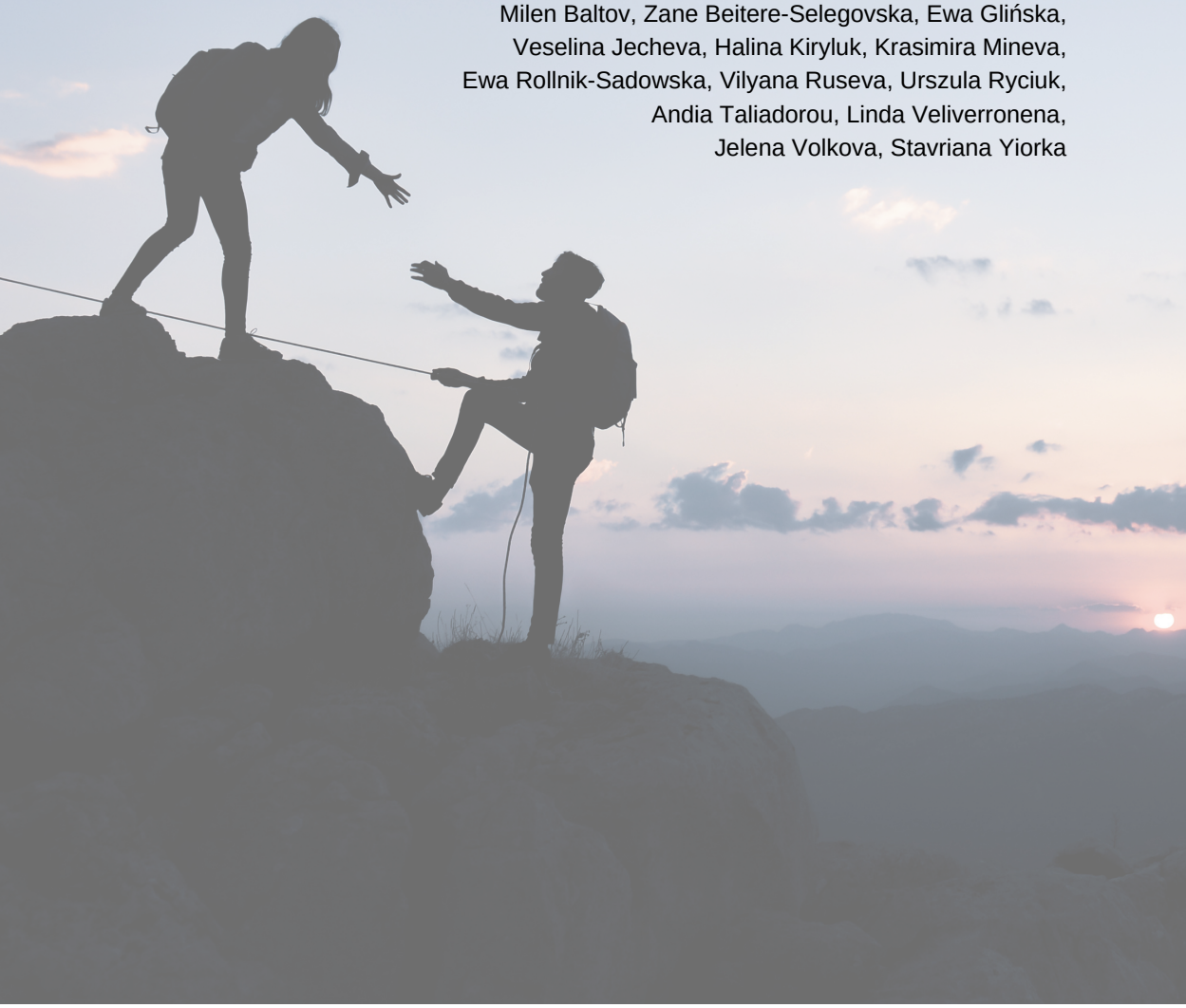
E-MENTORING

THEORY AND PRACTICE

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Bialystok University of Technology

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Introduction

In an era defined by rapid technological advancements and evolving educational paradigms, the traditional methods of mentorship and personal guidance have undergone significant transformations. One notable transformation is the emergence of electronic mentoring, or e-mentoring, as a powerful and efficient tool for fostering learning and collaboration in various fields.

This monograph seeks to explore the dynamic landscape of mentoring within the context of technological transformations. E-mentoring, as a subset of online learning and communication, harnesses the power of digital platforms and tools to facilitate mentor-mentee relationships. This approach has already been analyzed in the literature of the subject from various disciplines in the social sciences. This monograph is a review of the literature on the subject in the field of e-mentoring. It was developed within the project: eMentEdu. E-mentoring: a new qualification for continuing education and training financed by Erasmus+ Programme.

The monograph consists of eight chapters. The first part discusses the essence and specifics of e-mentoring history, state-of-the-art and future development. It represents an overview of historical development of e-mentoring, its current characteristics and future trends and directions. The conclusions of that part indicate that the topic of e-mentoring is important due to the fact that mentoring in general develops trainees' capacities and skills with respect to its practical implications and thus fosters future business leaders' creation. Today's technologies influence all the aspects of our lives and mentoring in particular.

The purpose of the second chapter is to determine to what extent, and in what specific ways, electronic communications might be employed in the creation of electronic mentoring (e-mentoring) relationships. The chapter is concluded that successful e-mentoring relationships require effective communication strategies and a willingness to adapt to the limitations and opportunities of electronic communication technologies. Moreover, mentors and mentees must take steps to secure their communication channels and protect their personal information. In contrast, traditional mentoring may involve less digital security concerns, as communication is typically more private and contained.

The third chapter objective is to present the main theoretical assumptions connected with e-mentoring in industry 4.0. Moreover, the aim of that monograph part is to identify Information and Communication Technologies supporting mentoring process and the specificity of knowledge sharing in e-mentoring as well as mentor competencies. Furthermore, the chapter highlights the significance of knowledge sharing in the Industry 4.0 era. The triple helix model–comprising academia,

industry, and government–promotes collaborative knowledge exchange. Mentors, equipped with Technological and Digital Competency, act as vital contributors to this knowledge dissemination process.

In the fourth chapter there were described e-mentoring issues, effects and opportunities from the perspective of profession development. There were included recommendations for overall well-designed e-mentoring program based on the e-mentoring skills and competence models identified in literature.

The fifth chapter represents an overview of reverse e-mentoring. It starts with a theoretical introduction about this form of mentoring. In that monograph part the attention was also paid to the benefits of the reverse mentoring and e-mentoring to the organization, the mentor, and above all the mentee. At the end of the chapter, the practical aspects of the project in the field of reverse e-mentoring were described: good practices of using this form of mentoring were presented, as well as tools and a template that could be helpful in reaching for reverse mentoring were made available.

The sixth chapter deals with the topic of peer e-mentoring. This part provides a brief outline of software tools that could be successfully implemented into peer e-mentoring domain. The presented tools are free or offer free versions; are easy to use, but still effective. Despite they are not designed originally for e-mentoring, are easy to transfer to another context and domain like peer e-mentoring, as many of them contain series of features, that enhance organizational communication, skills development and fostering professional engagement both as mentor or mentee.

In the seventh chapter, a review of the literature in the field of an evaluation performance of e-mentoring was conducted. Features of mentoring program evaluation models were identified. Moreover, basic components of mentoring program evaluation were described. There was also presented the implementation procedure of evaluation of e-mentoring programs as well as methods used in program evaluation.

The last, eighth chapter includes a practical guide with tips and activities that mentors can use in their daily and professional lives to achieve higher levels of emotional intelligence. The tips mentioned below are divided into two broader categories addressing (a) approaches to increasing an e-mentor's EQ and (b) approaches to indicating a high EQ when mentoring online.

1. E-mentoring: past, present, and future

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1.1. Introduction

Mentoring has a long history, as students and young professionals always need guidance to overcome complex personal, business and organizational challenges. During this process mentors share their knowledge, skills, and experience with mentees to support them in learning and experimentation, thus helping them to develop their potential. In this way they help mentees to overcome the gap into the knowledge and experience between them and to learn more effectively than they would do self-paced. In addition, mentors also benefit from mentoring process, by proving their knowledge and experience and by validating their soft and leadership skills. Mentorship could be carried out in both formal and informal ways, organized by business units with purpose to develop organizational culture or by individuals, who want to share their experience.

During the last decades and especially in Covid-19 pandemic a large number of these mentor – mentee relationships have been carried out electronically, i.e. via e-mentoring. Especially in the last decade there has been a substantial increase in work into virtual space using e-learning tools to support the mentoring process, like e-moderating (Salmon, 2000). Virtual environment provides also various tools for video and audioconferencing, creating online communities, brainstorming, etc. The definition has two elements that distinguish it from traditional mentoring– the boundaryless configuration and the egalitarian quality of the exchange (Bierema & Merriam, 2002).

The purpose of this chapter is to outline the beginning and development of e-mentoring, its features which make it so vital and successful training model, as well as to examine its future trends in highly connected world we live in. As mentoring is also an opportunity for mentee to extend their network and connect with peers and professionals, e-mentoring significantly leverages this process, as it removes physical boundaries and tremendously increases the mentoring scope.

Internet environment has been used for many years in technological and IT sector, which are more open to new technologies and tools. However, in the past many professionals and scientists, especially from humanitarian and medical areas had been suspect and reticent about the new and growing field of e-mentoring. The Covid -19 outbreak changed it all and it was shown that many activities could be successfully carried out online. It was revealed that online relationships can be just as real and intense as those in the offline world, and there should be little surprise that even psychologists, educators and mentors are beginning to establish online relationships. The chapter will discuss the essence and specifics of e-mentoring history, state-of-the-art and future development.

1.2. Emergence and development of e-mentoring

Informal e-mentoring exists from the time e-mail began to be used initially by researchers and scientists in the late 1970s and early 1980s of the 20th century. Later, the use of the Internet became democratized and the possibility of participation increased. The first e-mentoring programmes aimed at increasing the educational and professional opportunities of certain groups in society that are of national interest or are underprivileged (Single & Single, 2005). E-mentoring has been considered at the beginning of the 21st century as a revolution in mentoring that provides new opportunities beyond face-to-face communication between mentor and protégé. It is born from the mediation of communication between the two parties in mentoring by electronic means and its transformation into electronic communication (Single & Single, 2005; Single & Muller, 2001).

E-mentoring was introduced for the first time in 1990 to connect young people with business people from the European Union, the United States and the United Kingdom via e-mail, so that industry experts can enhance the competencies of their protégés. The first large-scale programme was the Electronic Emissary Project and was established in 1993 to encourage students in the process of developing projects in certain disciplines by connecting them with experts in the relevant scientific field (Single & Single, 2005). In 1995, the Hewlett-Packard company established a mentoring programme based on e-mail communication in order to promote the career planning of students participating in the programme (Singh & Singh, 2021). In the beginning, various terms were used along with e-mentoring such as telementoring, cybermentoring, virtual mentoring, online mentoring, electronic mentoring, distance mentoring, mentoring on the internet, mentoring through the internet, internet mentoring, virtual tutoring, online tutoring (Single & Muller, 2001;Tinoco-Giraldo et al., 2020).

By definition, e-mentoring is a fusion of traditional mentoring with electronic communications, creating a computer-mediated by various electronic means (e-mail, social networks, instant messages, chats, etc.) connection or implementation of the mentoring process not only through a computer, but also through other hand-held devices and electronic platforms. In these relationships, the goal is for the more experienced person (the mentor) to support the development of the less experienced person (the protégé, the mentee) by supporting them career-wise and emotionally by coaching, advising, encouraging, modeling, and promoting. The mentor creates conditions for the generation and development of business ideas, for the acquisition of new knowledge and skills (learning opportunities), for understanding the corporate culture, increasing the protégé's confidence and increasing his success in the workplace. E-mentoring differs from traditional mentoring in that it is boundaryless mentoring and promotes egalitarian relationships (Single & Muller, 2001; Tinoco-Giraldo et al., 2020; Ragins & Kram, 2007; Bierema & Merriam, 2002).

1.3. Early research on e-mentoring

Only since 2007 in the USA various e-mentoring programmes were developed and implemented in various fields: entrepreneurship, healthcare, higher education, public relations; science, technology, engineering and mathematics, for the needs of the state and federal authorities; to support various marginalized communities, to promote the social inclusion of women; corporate programmes for students; corporate programmes for employees, etc. (Ragins & Kram, 2007; Bierema & Merriam, 2002).

In the past, research on the benefits of online mentoring has shown that it creates new opportunities compared to traditional mentoring, but until 2017 e-mentoring was still considered complementary to face-to-face mentoring, and mixed forms of communication (face-to-face and online) are considered one of the factors for the effectiveness of mentoring programmes (Chong et al., 2020; Thompson et al., 2010). For people with special needs, e-mentoring interventions have been partially successful. They increase self-empowerment, develop communication skills, provide different coping strategies in trying to live independently with a disability and opportunities to provide assistance to others. Despite the benefits of computer-mediated communication, participants continue to feel the need for face-to-face communication within the mentoring programme (Shpigelman et al., 2009). E-mentoring is extremely useful for telecommuters, especially those who have high self-efficacy, manage their time well, are focused on their work, and can balance family and work commitments at home. Online sessions with the mentor, especially video conferencing sessions, overcome the feeling of isolation, increase the connectivity of remote employees not only with the mentor, but with the team

and the company as a whole. This is a successful prevention of reduced work engagement and the danger of burnout due to overload and reduced teamwork (Akin & Hilbun, 2007).

