JOURNAL OF E-LEARNING AND KNOWLEDGE SOCIETY
Vol. 18, No. 2 (2022), pp. 78-85

The future of soft skills development: a systematic review of the literature of the digital training practices for soft skills

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(submitted: 30/10/2021; accepted: 7/9/2022; published: 8/9/2022)

Abstract

Soft skills are becoming increasingly important in the workplace. Due to their interpersonal nature and experiential face-to-face reality, they are often touted as nearly impossible to develop online; our study finds that an increasing body of literature is offering evidence and solutions to overcome impediments and promote digital technologies use in soft skills training. This review aims to perform a state of the art on the research on digital solutions for soft skills training using a systematic review of literature.

A systematic literature review following the PRISMA statement was conducted on the ISI Web of Science, where from 109 originally collected papers, 37 papers were held into consideration for the in-depth analysis.

This paper aims at bringing clarity for both research and practice to facilitate and promote more effective online training initiatives as well as innovative solutions for training in different areas.

In recent years, the global economy has been facing structural changes, rapidly evolving into the world of digital transformation. The unpredictability of the nature and pace of the changes will make it crucial that individuals in groups, organizations and societies alike develop skills for dealing with all kinds of situations, especially soft skills and in particular emotional and social competencies. In this work we look into the literature in a systematic way in order to understand the types of competences most addressed, most commonly used techniques and positive and negative results of the training, in order to give the reader a clear understanding of the state of the art in digital training practices for soft skills.

KEYWORDS: Soft Skills, Transversal Skills, Online, Digital, Systematic Review, Digital Transformation.

DOI
https://doi.org/10.20368/1971-8829/1135576

CITE AS
Coelho, M.J., & Martins, H. (2022). The future of soft skills development: a systematic review of the literature of the digital training practices for soft skills. *Journal of e-Learning and Knowledge Society*, *18*(2), 78-85.
https://doi.org/10.20368/1971-8829/1135576

1. Introduction

Personal transversal competences that characterize relationships between people, also known as soft skills (Cimatti, 2016), have a major impact on human behavior when dealing with others, including in the workplace (Ahmed et al., 2012). There seems to be some consensus on the need for higher education institutions (HEIs), to focus the development of soft skills as well as disciplinary knowledge (Schech et al., 2017), especially because they both essential for career perspectives as

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well as personal development (Rasipuram & Jayagopi, 2020).

While the term "skill" may refer to "the ability of performing something well" (Golowko, 2018), the term "soft skill" encompasses the ability of people to communicate with each other and work well together (Andrews and Higson 2008), social aptitudes, language and communication capabilities, friendliness and other characteristics that are typical of interpersonal relationships (Cimatti, 2016). Hard skills by opposition are perceived as the technical skills that involve working with equipment, data or even software (Laker & Powell, 2011).

Both hard and soft skills are significant in terms of the requirements to become employable in today's labor market (Asonitou, 2015). Soft skills like motivation, social skills and others are believed to be crucial for future leaders (Marques, 2013), while critical thinking, leadership or problem-solving can contribute positively to the market, organizations and society in general (Asonitou, 2015).

Soft skills also make a difference in times of crises. The COVID19 outbreak and further consequences of the pandemic have organizations adapting (even more) rapidly and rethinking their strategy (Schneider et al., 2020). This paradigm shifting reality is bound to keep evolving in a society facing challenges deriving from globalization and climate change such as further pandemics, terrorist attacks, extreme weather events, technological revolutions, etc. To deal with constant change and crises, the area of soft skills is bound to become even more of a priority, considering its potential benefits in terms of people's performance dealing with disturbing and unexpected phenomena individually as well as in groups, organizations, and societies.

Contemporary crises challenges include realizing that the evolution into the digital era is inevitable, including in training and developing soft skills.

The use of technologies for developing competencies can foster the democratization in the improvement of soft skills in locations where there is a lack of training of people, often due to situations of poverty or scarcity of resources, situations of political and social instability (including armed conflicts), and to provide solutions for more vulnerable populations such as refugees and migrants. Further, in situations of global crisis like the COVID19 pandemic, the online training of soft skills may also have a positive impact in organizations worldwide.

Since the scientific production and paper publications have been rising exponentially, we propose that literature review studies in which the literature is analyzed in a systematic way have an added relevance not only to gather what we already know about the existing literature but also to ensure that the existing content is as least biased as possible.

