexible and facilitate inquiry-based and project-based learning in the classroom. Teachers must develop the competencies required and be provided with the latest technological solutions to be able to run such hybrid activities for this purpose, but authorities and policymakers must be informed of what the ideal blueprint environment is required in schools for an ideal hybrid learning environment.

1.2 The project and its results

In this context, to allow further solutions to be developed, the ONLIFE project was planned and implemented.

Since the onset of the Covid-19 pandemic in 2020, numerous European governments have resorted to unprecedented measures such as stringent lockdowns. As a result, a substantial number of Europeans have been compelled to remain at home for an extended period of time. In a surprising turn of events, teachers have had to conduct their lessons remotely, students have had to adapt to remote learning and parents have had to support their children’s education by becoming home-schooling educators. This new reality has caught most teachers off guard, rendering them unprepared to adapt to remote teaching, learning and working from home, while maintaining productivity and efficiency.

To address this pressing issue, the ONLIFE project has developed a methodology that facilitates the adaptability of teachers to remote teaching, enabling them to possess hybrid competencies as educators. The primary objective of ONLIFE is to support the European Union’s priority Partnership for Digital Educational Reading in equipping school educational leaders, specifically

teachers and school leaders, with the necessary skills and competencies to respond to the ongoing Covid-19 crisis.

Firstly, a guidebook titled “Pattern for enhancing digital technologies in School Education (SE)” was created. Secondly, a training course was designed to enhance the teaching skills of educators in SE. Thirdly, the ONLIFE Learning Paradigm (OLP), which comprised of teacher competencies, methods and approaches in SE, was developed. The current document is the final output of the project and comprises of recommendations and guidelines for School system bodies to help them offer a useful framework and instruments to improve teaching quality.

The target groups are teachers and educational leaders, as they first need to adapt the teaching methodologies to the pandemic and student needs, as well as students and their families that can benefit from the innovative learning materials of the project.

In summary, the main objectives of the ONLIFE are to:

- Modernize the educational training system supporting teaching practices in terms of knowledge sharing (according to the paradigm technology, pedagogy, and content – TPC) and development
- Equip teachers and educational leaders with the right competences to answer to the digital transformation accelerated by the COVID-19 pandemic
- Increase the building capacity to implement online, blended, and distant learning solutions

1.3 Objectives/ Purpose of the policy recommendations

1.3.1 Main objectives

1. Provision of a foundation for public discourse and strategic policy development on how to harness hybridization in a systematic way towards full implementation of the EU Education Area (EC)
2. Better understanding of EU and country level policymakers on the challenges and needs of schools, teachers, and students, with a specific focus on digital transition and hybrid learning environments.
3. Contribution to identifying goals and developing rules to assist hybrid schools.
4. Development of new strategic visions for modern educational institutions in the context of the epidemic and the crises imposed on educational systems.
5. Contribution to the development of new learning settings influenced by digital and hybrid formulae, hence improving accessibility and inclusion
6. Raised public awareness about the importance of digital preparedness for school communities, including evidence-based feedback.

1.3.2 Potential Impact

• School education bodies and policy makers in partner countries will have access to the blueprint guidelines, examples, and tools, all of which are ready to be customized to their school systems.

• Increased readiness of the EU school sector to implement a hybrid model for educational activities.

• Increased support for school administration in deciding on teacher training so that teachers can develop competencies and easily adapt to hybrid learning processes for their students.

• Improved EU teachers' capacity to collaborate in monitoring hybrid learning and online project-based learning.

• Increased chances for EU students to acquire project-based learning abilities and access learning whenever and wherever they choose, online as well.

2.0 The Theoretical Framework

2.1 introduction and philosophy

Technology increasingly defines more and more of our normal daily activity and the ways we conduct every part of our lives. It affects the way we shop, work, care for our health, entertain ourselves, conduct our relationships and of course education and learning. Technology frames the way we interact with the worlds of law, finance, and politics. Onlife concerns the set of actions and relationships that a person performs and has when he/she has when he/she is both connected and disconnected.

The ONLIFE project relates to the work undertaken by Professor Luciano Floridi on the radical impacts of information and communication technologies (ICTs) on the human condition. He describes Onlife as our 'lived experience' of the pervasiveness of information and communication technologies in society.

Living in the era of Onlife, Floridi suggested ICT has generated four major transformations in our lives, blurring the distinction between real and virtual worlds; blurring distinctions between human, machine and nature; the change from information scarcity to information abundance; and the shift from stand-alone things, to the importance of interactions, processes and networks.

School systems and practises have not adjusted to the Onlife transformations that affect our daily lives and where a certain digital scepticism predominates. The Covid pandemic has presented an opportunity to reimagine and transform education and the ONLIFE Erasmus Plus Project is a response to meet these needs, offering the vision of an educational approach that prepares teachers and educators with skills to navigate change and shape new, flexible, agile, hybrid learning models.

Educational technology will be a critical integral component for schools to make systems more resilient and provide continued ubiquitous educational experiences. Stakeholders must consider how data is used to learn what strategies, policies, and programmes are most effective. Preparedness for the future is essential and schools need to be able to switch easily between face-to-face and remote learning as needed.

2.2 Online learning quality standards and the comparative framework of e-learning quality standards

In classrooms nowadays, we see fewer books and more iPads or computers. Online education is here to stay, promoting new means of learning for both students and teachers, as new platforms and applications develop new and valuable learning techniques for all.

Digitalization has progressively found its way into schools in recent years. However, it did it slowly, lacking the impetus required to establish its presence in the classroom. However, with the introduction of the covid-19 epidemic, schooling had to alter drastically in a short amount of time. Although it is true that the advent of the virus appeared to have brought the world to a halt for a time, the education process of the children at home had to continue, and the only way to do it was online. New methods of teaching and learning have to be devised in record speed, paving the way for classroom digitization.