The systematic review of literature describing e-mentoring programmes conducted between 2000 and 2017 reaches the conclusions that e-mentoring is most often used for the purpose of providing support - personal, career academic, training support in various skills. The success of programmes depends on how well there is a match between the capabilities of the mentor and the needs of the mentee, on the match between them in terms of specialty, personal interests, values and views, the type of position held and their mutual engagement in the mentoring process; from the quality of the mentoring relationships developed; from the organizational support of the host organization (Chong et al., 2020).

The positive effects of e-mentoring in educational processes are undoubted, but the success of mentoring programmes depends on considering the needs of the mentees, using all available support channels and mixed forms of communication. Research on the effectiveness of e-mentoring programmes found that there is a positive relationship between the quality of the relationship (the frequency of interactions) between the two parties in the process and the expected results of the implementation of the programme (the increase in general self-efficacy; career self-efficacy; task-related self-efficacy; the motivation to participate in the online mentoring sessions). Furthermore exists a positive relationship between e-mentoring effectiveness (high satisfaction and increased learnability) and perceived similarity in attitudes and values between partners in dyadic virtual relationships. Perceived similarity on demographic characteristics such as gender and race was not related to success and satisfaction with e-mentoring (Thompson et al., 2010; Kaufman, 2017; DiRenzo et al, 2010; de Janasz et al., 2008; de Janasz & Godshalk, 2013). The benefits to the mentor of electronically mediated communication are different from the benefits to the mentee, namely, development of organizational and communication skills, increased reflection on one's own practice as a mentor, which promotes its improvement, etc. (Shrestha et al., 2009).

Developing relationships in the e-mentoring process depends on it whether trust and understanding will be built through more frequent meetings in the beginning; from the opportunity to openly discuss problems, from the skills of active listening, from the urgent career and personal support provided by the mentor; from the possibility of comprehensive evaluation of the problems; from the commitment of both parties in the process and their motivation; by the formal or informal approach of the mentor. Formal programmes provide a higher degree of training and introduce greater vertical distance between mentor and protégé, while informal programmes minimize hierarchical differences, develop relationships, and encourage protégé participation. Organizational context and culture also influence the success

of mentoring programmes. The host organization influences e-mentoring by imposing its goals and needs, by organizing mentoring programmes, by providing technical support and information technology (online platforms for mentoring and training); by controlling the selection and training of mentors and protégés; by supervising and evaluating the implementation of mentoring programmes (Chong et al., 2020).

The results of the systematic literature review show that e-mentoring is independent approach but it can be successfully used within a mixed approach. It is especially useful in the prevention of misuse with mentees in the mentoring process. Difficulties in online communication between mentor and protégé (insufficient information from non-verbal communication, interrupted interaction, slow building of relationships that remain at the surface level) can be overcome by mixed forms of mentoring, combining online and traditional mentoring. Thus, it is possible to overcome the weaknesses of both types of mentoring. Blended mentoring can be used to achieve specific goals, to master certain roles or at a certain stage of the mentoring process (Chong et al., 2020).

They have been reported known difficulties related to e-mentoring: technological difficulties arising from the electronic e-mentoring platform used; difficulties in the matching phase, to find the most suitable mentor and protégé; cultural differences and differences in expectations negatively affect interactions in the mentoring process; difficulties in maintaining high motivation of mentees and developing relationships; differences between generations who are used to using information technology and previous generations who are worried about computer-mediated communication (Kahraman & Abdullah, 2016; Rowland, 2012). Research also focuses on establishing the advantages and benefits of e-mentoring for mentees (Ensher et al., 2003; Single & Single, 2005; Chong et al., 2020; Singh & Singh, 2021; Kahraman & Abdullah, 2016; Rowland, 2012; Headlam-Wells et al., 2006; Doyle et al., 2016):

- easier access of the protégé to the mentor due to the elimination of the need to share time and place;
- greater flexibility of communication due to the use of asynchronous methods compared to traditional mentoring;
- increased academic, social and emotional support;
- easier access of all participants to information;
- promotes adaptation to the organizational context and work requirements;
- supports the development of competences and abilities;
- improves the transmission and assimilation of new knowledge; is effective in training employees;
- provides opportunities for sharing knowledge and experience (for joint learning);

- psychosocial benefits for mentees have been established, by supporting personal development (improving self-esteem, increasing self-confidence, encouraging risk-taking, developing communication skills);
- provides job and career guidance, developing the skills needed for career growth; supports goal setting;
- reduces the cost of money and time associated with mentoring programmes;
- provides a context for equality in relations despite differences in social status; the influence of organizational hierarchy on interactions is reduced;
- enables documentation of interactions (email, video, audio recordings, etc.) and reflection on them;
- overcomes barriers and inequalities in the use of mentoring due to gender, race, ethnic and cultural affiliation, disabilities or geographical location;
- e-mentoring goes beyond geographical and organizational boundaries;
- removes communication barriers arising due to deficits in social skills, shyness, low assertiveness, difficulties in initiating contacts;
- it is easy to customize the mentoring process to meet the needs of mentees, mentors and host organizations;
- provides an opportunity to discuss sensitive issues with an increased degree of confidentiality;
- overcomes organizational barriers and bias in relationships when mentor and protégé do not belong to the same organization; in this case, the mentor is a neutral figure to whom trust is increased and the sharing of personal information is safer;
- contributes to increasing job satisfaction;
- increases productivity in the organization and its revenues;
- encourages innovation;
- promotes the social inclusion of marginalized communities;
- encourages mentees to be active in online discussions;
- creates opportunities to achieve professional goals.

1.4. Current research

In the past, as today, researchers' interest has focused on the success and advantages/disadvantages of e-mentoring programmes. Interest in the effectiveness of e-mentoring programmes continues to be particularly strong in secondary and higher education (Tinoco-Giraldo et al., 2022; Mittal et al., 2022), in developing leaders for the highest management levels (Man & Manaf, 2023), in the field of health and mental well-being of young people (Kaufman et al., 2021).

A systematic review of the literature on electronic mentoring in the area of health shows that the programmes have a beneficial effect on young people with specific health problems, including those who have difficulty moving and cannot participate in traditional mentoring programmes. They increase their self-efficacy; acquire skills to control their health status, make a successful transition to an independent lifestyle (Kaufman et al., 2021). The benefits and challenges (difficulties) of implementing e-mentoring during the Covid-19 pandemic in South Africa with youth receiving or recently leaving care programmes were explored. The benefits of e-mentoring are particularly significant for increasing access to geographically remote communities that are racially and socioeconomically segregated. The benefits of the programme are in terms of access to health information, inclusion in support networks, access to social resources. The effectiveness of the support received from mentors is indisputable. The difficulties are related to the inequality of access to electronic devices, but they are surmountable by investing in the relevant resources (MacDonald et al., 2020). The contribution to the effectiveness of e-mentoring programmes of augmentative and alternative communication (AAC) peer communication to mentor-protégé communication is investigated. Positive effects were reported in several domains: choice and control, psychological engagement, and social belonging (Grace et al., 2019). Protégés' perceptions confirm the effectiveness of e-mentoring in enhancing their self-efficacy as telecommuters. Besides the well-developed relationship between mentor and protégé in the e-mentoring process, other factors also positively influence perceptions of self-efficacy such as intensive interactions with management and with their own families through video conferencing and occasional face-to-face meetings (Baciu, 2022).

They have been researched the predictors of the effectiveness of the programmes for electronically mentoring and academic support was found to be the most significant predictor. Significant predictors of effectiveness are also setting clear goals, providing role models and psycho-emotional support, but not digital competence. The effectiveness of e-mentoring programmes depends on various factors - contextual (clear connection with realities), personal (flexibility and active learning on the part of the protégé; adequate guidance, feedback and support on the part of the mentor), technological (appropriate and easy to using an online mentoring platform)(Mittal et al., 2022; Spanorriga et al., 2018). Two functions of e-mentoring influence the effectiveness of learning in the mentoring process: career support and role modeling support. When conducting e-mentoring in an organizational context, it turns out that the provided psycho-social support does not influence the effectiveness of e-mentoring in an educational aspect (Haran & Jeyaraj, 2019).

Research interest is focused on traditional and electronic mentoring in a comparative plan – strengths and weaknesses, effectiveness, etc. (Grant et al., 2020). A comparison between traditional and e-mentoring shows that e-mentoring is superior to traditional in terms of benefits related to space and time, benefits

of asynchronous communication, reduced gender and racial discrimination, reduced negative effects related to belonging to the opposite sex, benefits of using of online technologies, development of communication skills, diversification of cultural practices (Iqbal, 2020). Up-to-date empirical evidence has been reported that e-mentoring does not differ in relational quality from face-to-face mentor-protégé relationships. The differences between the two types of mentoring are not significant in terms of the work and career results of the IT specialists who participated in the study, but the protégés' satisfaction with the virtual relationship with the mentor is significantly lower, despite receiving the same level of support (Cotton & Adya, 2018). Factors related to trust, such as the achievement of understanding (closeness and harmony) in the relationship and setting clear goals, have the strongest influence on the construction of successful learning relationships between mentor and protégé in the e-mentoring process (Sanyal & Rigby, 2017). In the process of e-mentoring, a balance is achieved between mentor and protégé in the control and management of the relationship, which is equally beneficial to both parties in an educational aspect. For the development of trusting relationships of synchronous communication through video conference calls, non-verbal communication - body language and gestures - is crucial (Tanis & Barker, 2017).

During the Covid-19 pandemic, students participating in e-mentoring programmes reported significantly higher levels of anxiety and depression than participants in traditional mentoring programmes. Irrespective of the type of mentoring process in which they participate, a greater part of the surveyed individuals feel concerned about the quality of their online learning and a decrease in their level of academic motivation is observed. Research shows that e-mentoring during the pandemic is associated with positive career, academic and mental health outcomes. Despite the support provided to students from vulnerable groups, the negative effects of the pandemic measures are observed for them. The main factor influencing the positive effects of e-mentoring is the satisfaction of the mentor in the e-mentoring process. In turn, satisfaction is positively influenced by attitudes, the presence of an individual development plan, the frequency of online mentoring sessions, and the perceived instrumental and psychological support (Guse et al., 2020; Chang et al., 2021).

E-mentoring programmes are of particular interest during the Covid-19 pandemic. The difficulties and advantages of online communication are explored during the restrictive measures related to the pandemic, which enabled the implementation of fully electronically mediated mentoring. The results show several main challenges and strengths of mentoring in fully electronic communication (Simok et al., 2021; Ercan et al., 2021):

- danger of misinterpretation of information when non-verbal communication is blocked, especially facial expression;

- the effectiveness of e-mentoring depends on the technical and administrative capacity of the host organization;
- computer-mediated communication slows down the development of relations;
- there is a risk during communication between mentor and protégé of technical difficulties such as damage to the devices used;
- requirements for participants in the mentoring process to have specific skills for conducting the computer-mediated session are increased;
- equal access of participants to valuable information;
- support in professional development by providing knowledge and skills,
- online psychological support,
- increase in professional solidarity and cohesion during the quarantine;
- easier access to the mentor by protégés,
- overcoming geographical distances;
- greater efficiency from a financial point of view;
- higher levels of egalitarianism in relationships.

The benefits of e-mentoring for mentees are specifically explored. In addition to the positive effects described above, there are also satisfaction of short-term needs, development of skills and abilities, increase in psychological well-being and self-confidence; development of learning potential; development of interpersonal relations and communication skills; preparation for life in the protected environment of e-mentoring and career support orientation (Tinoco-Giraldo et al., 2022).

Although there is some delay in the development of the mentor-protégé relationship in e-mentoring, there is empirical evidence that compared to traditional mentoring, trust and respect in the relationship develop more quickly in e-mentoring; collegiality increases due to equality in communication (Grant et al., 2020). Even when the participants reported that the information and communication technologies used were sufficient to secure the relationship in e-mentoring, some of them continued to insist on the use of face-to-face communication and preferred a blended approach in mentoring (Ongoz, 2018).

In the field of entrepreneurship, e-mentoring was not affected by factors such as gender, education or family business background of the participants. Young entrepreneurs are not confident that e-mentoring will help them to develop their business capabilities, but demonstrate interest and willingness to use an e-mentoring platform (Singh & Kumar, 2019).

The effects on mentor and protégé of an innovative e-mentoring approach that introduces reflection (discussion based on the Socratic principles of questioning) on recorded and archived videoconference mentoring sessions are investigated. A major factor facilitating communication in e-mentoring is the technology used in this process. In addition to high satisfaction with interactions, positive effects

of the innovative approach on recognition, career progression and career mobility have been registered for both protégés and mentors. Positive results from the application of e-mentoring, including high process satisfaction, confirms another pilot study regarding protégés' professional competencies in four areas – project management, problem solving, independent work, and teamwork (Tisdell & Shekhawat, 2019; Tinoco-Giraldo et al., 2022).