Thus, this paper aims at bringing clarity and creating a panoramic view on the state of the art of soft skill development using digital technologies. We will begin by presenting our method, including the choice of database, Boolean equations and inclusion and selection criteria, followed by the presentations and discussion of results and we will conclude this paper with remarks on the main findings, how they may apply and influence theory and practice, as well as study limitations and future research.

2. Materials and Methods

A consistent systematic review and meta-analysis should follow re-established and standardized procedures like the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement (Moher et al., 2009) which is the methodology we opted for.

The PRISMA statement was originally designed to evaluate the effects of health interventions, but the system is applicable to other interventions (Page et al., 2021). PRISMA includes a structure for searching and selecting papers to be considered and how to systematize the contents of each analyzed document.

Starting with the search of papers, a systematic literature search was performed to identify relevant studies that identified soft skills and digital training programs on the ISI Web of Science database with the key phrases "Soft Skills", "Training OR Education" and "Digital OR Online". The search of all these phrases was conducted at the "Topic Field". Moreover, three types of documents were considered: Articles, Early Access and Review.

2.1 Study Selection

Inclusion and exclusion criteria of papers in this study are presented in Figure 3.The selection of studies for eligibility and data extraction was undertaken by two independent reviewers, accordingly to the Cochrane Collaboration's recommendations (van Tulder et al., 2003). Any disagreements were solved with the help of a third reviewer, expert in the field.

3. Results

A total of 109 studies, were originally identified from the database research. Since a single database was used for data collection (ISI Web of Science), it was not necessary to proceed with duplicate removals. In a first instance, all the 109 abstracts were read and analyzed using the SPIDER tool, which is to say that after being read, the content of the abstract was placed in a table that identified Sample, Phenomenon of Interest, Design, Evaluation, Research type. The SPIDER tool is an alternative to the more commonly used PICO or PICOS formulation for defining key elements of a review question, known for being more suited to qualitative and mixed methods studies and more commonly used in

social sciences (Cook, Smith and Booth, 2012). This step resulted in the elimination of 39 papers, due to inadequate sample or field (e.g. digital rectal examination in oncologic diagnostic). After, the full-text analysis, a total of 37 studies were included in this systematic review of literature.

Before looking into the full text analysis, authors found it useful to analyze the bibliometric data of the total sample (109 papers).

Figure 1 represents the number of publications per year of the 109 articles identified on the ISI Web of Science.

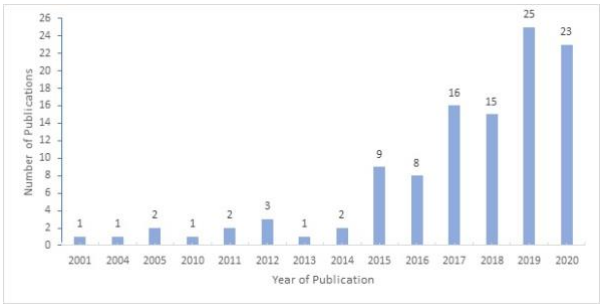

Figure 1 - Number of publications per year.

By analyzing the graphic, we can observe how there is an increase of interest in the theme of online training for soft skills which supports the relevance of our study. Our data collection was conducted in August of 2020 so it is understandable that the number of publications per year in 2020 is slightly lower than in the previous year and we can forecast it will probably be higher than previous year by the end of the civil year.

Figure 2 refers to the type of study that was published in this area since 2000. The majority of studies are qualitative (72%), only 16% of the studies are quantitative and 12% of the studies are mixed method.

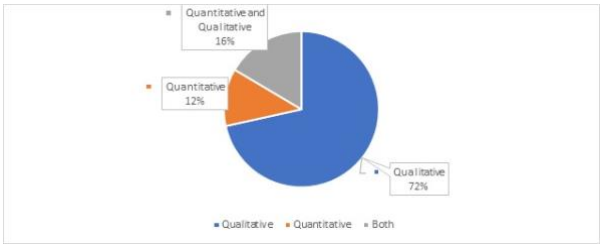

Figure 2 - Type of study.

Results show that most studies are qualitative including systematic reviews and literature narratives which may suggest that the research is trying to conceptually clarify the field in order to make more informed empirical decisions.

The PRISMA diagram (Figure 3) (Moher et al., 2009) facilitated the organization of a clear systematic review of literature. After the screening phase, a rigorous eligibility assessment was conducted using a set of inclusion and exclusion criteria to achieve the final number of studies that would be included in our qualitative analysis.

