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Abstract: Mentoring aims toward developmental outcomes for the mentee through quality interactions and learning relationships with more experienced mentors; mentoring in nonformal digital learning settings is now a prominent issue, especially in increasingly artificially intelligent societies (AIS). Yet, such practices are developing, especially in social sciences. This study aims to synthesize some of the insights of mentoring by including social sciences and digital education aspects and discussing their utilization to enhance the impact of the social sciences in the era of digitalization. The research employs qualitative methods such as content analysis of the relevant literature and cases in interdisciplinary sciences. Mentoring learning in the social sciences, for example, is to ensure that the contexts of mentoring can work effectively; close the gaps in mentor-learning practices; assess and enhance the quality of the mentoring interactions and of the areas for mentoring education through digital platforms and technologies. Insights covered in this paper may foster the explorations and furthering practices of mentoring and its education not only in specific disciplines such as sociological studies of sports or media but also in the other, interdisciplinary and STEM disciplines and their fields. Moreover, in providing quality and impactful interactions with the learners in diverse settings for overall gains and developments; some background knowledge here regarding the use of digital educational platforms and tools may ease the process toward better managed AIS. This paper may contribute to some of the main developmental efforts on enhancing the research, policy, and practice regarding specialized mentorship programs; on digital education by (social) science practitioners, workers, educators, leaders, and trainers whose mentoring extend beyond formal and traditional learning.

Keywords: Artificially intelligent societies (AIS), digitalization, digital platforms, education, nonformal learning, mentoring, social sciences.

Introduction

Mentoring, shortly, aims towards developmental outcomes for the mentee through quality interactions and learning relationships with more experienced mentors. It is focused on the mentees' growth and development through sharing experience and knowledge, leading to self-discovery, self-realization, and eventually change. The outcome of a mentoring program is its influence on positive change (Rhodes et al., 2000); it is about facilitating these growth and developments, and learning through mentoring where many individual dynamics are involved.

The need for mentoring in nonformal and digital learning settings become prominent, especially in increasingly artificially intelligent societies (AIS). However, nonformal digital mentoring practices, especially within social sciences, are not developed and wide enough. There are, for instance, literature, field-specific practices, and experiences that shed light to build upon these avenues.

Through these insights, practitioners, especially those who have never been trained for mentorship, can develop their understanding, education and practices for and through mentoring. Thus, before exploring e.g. digital settings for mentoring in social sciences, it is essential to begin by understanding the core and basic elements of mentoring and its associated learning components (as provided in following sections of this paper).

In digital mentoring, digitalization processes must be integrated with mentoring information and reinforced by field-specific knowledge, including research-oriented, evidence-based (changing) current data. The current study aims to provide such interdisciplinary input to enhance the impact of the social sciences in the era of digitalization.

Since mentoring has become a need in many situations and settings in higher education, and the need for professional development in mentoring continues; an increasing demand for establishing specific mentoring programs is expected to provide efficient, ethical, evidence-based curriculum and practices. Moreover, the inclination towards worldwide accredited programs and institutions to comply with the quality assessments addressing quality interactions with internal and external stakeholders including current students, graduates, officials in public service or other alliances in all sectors makes mentorship essential for each unit of higher education institutions. Furthermore, addressing the (digital) mentoring education and relevant institutionalizations become crucial. In many settings, digitalization has increasingly embraced practice, while mentoring is usually in traditional, semi-organized, or unorganized ways which leads to fluctuating results. These practices are somehow in the process of maturation at many organizations worldwide.

Mentoring education, for example in the formal institutional context can help students (both mentee and mentor) to learn how mentoring works, how they can work effectively, how to determine who their compatible partners should be, how to match them, how to build the relationships, and what the various approaches of mentorship are. They can also learn and be informed about how to address the gap in existing mentoring practices, assessing the areas for further mentoring and the quality of the mentoring relationships (Lee et al., 2018). Mentorship education can help mentors learn about practice strategies for establishing good relationships, aligning expectations, and communicating effectively with mentees, all of which may help to build a trusting, reciprocal relationship (Byars-Winston and Dahlberg, 2019 citing Pfund et al., 2015). All of which can contribute to the overall targeted gains as the quality of the interactions improved.

Furthermore, "what forms and contexts of mentor-mentee education and interactions should be developed" become an important question in the era of digitalization of education. There is no doubt the recent Covid19 pandemic gave rise to such questions and adaptation to digitalization in many areas. Apart from the pandemic context, virtual or e-learning and e-mentoring has been accepted and used by many practitioners in the presence of various needs (e.g. long-distance learning (LDL), people with disability, homeschooling, learning opportunities for employed people or parents, etc.) for better access to services. More educators who participated in LDL during the pandemic experienced the platforms and tools employed in mentoring, its education and research.

The purpose of this paper is to provide (and draw readers' attention to explore) insights on mentoring (introducing and resonation of the approaches, studies, practices, and fields) and develop a kind of framework in order to improve (digital) mentorship practices in a specific field, especially the social sciences -as both researchers' positions and backgrounds are more associated with these fields. The structure of the paper is revolve around synthesizing the insights regarding the elements of quality mentorship and education together with some of the aspects of digital learning and research, field-specific relevant data, and overall discussing their utilization to enhance the impact of the social sciences in the era of digitalization.

Insights covered in this paper may foster the explorations and furthering practices of mentoring and its education not only in specific disciplines such as sociological studies of sports or media but also in the other, interdisciplinary and STEM disciplines and their fields. Moreover, in providing quality and impactful interactions with the learners in diverse settings for overall gains and developments; some background knowledge here regarding the use of digital educational platforms and tools may ease the process

toward better managed AIS; the future of nonformal learning and mentoring.

Methodology

This study aims to synthesize the mentoring concept by including the aspects of it, social sciences, and digital education, and discuss their utilization to enhance the impact of the social sciences in the era of digitalization. The qualitative research methods employed are content analysis of the literature and relevant cases in associated sciences and other settings.