1.5. Directions for planning future empirical research in the field of e-mentoring

Scientific interest in various aspects of e-mentoring has not decreased in recent years. Scientific research is focused on the effectiveness of the programmes; the factors contributing to the success of e-mentoring; the development of innovative e-mentoring models; effective interactions in the mentor-protégé pair, etc. They can be summarized the following research questions, hypotheses and trends important for planning future empirical research (Shpigelman et al., 2009; Tinoco-Giraldo et al., 2020; Neely et al., 2017; Man & Manaf, 2023; Doyle et al., 2016; Kaufman et al., 2021; Tinoco-Giraldo et al., 2022):

- the strengths and weaknesses (challenges and opportunities) of e-mentoring are insufficiently researched;
- new research is needed in a comparative plan between traditional and electronic mentoring and evidence that e-mentoring is a good alternative to traditional mentoring and can exist as an independent approach;
- the characteristics of effective e-mentoring are insufficiently clarified;
- clarification of the definitions of e-mentoring is needed, especially reaching a consensus on operational definitions;
- it is necessary to focus efforts on overcoming methodological weaknesses - creating valid tools for evaluating e-mentoring programmes;
- study of the factors for increasing the effectiveness of e-mentoring, e.g. when building the relationship between mentor and protégé, face-to-face meetings should also be held;
- a comparative study of the effectiveness of formal and informal e-mentoring programmes in terms of career development and psychosocial support;
- testing the hypothesis that electronic communication is as effective in building quality relationships as face-to-face communication;
- testing the assumption that millennials prefer e-mentoring to traditional mentoring and, compared to other generations, easily accept and participate in electronically mediated mentoring sessions;
- to what extent the processes of increasing technological literacy contribute to the confirmation of e-mentoring;

- conducting research on how strong is the influence of factors such as extroversion, proactive personality, perceived similarity between the mentor and the protégé on the acceptance and confirmation of e-mentoring;
- to what extent the variety of online media used, especially video conference calls, positively affects the increase in trust and the development of the relationship between the mentor and the mentee;
- establishing empirically which are the successful e-mentoring interventions in communication with people with special needs in random representative samples and what is the optimal duration of the e-mentoring process for people with different disabilities and personalities;
- establishing to what extent the method of conducting electronic mentoring affects the mentor and the mentee;
- creating and testing standardized tools to measure the satisfaction and success of participants in e-mentoring programmes;
- comparative studies of the differences in the communication processes in electronic mentoring caused by the use of a web camera on or off;
- study the influence of communication and relationships in the process of electronic mentoring on the positive development of the identity and self-image of the mentees, especially in adolescence;
- need for research into the matching process;
- between mentor and mentee;
- establishing the differences in the benefits of e-mentoring for the mentor, the mentee and the host organization;
- measuring the increase of competences in the mentoring process mediated by electronic communication.

A new field of research is emerging - this is the field of augmentative and alternative communication (AAC), through support received outside the interventions of mentors and from other protégés, the effects of which have not yet been fully and reliably studied (in within random, representative samples) (Grace et al., 2019). The conflicting empirical results direct future research to establish the extent to which digital skills development enhances the effectiveness of e-mentoring programmes (Mittal, 2022). Future research is needed to determine whether similarity in mentor and protégé attitudes and values enhances the effectiveness of e-mentoring relationships in an organizational context (Haran & Jeyaraj, 2019). Another direction for future research is to track the effects of e-mentoring on career development over an extended period after the programme has ended despite the difficulties associated with isolating the effects of mentoring from other factors of career success. It is particularly important to conduct these studies in a comparative plan between traditional and electronic mentoring, in order to determine whether the positive effects of face-to-face communication are also observed in electronic communication (Sanyal & Rigby, 2017).

Future research should also determine how emotional bonds between mentor and protégé can be developed in computer-mediated communication to promote mentee learning in an organizational context (Tanis & Barker, 2017).

A further direction of e-mentoring is to apply mentorship activities not only in private, but in public sector as well. Although this approach is not new, as could be seen in (Di Renzo, 2010; Loureiro-Koechlin, 2010), there is also a recent study, highlighting the contrast between the classical mentoring approach of functionalism with the emerging humanist approach (Neal et.al, 2023). The humanist e-mentoring model aims at providing a process and modality for fostering social equity by removing existing barriers to opportunities, thus improving mentoring results. For example, this form is often applied in women entrepreneurship mentoring as a reliable way of encouraging women into entrepreneurship as it is flexible, bespoke to the mentee, and provides a role model in the form of a successful woman business owner (Laukhuf, 2015).

Moreover, traditionally e-mentoring is conducted in large organizations, which have resources for mentoring is various fields. Usually they are geographically dispersed, which implies the need of mentoring in virtual environment. Unlike these companies with traditions in human resources development and e-mentoring in particular, this method could be applied in small or medium enterprises (SMEs), as well, since they form the backbone of the economy in each country. In this case e-mentoring is described as directing novice entrepreneurs to success in business processes using virtual tools (Maz, 2023), providing both enough support and independency of time and location.

Unlike traditional courses and university education, e-mentoring is not stuck to a preliminarily developed programme, but is more related to organizational culture and this is another feature that will be developed in the future. E-mentoring tools provide early support, which may help new hires more easily integrate into the new culture of an organization (Single, 2005). In addition, the organization can benefit from employee retention, communication processes, and organisational culture, while staff may earn job satisfaction and work dedication to an organisation (Ensher & Murphy, 2011).

Inclusion and diversity are among the most widely spread issues for HR specialists in many organizations. E-mentoring can mitigate them by playing a crucial role in the promotion and maintenance of social and cognitive inclusion of mentees with less opportunities and in the creation of a sense of belonging to the academic community (Morgado et.al, 2022). Furthermore, a recent study, that includes virtual training resources for a network of culturally diverse women, reveals that e-mentoring helps members meet research and publication expectations; addresses network tensions; creates stronger network ties; values each other's cultural histories

and identities; and recognizes their humanity as women academics who must balance life challenges and work expectations (Beck et.al, 2022). In addition, e-mentoring also provides increased accessibility, including disabled people and people, who live in rural environment.

Finally, as training systems and education technologies evolve constantly, the e-mentoring platforms should also shape up to meet new requirements. Contemporary LMS should benefit from Web 3.0 options, which means the system is decentralized and provides various services to its users. Furthermore, these systems use contemporary technologies like artificial intelligence, machine learning, social media, etc. to meet mentees personal needs and to provide tailored and personalized mentoring. Recent study indicated that social network service (SNS) -based e-mentoring was effective for undergraduate students' engagement in a large-scale online course, especially in developing e-mentoring activities like informational and technical support in a group and informational support in a private environment (Jang et.al., 2023). Web 3.0 advantages also include data creation and ownership, efficient searching, etc. in addition to personalized mentoring.

1.6. Conclusion

The present chapter represents an overview of historical development of e-mentoring, its present characteristics and future trends and directions. The topic is important due to the fact that mentoring in general develops trainees' capacities and skills with respect to its practical implications and thus fosters future business leaders' creation. Today's technologies influence all the aspects of our lives and mentoring in particular. In this way e-mentoring became a very important part of mentoring, since virtual environment removes the limitations of traditional mentoring in space and time and does not require physical presence of both parties. In addition, it could be more personalized, both synchronous and asynchronous, as well as collaborative and cooperative in sharing ideas in greater extent that traditional mentoring. E-mentoring improves scientific management awareness of the mentees, while increasing knowledge transmission between mentors and mentees and between mentees themselves. Despite some limitations of this method, like necessity of technical skills and access to technologies, e-mentoring is undoubtedly a key element of trainings of the future.

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2. E- mentoring relationship

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2.1. Introduction

Mentoring has been defined as "a formal learning relationship" where "mentors support and challenge the mentees to recognise their career potential", with the result that "both parties perceive they are learning and gaining from the relationship (Jones, 2012).

Johnson and Ridley use the word mentorships and defined Mentoring relationships as a dynamic, reciprocal, personal relationships in which a more experienced person (mentor) acts as a guide, role model, teacher, and sponsor of a less experienced person (protégé)," (Johnson and Ridley, 2004,)

Therefore, it is very important for the success of the e-mentoring process that the specifics of online communication are respected in the mentor-mentee relationship.

Communication is a crucial aspect of mentoring relationship, whether it is face-to-face or e-mentoring. E-mentoring, or online mentoring, differs from traditional mentoring in that it utilizes electronic communication channels to connect mentors and mentees. There are some differences in e-mentoring communication, that is why we need to understand how we can use it in a better way.

The purpose of this chapter is to determine to what extent, and in what specific ways, electronic communications might be employed in the creation of electronic mentoring (e-mentoring) relationships. We will analyse the differences in online communication and identify better methods to maximise the impact on the mentor-mentee relationship.

2.2. The role of online communication in mentoring relationship developing

Mentoring is the interaction between a more experienced senior person called a mentor, with a less experience junior person called a mentee, for emotional and career support. "Traditionally, mentoring has been defined as an intense, dyadic relationship in which a more senior, experienced person, called a mentor, provides support and assistance to a more junior, less experienced colleague, referred to as a protégé or mentee. Although mutually beneficial, mentoring in the workplace typically is focused on enhancing the professional development of the mentee" (Hezlett & Gibson, 2007).

Mentors support mentees by providing advice in an empowering way. Mentors may be motivated by the possibility of 'giving back' (Kram, 1983). Kram, in his study confirmed that, a mentor relationship has the potential to enhance study confirmedent and psychosocial development of both individuals, exposure-and visibility, and challenging work assignments, a young manager is assisted in learning the ropes of organizational life and in preparing for advancement opportunities. Through psychosocial functions, including role modelling acceptance-and-confirmation, counselling and friendship a young manager is supported in developing a sense of competence, confidence and effectiveness in the managerial role. In providing a range of developmental functions a senior manager gains recognition and respect from peers and superiors for contributing to the development of young managerial talent, receives confirmation and support from the young manager who seek counsel and experiences internal satisfaction in actively enabling a less experienced adult to learn how to navigate successfully in the world of work. (Kram, 1983).

Other sources suggest that mentoring offers the opportunity to learn from others' experience who have "been there and done that". St Jean (2012) defines the mentor as a person who "kindly watches over a younger individual".

Greg Guest (2000) argued that mentoring is a long-term process, involves sharing experiences and offering couragement, provides the mentee with a way of developing insight through reflection, and is a two-way relationship that results in mutual learning.

E-mentoring is an alternative to conventional face-to-face mentoring, incorporating the use of email, bulletin boards, discussion groups, instant messaging, and videoconferencing.

More recently, mentors and mentees leverage the affordances of digital technologies to enhance access to each other, resources and learning across a multitude of contexts. Mentoring has been perceived as a deep, meaningful, and reciprocal

learning and developmental avenue. The hybridity of learning and development has created greater opportunities for richer learning experiences and ways to belong (Press et al., 2022).

Perren (2003), in his review of academic literature, found little robust empirical evidence of successful relationship in e-mentoring. Although, some writers had highlighted the advantages of its low cost and flexibility against its limitations when dealing with interpersonal issues. A more recent review of the research literature on e-mentoring suggests that the benefits associated with e-mentoring are similar to those associated with face-to-face mentoring, including information and subject-matter transfer and psychosocial benefits such as self-esteem and confidence-building. In addition, studies of e-mentoring have identified benefits that are unique to the electronic dimension of mentoring. The most widely reported benefit is logistical; electronic communication enables mentoring relationships to transcend geographical and temporal boundaries, enabling mentoring facilities to be extended to those formerly unable to access them. E-mentoring programs can be run on a larger scale than would be feasible by relying solely on face-to-face interaction (Kasprisin, Single & Muller, 2003; Whiting & de Janaz, 2003) and with increased scale and flexibility comes the benefit of impartiality (Single & Single, 2005).

Many online mentoring programs have been introduced since the early 2000s worldwide. (Knouse, 2001; Ensher, Hwen & Blanchard, 2003). Websites for online mentoring have been constructed and developed as a solution to overcome the limitations of time and space, and imbalance in the number of mentors and mentees (Kim, 2002). Online mentoring seems to provide many benefits. It not only nurtures new potential mentors and mentees, who feel uncomfortable in face-to-face mentoring, but also helps many people easily join a mentoring program (Kasworm & Londoner, 2000; Kim, 2002).

According to the research what had made by group of researchers from Kingston University, which was analysed differences between face-to face and e mentoring, study broadly supports the literature in finding that the benefits to mentors of face-to-face and e-mentoring are largely similar. As in the former, participation in the latter gave several positive outcomes including the development of organizational and communications skills, greater opportunities to network and socialize, an incentive to reflection - which in turn, led to improvements in their own practice and performance, and a sense of personal satisfaction. This research also supports the thesis that the electronic dimension offers added benefits to mentors such as fitting into a busy schedule and minimizing status differences with mentees. Other findings give additional insights: how the electronic medium allowed for mentoring to target students without stigmatizing them, how e-mentoring reached out to more students, and how it enabled mentors to better manage the expectations of mentees. The attenuation of status differences brought about by the electronic medium, allowing for issues including educational level, authority, and age

to not impinge on mentoring activities were clearly advantageous for both mentor and mentee. On the other hand, the perceived impersonality of this form of mentoring was seen to aid mentees but was felt to be less helpful for mentors. Itis thus apparent that the electronic medium of communication had different benefits for mentor and mentee within the mentoring relationship and that when trying to illuminate the benefits of e-mentoring, each time a benefit is uncovered, we need to ask, "Who is benefiting?" Findings suggest that while e-mentoring maybe more accessible to those for whom time and geographical distance are obstacles to participation, it can act as a barrier to participation in a mentoring scheme through making it less accessible for those unfamiliar with computers and the Internet technology. Claims that the "e" ipso facto makes e-mentoring more accessible are thus arguable. However, the challenges were not just technological; to be effective in these new medium required skills other than those of a good "face-to-face" mentor. Indeed, several mentors were uncomfortable with interaction via email and discussion boards, even where they were technologically proficient. This study challenges the view that the electronic medium necessarily makes for clearer, more "thoughtful" communication than can be achieved face-to-face. Implementation of e-mentoring schemes should include a thorough training of mentors in the use of ICT and an audit of mentee ICT familiarity needs with mentee training provided as part of any e-mentoring program. With such provisions in place, e-mentoring may be a step closer to living up to the many expectations of this increasingly popular form of educational and professional development support.