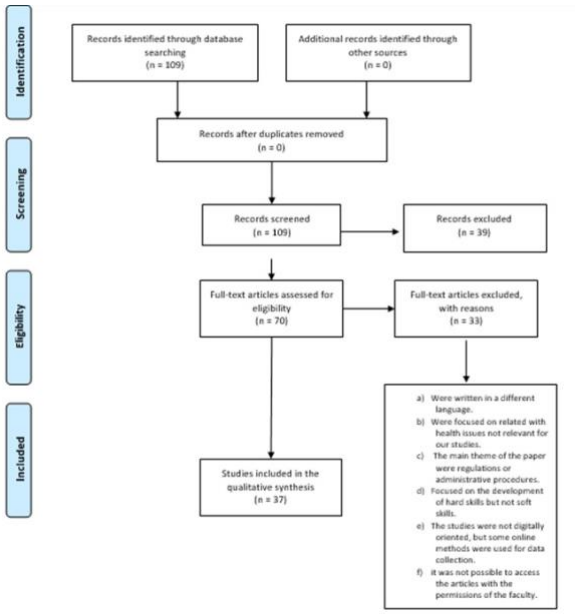

Figure 3 - PRISMA 2009 Flow diagram.

After analyzing the full text of the 37-paper selection, and systematizing the information in a table, five major thematic areas and study types were identified (Figure 4), although some studies fell into more than one category.

Figure 4 - Thematic areas and study types found in the systematic literature review.

The category "pedagogical models and strategies" identifies studies that refer to the acquisition of soft skills with digital technologies in educational contexts for the arts, humanities, or computer sciences and even in teaching related to software engineering. They refer to instances where soft skill development with digital technologies happened as a secondary outcome from other specific contents. This group includes 13 papers

addressing themes in active soft skills teaching/learning methodologies (including game-based learning, case-based learning, role-play and collaborative learning, as well as simulations)

Course modalities studies (8 papers) assess how different online training methodologies may be used to develop these types of competencies, including Massive Open Online Courses (MOOCs), blended learning and hybrid models. Some outstanding results include the confirmation that MOOCs may be applied in several areas, such as medical education programs (for health professionals), engineering, programming, marketing. In terms of blended learning models, studies are mostly related to education, especially considering the education model of European universities. The studies related to hybrid models, these are mainly focused on education for the development of skills for future professionals (specialists in IT and in the field of theology).

Comparison studies (8 papers) focus both the differences on outcome and implementation of online vs face-to-face courses (4 papers) as well as the differences in learning and training hard *vs* soft skills (4 papers).

Case studies and specific experience reporting studies (15 papers) detail specific experiences in underdeveloped countries (2 papers), referring issues like the effective use of social networks for more collaborative learning in underdeveloped countries; higher education (9 papers); experiences in organizations (3 papers), namely in the area of services, peace missions and even in the area of theology are also dealt with.

Literature Reviews (4 papers) compose the last set of studies we found.

4. Discussion and Conclusions

The digital transformation and digital training technologies have the potential to exert a positive influence in the management decision to develop people since they create a larger flexibility of where and when the training may take place (Mahajan, Gupta & Singh, 2019; Ibanez-Carrasco et al, 2020; Rasipuram & Jayagopi, 2020).

4.1. Pedagogical Models

Our literature review revealed that there seems to be evidence that supports the efficacy of soft skills training in a digital environment via several strategies and methodologies including game-based learning (GBL) (e.g. Garcia et al, 2020), case-based instruction (CBI) (e.g. Lyons & Bandura, 2020), massive open online courses (MOOCS) (e.g. Mahajan, Gupta & Singh, 2019), blended learning and hybrid models of learning (e.g. Ibanez-Carrasco et al, 2020), which we will present next.

Game-Based Learning (GBL) is a pedagogical method that uses games (digital and non-digital) to support students' knowledge acquisition and cognitive development that has shown good results in the area of software engineering training and shows promise in other areas like developing competencies in project management (Garcia et al., 2020). GBL has a modality called "game jams" in which games are created and learning becomes a meta part of the process itself which has been found to be suitable both for business and learning processes; these are touted to develop soft skills such as communication and collaboration as well as contribute for teaching in other areas like technology, arts and mathematics, for example (Merilainen et al., 2020). The potential of GBL seems to go beyond the educational promise and might be used in other real-life contexts (Garcia et al., 2020) such as peace keeping missions (Holohan & Holohan, 2019). Despite role-playing being considered the most effective tool for building the necessary soft skills in this area, it can bring a lot of additional costs and logistic problems. Virtual training in role-playing could be the best option to create universal training digitally for promoting real world interaction; it offers the possibility to reach people from a wider set of backgrounds, cultures and genders and to develop skills such as communication, collaboration, social and cultural skills (Holohan & Holohan, 2019), with possibilities of applicability in several disciplines (Schäfer et al., 2004).