However, because of the desire to move quickly, many institutions and homes lacked the necessary infrastructure to host such programs. Furthermore, many instructors had to entirely rethink the way they had been working for many years in order to adapt to new rigorous teaching approaches.

The digitalization of education has drastically altered how we teach and learn, necessitating the need to support that shift. The European Commission's document "Supporting key competence development: learning approaches and environments in school education" specifies that when we talk about supporting change in teaching and learning in school education, the main goal is to achieve better learning outcomes for the learner.

However, the text also believes that the learning of teachers and school administrators is critical. The study contends that schools and other educational settings do not exist in isolation, but are linked and immersed in learning systems from which they may learn about school developments and changes. As a result, the study emphasizes the critical role of teachers in delivering high-quality education.

So, here's a question: is online education in schools of high quality?

Quality in school education is defined by the European Commission as a "systematic review of educational provision in order to maintain and improve its quality, equity, and efficiency." It also states that it includes school self-assessment, external evaluation (including inspection), teacher and school head evaluations, and child evaluations.

In order to make the most of digital technology, the quality of such learning may be overlooked or lost. As a result, additional attention should be made on ensuring that all students receive a high-quality education.

They create a common foundation for quality assurance systems by focusing on the Standards and Guidelines for Quality Assurance in the European Higher Education Area, which were established in 2005 for studying and teaching at the European level, and to contribute to the quality of higher education. The standards advocate for high-quality education, with institutional support and oversight to carry out various programs and initiatives.

To ensure excellence in schools, all components must be of high quality, beginning with teachers and school administrators. As a result, the ONLIFE initiative strives to equip teachers and school administrators to tackle the digital transition in the classroom.

2.3 clarification of emerging teaching skills for trainers in SE in the digital era

The educational system, which formerly relied solely on completely analogue teaching techniques, has been impacted by the significant change our society has made. Online education and the use of technology in the classroom have gained popularity and made it clear to instructors that they must update their skills to stay current. Though the world has seen a great deal of new technological development in recent years, instructors are not picking up tech skills at the same rate. Given how rapidly things are evolving, it is crucial that people figure out how to incorporate technology into their teaching strategies.

To provide successful digital education at all levels, teachers' and trainers' digital competency is essential. A growing body of evidence shows that during the lockdown, many professors, teachers and trainers struggled with the situation and lacked the skills necessary to develop and deliver instruction using digital tools, including choosing the best platforms and resources (Burke et al., 2020; Giovannella et al., 2020). Only 39% of teachers in the EU thought they were well or very well equipped to use digital technologies for teaching prior to the COVID-19 crisis, with considerable variations across EU nations (European Commission, 2019b). Three out of four educational systems in Europe view digital literacy as a must and teachers’ retraining and upskilling as a desperate requirement, this being an essential component of providing efficient digital education at all levels.

The digital skills and talents of instructors and trainers play a significant role in achieving the benefits of digitalization and addressing its problems. They must be able to use new pedagogical approaches, instructional tools, and/or educational technologies to deliver learner-centered, future-oriented teaching and training, as well as competently use digital tools, technologies, and resources to deliver pedagogically effective online or offline distance learning if they want to help students succeed in today's digitalized workplace and society

Barriers teachers/trainers faced in acquiring relevant digital skills have come from both the supply side (e.g., lack of access to training the use of ICT for teaching) and the demand side (e.g., teachers'/trainers' unwillingness to participate in digital skills training). The barriers differ across countries: generally speaking, high-income countries have been better able to offer digital skills training. Teachers/trainers also faced barriers in applying the digital skills they acquired owing to lack of access to digital tools, relevant training opportunities and/or employer support, which affected their confidence, capacity and/or attitudes towards use of digital technologies for teaching and/or delivering.

The vast majority of out-of-date digital education programmes need to be quickly updated across the board in the public education system in Europe, from basic schools up to universities. The public offering must update its curricula to better reflect the demands of the labor market and adapt to evolving technology. To make the systems more receptive to partnerships with civil society, organizational and governance reforms are necessary along with concrete investments in connectivity and fresh training for both professors and teachers. In other words, a skill revolution is necessary to address the digital transition, which has been accelerated by the COVID-19-induced digital rush of the last three years. The intersection of inclusiveness and progress is both a difficulty and an opportunity and Europe needs educational systems appropriate for the digital age.

2.4 Framework of innovative assessment

The framework of the innovative assessment designed by the consortium, comprises of various components that are aimed at enabling educators to enhance their digital competencies. One of the key features of this framework, is the self-assessment tool that has been established and developed by the consortium. This tool is designed to help educators identify the digital competencies they may be lacking and highlight the ONLIFE modules that would be the most beneficial to them.

The creation of the online tool designed by the ONLIFE consortium was a collaborative effort involving experts in the field of education, digital technology and assessment. The tool was created with the objective of providing educators with a personalized approach to improving their digital competencies and adapting to change. The online tool is open to everyone and it has been designed to be user-friendly, easy to navigate, and accessible to educators worldwide. Users can access the tool through the ONLIFE website (https://onlife.up.krakow.pl/)and are required to complete a self-assessment questionnaire that evaluates their digital competencies against a predefined set of standards.

Based on the user's responses to the self-assessment questionnaire, the online tool provides a personalised table highlighting the user's strengths and weaknesses in digital competencies. The table also recommends the ONLIFE modules that the user should take to enhance their digital

adaptability to change. Based on this table, the educator can select the ONLIFE modules that best align with their specific needs.