Greater access to one another and the sheer convenience is an important opportunity for online mentors and mentees. Online decreases the need for communicators to share time and space (Culnan & Markus, 1987; Sproull & Keisler, 1986). For example, email allows communicators to share information and advice at their convenience, whenever they have the time to read and respond to their messages. Additionally, online communicators are no longer constrained by physical proximity in choosing with whom they interact. Wellman and Gulia (1999) point out that peoples communication partners can now extend across the globe. This aspect of online has been particularly helpful in therapeutic relationships as individuals without a large support group can access a community of like-minded individuals via the worldwide web (Zimmer, 1997). People can find others who share their own unique interests and needs. In a time when the sheer number of mentors is lacking in a mentees immediate space, the ability to conveniently interact with others without regard to physical constraint is very important. Moreover, the use of owe can be almost instantaneously gratifying. For example, email allows people to communicate much as they would have by writing a letter and dropping it in a mailbox but delivers the message almost instantaneously. Chat rooms and instant messaging allow for real-time conversation between two or more individuals in a synchronous fashion. In sum, the Internet and computer-mediated communication provides mentors and mentees with a means to develop relationships with others free of limitations of convention, geography, time, or physical space.

Online mentoring can be beneficial for participants in formal mentoring programs as online communication can supplement Face to face meetings or events that may be expensive or difficult to coordinate. Likewise, mentees and mentors in online relationships have mentioned that they have been able to save time and money by avoiding travel costs or administrative fees. In the long run, the sheer ease of online may enable more organizations to initiate or increase formal mentoring programs.

2.3. Aspects of relationship in e mentoring

The main differences in e-mentoring communication compared to traditional face-to-face mentoring include is that e-mentoring, or online mentoring, refers to the use of electronic communication technologies for mentoring relationships.

If we what to compare to tips of mentoring relationship, we need to analyse the process and pay attentional to 4 most important factors:

- Asynchronous communication
- Verbal and nonverbal communications
- Technology competence
- Progress tracking, feedback and trust.

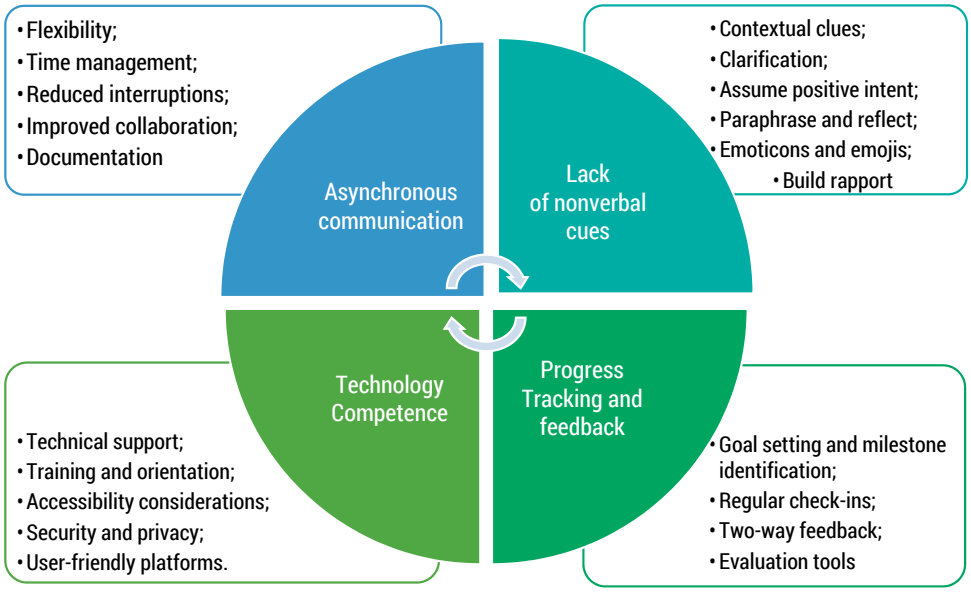


FIG. 2.1. The main aspects of e-mentoring communication (relationship)

SOURCE: **own elaboration.**

That is why it is necessary to analyse the specifics of the process, paying attention to the following factors:

2.3.1. Asynchronous communication

E-mentoring is unique in that the interaction between mentors and mentees can be synchronous, such as when interacting via a video call or chat program, or the communication can be asynchronous, such as using emails or forums where there may be a significant time lag between sending and receiving messages. In fact, some programs do not even have scheduled meeting times, allowing mentors and youth to communicate any time they wish. Others, however, have interactions take place at regularly scheduled times, especially when the program is tied to a classroom setting or time-based project (Garringer et al., 2019).

Administratively, e-mentoring provides the ability to network with one or more mentors or mentees at any given time, in a cost and time efficient manner (An & Lipscomb, 2010). Further, e-mentoring provides the ability to exchange large amounts of information between individuals in relatively short time spans and with little effort (Bierema & Merriam, 2002). An e-mentoring relationship can also be facilitated when it is convenient for each participant, not only at times when mutually agreeable, as is the case in a traditional face-to-face mentoring relationship where both parties must be physically present at the same time and location (Bierema & Merriam, 2002). Asynchronous communication has several benefits, including:

TABLE. 2.1. **Asynchronous communication benefits**

Factors	Description
Flexibility:	Asynchronous communication allows for more flexibility in terms of when and where messages can be sent and received. It is not necessary for the sender and receiver to be available at the same time, which can be especially useful for remote work or when dealing with team members in different time zones.
Time management:	Messages can be sent and received at the most convenient time for everyone, allowing them to prioritize their work and respond when they are able to do so. Asynchronous communication can be helpful in managing time more efficiently.
Reduced interruptions:	With synchronous communication, such as phone calls or in-person meetings, there is a higher chance of being interrupted by other tasks or colleagues. Asynchronous communication allows for more focused work, without the constant interruptions.
Improved collaboration:	Messages can be reviewed and thoughtfully considered before responding, allowing for more productive and effective conversations.
Documentation:	Asynchronous communication provides a record of conversations and decisions, which can be helpful for reference later on. This can be especially useful when dealing with complex projects or working on tasks over a longer period of time.

SOURCE: **own elaboration.**

Overall, e-mentoring allows participants to access and respond to communications according to their own schedule, and provides a mechanism to record transactions, which allows for further reflection at a later time by either party. Asynchronous communication can provide greater flexibility, time management, and focus, while also improving collaboration and providing a record of conversations and decisions. Asynchronous communication allows for greater flexibility in scheduling and can allow for more thoughtful responses.

2.3.2. Lack of nonverbal cues

Without the benefit of face-to-face interaction, e-mentoring may lack the nonverbal cues that are an important part of communication. This can make it more difficult to interpret tone, intent, and emotions. E-mentors and mentees must be mindful of this and use clear language to avoid misunderstandings. Lack of nonverbal cues can pose challenges in communication and understanding, as nonverbal cues play a significant role in conveying meaning, emotions, and intentions in face-to-face interactions. Nonverbal cues include facial expressions, body language, gestures, eye contact, tone of voice, and touch. When these cues are absent or limited, such as in written communication or certain online interactions, it can lead to misunderstandings or misinterpretations.

A mentor who is used to talking by phone or in person may struggle with the quick texts, emojis, or acronyms commonly used in chats, if it is not their usual form of communication. On the mentee side, emotional maturity may be important, as being able to share emotions in writing without the facial and body language cues available during in-person meetings is crucial. A mentee who has social anxiety may find e-mentoring more beneficial than traditional in-person programs, as this form of mentoring allows such individuals to relax and respond in a more comfortable setting (Shpigelman & Gill, 2013). Lacks the nonverbal cues (pitch, flow of speech, facial expressions, body language) in communications can easily be misinterpreted (Purcell, 2004).

Here are a few tips how to prove relationship when dealing with a lack of nonverbal cues:

TABLE 2.3. **Tips to improve communication when non-verbal cues are lacking**

Contextual Clues: Pay	attention to the overall context of the communication. Consider the content of the message, the relationship between the individuals involved, and any additional information available.
Clarification:	If you are unsure about the meaning or intention behind a message, it's important to seek clarification. Ask open-ended questions to gain a better understanding of the other person's perspective.
Assume Positive Intent:	When nonverbal cues are absent, it's easier to misinterpret a message as negative or critical. Give the benefit of the doubt and assume positive intent until you have more information.
Paraphrase and Reflect:	Repeat the message or summarize it in your own words to ensure you have understood it correctly. Reflecting back what you've understood allows the other person to confirm or clarify their meaning.
Emoticons and Emojis:	In written communication, the use of emoticons or emojis can help to add some emotional context. However, be mindful of the appropriateness and overuse of these symbols.
Video or Voice Calls:	If possible, consider switching to video or voice calls to include some nonverbal cues. Seeing or hearing the person's tone of voice and facial expressions can provide additional information and improve understanding.
Build Rapport:	Invest in building a strong rapport and relationship with the individuals you interact with regularly. Over time, you may become more attuned to their communication style and better able to understand their intended meaning, even in the absence of nonverbal cues.
Written communication:	E-mentoring relies heavily on written communication, which can be a challenge for some individuals. Writing skills, language barriers, and differing levels of comfort with written communication can impact the effectiveness of e-mentoring. E-mentors may need to provide additional support and guidance to help mentees communicate effectively in writing.

SOURCE: **own elaboration.**

Some researchers argue that face to face relationships is essential, as the social distance in an e-environment not only impedes the relationship but limits the communications. However, Lea and Spears (1995) point out that there was considerable debate about social distance when the telegraph and telephones first became a mainstream mode of communication, and such debates are virtually non-existent now (Lea & Spears, 1995). Remember, while the absence of nonverbal cues can present challenges, effective communication can still be achieved through active listening, empathy, and clear, concise expression of ideas.

2.3.3. Technology Competence

Technology can be a barrier to effective communication in e-mentoring. Technical difficulties, such as slow internet connections or incompatible software, can interrupt communication and cause frustration. E-mentoring can also result in a slower progression of relationship development as compared to traditional mentoring due to the many modes of communication that can be used and the unpredictability of these communications. Variability in writing style and a gap or lack of technical skills between parties can also create a digital divide and weaken the quality of communications (Ensher & Murphy, 2007).

By ensuring that mentors and mentees have the necessary technology competence and support, you can create a smooth and efficient e-mentoring experience, enabling effective communication and collaboration in the digital space.

Any technology selected for use by an e-mentoring program will require some level of technical support for both staff and program participants. Difficulties signing into the communication platform, lost passwords, incompatible media, and outdated software or hardware are a few of the issues that can hamper participants' ability to fully engage in an e-mentoring program. These challenges could impact the development of the mentoring relationship. When evaluating the various technology platform options for e-mentoring, programs should determine if they have the staff and financial resources to support the implementation of the technology and the program participants who will be using the technology. If the program is not able to support participants in troubleshooting these problems and challenges, they should look to other forms of technology to achieve the goals of the e-mentoring program (Bierema & Merriam, 2002).

2.3.4. Progress tracking, feedback and trust

In addition to considering various types of mentors and the functions they perform, it is also important to examine the contexts in which mentoring relationships occur. Recently, researchers have begun to examine how informal or spontaneously developed mentoring relationships compare in quality and outcomes to formal mentoring relationships (Chao, Walz & Gardner, 1992; Fagenson-Eland, Marks & Amendola, 1997). There has also been some research, albeit limited, which examines how frequency of contact between mentors and proteges, either in person or on the telephone contributes positively to proteges satisfaction with their mentors (Allen, Poteet & Burroughs, 1997a; Ensher & Murphy, 1997). In general, researchers have found that informal mentoring relationships with frequent contact are better than formal relationships, although having any mentor is usually better than not having one at all.

Providing feedback that uses both written and visual elements allows individuals to see their performance and encourages self-reflection. Visual learning theory posits that some learners understand information better when it is visually represented. By providing an alternative method to receive feedback, faculty may be better able to ascertain the information being provided and consider how it applies to their own professional development.

Online mentoring provides for mentors and mentees different tools for process progress managements, evaluation, and feedback.

However, while the tenor of the relationship is different between coaches/clients and mentors/mentee, there are important similarities in terms of activities, processes, and expected outcomes. For example, both fee-based coaches and mentors can provide tangible career suggestions, ideas, and feedback that can positively affect an individual s performance (Bell, 1996; Hodes, 1996). Mentoring and coaching are also similar in that both rely on the development of trust which can ultimately affect the outcomes (Hall et al., 1999; Nielson, Pate & Eisenbach, 1999). Both coaches and mentors help their dyad partner to achieve important goals (Douglas & McCauley, 1999). Also, perhaps more surprisingly, it has been found that the learning that takes places between coaches and clients is two-way and thus often times coaches feel that they receive valuable benefits, besides monetary compensation, for their work with their clients (Hall et al., 1999).

There was a strong trend in the literature showing relationship satisfaction was closely tied to relationship outcomes. One of the leading factors in relationship closeness was what one researcher termed "electronic chemistry" – the ability of mentors and youth to connect electronically in ways that were mutually satisfying, fun, and imbued with personality in spite of the limitations of communicating digitally (Reidl, Hubert & Kenning, 2010).

In fact, it was theorized that online relationships can often become what are called "hyper-relationships" where the closeness and satisfaction exceed in-person relationships because status and other factors are stripped away in the virtual environment, and users can craft perfect responses that represent their best selves at all times (Kendal et al., 2017)

However, because not all one-to-one mentoring relationships find that "spark" of compatibility, some programs opt for a group approach, creating an open group culture of mentoring where all participants see how mentors and youth interact in an open community. One prominent researcher, Dr. Kevin O'Neill, describes this as "mentoring in the open".