Researchers' positions are influenced by being highly engaged in the mentoring research and practice and interdisciplinary social sciences such as leisure studies, sports sociology, education, and management, as well as their studies for development e.g. regarding youth, women, people with disability, children, poverty and involvements in relevant academic and social communities. Some of these experiences guide the efforts to merge and synthesize these various lines of fields that more often operate independently in this context. Some of the cases are provided to serve the current research aim, instead of excursive systematic analysis of field research to cover all the cases possible. Nevertheless, such field-specific systematic analysis (for instance, in the scope of sociology of sport and leisure) providing in-depth details, is in the process which aims to build upon the current research.

Moreover, the content formed in a way to guide, support, and foster the efforts to e.g. enhance and ease adapting to these research, policy, and practices of specialized mentorship programs for actors in social sciences whose work extends beyond formal and traditional learning for overall gains and developments.

In the light of these purposes of the current research, the findings (e.g. the content analysis of the literature and field-specific cases regarding mentoring and digital education to enhance the impact of social sciences) are organized in the following sections. The content covers the aspects to consider for a digital mentoring program and field-specific insights especially regarding social sciences and digital learning and research platforms. This paper's earlier version by the authors was presented in the congress by Lee and published as an abstract in the abstract book (Lee & Yaprak, 2021).

Elements of Mentoring

Mentoring is one of the many approaches to address issues of individuals, their personal development, and growth which is now a growing trend. However, it may not be applicable in all cases (Rhodes, 2002). There are, for example, youth cases with moderate to high levels of psychological, behav-

ioral, or social difficulties where it may be more appropriate to refer those to other professional supports, to begin with.

There are field-specific examples in determining these critical boundaries to know how to proceed –as in some cases provided in this paper. Such field-specific knowledge may change in time and place, and concerning context. This changing nature is maybe indicative of the quality of interactions. For example, in principle, who will be considered to access adapted physical activity (APA) programs including specific mentors or "buddy aid" in schools is a defined process by professionals and stakeholders together with the APA teacher in a school for the child to access to mentors and individualized APA program as needed (Auxter, Pyfer and Huetting, 2001; Winnick 2011; Yaprak, 2015, 2022). Yet, many countries usually do not have such professionals and scales nor the secured processes to guide such children and families, while some others start treating these issues faster by utilizing safe digital settings in addition to specifically appointed personnel (Yaprak, 2015, 2022). Thus, some core elements of mentoring introduced below can be more impactful in the light of such field-specific pieces of evidence (insights regarding these elements are not limited to the highlights below; they can also be found under the following relevant titles).

First of all, mentoring helps mentees to further their developmental prospects. In other words; the developmental outcome goal is the primary emphasis of the mentorship practice. According to Zachary (2000), the core fundamental process and purpose of mentoring is learning which leads to growth through knowledge and competency development. Therefore, the second fundamental emphasis can be sustaining the act of learning towards development, and the quality interaction between mentor and mentee for the forgoing purposes. Zachary argued that if mentoring does not focus on and maintain learning goals for development, the mentoring relationship will fail.

This perspective puts forward the importance of a structured, informed, and proactive approach, rather than unorganized, accidental, and indiscriminative attempts; therefore, facilitating learning for quality interactions and successful mentorship needs to be highlighted. Learning is a bridge for the mentor to effect the change that is to take place. An expected intervention that will contribute to early and immediate outcomes to the intended result of social change is also known as a basic assumption of the theory of change (Mayne, 2015; Serrat, 2017). The change can be discursive, procedural, content-based, attitudinal, behavioral, or social (Serrat, 2017). Rhodes (2020) pointed out that the active ingredient to the positive outcomes is the quality of the relationship. This paper also stems from the need for mentorship in an ever-changing AIS –as such innovative and changing contexts

give rise to the need for a more structured approach as well. This approach becomes crucial especially when disadvantaged populations are concerned.

However, the nonformal learning context of mentorship indicates that mentee learning is at the same time less structured and flexible approach based on the andragogic (adult) learning -which deals with diverse sociological issues from deficit to developmental/instrumental issues, equity and welfare, and asset-based empowerment approaches (Commonwealth Secretariat, 2017). In the development of the youth as well, learning through mentoring should be very adaptable and equally diverse to address the issues of each mentee; since mentoring is related to holistic development and covers complex issues with a vision of development and growth of the mentee (Mentorcruise, 2020). Through learning processes, it is a human behavioral tenet that involves attitudes, emotions, knowledge, and skills (Lee et al. 2018); and according to Merriam et al. (2007), it is a "process that brings together cognitive, emotional and environmental influences and experiences for acquiring, enhancing, or making changes in one's knowledge, skills, values, and worldviews". It is therefore an act of behavioral change where learning involves change (Knowles, et al.,2005). Accordingly, Zachary (2012) defined the mentoring relationship as a learning partnership where the 'mentor and mentee work together to achieve specific, mutually defined goals that focus on developing the mentee's skills, knowledge, and thinking…' (p.3) for the mentee(s) to come to the decision(s) about their development.

In addition, the complex nature of mentorship is also about facilitating effective learning through reflective practice following a process of exploration and discovery (ibid, 2012) in a complex cultural setting. In this context, for example, while extension education has usually been associated with bringing change to rural areas through the exchange of learning, mentoring can also be associated with extension education because it is about reciprocal sharing and learning between the mentor and mentee to bring change and improvement, through e.g. formal or nonformal learning by sharing experiences, knowledge, and skills with approaches such as coaching, facilitating, guiding, reflecting, and counseling (Lee et al. 2018) in an out-of-school setting. Roslan (2022) accordingly suggests that educational settings go beyond the formal institutions where 'psychological attributes, values and social skills may provide a more realistic simulation of the real world' (p.3) in which the mentor-mentee learning partnership is meant to be as well.

The mentees are learners who take responsibility for their learning. The mentor, however, nurtures, develops, guides, and facilitates the self-directed mentee's self-learning process. This form of learning is hence about adult or andragogical learning as opposed to child pedagogical learning (Knowles

et al. 2005). Further, Zippia Expert (2021) suggests that a mentor is more akin to being an educator than a teacher. As an educator, a mentor focuses on the mentee-learner's intellectual, moral, and social growth and development through guidance, coaching, and facilitation (Lee et al., 2018) rather than instructing and teaching a specific subject.