The creation of this online tool is a significant innovation as it provides educators with a comprehensive and personalized approach to professional development, as it is specifically designed to enable educators to identify the digital competencies they may be lacking. This is an important step towards enhancing digital literacy and provides educators with a clear roadmap for improvement. The self-assessment tool's ability to recommend specific ONLIFE modules based on an educator's digital competencies is a significant innovation. This personalized approach to professional development ensures that educators receive targeted training that is directly relevant to their specific needs. The tool is open to everyone and is designed to cater to the specific needs of each user, ensuring that educators receive targeted training that is directly relevant to their digital competences. Moreover, it represents a departure from traditional assessment methods and seeks to provide educators with a more holistic and personalized approach to improving their digital skills.

The self-assessment tool is a valuable asset to educators as it provides them with a clear understanding of their strengths and weaknesses in digital competencies. This enables them to focus their efforts on areas that require improvement, enhancing their teaching skills and ultimately benefiting their students. Overall, the framework established by the ONLIFE consortium is a vital component in the digital transformation of education and serve as a powerful tool in enabling educators to enhance their digital competencies.

3.0 The Guidelines

3.1 Didactical implications and best-practice-examples for the use of online and blended learning-tools in SE

3.1.1 Didactical implications

Now that the pandemic has subsided and the negative consequences to the educational system are being overcome, we must ask ourselves: what remains positive and negative in the schools? What can we learn from the experience with respect to the new learning methodologies that emerged timidly in many cases, or were consolidated in others? We know that the impact of the pandemic was far from uniform in Europe.

First of all, we must ask ourselves whether in non-university education we should speak of online learning, when we know that the essence of this level of education predominantly comprises face-to-face interaction. If we only think of online learning as traditional distance learning, we are not learning lessons from the experiences during the pandemic. But, if we are thinking about the use of some of the more positive features of online learning in face-to-face teaching, we are on the right track, since we then could talk about what is called digital learning, i.e. learning that makes intensive use of digital tools and digital learning environments, whether they are used in

the classroom itself, or whether they are, as a continuation of the classroom and its experiences, used at home.

Many of these technical systems in Europe were already used before the pandemic, and it was not uncommon to find in most countries virtual learning environments embedded in the regular classroom (Moodle, Google Classroom, etc...), but the difference was that the education centres were not prepared for an "exclusive" use of these systems for online teaching, much less the teaching staff was prepared for it as we have seen in this report.

Assuming that online learning and digital learning were combined with more or less success (we would say with less), we should really speak of hybrid learning, rather than of one concept or the other.

Hybrid learning has the advantage that it promises greater flexibility in its use, adapting more easily to the conditions at each centre, while at the same time it enhances the exploration of new pedagogies and, consequently, research on learning. In a word it may have a greater potential for innovation today. Moreover, the ONLIFE approach fits better with the idea of the ONLIFE concept itself, in which the widespread use of ICTs have a radical impact on the human condition, so in education and learning, generating different transformations, one of which blurring the distinction between reality and virtuality. Translating this concept to education, we envision a panorama in which face-to-face and distance will combine in a concept of hybrid education that fits better the current and future needs of the system, and of the disruptions this might eventually confront.

In general, schools and classrooms are not sufficiently prepared for hybrid education, with a lack of good facilities and technical equipment for cloud computing, quality video conferencing, so that students, if applicable, can follow classes from home. Teachers must always be prepared for a hybrid classroom, but with equipment that must be regularly updated to take advantage of new tools as well as new learning models. While new approaches to learning have emerged at university level (e.g. *Hyflex* methodology), this is not the case at secondary level, which requires more research and experimentation.

What didactic implications can we draw at present and in the future from this point of view?

Firstly, we have seen in ONLIFE how some didactic models have been imposed in those examples of institutions that have been more successful in situations of tension, combining very intense strategies of interaction between the actors of the educational act, and the formation of communication networks that have generated richer processes in the classroom, and in the school communities.

Secondly, the didactic implications that emerge from the examples studied lead us to think that an innovative use of teaching and learning methodologies mediated by ICTs and adapted to hybrid situations is being consolidated. We cannot say that they did not exist before, but rather that they have been extended to more centres as a response to the disruption of the educational system.

A number of emerging competences in pedagogy have thus emerged. These are among others:

- Teaching strategies as Problem-solving, PBL, Gamification, flipped classroom, adapted to hybrid learning. For instance, PBL through students' engagement in hands-on team activity either face-to-face or remotely.

- Integration of digital communication with students/teachers/parents at all levels, time, and situations. This includes communication with the educational community using different online channels (also social networks), in hybrid environments.

- Co-creation methodologies mediated by ICTs, Identifying, together with different stakeholders, new socio-educational problems and participating with others (whether in or out of class) in the search for the best solutions.

- Attention to students in need of assistance to make education really inclusive, giving them socio-emotional support, and adapting both content and digital tools to their specific needs, ages, level and socio-economic environment.

3.1.2 Best-practice examples for the use of online and blended learning tools in SE

During this time, we have observed examples of good practice across Europe, many of which have been reported in the academic literature. In the case of ONLIFE, several case studies of different schools in the participating countries were carried out. The following are the most interesting ones, many of which have inspired the ONLIFE Moodle learning modules for potential use as examples for teachers and teacher training programmes.

1. School Details: Liceo Statale "Ettore Majorana", Rho

Liceo Statale "Ettore Majorana", Rho (http://www.liceomajoranarho.edu.it) is a secondary school founded in 1967/1968. There are 41 classes and about 859 students aged 14 -18, teachers are 82: 59 with permanent contract and 23 with a temporary one and 23 staff members. The school leads to the Esame di Stato (diploma from Italian Secondary school qualifying for university admission or matriculation).