These methods benefit from the fact that they represent an authentic (even if simulated) context; students play the game by applying knowledge and developing competencies which creates a parallel between the perspectives and solutions of case studies in situations of real life (Jonassen, 2011). This learning method offers a wide variety of options in terms of solutions, as there is usually no one single solution: similarly to real-life contexts, discussion and collaboration are required to find the best option (Lyons & Bandura, 2020).

Case Based Instruction (CBI), the pedagogical method of using group case-studies to develop competencies, encompasses several phases such as recognizing the problem, framing the problem, searching for alternatives, developing a plan of action and evaluating progress which require soft skills in order to do a better job (e.g. leadership, communication, collaboration, etc.), which are thereby stimulated and developed (Lyons & Bandura, 2020).

4.2. Course modalities

Massive Open Online Courses (MOOCs) have been increasing over the years mostly due to the growing using of the internet. They are as the name refers Massive due to the large number of participants (which can be virtually unlimited), Open because they are often open-access courses (with free cost and no requirements needed in order to enroll the course), Online (via the internet) and Courses (since their structure range from the learning objectives to the learning assessment)

(Mahajan et al., 2019). MOOC's may be considered relevant especially in distance learning education since they are considered to be flexible and easy to access in comparison with the more traditional methods which might be costly and unpractical (Mahajan et al., 2019). MOOC's show promise in promoting creativity (Cinque, 2017; Mahajan et al., 2019; Poce et al., 2017) and improving soft-skills like communication and problem-solving which are highly valued for employers (Cinque, 2017). MOOC's require individuals to self-regulate (Cinque, 2017); the lack of this element can lead to decreased motivation by the students and high dropout rates (Mahajan et al., 2019; Poce et al., 2017). High dropout rates have given rise to questions about the quality of the method itself (Stracke, 2017) as have the fact that they are usually taught in the English language which may be a barrier to some possible participants, and the fact that these mostly seem to be created for higher education students, which means that MOOC's tend to focus the development of employability skills and not many others (Cinque, 2017; Mahajan et al., 2019).

MOOCs seem to be effective in developing skills in areas like marketing, engineering and computer programming (Mahajan et al., 2019) and present a good option in areas such as health care where the need to continually improve their knowledge is fundamental and provide learning opportunities for on the job teachers development (Mahajan et al., 2019; Poce et al., 2017). Soft skills might benefit from this approach due to different elements which might help an instructor create a space to inspire and offer intellectual challenge to any level of participation (Cinque, 2017; Poce et al., 2017).

Blended learning is often confused with hybrid models, but is different since in they conjugate face-to-face and online methodologies in separate moments, whereas in the hybrid approach classes are simultaneously online and face to face (Roberts, 2019). Blended learning seems to preferable for educational purposes since it is taught in a flexible environment, allowing students to choose the method that suits them best (Pisoni, 2019; Roberts, 2019). By comparing two groups of students (one with hybrid model and other with just a face to face approach), Glazunova et al. (2020) referred that hybrid models can be useful in terms of the development of crucial competences for future IT Professionals, including hard and soft skills.

4.3. Comparison Studies

When comparing face-to-face *vs.* online modalities studies found that the online methods are perceived as beneficial since they can be conducted worldwide in a massive or non-massive scale. The main downside encountered in terms of the online modalities is due to the difficulty in terms of perceiving the behavior of the participants which in a face-to-face environment is not considered a problem (Wisshak & Hochholdinger, 2020).

Regarding the reflections of hard *vs.* soft skills development, the soft skills trainers tend to easily manage relationships, interactions, and communication within a group in a more transparent way than hard skills learners. In terms of education, soft skills trainers seem to have more skills in terms of learner-activating methods which enhances the ability to work well in a group (Rasipuram & Jayagopi, 2020).