Mentoring programs and relationships are goal orientated. Goals are established between the mentor and mentee at the outset of the relationship, as well as redefined throughout the relationship. As goals are achieved, new goals are set. Many mentees seek a mentoring relationship to assist them in advancing their careers and set their goals based on this hope. For this reason, mentees who participate in a relationship where there are few opportunities for advancement within an organization can often become frustrated as their goal to further their career may not be realistic (Buche, 2008).

An organization that allows a mentoring program to proceed where there is insufficient organizational commitment risks the mentoring program to be negatively perceived by others (Ehrich & Hansford, 1999). Inter-organizational perceptions of a mentoring program and/or its participants will either add to the success of the program or detract participants and the organization from achieving their mentoring goals. Resentment may also arise from participants who have unrealistic promotional expectations and with nonparticipants who may perceive the program is based on favouritism.

In addition, mentoring relationships can cause burden for the mentor if the mentee is overly dependent on the mentor (Ehrich & Hansford, 1999). Similarly, the mentee may feel anxious and overloaded if the mentor's expectations of them are unrealistic. Likewise, mentoring can become too time-consuming for all parties involved, just as poorly matched mentors and mentees can create frustrations and/or work tensions. The over use of mentors can create not only mentor fatigue, but a weak or poor performing mentor that is over used has the potential to duplicate their traits in their mentees, further replicating their poor work style within the organization or profession (Ehrich & Hansford, 1999).

Trust is essential in a mentoring relationship as the mentee must take risks within the relationship to achieve the mentoring goals and previous research has suggested that mentoring is effective only when trust is formed between mentors and mentees. However, what establishes mutual trust, respect and commitment with individuals who have never met face-to-face? How do individuals decide on who to trust and how? And are there elements or phases of building trust? It is clear, that more research is needed to explore how trust is formed in e mentoring (Leck & Wood, 2013).

2.4. Conclusion

E-mentoring offers unique benefits and challenges compared to traditional face-to-face mentoring. Successful e-mentoring relationships require effective communication strategies and a willingness to adapt to the limitations and opportunities of electronic communication technologies. Here are some differences in e-mentoring communication. E-mentoring typically uses online communication channels such as email, instant messaging, video conferencing, and online collaboration tools. In contrast, traditional mentoring may rely on face-to-face meetings, phone calls, and other offline communication methods. E-mentoring allows for more flexibility in terms of scheduling and location. Mentors and mentees can communicate at their own convenience, regardless of time zone or physical location. E-mentoring often involves the sharing of electronic documents, such as reports, presentations, or assignments. This allows for a more dynamic and interactive mentoring experience, as mentors can provide feedback in real-time and mentees can revise their work on the fly. E-mentoring platforms often have built-in record-keeping features, such as message archives, progress tracking, and performance metrics. These features can help mentors and mentees track their progress over time and stay accountable to their goals. E-mentoring requires a certain level of technical proficiency and awareness of cybersecurity risks. Mentors and mentees must take steps to secure their communication channels and protect their personal information. In contrast, traditional mentoring may involve less digital security concerns, as communication is typically more private and contained.

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3. E-mentoring in the era of Industry 4.0 – changes in the human resource management

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3.1. Introduction

With the advent of Industry 4.0, which is characterized by the integration of digital technologies and automation in various industries, mentoring expanded its forms with remote channels, popularizing e-mentoring. E-mentoring has become increasingly relevant and beneficial for both mentors and mentees as it occurred that variety of technologies can support mentoring process. According to Stewart and Carpenter (2009), adopting information and communication technologies creates opportunities to minimize the physical and psychological distance between people in mentoring programs. Crisp (2016) suggests that obstacles caused by spatial-temporal limitations are the major obstacles of traditional mentoring programs. Therefore e-mentoring in the era of Industry 4.0 leverages technology to overcome geographical barriers, enhance accessibility, and foster knowledge transfer and skills development. By facilitating virtual connections, e-mentoring enables professionals to navigate the evolving landscape of Industry 4.0, adapt to new technologies, and drive their career growth in a digitally connected world.

Knowledge sharing in the e-mentoring process, thanks to application of new technologies engages different stakeholders to create content which assures both mentors and mentees additional opportunities for professional and personal development. Industry 4.0 brings rapid advancements in technology and automation, requiring individuals to continually update their knowledge and skills. This applies to mentors to a large extent as they need to update their competencies regularly. E-mentoring provides a platform for mentors to share their expertise, industry insights, and practical experiences with mentees.

The chapter objective is to present the main theoretical assumptions connected with e-mentoring in industry 4.0. Moreover, the aim of that monograph part is to identify Information and Communication Technologies supporting mentoring process and the specificity of knowledge sharing in e-mentoring as well as mentor competencies.

3.2. Era of Industry 4.0

Industry 4.0 (I4.0, fourth industrial revolution, smart Industry, digital manufacturing) integrates people and digitally controlled machines with the Internet and information technologies. One of the most distinctive features of I4.0 is the convergence of the physical and virtual worlds and the interconnection of people and things – it is a fusion of technologies that is blurring the lines between the physical and digital. According to Saucedo-Martinez et al. (2018) Industry 4.0 means:

- "Integration of complex machinery and devices, with sensor and software networks, used to predict, control and improve plan business and results in society;
- New level of organization and management of the value chain throughout the product life cycle;
- Collective term for technologies and concepts of the organization of the value chain;
- A holistic system of information technologies, people, machines and tools, which allows the flow of goods, services and data in a controlled way, through the value chain, with operations with a high degree of autonomy and high capacity to transmit useful information to decision-making".

The term refers to the industrial revolution, which is characterized by using automation and data processing and exchange as well as implementation of new technologies (Michlowicz, 2021). These technologies include, among others Internet of Things (IoT), Big Data Analytics, Machine Learning, Artificial Intelligence (AI), Cloud Computing, Blockchain Technology or 3D printing (Figure 3.1.).

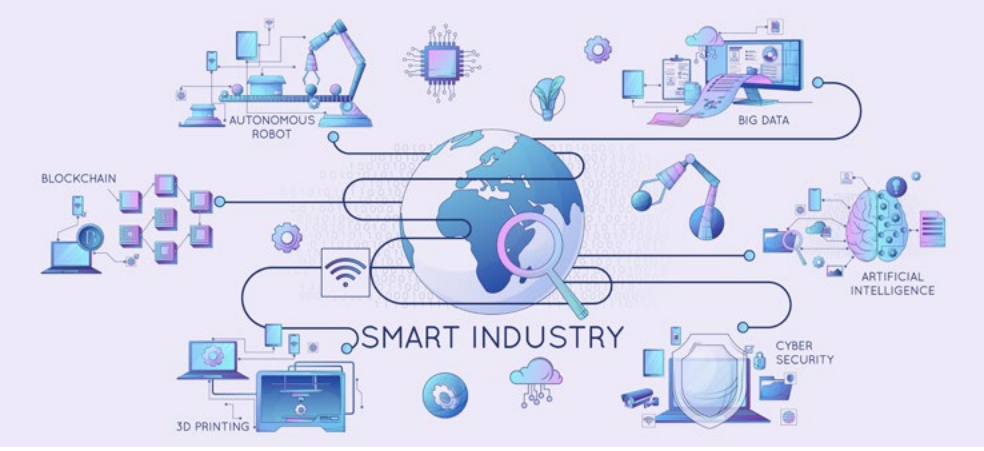


FIG. 3.1. **Industry 4.0 technologies**

SOURCE: **Freepik.com.**

3.3. Mentoring in the era of Industry 4.0

Industry 4.0 concerns not only technology, but also new ways of working and the role of people in industry. Industry 4.0 technology creates an environment based on technology and employees, in which the symbiosis of these two elements is unavoidable (Müller at al., 2018). Industry 4.0 technologies are changing the way organizations manage human capital. On one hand Industry 4.0 era requires employees with new competences and get hand of new roles resulting from new technological conditions. On the other hand, Industry 4.0 gives new opportunities for employee training. One of the most important changes is the way mentoring takes place. Over the last several years, modern technologies have changed the approach to the mentoring process and contributed to revolutionizing the interaction between the mentor and the mentee. Today's technology can give mentoring a boost by making it easier and more effective.

Certainly, today's digital and internet technologies have changed the way of communication and influenced the process of mentoring. Mentoring has traditionally been conducted in enterprises by more experienced employees, who usually introduce the younger and less experienced employee to the meanders of the profession (DuBois & Karcher, 2005). Currently, the sign of the times is e-mentoring (telementoring, cybermentoring, or virtual mentoring) (Mueller, 2004).

E-mentoring is a form of mentoring based on virtual contacts. The use of information technologies supports or replaces traditional face-to-face mentoring (t-mentoring). E-mentoring is a "computer mediated, mutually beneficial relationship between a mentor and a protégé which provides learning, advising, encouraging, promoting, and modeling, that is often boundaryless, egalitarian, and qualitatively different than traditional face-to-face mentoring" (Bierema & Merriam, 2002). Mentors and mentee use computer or smartphone and internet, video conferencing, email and social media to communicate (Figure 2). It's a fast, convenient and effective solution that allows employees to receive support from experts and mentors from anywhere in the world. Another advantage of e-mentoring is the possibility of conducting monitoring sessions regardless of time constraints. Mentees have access to a larger number of mentors, regardless of the barriers that are difficult to reduce with traditional mentoring, e.g. related to the hierarchical structure of the organization, demographic factors (age, gender, marital status), personal factors (stressfulness, shyness, coping ability, social isolation, self-awareness), health (disability) or prejudices (Hamilton & Scandura, 2003; Shpigelman at al., 2009). Employees can benefit from advice and support from experts from different industries and cultures, which can accelerate their development and broaden their perspectives. This is especially important in the era of Industry 4.0, in which following competences are particularly important (Adamik, 2018, 2020 after: Pol, 2022): substantive

knowledge, ability to learn, ability to work in a team, ability to work in a multicultural environment, ability to telework, IT knowledge, ability to share knowledge, willingness to constantly develop, focus on goals, being open to new experiences, creativity, flexible thinking, high tolerance of uncertainty, and social responsibility.

TABLE 3.1. E-mentoring tools

Tool	Description
E-mail	Allows for asynchronous communication, making it ideal for sending detailed feedback, resources, and action plans. Mentors can provide guidance, share documents, and maintain an ongoing dialogue through e-mail exchanges.
Online discussion groups	Enable mentors and mentees to engage in group discussions, seek peer input, and share experiences. Can foster a sense of community and provide a platform for collective learning and problem-solving.
Instant messaging and chat	Offer real-time, one-on-one or group communication. Mentees can ask quick questions, receive immediate feedback, and maintain a more dynamic mentor-mentee relationship.
Video conferencing	Video conferencing tools like Zoom or Skype facilitate face-to-face interactions, even when participants are geographically distant. Mentoring sessions can be conducted with a personal touch, allowing for non-verbal cues and relationship-building.
Blogs	Mentors or mentees can maintain blogs to document their progress, reflections, and insights. Blogs serve as a repository of knowledge and experiences, allowing others to learn from their journey.
Wikis	Collaborative wikis enable mentors and mentees to co-create and edit documents, training materials, or knowledge bases. This tool promotes collective knowledge sharing and easy access to information.
Document sharing	Cloud-based document sharing platforms like Google Drive or Dropbox make it simple to share and collaborate on documents. Mentors can provide resources, templates, or assignments, while mentees can submit work for review.

SOURCE: Own elaboration.

However, Industry 4.0 technologies take mentoring to the next level. First of all, technology itself could be a mentor that is used by organization (Freifeld, 2016):

„*In some cases, technology itself – in the form of the just-in-time information available online – can be the mentor* (…) *While my example offers a simplification of the mentoring role, in this day and age, a mentor offers just-in-time support and advice to a mentee with minimal limitations of time and space. Digital media offers thousands of open resources for mentoring, and highly effective organizations have learned to tap into social media to provide mentoring to new employees, high-potential employees, and leaders.*"

(Loubna Noureddin, Director of Learning & Development Services for Miami Children's Health System)

Mentoring process involving humans and machine may be a nearest future. Nowadays, human or machine as a learner or mutual learning (of human and machine) may be the result of their interaction and closely collaboration (Ansari et al. 2018). Mutual learning is "a bidirectional process involving reciprocal exchange, dependance, action or influence within human end machine collaboration, which results in creating new meaning or concept, enriching existing ones or improving skills and abilities in association with each group of learners" (Ansari et al. 2018).

Above all, Industry 4.0 technologies have changed human resource management processes and opened up new possibilities in employee training and mentoring. Industry 4.0 technologies like Internet of Things or artificial intelligence enable automatization of most of human resources processes (Piwowar-Sulej, 2020). Ubiquitous computing technologies characterized by interactions based on sensors and devices embedded in products, processes, individuals and buildings, and on unlimited access to computing, data and communication networks from any location at any time are context-aware technology sensitive for employee's cognitive and social states and anticipating the employee's needs (Piwowar-Sulej, 2020).

3.4. Industry 4.0 technologies supporting e-mentoring

The integration of e-mentoring and Industry 4.0 has led to significant changes in the way organizations manage human resources. The examples of Industry 4.0 Information and Communication Technologies (including Internet of Things, Data Analytics, Machine Learning, Artificial Intelligence, Cloud Computing, Blockchain Technology, 3D Printing, Virtual Reality and Augmented Reality and such tools as E-Mentoring Platforms) supporting mentoring process are presented on Figure 2.