The use of ICT allowed teachers to experience new teaching methods and also to plan better their lessons, to quickly share materials, to make virtual tours, to quickly check homework, sometimes also with the use of plagiarism programs, to promote the development of students' ICT competences.

Some apps and software proved very useful and will become common in educational practice. The easy access to the mobile phone or other technological devices permits the use of ICT as a common resource.

Most teachers found the possibility to have teachers' meetings and class council meetings online very positive.

A high potential of digital learning was also experienced in teaching foreign languages with guests abroad, for example organizing on-line conferences with other countries partners and virtual learning exchanges, lessons planned with colleagues abroad on agreed contents focusing on relevant cultural topics, this experimentation at international level proved to be mutually interesting and transferrable.

Students used Meet, Google documents, Jamboard, Gmail, Google Drive, digital books, one note, Youtube, GeoGebra, Learnings App, ALatin, Myzanichelli, Kahoot, Booktab, hub young and person e-text, Open Board, meditation course. Some students improved their digital skills and also learnt how to search relevant resources, group work was generally motivating, in fact they appreciated the interactive aspects of some lessons thanks to digital tools.

2. School details: Liceul Teoretic "Tudor Arghezi" Craiova

Liceul Teoretic "Tudor Arghezi" Craiova (http://www.tudorarghezicv.ro) is a Preparatory-12th Grade school founded on 1st September 1961, its name (Tudor Arghezi) being the literary pseudonym of a famous Romanian writer, best known for his unique contribution to poetry and children's literature, whose real name was Ion Nae Theodorescu. It keeps 73 teachers and 1.100 students, from primary to upper-secondary education.

It was reported several measures on using ICT resources and tools during the pandemics by staff and students:

- Most teachers have learned to use ICT, they have written project applications for the purchase of high school devices. Despite the lack of previous contact with electronic devices and educational platforms, many teachers managed to acquire the minimum skills to develop the best didactic act. Mutual help between teachers was provided.
- An online learning platform was implemented for conducting classes. Creating accounts on the institutional platform, and familiarization of teachers and students with the use of the platform agreed at the management level, was the most urgent. It was key how several people in charge of the school mobilized and how they managed, in a short time, to create accounts for all teachers, but also for the large number of students from all levels of education.
- Carrying out the activities using ICT within the project work at school level. The fact that there are laptops and internet in almost every classroom offers the possibility to connect students with health problems.
- An interesting experience is how the roles were sometimes reversed, the children becoming a real support for teachers, in discovering additional settings of the educational platform they were working on.
- Exchanging useful links and creating quick digital tutorials on how to use the platform and the applications: a handbook would be useful as well as a digital book with examples of good practices.

3. Schools in Cyprus

Several focus groups with teachers and students from different schools were organised. The key results in terms of best-practice examples for the use of online and blended learning-tools in SE:

- Students have continuously mentioned that using PowerPoint presentations for the lesson was an improvement from the "traditional" handing worksheets and just printing information on a paper or just reading from a book. It made the lesson more interesting and using images helped the student stay interested and focused.
- A good practice to evaluate the students is to use multiple-choice questions with limited time to answer, to mitigate the risk of the students "cheating".
- In terms of the pros and cons of technology, it is suggested that to protect the students from leaking their personal data they were requested to have their cameras off. However, this not only distracted the teachers as they felt they were talking to a black screen, but it also affected the students as they would lose focus and do other things behind closed cameras.

4. School Details: Liceum Ogólnokształcące im. Zofii Nałkowskiej w Krakowie, Poland

The Liceum (http://vii-lo.krakow.pl/) was founded in 1902 as the Second Imperial-Royal College. It had the status of a secondary school. The main emphasis was on teaching mathematics and natural sciences as well as modern languages.

The following forms of supporting teachers in the field of distance learning have been introduced either by the school itself or by its leading institution:

- a distance learning team was established to coordinate and support the activities of all teachers;
- trainings developing competences in the field of distance learning methodology were organized;
- external training was financed for teachers to develop competences in the field of distance learning methodology;
- external training to develop IT competences was financed for teachers;
- IT support was provided in the use of tools supporting distance learning.

The time of isolation was devastating from the pedagogical and psychological point of view. The school organized psychological and pedagogical support.

For parents of school students:

- Remote conversations with teachers.
- Advice and remote talks with a psychologist and / or school educator.
- Advice and remote conversations with a psychologist and / or educator from a psychological and pedagogical counseling center.
- Parents' guides were made available on the school's website.
- Regular remote office hours of the school pedagogue / psychologist.

For students:

- Remote contact with a pedagogue and / or psychologist (by phone or via profiles on social networks or instant messaging);
- Frequent information exchange and support from the class educator.
- Personal on-call duty of the school pedagogue at school with the possibility of direct contact or by phone.
- Advice and remote conversations with a psychologist and / or educator from a psychological and pedagogical counseling center.
- Remote specialist classes for students (conducted by psychologists and / or class educators);
- Online integration workshops and competitions.
- Corrective and compensatory classes, revalidation and development classes implemented online.

5. School Details: Doukas School, Greece

Doukas School is one of the largest companies in the education industry and they are a leader in the field of primary and secondary private education with approximately 1600 students. The organization employs approximately 500 people.

One good practice for learning in a digital environment was to use tools that promote collaboration and self-regulation for both students and teachers, such as OneNote. As educational materials are integrated into the app, with the connection of multiple sources and collaboration tools, while taking into consideration that in modern education teachers and students self-regulate their learning. Another worth mentioning practice is the application of peer-to-peer teacher training to familiarize them with digital tools during the pandemic.