4.4. Case studies and specific experience reporting studies

The fact that a large number of studies in our sample (N=9) refer to learning experiences in higher education, reveals a keen interest in a context that is associated with pedagogical innovation and excellence, which may indicate that the online development of soft skills is at a blooming stage and will likely become more popular in higher education as well as organizations where studies have already begun, initial studies in both contexts are showing promise (e.g. Rashid, 2015). The advantages of e-learning stem from the greater ease of diversification of learners in different contexts, but also include being able do interact with more organizations and people of interest, as reported by Ibanez-Carrasco et al (2020), where a blended approach to training HIV researchers in Canada also allowed them to contact online with persons living with HIV, leaders in the field, and a variety of stakeholders (including nonprofit staff and policymakers) – a feat that would be much more challenging in a purely face-to-face approach and has a clear impact in gaining insight and empathy with different perspectives.

It seems clear that although the vast majority of studies of learning in a digital environment are applied to hard sciences, their application in different fields like theology and social sciences in order to promote creativity and to develop soft skills is inevitable (Roberts, 2019). The case studies found in our research detail strategies and programs where digital approaches on their own or in a blended approach show promise in the development of creativity via design thinking (Vasileva, 2018) and other "life skills" like communication skills, teamwork and leadership skills, language skills in reading and writing and information literacy (Rhodes, Danaher & Kranov, 2018). Programs have also used the digital learning approach as a strategy for increasing student engagement (Miller, 2018) and academic success (Rashid, 2015)

4.5. Literature Reviews

The fact that literature review type of studies constitutes a significant portion of the studies we found seems to indicate clearly that the field is searching for conceptual clarity and defining its own identity. The subjects of these studies span from the narrow and technical (e.g. the use of open badges as a strategy for motivation [Virkus, 2019]) to wider more conceptual approaches (e.g. the use of game-based learning to develop soft skills [Garcia et al, 2020]) and they focus both the more

traditional entities of learning but also focus the challenges brought about by digital workplaces and the digital training that can be associated with them (Lyons & Bandura, 2020).

These studies indicate that the methodology used intends to ensure more accurate research elicited by clear conceptualizations, relating to different types of learning methodologies. The literature review methodology allows the researchers to have a broader view of the existing methods and types of learning reported by previous researchers (Garcia et al., 2020; Rasipuram & Jayagopi, 2020) and brings new insights into the state of the art, as well as provides important clues for future research.

4.6 Conclusions

The main purpose of this literature review was to investigate the state of the art in the training of soft skills using digital solutions.

The results of this study show that several types of methods can be used to develop technical and soft skills online in a wide range of areas. Although most of the studies were conducted for the educational context, these findings can be also valuable for organizations to implement.

This paper addressed some of the main findings regarding the efficacy of different methods and approaches for developing soft skills digitally as stated in the literature. Considering the different perspectives of online training of soft skills so far, MOOC's can be considered one of most used tools since they are less costly for users and are suitable for large-scale educational purposes. Game-based learning seems to be useful in creating contexts where skills are put into practice (e.g., management and programming simulations) and therefore considered promising in the training of soft skills. Other approaches such as hybrid models, blended learning and case-based instruction also seem to present positive results in terms of soft skills development, from different angles.

In all it seems clear that in the digital context (similarly to face-to-face training) active methodologies seem to be the key to develop soft skills efficiently; the key apparently being to maximize the opportunities offered by the different contexts (digital and face-to-face), instead of trying to simply overcome the faults of each one, meaning that these two approaches represent different learning paradigms and should be treated as such in every step of the training, from conceptualization to delivery and assessment, etc.

We found that the literature seems to be in a rather initial stage, where a lot of theoretical work is conducted and very few large scale, quantitative works have been published. In the future this seems to an important avenue for research, especially for MOOC's, which have a large body of users to begin with, studies should be conducted in order to apply this method to other fields rather than just education (Poce et al., 2017). In terms of the blended learning approach, a framework should be developed to gather the quality of this method (Pisoni, 2019).

In sum, the training and development of soft skills is becoming increasingly important in higher education as well as the organizational context, and the use of digital technologies training has become widespread during the pandemic, which merely accelerated a worldwide tendency in education. Despite traditionally soft skills requiring a face-to-face context, tools and methodologies are being developed to bridge this gap and create effective solutions. This will provide users the opportunity to develop these competencies remotely and in a more flexible manner, which can be an important asset in the dissemination of these crucial contents throughout the world, including both developed and developing countries as well as vulnerable populations, whether in a crisis situation or not. Thus, this can be an effective and sustainable solution for training and developing populations' soft skills.

Acknowledgements

This work is financed by portuguese national funds through FCT - Fundação para a Ciência e Tecnologia, under the project UIDB/05422/2020.

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