A mentor has no role when there is no mentee; while people whether from developing or developed regions, continue to represent the need in the ever-changing global world. Mentoring programs provide a platform for engaging with the mentees. The research contributes to this field by determining the best approaches and practices that can make mentoring work even more effectively. However, it is the critical role of education that affects the change, development, and growth of the mentee. Thus, the qualities of the mentor thereby mentoring education can be popularized as the core critical element for mentorship which provides a key role in the impactful learnings and outcomes for a mentee. Thus, the content here will continue by focusing on the quality of mentoring education.

Quality Mentoring Education

We hereby draw on quality mentoring education not only under two subtitles, on approaches, programs, models, and education contents, but also under the following field-specific titles with relevant cases and discussions provided.

Approaches, programs, and models

When mentoring education is concerned, usually three different forms of learning are employed: formal, nonformal, and informal. In using digital tools for mentoring, learning can be for instance in both ways, either through a formal curriculum or training module or informally through exploration and experimentation. Whatever the types and forms of mentoring, the primary target in a mentoring program is still the mentees -the persons whose issues need to be addressed.

Between experienced adults, for example, it is a partnering mentor-mentee relationship to support each other for development and growth through mutual learning and a quality relationship for positive outcomes and change. The functions of the mentor vary including being a role model, a counselor, a friend, a confidant, an advisor, or an educator (Scandura & Pellegrini, 2007); which of them to be used depends on what and who it is for, that is, for instance, whether for the training of the mentor, or for educating the mentee, or for the mentee to learn through the interactive sharing of knowledge and experiences.

Therefore, there are two domains in mentoring education, shortly: educating the mentor to be an effective practitioner and educating the mentee for their development and growth. Here we suggest calling the first one 'Educating for Mentoring (EduM)' when addressing the development of mentors and mentoring programs or such professional development, whereas calling the latter 'Educating through Mentoring (EduTM)' when referring to mentorship practice for the mentee –which can include those possible mentees who take part in EduM as learners too. The medium is associated with science and research more regarding mentoring, whereas EduTM is the art of mentoring in practice. The medium as a more formal practice is also more quantifiable and measurable, whilst EduTM, for rather a nonformal activity, is more qualitative and subjective.

Both these domains would require different learning organizations and approaches. For instance, the formal learning approaches would be more appropriate to equip the mentors with the right skills and competencies for their practice of being a mentor. Usually, mentee-learning and EduTM take place in the nonformal learning context. However, at the institutional level such as for sociological education in higher education, in the social sciences, or for certified professional training programs, mentoring taught as EduM in the formal context can be considered. Mentoring program (EduTM for mentee) on the other hand, can be both formal (that is typically an organized program with the formal matching of the mentor and mentee with organizational support), and informal and evolves more naturally such as with colleagues, friends, family members who offer their advice (Cronin, 2020).

DuBois and Karcher's studies (2014) discussed Frameworks and Foundations, Mentoring Relationships, Cultural Perspectives, Programs and Contents, Special Populations, Practice and Programmatic Considerations, and the Progress and Prospects for the 21st Century. In essence, their studies examined and investigated issues on the current status, quantity, and quality of mentoring for youth, and strategies to improve the quantity and quality of mentoring available for youth with each part examining quantity and access, and quality and effectiveness. Their studies have also been on concepts and contexts of mentoring, developmental perspectives, formal mentoring programs, and policy issues for mentoring (DuBois and Karcher, 2005). Overall, EduM for the practitioners involves formal learning more, while in EduTM stress is more on nonformal learning processes.

Moreover, a mentoring program primarily involves two parties - the mentor and the mentee such as in a one-to-one, face-to-face relationship (traditional mentoring). There are also other types of mentoring forms such as group mentoring (one mentor working with several mentees); team mentoring (a group of mentors and mentees working together as a team);

peer mentoring (mentor and mentee of a similar age group and the mentor having more experience) (Cronin, 2020); cross-age mentoring in a school setting where the mentors are older fellow peers/students from the same school (Dolan & Brady, 2012); cross-company mentoring where mentors and mentees are from the same company (Cranwell-Ward et al., 2004); reverse mentoring where the mentor is a more junior person; and of course, virtual or e-mentoring which can be employed in all the other forms of mentoring. Mentoring education and learning should not be confined merely to the individual mentors and mentees where these human components of mentoring are very diverse as no two individuals are the same.

Furthermore, there are models of mentoring such as specialized mentoring targeting specific subgroups, those with special risks, and/or specific goals to achieve powerful outcomes; embedded mentoring where volunteers are integrated into a program to provide a supportive role; and blended mentoring that incorporates evidence-based, technology-delivered interventions into relationship activities (Rhodes, 2020). For instance, in therapeutic-based mentoring which "evidence-based mentoring approach" employed by Rhodes et al. (2020) to treat adolescents with psychological issues, to assess youth needs, strengths, and circumstances to draw on cognitive-behavioral therapy and related techniques (such as cognitive restructuring, applied relaxation, self-compassion, and/or mindfulness) that target the circumstances and processes that can progress into more serious outcomes.

Engaging with such youths is a very delicate process where facilitating their learning requires flexible and adaptive processes. Hence, their program involved large-scale evaluations, return-on-investment (ROI) studies, cost-benefit, and meta-analyses that synthesize the results of numerous evaluations. Their program evaluations cover both nonspecific mentoring programs and targeted evidence-based approaches. Rhodes (2020) and her team's intervention studies are on prevention, treatment, and maintenance. This is where the mentor practitioners need specialized training to learn how to administer these tools, as highlighted under the elements of mentoring title and beyond, regarding the importance of contexts and expertise, in this paper.