The useful digital technologies that were mainly mentioned were: a) Teams; b) Forms; c) Power Point; d) Flashcards; e) Padlet; f) Kahoot!; g) Minecraft

Most of the challenges that participants faced during the pandemic transition to learning online, had to do with keeping the online lesson interesting enough for the students. For the teachers who were experienced with technology, the most challenging obstacles were the monotonous nature of online video conferences, the search for interactive tools and the need to adapt to the students' way of thinking. The lack of live socialization, playing, even trick, challenges teachers to find fun and "childish" ways of instructing, to balance out the psychosocial dimension of students and keep the socio-emotional aspect alive.

6. School Details: "Institut Nicolau Copèrnic", Terrassa, Spain

This is a public school offering secondary education and upper secondary education (Baccalaureate). Situated in Terrassa (a city near Barcelona), a very industrial city in a working-class area. There are 16 secondary education cohorts with approximately 450 students aged 12-16, and 2 upper secondary groups with around 70 students aged 16-18. The Centre offers vocational education careers at different levels with a total of 410 students (many in the

computer science studies) in blended learning mode. The number of teachers is 82, as well as 10 administrative people. Complete info about the school, tools and daily activities, at https://copernic.cat/

Interesting good practices related to ICT provision and use at the time of the pandemics, and further consolidated, has been:

- Provision of computers and fiber optic communication for the centers and provide free computers for all they need: teachers, students and schools themselves.
- Provision of free Internet access to vulnerable students' families, apart from computers for the students, for the students to connect with the center in regular basis. This includes technical support
- Follow up of students at risk of exclusion, by the tutors, to assess how they are following the regular course either at home or online. This would avoid situations of students disconnected from the school at the times of confinement. A Commission of Absenteeism was created to follow up students
- A tutorial accompaniment on the steps to follow to apply for administrative matters, as registration was used. Also, accompaniment by telephone or video conference in which families who have requested it have been accompanied or either by phone or video conference.
- During the confinement, most students found themselves isolated and disconnected, increasing the demand to locate and communicate with them and their families. In this situation the school mediator (in collaboration with the local authorities) has had one very relevant role in connecting and passing on important information to families as well as commenting and resolving issues such as the possibility of working from home, if they have material, Internet, computer, etc

3.2 Methodology for assessing online teaching and learning environments in SE

Learning environments refer to how a classroom is arranged and which method of learning occurs. **Online** learning is learning that occurs via an internet-based platform. There are two approaches:

- The teacher sets up lessons and assignments ahead of time, and students complete them independently.
- The class meets online and carries out activities in a synchronous way.

Of course, the two approaches can be mixed and this usually happens in order to achieve best results. Distance Education (DE) as one in which the teacher and learner are separated from each other and involve in a two-way interaction using technology to mediate the necessary communication. Online Learning is a type of delivery method used in distance education that allows the synchronous and asynchronous exchange of resources over a communication network (Khan, 1998). Online Learning Environment is also the system surrounding the learner and the teacher in terms of technical and social aspects (Khan, 2000b).

It should be stressed right away that just like with brick-and-mortar learning, there is no one "right" way to design online learning environments (OLEs). Online learning experiences should be tailored to a particular group of students and the particular context. No AI can replace the teacher in setting the gears and fine-tuning online classes. With this understood, we collect below technology and learning methodology aspects considered commonly as important. Occasionally we refer to specific, well known, OLEs and their components. This choice is based on our own experiences, conclusions following from our focus groups and other Intellectual Outputs of the ONLIFE project. This does not exclude other technology solutions existing or yet to be created. The reference to specific solutions is done for simplicity, to avoid elaborated descriptions of functionalities widely known.

Our approach focuses on how online learning environments perform with respect to their impact on learner achievement, engagement, and retention. These is a set of criteria for assessments of traditional learning environments. However, research literature on online learning is abundant of comparisons of distance education to the traditional teaching and learning contexts. Results presented here go beyond comparing traditional learning and online learning environments. Instead, we focus on the components of online learning environments and their readiness for the following aspects:

1. Enhancing learner engagement and collaboration.
2. Promoting effective facilitation.
3. Developing assessment techniques.
4. Designing faculty development programs.

These four areas closely affect learner achievement, learner engagement, and learner retention, which are the principal concerns of education.

Learner engagement is defined as the effort learners devote to activities that are focused on education. Many authors assert that learner engagement is a strong predictor of learner achievement and personal development (Baker, Spiezio, & Boland, 2004). Moreover, learner retention and achievement critically depend on learner engagement.

Certain educational practices lead to high student engagement. Among these, learner interaction in online learning environments has implications on learner engagement and collaboration. According to Anderson (2003) “engagement is developed through interaction”. These interactions include but are not restricted to teacher-student and student-student interaction. Interaction in the classroom (but also online) occurs most frequently in the form of a dialog or a discussion, which according to Vygotsky’s socio-cultural theory, are the most effective forms of interaction in education.

Online collaboration is often associated with improvement in volume and quality of student involvement, satisfaction, engagement, and higher-order learning, see e.g. (Khan 2000a). Moreover, group discussions in online learning environments through collaborative involvement increase not only the productivity of the group but also individuals' ability to think critically. It must be however stressed out that achieving fruitful discourse among online groups working collaboratively is extremely challenging.

A lot of research is devoted to investigate interaction and collaboration in relation to learner achievement, engagement, and retention in OLE, such as building online learning communities, and investigating levels of interactivity, see (Robinson & Hullinger, 2008). The problems encountered along these lines include:

1. The ways to measure learner engagement.
2. Identification of strategies to advance from passive student engagement to contributive involvement in OLE.
3. Identification of principles of course design and development processes which promote learner engagement, interaction and collaboration.

