DIGITAL SOCIAL INNOVATION AND LABOR MARKET TRANSFORMATIONS

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Abstract. *Social innovation can be considered as a process generated by the application of innovation to social needs. Consequently, digital social innovation (DSI) addresses emerging social issues and challenges by taking advantage of digital technology.*
Currently, most DSI projects make use of more established - and less 'high-tech' - solutions, such as social networks, crowdsourcing, and web or mobile apps.
Indeed, there is a large pool of people with great ideas, but without the digital skills to bring their ideas to life. A great effort is needed to enable people to access digital skills.
This paper highlights how DSI education can contribute, in a period of transformation of the labor market, to enhancing solutions in several strategic sectors, such as healthcare, education, public participation, and the environment.
It presents the results of the EU funded project DSI: new educational competences for social inclusion *(2018-2020) whose aim is the definition of a basic portfolio of competences for social educators and social volunteers in DSI at a European level.*
Keywords: *digital competences, digital social innovation, social educators, social educators' competences.*

Introduction

The advent of the fourth industrial revolution is ultimately transforming society and as well as the labor market. The disruptions are unsettling. For instance, according to McGrath (2018), autonomous vehicles will cause massive transformations in the transportation industries and related sectors with significant loss of jobs.

Overall, digital technologies are bringing about vastly changes and will increasingly condition participation in society.

The report by Deloitte Global and GBC-Education, *Preparing tomorrow's workforce for the Fourth Industrial Revolution, For businesses: A framework for action*, claims that two-thirds of today's five-year-olds will, in about 15 years, find themselves in jobs that do not exist today while the jobs that do exist will not necessarily be located where the job seekers live (Deloitte Global & GBC-Education, 2018).

New skills and competencies related to digital technologies are required to meet the ongoing societal changes.

Digital competence, creativity, entrepreneurship, and learning-to-learn are emerging as key factors for innovation, growth, and participation in society and economy.

In this context of changes, Digital Social Innovation (DSI) is a new field that conjugates digital technology and social innovation. It is an evolving and broad field:

> *A kind of social and collaborative innovation in which innovators, users and communities collaborate using digital technologies to co-create knowledge and solutions for a wide range of social needs and at a scale and speed that was unimaginable before the rise of the Internet.* (Bria et al., 2015)

Recently (2018), the European Digital Social Innovation Index (EDSII) has been created (https://www.nesta.org.uk/feature/european-digital-social-innovation-index/). EDSII has been produced as part of the EU-funded DSI4EU project. It aims at ranking how different European cities support DSI to grow and thrive. At the moment, EDSII ranks 60 European cities on 32 indicators that have been identified as important for the creation, growth, and sustainability of DSI. These indicators are grouped into six themes: Funding; Skills; Civil Society; Collaboration; Infrastructure; and Diversity and Inclusion.

This paper focuses on DSI reporting the preliminary results of the project *Digital Social Innovation: new educational competences for social inclusion* (DSI), a two-year European project.

The EU Digital Education Action Plan

The DSI project is grounded in the EU Digital Education Action Plan (COM (2018)22).

In 2018, the European Commission presented a proposal for a Council Recommendation on Promoting Common Values, Inclusive Education, and the European Dimension of Teaching (COM (2018)23) and a proposal for a Council Recommendation on Key Competences for Lifelong Learning (COM (2018)24). In addition, in April 2018, the Commission also presented two documents: *Communications on Disinformation* (COM (2018)236) and *Communication on Artificial Intelligence* (COM (2018)237).

These documents contain a new set of specific policy initiatives on continuous education and training in order to help people to maintain employability and overcome skills mismatches in a rapidly evolving labor market impacted by globalization and technological changes.

The European Commission Joint Research Centre (JRC) has had a primary role in identifying and designing the digital skills and competences necessary to face the ongoing societal changes.

JRC is the European Commission's science and knowledge service that develops studies on the labor market implications of the digital transformation.

JRC current research covers the following projects:

- Digital Competence for citizens (DigComp);
- Digital Competence for Consumers (DigCompConsumers);
- Entrepreneurship Competence (EntreComp);
- Computational Thinking (CompuThink).

JRC claims that the development of digital competences breaks down the boundaries between education, work, and civic engagement. In this respect, digital competences are transversal to formal, non-formal, and informal learning contexts and apply equally to education and training systems, from primary to vocational education and training, and non-structured learning contexts.

Research objective and methodology

DSI is an EU granted Erasmus plus Strategic Partnership project, which involves seven partners from seven European countries (Italy, Latvia, Poland, Croatia, Greece, Bulgaria, and Bosnia-Herzegovina).

DSI aims at:

- exchanging good practices between organizations that are active in social education and social innovation;
- increasing the competencies of social educators;
- improving a comprehensive (and commented) list of topics and practices essential for digital social innovation initiatives/activities.

The project objective is the definition of a basic portfolio for digital social innovation competences at the European level specifically designed for students in social education study programs, social educators, and social volunteers.

The DSI methodology is based on the exchange of good practices among partners. Accordingly, they collect experience and initiatives in digital social innovation, selecting and analyzing those which have a European significance.