Lee's study on youth mentoring (2013) on the other hand, focused on the learning outcomes of an international award program for young people that relates to Bloom's three learning domains central to human behavior -cognitive, affective, and psychomotor development that are related to the five basic orientations: behaviorism, humanism, cognitivism, social cognitivism, and constructivism. It is a clear-cut case that formal learning is valued -even required at times- about teaching on learning outcomes. However, the international award program for young people is a program that

employs nonformal learning. Nevertheless, Bandura's (1989) social learning and social cognitive theories are claimed to be the primary learning theories associated with mentoring, because, they are characterized by role-modeling, reinforcement, self-efficacy, and self-regulation that are associated with youth mentoring in which group the need for mentoring usually evidenced.

As understood from the wide range and variation of the content, mentoring is used in a large spectrum of settings and circumstances in society. It is therefore not possible to narrate all of them, though, in addition to previous cases cited here, some selected prominent cases continue to be provided below and under the following field-specific titles.

Contents for EduM and EduTM

Although many examples are provided above already; some structured lists are suggested here that may ease developing content for EduM and EduTM prospects that are transferable to any field of science and sector. The medium involves understanding the rationale and purpose for mentoring, how it can take place, what are its best practices, and how to improve the practices. It is about learning to 1) identify when it is needed; 2) where it best works; 3) what mentoring can and cannot work for; 4) which of the individual or group it could work for; 5) who could be mentoring be targeted for; 6) among whom could the mentor be compatibly matched with the mentee: and, 7) how to ensure a quality learning relationship to make it work effectively through assessments and evaluations.

There are several considerations established on whether a mentoring program addresses a case of a mentee: 1) an issue that has to do with a problem or development of the individual; 2) a learning partnering relationship between the mentee and mentor; 3) the mentee and his/her mentor need to have a compatible match for bonding; 4) the quality of a relationship match; 5) employing a process of learning approaches; 6) contribution to learning outcomes; 7) effectiveness in mentoring practices; and, 8) to effect change as a goal. A mentoring program goes through several phases comprising of a) Exploration; b) Establishment; c) Development; d) Mentee Growth; and e) the Ending or Termination and Evaluation (Lee et al., 2018). It is during this systematic and methodological process that the three different forms of learning are applied specifically.

EduTM is meant more for the practice which is educating the learner on 1) addressing their issues and development; 2) informing the learner on what needs to be mentored; 3) having conversations together; 4) using effective interactive, interpersonal, and communicative methods in sessions with the mentees; 5) having debriefing sessions to evaluate what had been done, and to determine what else can be done to overcome or improve them;

and, 6) using mentoring tools and techniques that include digital platforms and tools to enhance the learning. In addition, these contents for EduM and EduTM for example may also serve the last prospects here, to develop digital data and resources in furtherance of mentorship activities of interested stakeholders in specific units. Although these pragmatic lists and categories somehow embody limitations, they are useful and serve the quality of planning, assessing, and reporting processes.

In this respect, last but not least, as a broader additional example, one may employ and adapt the following five phases in the overall mentorship program by making them compatible with their context: The initial phases may require formal learning and training before applying the mentoring practice and the nonformal approaches. Thus, in the first phase, mentors need to employ formal learning to learn the approaches on how to identify the needs of the relationship that will be based on an issue, problem, or gap that needs to be addressed through a mentoring program. In the second phase, it is learning to determine the form of relationship that could be established, the type of mentoring appropriate to each specific case, establish the compatibility and quality of the mentor-mentee match, the rules of engagement and boundaries to be applied, and how to set the goals to be met. The third phase is on the learning approaches that could be employed in the whole program to ensure its effectiveness. The fourth phase is to facilitate the development of the mentee which will involve the nonformal and informal learning approaches of coaching, facilitation, guiding, as well as informal learning on reflective practice by the mentee and internalizing what had been learned. Finally, it is both formal (on the methods and instrumentation) and nonformal learning (on the processes in practice), and to develop and conduct formative and summative evaluations of the whole program to determine when to end and terminate the mentoring relationship, and what's next for future programs.

These are some areas to consider for a mentoring program (both EduM and EduTM) where education may be needed. EduM is about learning the techniques and areas to prepare for mentoring. Providing some of these contexts regarding mentoring, social sciences, and cross-sectoral examples, this content hopefully may help learn and develop the fundamentals of mentoring in social sciences and beyond, and ways of developing trained mentors.

Social and Developmental Aspects of Mentoring and the AI World

Being in the domain of human development such as in youth development or women's initiatives; the predetermined outcomes that are expected

to be translated from personal (mentee, agency) into social developments (structures), as well as the informal forms that attract e.g. both functional and critical examinations, are some of the clear representations of mentorship for being in the realm of the social sciences, hence, in the context of a critical sociology of education, work, etc. Mentoring research involves, for example, addressing globally overspread contested perspectives and a wide range of issues that impact personal and other relevant developments such as youth, identity, career and professional development, critical cultural and learning, and delinquent issues.

In addition, particularly the ambiguous and complex characteristics of the works in social sciences require continuous personal and field-specific development for the graduates of these areas if they are to survive, keep in touch with the people who give and receive the services in their area of specialization, and to manage the complex issues and uncertainties in their works in which at times reaching to an ethical decision is not an easy act in the presence of e.g. contested, manipulated, imbalanced pressures from relevant fields (Lishman, 2009; Banks, 2006 in Lishman at al.; Yaprak, 2012, 2017).

There is a very wide array of settings in which mentoring takes place such as in institutions like schools, youth, and social welfare organizations, workplaces, social groups and subgroups, sports and recreation, and in all sectors; in governmental or non-governmental organizational contexts, as well as in direct engagements with individuals. In a workplace setting, for instance, workplace mentors are expected to use their influence to provide upward mobility and support to their mentees' careers based on their professional skills and expertise to inculcate them into the work culture of the organization (Scandura and Pellegrini, 2007, in Allen and Eby).

Some institutions have formal mentoring mechanisms and processes while sometimes such necessary processes are overlooked completely, or limited to precise periods such as in orientation and counseling. Such unstructured, unorganized interactions to access necessary information for restructuring personal learning involve risks for development, especially for disadvantaged or vulnerable people who face inequalities based on their e.g. gender, social-cultural-economic capital, (dis)ability. Thus, the lack of mentoring may contribute to maintaining and even furthering the social gap that social welfare states in contrast aim to narrow and close.