Effective facilitation is an important factor that directly affects learners' engagement, achievement, and retention in online learning environments. Facilitator attitudes towards students influence the way the students comprehend the learning environment. (Garrison et al., 1999) distinguish cognitive presence, social presence, and teaching presence as factors influencing the facilitation. The cognitive presence is the extent to which the participants of a community of inquiry are able to construct meaning through sustained communication. Social presence is the degree to which a person comprehends another person as real. This presence gains on importance in the view of the widening presence of AI. And finally the teaching presence covers the design and integration of the social and cognitive presences into the learning environment.

Analyzing cognitive presence and the alternative methods of facilitating cognitive presence in online learning environments provides criteria on utility of OLEs to improve learner engagement, achievement, and retention.

Assessment techniques serve to collect evidence to judge the quality of learning that occurs and to provide feedback to guide the learner throughout the learning process. If implemented correctly assessment and feedback have a strong influence on achievement and engagement of students. Immediate feedback is recognized as one of the best practices in education, especially in undergraduate education. In OLEs where the constructivist approaches to teaching expect learners to be self-directed and critical thinkers, it is important to provide assessment techniques

that will guide and engage the learners. Hence it is an important factor in assessing OLEs. Technology progress provides new and powerful ways of assessment. However, assessment in an online environment is still considered as a serious issue, mostly due to teachers' habits taken from the brick-and-mortar approach. Of course, issues of reliability, validity as well as authenticity and security are still more problematic in OLEs than in the traditional learning. These problems cannot be ignored. On the other hand, OLEs provide ways to collect in new ways meaningful evidence for assessment and open the door to formative evaluation rather than summative evaluation. A lot of time-consuming processes in traditional teaching are taken care by computers in an automated way. One effective way to assess learners' "activity performance" in online learning environments builds upon utilizing portfolios. There are also enhanced ways to implement peer feedback, which leads in particular to enhanced engagement.

To sum up, we observe that Assessment is an important component of the education process, and it can be challenging to determine the best approach when education takes place online. Here are some effective assessment methods that can be used in an online learning environment:

1. Online Quizzes and Tests: Quizzes and tests can be administered through the learning platform to assess students' understanding of the material covered.
2. Virtual Class Discussions: Teachers can facilitate virtual class discussions to assess students' critical thinking and problem-solving skills.
3. Written Assignments: Teachers can assign written assignments, such as essays, research papers, or reflection pieces, to assess students' writing and communication skills.
4. Group Projects: Group projects can be assigned to assess students' teamwork, collaboration, and project management skills.
5. Presentations: Online presentations can be used to assess students' public speaking and presentation skills.
6. Self-Assessment: Teachers can encourage students to engage in self-reflection and self-assessment to gauge their own understanding of the material and identify areas where they need additional support.
7. Adaptive Testing: Adaptive testing technology can be used to tailor assessments to individual students' abilities and provide personalized feedback.

It's important to use a variety of assessment methods to get a comprehensive understanding of students' learning and progress. Additionally, clear and consistent evaluation criteria should be established, and students should be given regular feedback on their performance to support their growth and development.

Here are some key specifications for an online platform used simultaneously by students in the class and students at home synthesized from various literature sources:

1. User-Friendly Interface: The platform should have a simple and intuitive interface that is easy for both students and teachers to use.
2. Real-time Collaboration: The platform should support real-time collaboration and communication between students and teachers, allowing for interactive discussions, group projects, and other activities.
3. Video Conferencing: The platform should have built-in video conferencing capabilities to facilitate synchronous learning, where students and teachers can interact in real-time.
4. File Sharing: The platform should allow for easy file sharing, enabling students and teachers to exchange documents, presentations, and other materials.
5. Assignment Management: The platform should have tools for teachers to manage and grade assignments, and for students to view and submit their work.
6. Mobile Accessibility: The platform should be accessible on multiple devices, including desktops, laptops, tablets, and smartphones, to accommodate students who may not have access to a traditional computer.
7. Security: The platform should have robust security features to protect sensitive information, such as student data, and prevent unauthorized access.
8. Technical Support: The platform should have reliable technical support to resolve any issues that may arise during use.

These are some of the key features that should be present in an online platform used simultaneously by students in the class and students at home. Having these features will enable a seamless and effective learning experience for everyone involved.

The role of the online teacher is to make important decisions about how to incorporate these design elements into own classes and curricula. It's worth saying again: there is no one "right" way to do online learning. Just as in a brick-and-mortar environment.

3.3 Tools for assessing online teaching and learning environments in SE

Digital tools can be used in the context of online learning to serve multiple purposes. One of them being to assess students online learning and to what extent the learning objectives have been achieved. As the assessment may occur as part of the implementation of the learning activity, it is useful to examine what other additional types of use the tools that facilitate the assessment may have. In brief the different types of use identified are the following:

Collaboration – This category of use refers to the tools that allow users to collaborate either in a synchronous or asynchronous way by either editing common documents or doing common activities.

Communication – The tools that facilitate the type of use described by this category allow users to communicate with each other by exchanging texts, images and files and/or by allowing them to talk with each other over the web. There is a clear distinction between the facilitation of synchronous and asynchronous communication. Tools that can do both are of greater value to teachers.

Storage – The tools that tick this category of use are those that may facilitate the on-line, cloud storage of multiple types of files (text, multimedia, presentations, etc.) that teachers and students may want to share with each other, which their primary way of utilisation, or so as to have their personal cloud storage space that will enable easy mobility between devices.