The selected experience and initiatives are presented and discussed with partners in transnational meetings (in-person and virtual).

Social educators are involved in the project activities through meetings, seminars, and online discussions whilst a short-term learning event has been organized engaging senior educators and experts.

Preliminary results

The DSI project started in October 2018 and will finish in September 2020. From the partners' activity, the following preliminary results have been obtained:

- A collection of good practices illustrated by partners in a report;
- A shared list of crucial skills and competences for social educators derived from the partners' activity.
- A preliminary portfolio for social educators.

The portfolio is related to three main basic scopes:

- Digital technology understanding - this encompasses knowledge about the multifarious dimensions of the digital revolution and the impact on school activities.
- Digital-based educational processes - they comprise both theoretical and practical knowledge of online educational models as well as teaching-learning practices that can support the implementation and run of e-learning and distance learning programs.
- Some sectorial knowledge - this includes knowledge in specific fields such as social learning, social telerehabilitation, and social networking tools.

Moreover, partners analyzed how DSI education can contribute, in a period of radical transformation, to enhancing solutions in several strategic sectors, such as healthcare, education, public participation, and the environment.

In the following paragraphs, the importance of critical thinking and soft skills are illustrated as well as some reflections on online learning are presented. They will be crucial in the future labor market scenario.

Critical thinking

Critical thinking, problem-solving, and creativity can be viewed as components of innovation processes.

It has been observed that a creative process can be intentional or accidental (Runco & Pritzker, 1999) and closely tied to innovation (Van Holm, 2015). Accidental creativity and accidental innovation take place when a fortunate discovery occurs by accident, e.g., when one is not looking for it (Beale, 2007). Accidental creativity is addressed as *serendipity,* namely *blind creativity,* and plays a part in animals and machine creativity.

Any intentional or accidental creative process also implies an evaluation of the process results. Evaluation requires self-criticism and reflection. It is

important for establishing if an idea is a new one or it is just the re-adjustment of something done before.

Soft skills

According to the Education Commission (2017), it has been predicted that by 2030, more than half of the nearly 2 billion youth worldwide will not have the skills or qualifications necessary to participate in the emerging global workforce.

In this perspective, it is strategic supporting the acquisition of skills that are important for the future jobs. They should include work readiness skills, soft skills, technical skills, and entrepreneurial skills. To meet the needs of the future labor market learning and training should be interactive, multicultural, engaging, constructive, and practical.

To tackle the challenges of the fourth industrial revolution, technical skills are fundamental. They concern knowledge and capabilities to perform specialized tasks and should include computer programming, coding, project management, financial management, mechanical functions, scientific tasks, technology-based skills, and other job-specific skills.

However, there are other skills, addressed as soft-skills, that play a relevant role. They encompass communication, critical thinking, creative thinking, collaboration, adaptability, initiative, leadership, social-emotional learning, teamwork, self-confidence, empathy, growth mindset, cultural awareness. Other qualities that could facilitate employability are innovation, creativity, industriousness, resourcefulness, resilience, curiosity, optimism, risk-taking, courage, and business acumen.

Research confirms the importance of the above qualities and new educational programs should be developed to incorporate social and emotional learning (SEL) and enhance learners' intrapersonal, interpersonal, and cognitive competence (Gibert, Tozer, & Westoby, 2017).

Teaching-learning in a digital environment

Nowadays, online education has become an increasingly important part of tertiary education and takes two primary forms. The first consists of for-credit courses offered by higher education institutions. The second form of online education consists of professional training and certification preparation.

An online learning environment is characterized by the use of the internet to access learning materials and interact with content, teachers, and other students. Online learning should allow time and space for independent learning, enabling learners to progress at their learning speeds.

The primary learning models in an online environment are blended learning and digital social learning.

Blended learning combines e-learning with traditional classroom methods (face-to-face learning) while digital social learning is an approach where an individual achieves their learning goals by accessing learning resources available online as well as interacting on the internet with teachers and other learners.

Blended learning is a formal education program in which a student learns through, at least in part, online tools. Essentially, it is the combination of two historically separate teaching-learning models: traditional face-to-face learning systems and distributed learning systems. In blended learning, computer-based technologies play a central role (Figure 1).
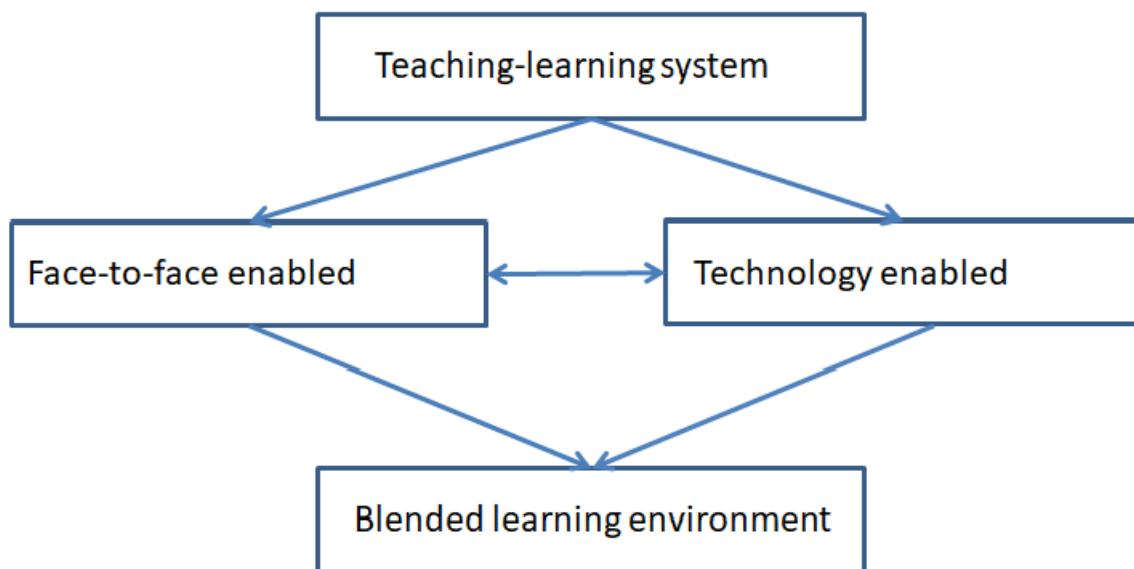