Without a formal recognition of mentoring work; for instance, elderly, leading, experienced, or peer co-workers, and –sometimes assigned or "nearby"- staff usually take up such efforts informally, and such mentoring acts can be named many other ways as we outlined some of these roles in the scope of mentoring too such as coaching, guide, etc. However, in practice, there are some observed differences among those which may be un-

defined in literature yet. For example, "coaching" nowadays is found rather as a certified, professional, commercial practice, in which "mentoring", although a highly common practice, is kept out of concept as it is considered more of informal social support or service compared to e.g. counseling or coaching.

Moreover, accessibility to digital data as a human rights issue intensified during the recent covid-19 lockdowns as in-person interactions were restricted, and digitalization is accelerated as an emergency need. Accordingly, the production and management of the enormous amount of digital data have emerged as a heavy duty, particularly for the people who work in the field of education. People with various vulnerabilities experienced these processes in different ways as well (Yaprak, 2015, 2022). Since the restrictions eased, hybrid, face-to-face or still "the only virtual modes" for research and practice continue to be found in organizations with such assets, as selective as possible, as "digital modes" now become even more familiar for a greater population.

Today, digitalization reached its corners where quality virtual interactions are possible relatively. Notwithstanding, education has been incorporating digitalization e.g. in long-distance learning, and thematic learning centers for all or special needs within schools. The practice of mentoring, on the other hand, has been a face-to-face interaction for a long time. Its digitalization is a new and evolving phenomenon. Though, the aforementioned current circumstances and the advent of digital technologies and platforms impact mentoring research, education, and practice as well; digitalization is now a necessary practice in this work and delivery culture. The virtual interaction and learning deliveries through *e-mentoring* today increased the number of values exchanged among mentees, mentors who are even living in different countries, and behavioral data providers who usually utilize AI agents of production to serve their clients like mentors or their employees.

Within this context, understanding digitalization, relevant platforms, productions, technologies, and tools become crucial. The technologies for education and organizations are associated with the technologies for mentorship. The digital platforms and tools in mentoring education and research have been adapted from existing platforms and tools that are already in use. Some examples of those technologies that (could) be used and applied for mentoring are provided below.

Mentoring began in an era without digital tools. It was merely face-to-face meetings whether on a one-to-one basis, as a team, or in group settings. Today digitalization, from its basic forms to the more complex AI ways, has taken over the world, including the mentoring fields as well. It is now so-called the new normal and essential in people's daily lives that has

both advantages and disadvantages -for mentorship learning and research as well.

Especially in the presence of the new digital era that has taken over most facets of life in the current world and the mentoring practices that are usually in the nonformal domain. As in the Covid19 scenario during lockdowns, virtual online meetings and forums without face-to-face interactions outweigh face-to-face meetings for health and safety reasons. Moreover, it also saves time and costs in traveling as required in face-to-face meetings and can be conducted with members from all corners of the world concurrently and anywhere including from the home. Digitalization of mentoring and learning can enhance the ease of connecting across physical distances and boundaries. However, there are still questions of communication effectiveness and interpersonal social interactions in in-person, face-to-face interactions compared to online, virtual meetings.

Digital mentoring and learning platforms (LMS) and tools make interaction fun but they are also time-consuming especially if the digital literacy of users is low. However, when long-distance interactions are vital, these platforms that provide live interaction opportunities not only ease the mentors' and researchers' efforts to develop positive relationships but also help them better conduct both their qualitative and quantitative research effectively as well.

Yaw (2007, in citing Knouse, 2001) pointed out the unique advantage of the internet in virtual mentoring over traditional one-to-one mentoring as immediate access to a tremendous amount of information on the internet that individuals with such assets can access at any time of the day and where mentees can get varied feedbacks on their questions from their online mentors through the various chat rooms. Such platforms have informational, psychosocial, and instrumental benefits. The mentees can also have access to a variety of mentors with different expertise, as well as resources and networking on the Web.

In examining the various learning areas on mentoring, there are still a lot of research scope and relevant dimensions that need to be addressed especially regarding new areas of mentoring, more so in the exploration and usage of new digital platforms. With the new dimension of long-distance virtual mentoring interactions such as in e-mentoring, digital tools and platforms have become important and necessary. Though it has its shortcomings and disadvantages unlike in face-to-face mentoring, more learning needs to be explored such as 1) how to be more effective in practice; 2) new learning applications requiring new digital technologies; 3) inventing or innovating new digital tools and platforms for mentoring education. There are therefore various issues in mentoring education and its digitalization and platforms that still need to be addressed (Image 1).