Planning/Organisational – This category of use is facilitated by several applications which allows the user to plan and organise his/her own task or the tasks of a team or organisation. These type of applications enable the user to manage the projects/ tasks that have been assigned to him/her or at a higher level plan and organise whole classroom learning activities or even the whole classroom and its progress.

Networking – The tools that correspond to this type of use are those that may support a student or a team of students to engage in building and expanding their network that relates to their school life and learning activities. This type of tools has been widely used to facilitate collaboration between students from different schools, often from different countries. Based on observations in schools, this type of tools has been used, during the COVID-19 pandemic, for student networks even within the same school.

Content Development – This type of use by the tools allows for the creation of digital content. The content may be developed by students as part of their learning activities or by teachers in the context of one or even when designing an entire activity based on the developed content.

Assessment – This type of tools is used by teachers to assess/evaluate students' knowledge and/or skills. In some cases, students use the tools by themselves as part of a self-assessment process (e.g., self-regulated learning).

Virtual Simulations – The virtual simulation tools are used in order for students to engage in virtual laboratories and experiments as well as be virtually introduced to activities or places around the world at any point of time (past, present, future).

The following matrix presents a set of digital tools that may be used for assessment while in parallel it notes the other types of use it may also facilitate:

Type of use/ Digital Tools	Collab.	Communication	Storage	Planning	Networking	Cont. Dev.	Assess	Sim.
Kahoot	+	+				+	+	
H5P						+	+	+
mentimeter							+	
Edpuzzle						+	+	
Whiteboard.fi	+	+					+	
Google Classroom	+	+	+	+	+		+	
Socrative	+	+				+	+	
edmodo	+	+	+	+	+	+	+	
Quizlet	+	+				+	+	
Samepage	+	+	+	+	+	+	+	
Google Workspace	+	+	+	+	+	+	+	

A common way for online assessment is the creation of online quizzes, there are multiple online tools to support their making and hosting. There are two main types of online quizzes used in teaching. The one is the traditional quiz where the student is given a set of questions (any type e.g., closed, or open questions) and answers individually. The second type of quizzes used are the

online multiuser quizzes where multiple users are presented with questions that they have to answer and is usually accompanied by gamified features.

Individual Quizzes

For this purpose, any type of forms collecting tool may be used. Some of the commonly used tools are Google Forms, Microsoft Forms, SurveyMonkey, Typeform, etc.

The tools allow for multiple type of questions such as:

- Short answer
- Checkboxes/ Choice
- Dropdown
- File upload
- Linear Scale
- Multiple choice grid
- Tick box grid
- Likert Scale
- Rating

The data is collected by the tool and the teacher may access the results both individually but also collectively. All of them offer visual representation of the replies when possible (e.g., closed type questions).

Multiuser Quizzes

This type of quizzes allows for online synchronous multiuser quizzes that a teacher can engage students with and add an element of competitiveness occurring through the game-based approach and leading to increased motivation.

Commonly used tools to create and host such quizzes are Kahoot, 99math, and Quizzalize.

4.0 Policy recommendations implemented by the ONLIFE Project

4.1 SWOT analysis

In current times, the originality and innovation of educational institutions are being tested. Plans for digital transformation have accelerated in all educational institutions throughout the world as a result of the Covid-19 pandemic's repercussions, which have forced educational leaders to be innovative in how they provide and offer their services. For students and learners to be able to profit from these services, access and affordability are also essential requirements.

The face-to-face teaching method is still widely regarded as a powerful means to help students develop their knowledge and abilities. It is also a wonderful way for students to interact with classmates and teachers. However, the pandemic has forced institutions to rethink their approaches to learning from key stakeholders in the field of education.

SWOT stands for Strengths, Weaknesses, Opportunities and Threats. Generally speaking, a SWOT analysis is extremely useful, from the point of view of recognizing the areas where an organisation excels, identifying areas that need improvement, setting up strategic plans and objectives, determining whether the new initiative is feasible and understanding how to implement the latest technology.

As far as the SWOT analysis of the educational system during the pandemic is concerned, there have been identified relevant aspects, as it follows:

Strengths:

- teacher involvement;
- good contact with parents;
- previous experience for some teachers with IT tools (for example, Microsoft Teams, electronic journals);
- adjusting the teaching process to the students' needs;
- students are eager to use information and communication technology
- online consultations or private lessons can be organized with a practically unlimited number of students
- rapid and widespread dissemination of information and knowledge
- generating a relaxed atmosphere in communication, due to indirect contact
- maximum spatial-temporal flexibility in accessing information resources, allowing work depending on availability and adapted to the pace of each user
- the provision of the necessary tablets to those to whom they were not available, so learning was made possible even for the less fortunate ones;
- providing support for extracurricular activities
- facilitating the social integration of students in difficulty or with special needs (physical or mental disability, isolated and hard to reach areas, special situations - epidemics, floods, etc.)
- encouraging and supporting lifelong learning and distance learning as mass education

Weaknesses:

- lack of appropriate equipment or access to the internet (both sides: students and teachers), no updated software and lack of funds to purchase the latest technology;
- the lack of clear regulations, especially at the beginning of the online period;
- low student involvement / lack of motivation;
- lack of competences (technical / IT) teachers;
- teachers' reluctance to conduct lessons online;
- difficulty verifying independence of student's work (parents' help);
- carrying out educational tasks, teacher overload;
- no contact with some students;
- not a good context for persuasion in didactic communication