E-Mentoring Platforms incorporate different 4.0 technologies for mentoring purposes and allow to conduct remote mentoring sessions as well as provide space for individual mentee work. Mentors and mentee can gain knowledge and develop their skills from anywhere and at any time. Traditional mentoring programs often rely on one-on-one relationships, which can be costly and time-consuming. Platforms can help to increase the reach of mentoring programs and improve their effectiveness. With platforms, organizations can more easily scale their mentoring programs and provide better reach, so more employees can benefit from mentoring and develop their skills. Another benefit is enabling organizations to create a culture of innovation and continuous improvement. By providing employees with access to mentors and coaches from around the world, and investing in training and development programs, organizations can help employees stay up to date with the latest technologies and best practices. Platforms equipped with tools for cooperation and communication - videoconferencing, chats and document sharing, allow for

easy and quick communication between mentors and mentee, regardless of where they are. Sharing and storage of data: documents, videos and other training materials is enabled by cloud computing. Cloud computing is a model that enables ubiquitous, on-demand convenient access via the network to a common pool of configurable data processing resources (e.g. networks, servers, applications, services and stored resources) (Trzob, 2020).

Virtual Reality (VR) and Augmented Reality (AR) are technologies that allow the creation of virtual and augmented mentoring environments (Elia, 2016) in which mentors and mentee can practice various skills, for example operating new machines or tools. This allows to gain hands-on experience without having to for example use actual means of production, which can be prohibitively expensive or dangerous. Mentors can use VR/AR to provide mentee with realistic scenarios where they will have to make decisions and solve problems. 3D printing, in turn, is a technology that allows to create three-dimensional objects, which can help in the production of prototypes and testing new products. Mentors can use 3D printers to show the mentee how the technology works and how it can be used for example to create innovative products.

Machine learning allows to create artificial intelligence systems that are able to learn from their experiences and adapt their activities to changing conditions. The goal of machine learning is to create automated systems capable of self-improvement with the use of the service (i.e. data) collected and to acquire new knowledge on this basis (Trzob, 2020). Machine learning can be used to create personalized mentoring programs and anticipate what skills will be needed in the future.

However, it should be remembered that the use of data analysis and artificial intelligence in human resource management must take into account ethical and privacy issues. Organizations must ensure adequate safeguards and privacy protections for their employees' data, and avoid discrimination or bias based on the data they analyze. Blockchain technology can be also used to ensure the security and confidentiality of data related to mentoring programs. Blockchain can help verify mentee skills and certificates, which is especially important in industries where practical skills count, such as in the manufacturing industry.

All of these technologies are of great importance to e-mentoring as they enable easier and more effective communication and collaboration between mentors and mentee, as well as making it easier to monitor progress and tailor mentoring programs to the individual needs of participants. This contributes to increasing employee retention, which is particularly important in the era of growing competition on the labor market. Employees who participate in mentoring programs often feel appreciated and involved in the development of the company, which translates into greater commitment to work and loyalty to the employer.

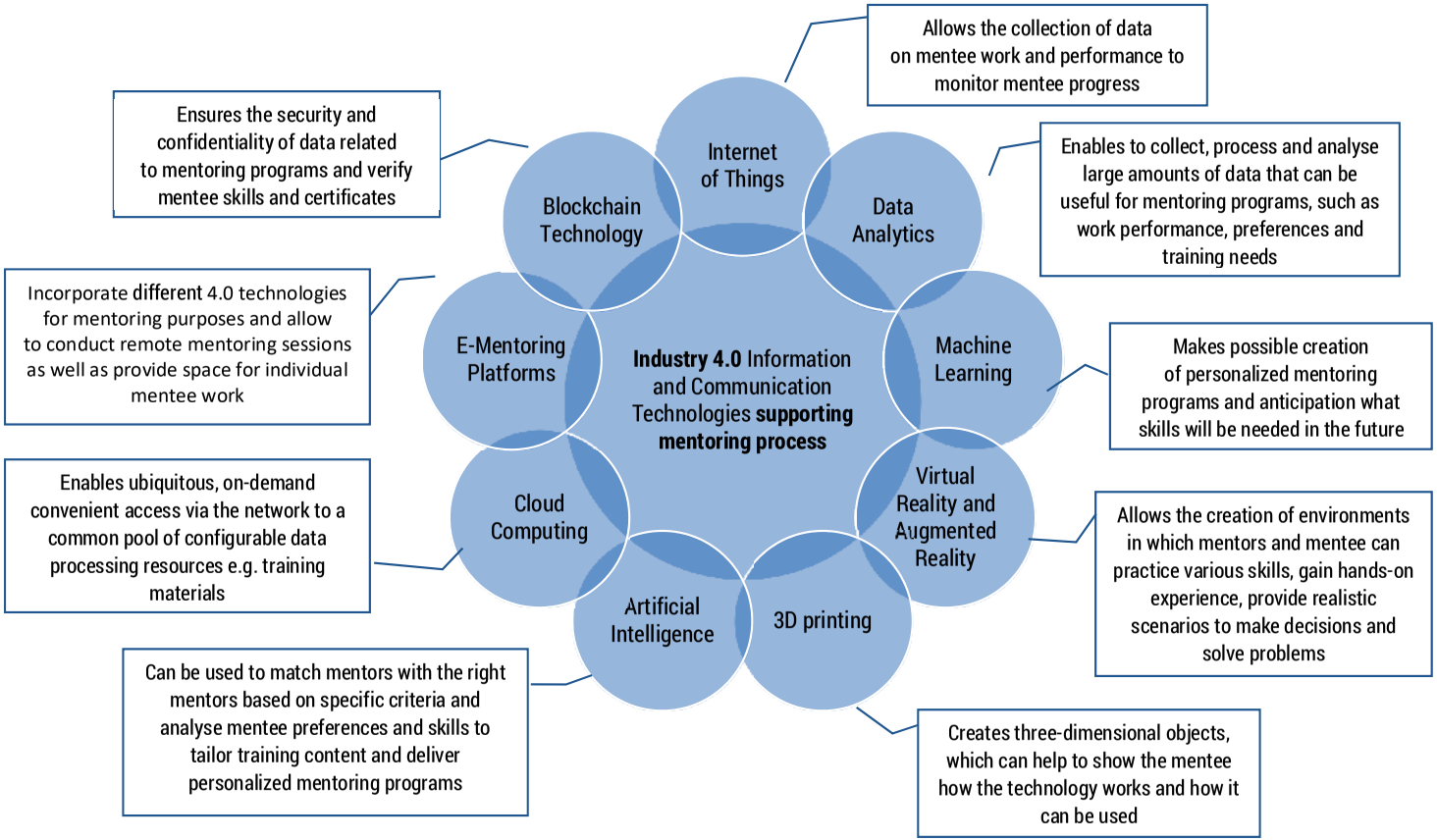


FIG. 3. 2. Industry 4.0 Information and Communication Technologies supporting mentoring process

SOURCE: own elaboration.

3.5. Knowledge sharing in industry 4.0

Industry 4.0 technologies have been changing how the knowledge is acquired, transmitted and used (Ediz, 2018). Knowledge, as an organized combination of ideas, rules, procedures and information (Lee & Chang, 2007), is strongly linked with 4.0 technologies, acting as the key resource of business survival and success in the context of a knowledge economy (Lepore et al., 2022). In e-mentoring process knowledge sharing between mentor and mentee is through use the industry 4.0 tools.

Firms in their innovation process, including technological innovation, depend increasingly on different types of knowledge sources (Freitas et al., 2011), which are associated with using ideas and developments resulting from access to infrastructure, human capital and partners' innovative capacities. Knowledge sources allow the flexible transfer of specific and commercially sensitive information, for instance, information about new product design, new production processes or market development, without the need to formalize contracts or inherent costs (Bönte & Keilbach, 2005; Freitas et al., 2011). Those knowledge sources can be also used by mentors who have access to them as employees of the organization.

The knowledge sharing mechanism may be both formalized and informal. Formal sharing of knowledge contains all those knowledge sharing forms which are institutionalized by the management. Examples of these forms are activities, resources and services that are designed by the organization and are organized to help the sharing of knowledge and the learning from each other (Taminiau et al., 2009). On the contrary, informal knowledge sharing is determined as forms that exist together with all the institutionalized forms and examples are activities, resources and services that are used, but not necessarily designed, to increase knowledge exchange (Taminiau et al., 2009).

The idea of incorporating external knowledge in innovation processes rather than relying only on internal sources has been stressed in the literature on the knowledge sharing for innovation and effectiveness of organisation (Lepore et al., 2022). One of the most important models of including external stakeholders for knowledge sharing is the triple helix (TH) used as a way of understanding the interconnection of three major components of national innovation systems: university, industry and government (Etzkowitz & Leydesdorf, 2000). In the TH model, interactions among universities, industry and government are identified as being the key to innovation, economic growth and competitiveness (Farinha et al., 2016). The main benefits for firms participating in TH networks, especially at the regional level, are based on knowledge access and improved ability to meet ongoing challenges (Elvekrok et al., 2018). In mentoring process incorporating of external knowledge is crucial for full support of mentee. The cooperation among participants of triple helix assures

social interactions across knowledge and technology fields that encompass stakeholders such as service providers, users and investors, decision makers and community members (Todeva et al., 2019). In the mentoring process, the effects of cooperation between members of the triple helix are used – figure 3. Governments assure the knowledge sharing in terms of public policies as well as the access towards public grants. Universities share the knowledge based on the conducted research results and support mentors and mentees in the knowledge transfer. Industrial entities assure the knowledge from the area of technological know-how, which is developed in their businesses.

Universities are crucial member of triple helix as they are a base for the most intense mentoring process, gathering both mentees and mentors. Higher education in the 21st century cannot be easily separated from technology-based solutions and they are crucial for developing e-mentoring as well. Technology is increasingly becoming an essential tool for any educator (Ensher & Murphy, 2011).Technological advances and the use of Computer-Mediated Communications (CMC), such as email, chat rooms, blogs, among others, are changing the way mentors and mentees interact (Tinoco-Giraldo et al., 2022). Universities can help develop Industry 4.0 knowledge and experience in the regional territory by supporting companies become aware of the potential offered by the new technologies, favouring the acquisition of technical competencies and formally recognizing the mentoring role of leading Industry 4.0 firms (Lapore et al., 2022).

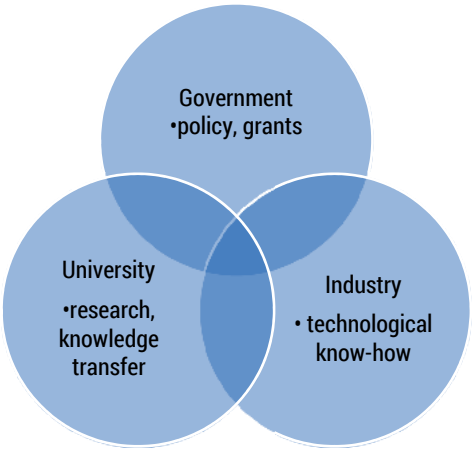


FIG. 3.3. **Triple Helix model in knowledge sharing in mentoring**

SOURCE: **own elaboration.**

New technologies presented at figure 2, which emerged during 4th industrial revolution affect how knowledge is acquired, transmitted and used (Ediz, 2018) and are calling for new managerial practices to facilitate learning, knowledge management and innovative capabilities (Shamin et al., 2017). Knowledge, as an organized combination of ideas, rules, procedures and information (Lee & Chang, 2007), is strongly linked with 4.0 technologies, acting as the key resource of business survival and success in the context of a knowledge economy (Teece, 1998).

In the 4th industrial revolution education, experience, skills and knowledge are used by employees to generate value to ensure firms' success (Agolla, 2018). However, to be competitive, it is necessary to upgrade knowledge, skills and competencies in job-related fields (Agolla, 2018). Workers must evolve to knowledge workers (Engelmann & Schwavem, 2018).

Moreover, new technologies can further support the sharing of knowledge among employees (Wagner & Bolloju, 2004) by simplifying the sharing of knowledge among people at work (Li et al., 2019). Different intranet software are also crucial for e-mentoring in the workplace. The intranet provides personalized internal communication between mentor and mentee, enhance employee engagement and measure interactions between participants of e-mentoring process.

Considering external enablers, the level of knowledge and experience in Industry 4.0 by other firms, which can also be treated as organisational mentors has redefined the nature of relationships. In fact, taking into account relationships with suppliers, partners or clients, a mentoring role is recognized for supporting less advanced companies that require knowledge of Industry 4.0 (Lapore et al., 2022).

3.6. Mentors Competencies in the Era of Education 4.0

Education is an important driver for the development of human capital and economic growth. To ensure the education ecosystem constantly stays dynamic and relevant, Education 4.0 has been developed in response to the 4th Industry Revolution (Tai & Omar, 2023). As a result, there was created a strong impetus to transform pedagogical practices, re-craft subject content, curriculum and assessment, and infuse educational management skills into schools continuously (Brown-Martin, 2018). Broadly, the major feature of Education 4.0 is that it actively constructs and applies knowledge to solve problems collaboratively in real life, at the same time meeting the demands of 4th Industry Revolution (Tai & Omar, 2023).

Education 4.0 requires radical, technology-based teaching and learning methods (Kin et al., 2022) as well as digital skills of both teachers and students and in mentoring process - mentors and mentees.