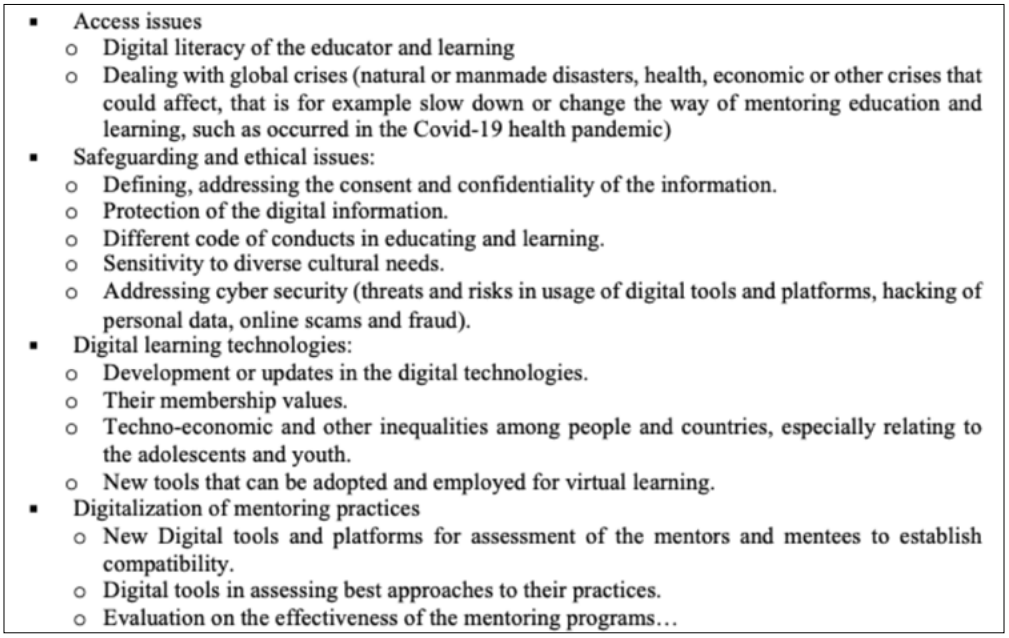

Image 1. Issues in mentoring

Digital Platforms and Mentoring

Digitalization particularly in e-mentoring in which digital tools are employed as vehicles to deliver learning to the mentee is a new dimension of mentoring becoming popular and a rapidly growing trend today. Digital platforms have been employed in the practice of mentoring to some extent. But their development is still evolving and work-in-progress with new digital platforms and tools that are continuously being used and developed to be more e.g. user-friendly, accessible, and safe.

E-mentoring has emerged with the development of digital information and media technology. It is an effective platform for distance learning that can be used for capacity building, knowledge management, and efficiency, and is becoming popular in learning and professional development (Iqbal, 2020). Especially its nonformal version merges traditional one-on-one mentoring with digital platforms in virtual education through the use of e-mail, internet chat rooms, bulletin boards, instant messaging systems, social media, and various messaging applications (Yaw, 2007; Kaufman, 2017). Digital mentoring requires information and communication technology (ICT) such as computers, smartphones, or tablets that are connected to the internet (Kaufman, 2017).

Digital platforms include the latest technologies that are incorporated in research, education, and practices for such programs to be conducted more efficiently and virtually, especially in the light of health pandemic-like issues where close physical interaction and face-to-face contact are not advisable. Such virtual digital platforms are also advantageous in terms of connectivity, costs, saving travel time, and cutting across boundaries.

Digital platforms as referred to by Koh and Fichman (2014, p. 977, in Asadullah et al., 2018) as "two-sided networks that facilitate interactions between distinct but interdependent groups of users such as buyers and suppliers". In mentoring, interaction occurs for example, on social media and learning digital platforms where the participants and relationships may not necessarily be commercial as we have already stressed the social work dimension of mentoring practice. However, in recent years, in many developmental areas such as for leader women in the workplace; activities and organizations with commercial dimensions, and the more proactive role of social media to promote those that attract notice.

The contexts of digital platforms relate to facilitating communities for interaction and sharing experiences and information through various tools such as computers, smartphones, tablets, or iPads using operating system platforms such as Android and iOS operating systems. Therefore, as an ecosystem, digital engagement for mentorship could be considered a commercial practice by nature since it involves being equipped with such assets, in addition to the digital tools and platforms such as social media and its technologies; digital codebase and database, software products, operating platforms, iCloud, AI (artificial intelligence), and social media and meeting tools such as Zoom, Google Meet, Hopin, LinkedIn, WebEx, Skype, Facebook (for online interactions, including for video conferences, focus groups, and individual interviews); Google Forms (for online surveys), any online Apps, information infrastructures and technologies (Shapiro and Varian, 1990, in Reuver et al., 2017), among many others. Apart from being e.g. the vehicle for interactions, some of these platforms such as Google and Facebook, continuously reproduce behavioral data to sell to their clients (Zuboff, 2019).

Some of these digitalized practices together with the increasing number of virtual or online activities on digital platforms have given rise to the number of digital footprints and (big) data sources that are used in education on mentoring. Thus, it is important to know the availability of these digital technologies and their applications such as big data, and the ways of their (ethical) use. Some of these developments are still in process, for example, through the increasingly interdisciplinary field of Big Data for educational use in mentor-mentee learning.

Innovations, new forms of data and computer technologies, new digital programs, software, and apps that can be installed on the various digital

mediums (computers, smartphones, tablets/iPads, online Clouds, etc.) will be constantly developed. From a pragmatic perspective, the goal of these developments, and evolutions are to make the Internet of Things (IoT) better, effective, efficient, faster, and e.g. through the latest 5G platforms, as well as data mining and AI (Artificial Intelligence) technologies so that digital education will support and ensure that learning through mentoring is shared, imparted, delivered, and transmitted more effectively and efficiently to the learner. This however will not be the end yet. In some contexts, the physical presence is still an advantage and hybrid approaches comprising both in-person and virtual interactions have since been adopted.

Analytics through Big Data for Mentoring

Big data is composed of high volume and complex analytics such as data linking and mining which attends to digital content generated through online and offline practices in various social domains (Big Data and Society, 2021). This construction of new bodies of knowledge is of critical importance since Big Data shapes people's frames of reference (Adams & Brückner, 2015).

In education, big data could be learning resources for the analytics of multiple data that have been generated from multiple research studies and usage that are used to determine its trends, distinctions, and commonalities in studies and practice of mentoring that can be utilized in enhancing the practice for effective outcomes including to access information for educational use.

Big data, however, require careful sampling and process, application of both quantitative and qualitative methods (Gruzd, 2014), ethical use of data, and interdisciplinary work that can pose plenty of challenges. However, it also provides a great deal of information including elements that some youths may be continuously exposed to (such as cyberbullying or favored youth politics), which can be reflected in mentoring practice.

The content gathered for Big Data analysis, for example, can be generated on the Internet through social media and search engines (Gruzd, 2014, Big Data and Society, 2021). They can also be in closed and open networks such as digital archives, open government, and crowdsourced data. However, there is a need for interdisciplinary collaborations in the process of developing tools to collect and interpret big data.

Employing Digital Platforms and Tools in Mentor-Mentee Learning

The COVID-19 pandemic has necessitated the adoption of digital tools and platforms to be forcibly accelerated to cope with the loss of traditional physical touchpoints due to the necessity of safe or social distancing mea-

sures. Contact had to be pivoted to the digital realms, and this includes the realm of mentoring.