*Figure 1 **The blended learning model** (authors' own source)*

In the last few years, as a consequence of the spread of digital technologies, digital social learning is assuming a strategic role in the online learning scope. In an effort to alleviate critical aspects due to poor interactive capability and asynchronous scheduling, some e-learning platforms such as BlackBoard and Moodle began to incorporate digital social learning components (chat and virtual classroom). Nowadays, most of the platforms allow interaction between students (through user-generated posts/comments) and provide question asking and answering functions.

Figure 2 shows the digital social learning model.
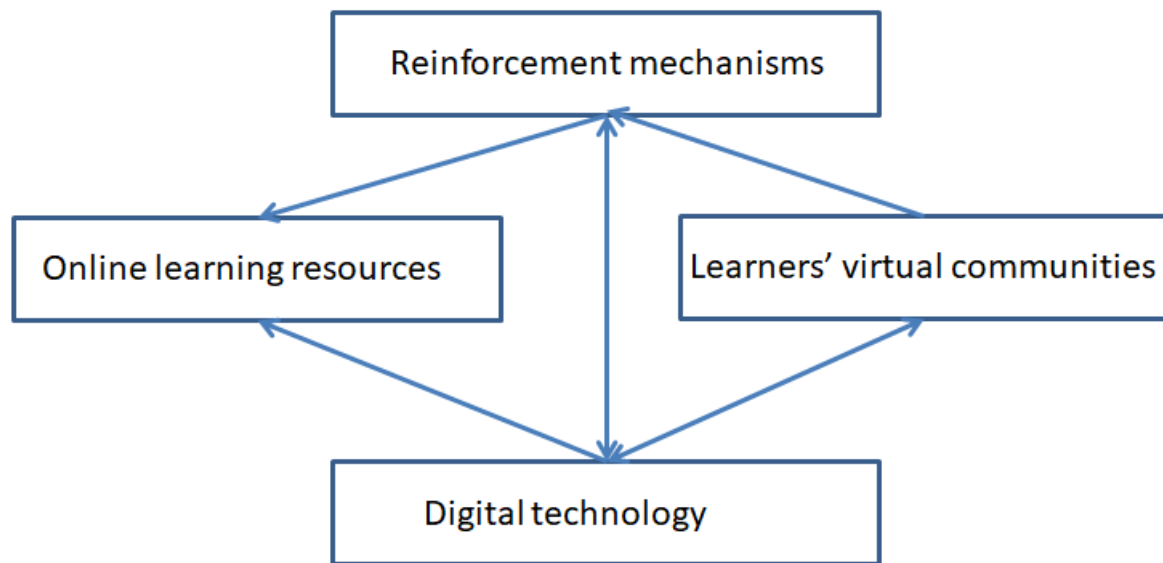
Figure 2 ***The digital social learning environment*** *(author's own source)*

The massive abundance of online content also suggested new forms of self-learning activities. Accordingly, new opportunities and challenges arise.

The DSI approach to online learning should favor the inclusion of low-skilled and low-qualified learners. Accordingly, it should be inspired by the principles of adaptive learning (Truong, 2016), namely delivering custom training through just-in-time feedback, pathways, and resources. It should answer the following two key questions:

1. What does the learner know?
2. What should the learner experience next?

Conclusion

The potential of digital technology is enormous and can allow the creation of massive teaching-learning programs. Learners will be able to learn at their own pace, and non-formal and informal learning activities will be advantaged. Companies will increase their business by continuously re-training their workforce, while workers can retain and safeguard their jobs and careers by improving their range of skills and competencies.

Digital technology will generate changes in the scope of education, making new things possible but, at the same time, introducing new issues and challenges.

To find appropriate solutions to teaching-learning in the digital era, we ought to know how to use the technology in an innovative way. In this perspective, soft skills such as critical thinking and creativity can play a crucial role. In a future in

which learning activity will accompany people during their life, we need new forms of motivation that can sustain the learners' effort.

Acknowledgments

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