In the education 4.0 approach there was a change of focus from a traditional teacher-centred scheme to a learner-centred approach (Diaz Lantada, 2020). Education 4.0 in e-mentoring process is characterized by mentee-centred methodologies, by a systematic promotion of project-based learning, through which professional skills and transversal outcomes are acquired and put into practice, by an intensive application of technologies and by a growing number of connections between training and research. Authors have put forward the relevance of e-learning (and b-learning) methods, the interesting employment of e-portfolios, the progressive use of virtual laboratories and the increasing importance of internationalization in mentee education along the last two decades.

Tai and Omar (2023) developed the Teacher Competency Model for Education 4.0 (TCMEdu4.0) which can be also applied for mentoring process. That model consists of six components: one human competency i.e. the Self-Management and Interactive Competency, and five technical competencies; the Functional and Research Competency, Pedagogical Psychology and Assessment, Leading Learning and Mentoring, Technological and Digital Competency and Problem Solving (Tai & Omar, 2023).

The first component - Self-management and Interactive Competency is the awareness of teachers/mentors regarding approaches guiding their actions towards positive outcomes in teaching and learning/mentoring. These include effective communication, collaboration, utilization of emotion and stress management (Tai & Omar, 2023).

Pedagogical Psychology and Assessment is the second component which refers to those knowledge and skills in applying psychological knowledge in education, understanding the psychology and the psychological phenomena of learners/mentees as well as assessment skills, both formative and summative, that help teachers/mentors gather information about effective student learning (Tai & Omar, 2023).

Functional and Research Competency is the third component of TCMEdu4.0 made up of analytical skill, critical thinking, research skill and technique. This encompasses knowledge and skills needed in gathering, analysing, synthesizing and interpreting the collected data that may bring solutions to problems in teaching and learning/mentoring (Tai & Omar, 2023).

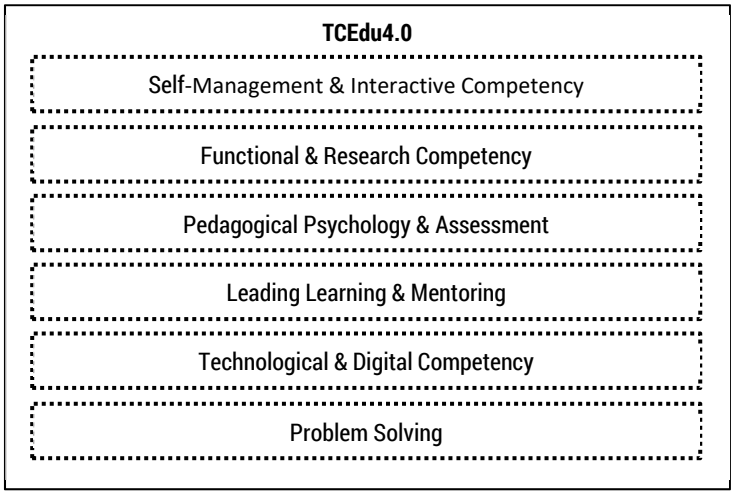


FIG. 3.4. Teacher/Mentor Competency Model for Education 4.0

SOURCE: Tai, M. K., Omar, A. K. (2023). Leading teaching and learning in the era of Education 4.0: the development of teacher competency model via structural equation modelling, International Journal of Management in Education Vol. 17, No. 2, 130-156. DOI: 10.1504/IJMIE.2023.129257.

Leading Learning and Mentoring is the fourth component and it is crucial for mentoring process. It is viewed as the ability of teachers/mentors to serve as leaders or mentors among their peers to influence instructional practices, improve student learning/mentee achievements and shape the mentoring culture. Teachers/mentors with this skill can provide guidance in subject curriculum, classroom instruction, procedures and best practices to help other teachers develop and reach their personal best (Tai & Omar, 2023).

Technological and Digital Competency is the fifth component and it is crucial for e-mentoring. It is defined as the capability of teachers/mentors to handle data, organize and maintain data processes that meet on-going information lifecycle needs; integrate ICT into their teaching and learning/mentoring efficiently; and to conduct blended learning that includes virtual or on-line classes effectively (Tai & Omar, 2023). Online mentoring needs advisors with technical expertise. They need to be comfortable working in an online learning environment with synchronous and asynchronous technologies, utilizing various technologies, websites, and online environments, and be adept at learning new teaching styles and new technologies (Kara & Can, 2019; Kumar & Coe, 2017; Schroeder et al., 2016).

Problem Solving is the sixth component of the model and is seen as the ability to make choices among alternatives, develop new ideas and solutions, as well as turning problems into opportunities. It enables teachers/mentors to make sense of a situation, think and plan strategically, and come up with a solution in the process of handling difficulties (Tai & Omar, 2023).

As the concepts such as Society 5.0 and Life 3.0 have been lately proposed, in literature the phenomenon of education 5.0 has been discussed. Society 5.0 is defined as a human-centred society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space (Cabinet Office). Life 3.0 is determined as human life in the age of artificial intelligence (Tegmark, 2017). These concepts are clearly connected to a coming future, in which mentors will have to support implementation of important technological advances with a fundamental impact on society and human relationships. We may well be initiating a technological revolution with much deeper implications than those arising from Industry 4.0. In consequence, both mentoring and education should also evolve towards an Education 5.0 in the era of Society 5.0 (Diaz Lantada, 2020). Education 5.0 transcends the development and application of technology and enters the realm of ethics and humanism, as key aspects of for a new generation of graduates. Students educated in this novel educational paradigm should be capable of leading and mentoring the approach to technological singularity, while ensuring human rights and focusing on the construction of a more sustainable and equitable global society (Diaz Lantada, 2020).

Diaz Lantada (2020) characterizes Education 5.0 by 16 interwoven key features:

- Dynamic and continuously evolving: in a continuously evolving world, with scientific advances and technological discoveries emerging constantly, engineering programmes should be able to dynamically evolve, so as to better adapt to societal needs and human challenges.
- Modular and flexible: education will require more flexible programmes, so as to better respond to the needs of society and the wishes of students; this can be achieved through modular approaches for the implementation of engineering programs.
- Personalized for joint personal and professional development: in a student-centred university, students should also responsibly decide and take a more part in their curricular planning, by continuously selecting formative modules adapted to their desires, by planning their internationalization strategy from the first years of the degree, by approaching in a more calculated way the enterprises or institutions, in which a co-op or academic external practice can be performed, among others. Mentoring by professors with experience in human resource management and support from more experienced peers, in a Montessorian style, should be considered, as part of the transformations required.

- Sustainability and solidarity focused by inclusion environmental and social impacts.
- Combining knowledge-based and outcomes based approaches with a focus on professional and soft skills. Those skills are crucial for complex projects, especially considering that current global challenges and threats require from multidisciplinary teams, adequate communication, creativity, leadership, respect to other people's and partners' opinions and cultures, in order to be solved.
- Holistic to create more universal study programme.
- Humanistic incorporating social, cultural, historical, anthropological, philosophical, etc., in summary: human aspects, into the engineering programmes, as the problems that engineers approach and solve are always human problems.
- Guided by ethics as ethical issues arise with the development of transforming technologies with the potential for reshaping society. Artificial intelligence, wisely applied, can lead to more efficient and effective products, processes and systems. However, several concerns linked to gender and racial biases observed in AI-based decision-making systems have been already reported.
- Collaborative and open source including the progressive adoption of FAIR (findable, accessible, interoperable, reusable) data principles for research and the rise of open publishing schemes.
- Involving international experiences as through internationalization and collaboration, engineering students become more prepared for large scale projects, understand the potential of diverse, international and multicultural teams for achieving creative engineering solutions and experience more enjoyable or even fascinating professional developments, while hopefully trying to create better conditions for our global society.
- Including external academic internships, which should be a relevant part of any study programme.
- Supported by project-based learning activities hybridized with service learning starting from real, relevant and unsolved societal problems, which receive a concrete answer in the form of a project, product, process or system.
- Technology-supported and artificial intelligence.
- Oriented to lifelong learning involving increased collaboration between academia and industry, establishing university-community research and training partnerships, providing continuing education for adult learning, developing mechanisms to recognize the outcomes of learning in different contexts, in connection to more flexible approaches to higher education.
- Enjoyable for enhanced results by implementing ''learning through play'' strategies, which should be conceived and implemented to be: joyful, meaningful, socially iterative and actively engaging.
- Equitable, aimed at ''engineering education for all'' by further developing and mentoring the technological advances that are reshaping the present.

3.7. Conclusion

The chapter discusses the transformation of mentoring in the context of Industry 4.0. E-mentoring has become a valuable approach to overcoming spatial and temporal limitations associated with traditional mentoring programs. It leverages digital platforms, communication tools, and emerging technologies to connect mentors and mentees virtually, fostering knowledge transfer and skill development. This approach addresses the challenges posed by Industry 4.0's rapid technological advancements, enabling professionals to adapt and grow within this evolving landscape.

E-mentoring capitalizes on various Information and Communication Technologies (ICT) such as IoT, Big Data Analytics, AI, and Cloud Computing, which play pivotal roles in supporting mentoring interactions. These technologies enable flexible communication, personalized mentoring programs, and access to diverse perspectives across different industries and cultures.

E-mentoring platforms equipped with communication tools, cloud storage, and even VR/AR capabilities facilitate efficient collaboration between mentors and mentees. However, the integration of technology in mentoring should be mindful of ethical considerations, data security, and privacy concerns.

Furthermore, the chapter highlights the significance of knowledge sharing in the Industry 4.0 era. The emergence of new technologies necessitates continuous skill updates and knowledge sharing, both formal and informal. The triple helix model–comprising academia, industry, and government–promotes collaborative knowledge exchange. Mentors, equipped with Technological and Digital Competency, act as vital contributors to this knowledge dissemination process.

Education 4.0, a response to Industry 4.0, emphasizes learner-centered approaches, flexible teaching methods, and the incorporation of digital skills. In this context, mentors play a role in Leading Learning and Mentoring, fostering a culture of ongoing learning and adaptation. The Teacher Competency Model for Education 4.0 provides a framework for guiding mentors' skills development, aligning them with the evolving educational landscape.

As technology continues to shape society and education, concepts like Society 5.0 and Life 3.0 have emerged, emphasizing human-centric approaches alongside technological progress. Education 5.0 integrates ethics, sustainability, and problem-solving skills, preparing students and mentors to navigate a rapidly changing world while upholding human values.

In conclusion, e-mentoring driven by Industry 4.0 technologies reshapes traditional mentoring practices, enhancing accessibility, knowledge sharing, and skills development. This approach empowers individuals to navigate the challenges and opportunities presented by the evolving digital landscape. The integration of technology, ethical considerations, and a learner-centered approach redefine mentoring's role in fostering continuous learning and adapting to the demands of Industry 4.0 and beyond.

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4. E-mentoring issues, effects, opportunities – profession development

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4.1. Introduction

Efficient e-mentoring can be a competitive advantage for organizations and yet it is easier said than done as e-mentoring can present unique practical and technical challenges for all involved parts - e-mentors, mentees and organizations. The search for answers to the challenges of e-mentoring has therefore been the focus of many authors. This chapter highlights not only different issues the parties face when planning and implementing e-mentoring, but also the solutions, support and conditions that have had a positive impact on various e-mentoring projects, not least the skills needed by e-mentors and support staff.

4.2. Challenges for organizations to design and develop e-mentoring

Main challenges to e-mentors are related to communication, technology use, and determining the mentor role. In previous studies it is argued that e-mentors experience similar benefits and challenges as mentors in face-to-face processes with a few advantages and disadvantages inherent in the medium; however, there are few empirical evidence (Williams, Sunderman & Kim, 2012; Single & Single, 2005).

Communication challenges

Technologies are at the very center of e-mentoring to convey messages and involves the absence of body language (Rowland, 2012). Communication by using electronic medium are easy to misinterpret, transfer of ideas might not be clear enough (Williams, Sunderman & Kim, 2012). Neely, Cotton & Neely (2017) agree that in e-mentoring it is more likely that mentees may not understand information and have fewer

opportunities to clarify, and be less receptive to information and advice than in face-to-face communication. Panopoulos & Sarri (2013) explain that there is the lack of additional information that body language and non-verbal communication adds to face to face mentoring requires experience in the use of electronic communication, and it makes e-mentoring procedures more vulnerable to misinterpretations and misunderstandings. Additionally, mentors and protégé's may find it difficult to engage in on-line e-mentoring because they believe it is impersonal (Smith & Israeli, 2010). Neely, Cotton & Neely (2017) remind there are people with different necessity to have face-to-face interaction. Accordingly, those who are high in need for affiliation and face-to-face interaction might not choose to enter in e-mentoring.

Use of technologies

E-mentoring can present unique practical and technical challenges including the set up and maintenance of websites, monitoring the Internet and supporting two-way communication. On the one hand, sources (Neely, Cotton & Neely, 2017) claim e-mentoring can be more cost effective while on the other hand studies have found that web sites, matching protocols, and software to facilitate management and evaluation of the e-mentoring programs require expensive ICT resources (Single & Single, 2005). Need for technology resources may result in significant cost difficult to coordinate and manage (Single and Single, 2005). Technology related lack of resources might be specifically challenging for non-profit and educational support programs.

E-mentors can also have difficulty to operating the technology in which e-mentoring takes place due to individual factors (e.g. skills) or situational factors (e.g. perceived ease of use) (Williams, Sunderman & Kim, 2012). Restrictions to access technologies (for example, restricted access to internet) or use them is identified also as problem for mentees (Kaufman et.al., 2022). Neely, Cotton & Neely (2017) have summarized different opinions and claim e-mentoring context and the type of technology used may affect the degree to which mentors and protégés choose to enter a mentoring relationship. Those who have high levels of computer-self efficacy may be more motivated to participate in mentoring than those that do have not high levels of computer skills. It is significant to remind that for many mentor-protégé pairs, technological issues are the primary obstacle, thus digital competence turns into determinant that defines ability to be mentor or mentee.