Since digitalization has already been employed in the practice of mentoring, there is therefore a need to learn about the effectiveness of digital platforms and tools and their effects on the mentoring process. But now, with digital tools and long-distance mentoring (including e-mentoring) how can these be better conducted or practiced by enhancing the support? We should look at this on a broader scale such as considering societies where the population is sparse and widely distributed, and where digital access is problematic or inaccessible.

Youths today, for instance, could be well-served if they can be reached and remain connected digitally with their mentors or with adults who care. The basic assumption, of course, is whether that particular infrastructure of their locale afforded them such opportunities. In such cases, mentors should learn about assessing the effects of digital access to mentoring on its outcomes and impacts to be shared and imparted to the youths. Notwithstanding the challenges of access, it is undeniable that relationships, already forged between youths and mentors and aided by digital means, stand a better chance of flourishing. Indeed, digitalization in mentoring has the advantage of overcoming time, space, and physical barriers. Contact can be established without the constraints of travel, so long as one is not averse to communicating via a screen. Although not without its drawbacks, keeping in touch digitally or electronically is better than not meeting at all. So, the question is how far do its advantages outweigh its drawbacks in mentoring education? Likewise, how can similar related digital tools and platforms be adopted in the mentoring process?

With the advent of an increasing array of digital mentoring tools, mobile apps, and solutions, a wide spectrum of possibilities is opening up as well. In the field of mental health, there is the potential of coupling remote therapy with supportive accountability via mentoring. Case in point – research has shown up the effectiveness of digital tools used for technologically-delivery therapy for people with mild depression, anxiety, and stress, as pointed out by Dr. John Tan, a mentoring practitioner in an NGO in Singapore (personal communications, 2021). Call centers or official contact to aid youth's and children's welfare are one of many ways to serve them. So how can these tools be used in mentorship digital education and research?

A study conducted by Proudfoot, et al (2013) cited outcomes of a randomized controlled trial (RCT) to assess the effectiveness of myCompass, an independently-guided psychological treatment delivered via mobile phone and computer. This tool was designed to treat mild-to-moderate depression, anxiety, and stress, and to increase work and social functioning. Their study shows a significant improvement in the symptoms of depression, anxiety,

and stress in both work and social situations at the end of a 7-week therapy. This finding itself can be a learning opportunity for mentoring practitioners.

Rhodes (2020) blended mentoring combined technology-delivered interventions like mental health apps with coaching and support that can be done via digital means. Through this youth-friendly technology app, mentors have been able to reinforce their engagements.

In e-mentoring, Iqbal (2020) has outlined e-mentoring instruments for professional development in teaching that require skills such as reading/writing, thematic expertise, oral communication, networking, time planning/project management, problem-solving, and continuous learning. These effective online instruments revolve around social media and networking digital tools such as e-mail, Skype, Dropbox, Google Drive, YouTube, Whatsapp and Viber, Messenger, and Facebook. He emphasized that effective mentoring practice requires quality learning and that online technology has the potential to address the needs of students/learners from different locations due to its flexibility, although it can still be constrained by connectivity due to geographical locations and time constraints. However, it requires cost-effective equipment with training for proper handling. He believes that knowledge of ICT is essential for e-mentoring.

There are also digital tools that can aid in mentorship learning and education. Among them are: Qualboard for bulletin boards and online diaries, Invoke or Remesh for hosting events, and AI technologies for responding to and categorizing responses of mentee-learners (Shapiro+Raj). Rodriguez suggested social media tools such as Facebook, Twitter, and Figshare for connecting with other mentors and educators; Mendeley or Zotero for reference management; LaTex, writeLaTex to share scientific ideas online; Gliffy to create flowcharts, diagrams, and technical drawings; Keep Google, Sticky Notes to make lists and keep important links and ideas, Trello to organize projects in a dashboard view, and WorkFlowy to collaborate on large team projects, are among others.

There are increasing numbers of open-access online advisory services today providing thematic statistics or big data results using existing databases that can be resources for the educators too such as EUROSTAT, World Bank Open Data (https://data.worldbank.org/), Turkish Statistical Institute for Turkiye (https://www.tuik.gov.tr/Home/Index). They also generate their database or collect and re-generate from the existing ones. Almost all governmental organizations provide their statistics. Those statistics are useful in decision-making and additional information to support the mentor-educators.

In a study by Terrion and Leonard (2007) on characteristics of student peer mentors in higher education, the researchers and educators used the Ontario Scholars Portal (OSP) search engine to access electronic articles

available through the Ontario Council of University Libraries as well as Canadian Research Knowledge Network. Besides this, there are also various digital databases such as Educational Resources Information Center (ERIC), Proquest ABI/INFORM Global, and Education.

A study by Radlick et al. (2020) employed ReConnect as their primary digital platform for their research on mental health. It is an evidence-informed digital innovation to improve the reach and effectiveness of their programs. This platform has 3 main components: a peer support forum, a secure messaging function between service users and their healthcare providers, and a toolkit of resources that could be used autonomously or in collaboration between service users and providers.

For long-distance learning and interaction between mentors and mentees, there are platforms such as "LMS" (Learning Management System). There is also an increasing number of digital sites that enables the mentor to interact with mentee(s) to ask live questions and receive instant responses, anonymously if in a group, processing results featured in fun charts, word clouds, tables, or in other creative visuals such as in "Mentimeter". These tools are usually integrated into the LMS sessions by the practitioners, and provide them with instant feedback from the participants.

At this point, the potential of digital mentoring seems to brim with possibilities. Serious thought needs to be placed concerning privacy, security, and control issues. Ease of use and accessibility must be balanced with transparency and safety. That said, digital users should not be constrained unnecessarily by borders or boundaries. Communities should be encouraged to flourish, and exchange best practices and innovations through such digital platforms.

As a process, digital education is a means to transmit learning more effectively, especially through virtual space. It begins with 1) developing awareness of available digital technologies; 2) recognizing the importance of learning and education in mentoring; 3) addressing the issue of assimilating the learning onto the mentee-learner; and, 4) ensuring the learning contributes to mentee development, growth, and change.