- too much information transmitted actually decreases the quality of communication
- lack of immediate feedback in the absence of the receiver
- responses are not always expected immediately and cannot be anticipated
- external disruptors
- too much accessed information can distract attention from the essence and induces fatigue (quantity at the expense of quality)
- encouraging superficiality and reducing the capacity for reflection by replacing deep, original and creative analysis with products obtained through a mixture with those on the Web

Opportunities:

- development of digital competences;
- increase in teachers' involvement;
- learning new tools, development of the teaching base;
- variety of techniques applied during the conducted lessons;
- self-empowerment of students;
- accessibility of large online libraries, virtual visits of rare works in scanned format, museums or other locations
- more frequent and regular information exchange;
- improving relationships with students;
- individualization of the didactic process (also as a tool for learners during longer absence from school);
- increase in teachers' creativity;
- better cooperation with parents
- active exchange of ideas and experience with students / teachers from other schools;
- carrying out European or national projects that allowed the purchase of laptops to be used in school

Threats:

- no personal contact with students;
- difficulty in implementing educational activities;
- weakened social relations;
- fatigue of teachers and students, decline of motivation;
- difficulties in implementing the core curriculum;
- addiction of students to new technologies;
- difficulty in giving objective student grades;
- inability to reach some students;
- insufficient equipment and / or internet access (both for students and teachers);
- difficulties to properly assess students' work
- the deepening of the differences at educational level between the students who benefited from all the digital support and those who encountered / continue to encounter real difficulties in this respect, on the background of the impossibility to purchase devices

- difficulties in socializing between students
- danger of accessing sites with inadequate content (pornography, organized crime, Nazism, terrorism, racism, sects, discrimination, etc.)
- danger of network transmission, intentionally or not, of personal data or photos that can be used later for theft, blackmail etc
- difficulty in preventing fraud by "group response" in the case of online evaluations

4.2 Policy Recommendations identified by the ONLIFE Project

During the ongoing pandemic, school systems around the world had to adapt to hybrid teaching, which involves a combination of online and in-person teaching. To empower hybrid competences for onlife adaptable teaching in school education, School System Bodies should consider the following recommendations and guidelines:

- Provide ongoing professional development opportunities: School System Bodies should provide professional development opportunities for teachers to develop the skills and competences necessary for hybrid teaching. This can include training on online tools and technologies, pedagogical approaches focusing on metacognition in hybrid teaching, and strategies for managing classroom dynamics in a hybrid environment.
- Encourage research: School System Bodies should encourage research to study the specific competencies needed for online teaching for different age groups. In addition, identifying and analyzing effective platforms and software to help schools and teachers make informed decisions about the technology they use.
- Encourage collaboration: School System Bodies should encourage collaboration between teachers to share best practices, co-create learning materials, and provide peer support. Collaboration can take place both online and in-person, and can help teachers feel more confident and competent in their hybrid teaching roles.
- Provide ICT and education specialists in schools: School System Bodies should provide ICT and education specialists, expert in hybrid and online education, management (measures to liberalize school hours to organize teachers' work) and technological infrastructures (greater accessibility to digital resources at all levels and in all subjects, with platforms more accessible to all).
- Foster digital literacy: School System Bodies should foster digital literacy among students to prepare them for a future where digital skills are increasingly important. This can include offering digital literacy courses, providing access to digital tools and resources, and promoting safe and responsible online behavior.
- Establish clear expectations: School System Bodies should establish clear expectations for hybrid teaching, including guidelines for online and in-person participation, assessment and grading policies, and communication protocols. In particular it is necessary to fill the gap between the traditional formal aspects related to assessment required by school organizations and new methods offered by technology. This can help ensure consistency across classrooms and reduce uncertainty for both teachers and students.

- Provide adequate resources: School System Bodies should provide adequate resources to support hybrid teaching, including access to reliable technology, high-speed internet, and learning materials that can be used both online and in-person.
- Ensure more autonomy for schools: School System Bodies should ensure more autonomy and support professionalization of management team
- Promote joint institutional contingency plans: School System Bodies should promote joint institutional contingency plans organized by the educational authorities. Individual actions end up being diluted and do not really reach teachers efficiently.
- Foster a culture of innovation: School System Bodies should foster a culture of innovation, where teachers are encouraged to experiment with new teaching approaches and technologies. This can help drive continuous improvement and create a more dynamic and adaptable school system.

Overall, empowering hybrid competencies for onlife adaptable teaching requires a multifaceted approach that involves providing professional development opportunities, fostering collaboration and digital literacy, establishing clear expectations, providing adequate resources, and fostering a culture of innovation. By implementing these recommendations and guidelines, school system bodies can help create a more effective and adaptable school system that can thrive in the face of future challenges.

Conclusions

The 2 years long journey of the project ONLIFE has made clear that in times of crisis and emergency situations hybrid teaching and learning could provide a relief to teachers, educators and students. To do so is pacific that standardized digital transition strategies should be established to assist school administrators and education decision makers.

As a result, the implementation of digital transformation plans that allow for infrastructure transition should be encouraged in all European schools. Simultaneously, it emerges clearly from our analysis that school bodies should be offered with specific guidance to refer to and practical instruments to implement such hybrid transition. In this approach, a specific response to school technological requirements might be more simply designed and implemented in order to ensure quality standards of online learning and assessment. It is hence clear how the key of success lies in the collaboration and coordination required among Classes - Schools - Educational System: The digital transition is an epochal transformation that affects every area of everyone's life. The influence is most seen in schools and education in general.

Strengthening hybrid skills for adaptive education includes providing professional development opportunities, fostering collaboration and digital literacy, setting clear expectations, providing appropriate resources, and fostering a culture of innovation: an impressive challenge that requires a multifaceted approach involving all stakeholders to guarantee a smooth transition amidst uncertain times.

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