Other Selected Cases on Mentor Learning and Education

Some selected studies that relate to promoting and facilitating learning and education in mentoring programs represent positive results. In Ligadu's study (2012) on planning and developing teaching performance, a mentoring program was developed for teacher training seeking to improve and enhance mentoring practices in schools. One area of this study involves professional learning support to foster an understanding of teaching. The finding was generally positive for both mentees and mentors where they were able to

extend their instructional strategies and skills. In learning, they also found that reflective practice is essential (as Zachary, 2000, 2012 has pointed out).

Rhodes et al's (2006) study suggested that emotional coaching may enhance the social competence of their mentees; could contribute to the cognitive development of youth through new opportunities for learning that can also build social and cultural capital, and provision intellectual challenge and guidance, and promotion of academic success.

A study on mentoring programs connecting youths with adult volunteers has pointed toward improving outcomes across the behavioral, social, and academic domains of youth development. A study by Radlick et al. (2020) was to gain insight into multicultural youth mentees' and adult mentors' experiences and needs in the context of an ongoing mentoring program, how digital support (electronic mentoring) might address these needs, and how such support could be designed and implemented. The learning component of this study was sharing insights and information with their peers.

Tinoco-Giraldo, et al's (2020) study on learners' acclimatization to an academic topic on mentoring in higher education determined that it helps to increase the likelihood of academic success and reduces attrition. The mentors use their expertise and experience to help the learners graduate promptly and advance on to their careers. The findings of their study indicated that there is a gap in virtual e-mentoring in higher education for students conducting offsite internships and that this e-mentoring is a poor alternative to traditional mentoring. This concurred with the study by Yaw (2007) who likewise suggested that traditional mentoring programs still reign, despite the growing trend toward online mentoring such as e-mentoring or virtual mentoring. On the other hand, e-mentoring in today's world has to be considered, for example, to be more inclusive and flexible in practice for diverse needs, to achieve a social democratic welfare state. Moreover, other advantages of e-mentoring stated throughout the paper are still valid according to digital experiences observed especially in recent years since the Covid19 Pandemic; these interactions can be more practical and preferable in some contexts and the technology research is in a daily process to make it more "user-friendly" tool for everyone.

Limitations

While the analyses and discussions here attempt to provide e.g. cases, integrated information and literature, there are limitations on the page usage and availability of specific literature. However, the use of insights covered in this paper may enable the explorations and further practices of mentoring, and its education not only in specific disciplines such as sociological studies of sports or media but also in the other, interdisciplinary and STEM

disciplines and their fields. Moreover, these digital technologies with their platforms, tools, and applications are in constant evolution and there are limitations here to keeping track of and citing all of them. Due to these limitations, only selected cases are provided in the current study as outlined in the methodology. However, these cases and explanations hopefully inspire the readers to explore what is ahead of them and other possible explanations. Utilizing these resources and critical issues to adapt and cope with the dynamic and evolving technologies may help their quality interactions and aimed outcomes.

Conclusions

A mentor has no role when there is no mentee in need of learning. Whether from developing or developed regions, social actors continue to represent their need for development, in the ever-changing AIS and global world. The need intensifies even more, especially at times of global crises such as the Covid19 pandemic, or in the presence of constantly emerging digital contexts that can be understood by debriefing field-specific (e.g. social, technological) big data. Thus, the need for development, learning and mentorship will continue as long as the large spectrum of changes is a sustained element of social life.

While mentoring programs provide a platform for engaging with the mentees, it can be either difficult to find such platforms or to gain needed momentum when the lack of trained mentorship is concerned. The research contributes to this field by determining the best approaches and practices that can make mentoring work even more effectively. However, it is the critical role of education that affects the change, development, and growth of the mentee. Thus, mentors with the needed qualities in diverse disciplines and areas emerge as one of the most critical enablers for positive social change. Thereby, mentoring education in diverse fields and diverse platforms play a key role for such leaders and their mentees to lead impactful learnings and outcomes. The results towards developing field-specific content in this paper may foster further relevant research, discussions, and developments.

Therefore, this study aimed to provide some insights on mentoring to introduce related approaches, studies, practices, and fields thus, develop a kind of framework for improved (digital) mentorship practices in a specific field, especially for the social sciences readers and practitioners. Providing some of the e.g. mentoring, social sciences, and a cross-sectoral large spectrum of cases, this content hopefully will help i.e. (a) inform interested stakeholders (scholars, personnel for students, etc.) to learn, and develop their ideas about the ways and uses of mentoring in social sciences and beyond; (b) increase the number of trained mentors and their quality interactions with the men-

tees they serve, and (c) contribute to their -and eventually the societies'- developmental goals.

The insights covered draw readers' attention and further these research, policy, and practice, and are useful not only in specific disciplines such as sociological studies of sports or media but also in the other, interdisciplinary and STEM disciplines and efforts for excellence in science. Moreover, the utilization of digital educational platforms and tools is stressed to contribute to the AIS literature in this context which is expected to take part increasingly in the future of learning and mentoring.

Although the pragmatic lists and categories somehow embody limitations, they are useful and serve the quality of planning, assessing, and reporting processes. The EduTM and other insights in this paper, for example, may serve in furtherance of mentorship and quality assessment activities and to proceed better (e.g. evidence-based) in such manners by easing the development of relevant digital data and field-specific resources in units. Therefore, these can translate into e.g. improvements in the quality of interactions in academic communities and the use of some of the digital platforms and methodologies in a broader range of practices in social sciences.

Demographics, methods, and ways of living in social order change. In the practice of mentoring, its process and approaches are constantly evolving. More so technologies such as online, virtual, or e-mentoring had become a norm. Mentoring is about the science of social change that will always impact the field of social sciences. In the digital world, new technological tools and platforms are introduced and continuously updated. Hence, there will always be room for new approaches to learning to be conducted on mentoring or in other contexts, as well as for the utilization of new digital platforms and tools. More learning needs are to be explored such as 1) how to be more effective in practice; 2) new learning applications requiring new digital technologies; and 3) developing, inventing, or innovating new safe digital ways, tools, and platforms for mentoring education. The current study provides relevant extended lists of suggestions for further research and practice.

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