Commenting on technological challenges, some studies add that in e-mentoring, protégés can also find it difficult to observe and replicate their mentors' behaviours due to the constraints of technology and accessibility (Neely, Cotton & Neely (2017:225).

Few studies also raise the question of privacy in the context of e-mentoring (Kaufman et al., 2022), yet it is not listed among the main concerns.

Matching mentees and mentors

It is believed that e-mentoring can increase the pool of mentors and protégés sources as it has potential to provide also large external resource pool. Kasprisin et. al., (2003) claims unequal relationship between mentor and protégé exists during the first stages of the mentoring relationship but e-mentoring helps to deconstruct hierarchies, decreases the power distance and initial feelings of intimidation thus facilitating the development of relationships among people of different status. Jeske & Linehan (2020) confirm when mentors were perceived to be similar to mentees, mentees reported that the mentoring relationship was of higher quality and resulted in more learning. Still e-mentoring does not eliminate all the challenges related to the mentoring pair matching as previous e-mentoring projects have proven that matching mentors and mentees is one the greatest challenges (Tinoco-Giraldo, Torrecilla & García-Peñalvo, 2022). E-mentoring matching can be informal and both parts can find each other and the relationship grows organically, or the relationship can be arranged in a formal mentoring program (Neely, Cotton & Neely, 2017). Clutterbuck (2004) advocates for allowing protégés to make their own choices as protégés are more likely to commit to a mentoring relationship in which they choose their mentor.

No matter how both parts are matched, Bierema & Hill (2005) state the relationship between protégé and e-mentor may be problematic and Clutterbuck (2004) agrees by identifying mentoring relationship issues to mention just a few – problems can be caused by lack of time, expecting too much of each other, having unclear relationship goals etc. Byrne et.al., (2019) has studied e-mentoring in academic environment and also emphasizes the possibility that mentors may have too high academic standards. These authors mention limitations to provide honest and substantive feedback as another challenging aspect.

The importance of matching is emphasized by Hunt (2005) by reminding the development of well design matching criteria is one of the key principles to build effective relationships in a formal e-mentoring program. At the same time Headlam-Wells, Gosland & Craig (2006) have found out there has been little research conducted into what matching criteria should be used to determine mentoring pairs and that most researchers have focused on demographic factors, such as age, gender and ethnicity.

Lack of time

The same study has also taken critical perspective to the fact of how easy these e-mentoring relationships can begin or end and the lack of commitment. In this context, Ensher, Heun & Blanchard (2003) actualizes the problem of being unresponsive at the beginning of the e-mentoring. Neely, Cotton & Neely (2017) have found out some organizations may find it difficult to encourage mentors and protégés to interact on a consistent basis and engage in self-disclosure but the interaction frequency is key to initiating and maintaining successful relationships and creating trust.

Schichtel (2010) has emphasized both the lack of face-to-face time and a lack of impromptu meetings. Jeske & Linehan (2020) have made conclusion that lack of time is one of the factors that has been associated with dissatisfactory outcomes in mentoring.

Other challenges of e-mentoring

Previous research is in agreement about the main challenges for e-mentoring and these opinions represent different fields – from academic environment to health care. Additionally, to the key issues there are few more e-mentoring challenges mentioned less frequently in academic studies. Some researchers have found out e-mentoring may be less likely to capture the attention of protégés than traditional mentoring relationships (Neely, Cotton & Neely, 2017). Schichtel (2010) states a lack of direct observation and technical problems with technologies as a means of communication might be the source of challenges.

National mentoring centre (2021) refer to mentor and mentee's personal circumstances both a mentor as the factor that may impact the outcomes of an e-mentoring program.

Few of the organizational issues according to Clutterbuck (2004):

- Poor planning and preparation;
- Poor clarity of roles of persons involved in process;
- Failure to set and measure clear outcomes;
- Too little or too much formality;
- Failure to quality-control mentor pool;
- Being too elitist (programs for high-flyers) (Clutterbuck, 2004, 119-121).

In the context of organization, Clutterbuck (2004:119) concludes that unclear program objectives, lack of public endorsement by senior management and under-resourcing mentoring programs are common failures. The shortage of familiarity of mentoring is more typical in business organizations and could be hindrance. Overall performance of mentoring program is related to perception of responsibility of mentoring in organization.

Solutions to e-mentoring challenges

Previous studies focus both on overall planning and design of e-mentoring problems as a mean of effective e-mentoring and also on solutions of specific e-mentoring aspects. Yet it is rather complicated to focus on separate categories. For example, Smith & Israeli (2010) indicate three general blocks of e-mentoring recommendations related to:

- Technology-mediated communication;
- The nature of the online mentor-mentee interactions and relationships;
- Mentee and mentor supports.

All three areas interrelate and affect one another. Online communication options affect the mentor-mentee interactions, whereas supports offered to mentors and mentees sustain both their technology-mediated communications and, consequently, their interactions and relationships (Smith & Israeli 2010: 31).

Some recommendations for overall well-designed e-mentoring program have been advised by Hunt (2005). Hunt (2005:7) has defined seven key features and it discovers the different aspects the organization should take into account when planning e-mentoring:

1. Professionally developed registration process:
   - ensures quality data is captured for matching participants.
2. Quality on-line training and development material:
   - provides immediate benefits;
   - helps to set expectations;
   - and helps mentee to take ownership of the relationship earlier.
3. Self-assessment program for mentors:
   - allows them to identify their own development needs against the core competencies of mentoring.
4. Well-designed matching criteria:
   - location ceases to be a consideration, thus skills, experience and knowledge can be concentrated.
5. Managed introduction for e-mentoring relationship:
   - program of facilitation messages and progress questionnaires;
   - no fault divorces;
   - confidential.
6. Web-based support, tools and information.
7. Managed endings. (Hunt, 2005:7)

Clutterbuck (2004) emphasizes the importance of monitoring mentoring programs – communication between coordinators, mentees and mentors.

Another aspect that can be taken into account – co-designed e-mentoring programs. Alhadlaq, Kharrufa & Olivier (2019) recommend to use the potential of co-designing programs in the context of e-mentoring for teenagers; however, the participatory design approach might be utilized already in other contexts.

Previous experiences confirm it is typical to spend a great deal of time both on recruiting effective mentors and preparing them for their roles as mentors within an online environment - tasks of recruitment and preparation of e-mentors are crucial for the success of the e-mentoring programs (Smith & Israeli 2010). Deng *et.al.* (2022:390) refers to previous studies by stating that greater perceived input into the matching process, from both the mentor and mentee, was related to greater mentorship quality and role modelling functions.

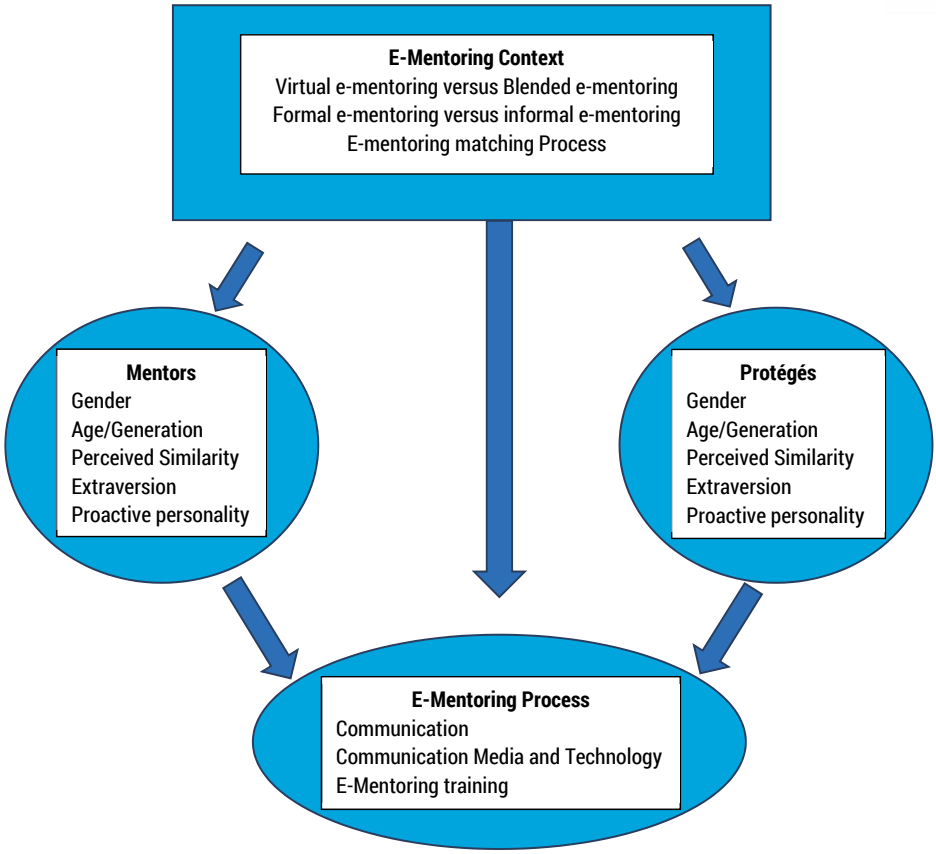


FIG. 4.1. A model of e-mentoring

SOURCE: Neely, Cotton & Neely, 2017.

As already stated before, one of the biggest challenges for mentoring and also e-mentoring programs are matching mentor and mentee pairs. Several studies have done about formal pair matching and reported on the results but pair matching depends on the context and there is no universal recommendations how to plan and implement it. Yet, analysing other examples might be beneficial to understand different aspects of pairing that should be taken into account. Other studies are promoting the approach of allowing protégés to make their own choices (Clutterbuck 2004). Grant *et. al.* (2020) is in agreement as their study on the one hand confirms the value of adopting a formalised approach to mentoring, while on the other hand emphasizes barriers that can jeopardise the effectiveness of formally-structured mentoring programs. As a result of technological development new digital solutions have been developed to facilitate mentoring activities, it includes also support for matching mentor-mentee pairs, for example, *Together* software[1].

[1] https://www.togetherplatform.com/

Neely, Cotton & Neely (2017) have developed model of e-mentoring where pair matching is presented as significant stage of the e-mentoring process. The model generally suggests to consider both age/gender as well as perceived similarities.

One of the e-mentoring projects that involved large number of participants and reported results were implemented by Headlam-Wells, Gosland & Craig (2006). For the needs of e-mentoring, project has identified the set of 11 matching criteria for mentoring pairs. It should be noted that the list of criteria is developed for the needs of specific mentoring project[2] and for the cases when pairing is organized formally instead.

TABLE 4.1. Matching criteria

Criterion	Explanation	Reason for inclusion
Age	Mentee matched with older mentor	Traditional mentoring models; and previous project feedback
Number of years work experience	Mentee matched with mentor with more work experience	Traditional mentoring models; and previous project feedback
Level of qualification	Mentee matched with mentor with higher qualification level	Traditional mentoring models; and previous project feedback
Marital status	Mentee matched with mentor with the same marital status	Similarities in pairings' situations could improve rapport; previous project feedback
Children	Mentee matched with mentor in a similar situation to themselves (having/had children)	Similarities in pairings' situations could improve rapport; previous project feedback
Dependant care	Mentee matched with mentor in a similar situation (dependant care responsibilities)	Similarities in pairings' situations could improve rapport; previous project feedback
Life/career history	Identify similarities in life/career experiences, e.g. having experienced barriers to progression	Similarities in pairings' situations could improve rapport; previous project feedback
Personal skills	Mentee matched with mentor who could help them develop the personal skills they need to develop	To ensure mentee's individual development needs were met
Professional skills	Mentee matched with mentor who could help them develop the professional skills they need to develop	To ensure mentee's individual development needs were met

[2] The purpose of EMPATHY-EDGE project was to promote women's career and management development, and the system provided mentoring resources that focused on these areas. Project involved a total of 122 volunteers who were matched into pairs.

Criterion	Explanation	Reason for inclusion
Vocational sector	Mentee matched with mentor who worked/had worked in a similar occupational area	Ensure mentor had adequate knowledge and experience of the mentee's vocational sector
Personal values	Mentee matched with mentor who shared similar core values	Sharing common values could improve rapport

Source: Headlam-Wells, Gosland & Craig (2006).

Headlam-Wells, Gosland & Craig (2006) are positive about the pair matching outcome by applying the criteria. Additionally, they go even further and confirm that in designing successful e-mentoring schemes, developers need to create a community in cyberspace. Setting mentor pairs is part of community creation activity.

Deng et.al. (2022:390 -391) also pay attention to individual characteristics when matching mentor-mentee pairs and sum up wide spectrum of attributes to be taken into account:

- Experience-based characteristics include educational background, career experience, and geographic location;
- Surface-level characteristics refer to demographic features that are physically visible such as gender and race/ethnicity;
- Deep-level characteristics include qualities that are not immediately visible such as attitudes, interests, values, beliefs, and personality.

The selection of appropriate digital technology is a major consideration for e-mentoring programs (Mentor, 2019) and both sides need to have compatible IT equipment. The system should be 'usable, universal and useful' (Shneiderman, 2004 as cited in Headlam-Wells, Gosland & Craig 2006). To overcome the challenges set by the use of technologies several authors suggest training or workshops. Neely, Cotton & Neely (2017) advocate the workshops on basic computer and technology literacy in order to decrease barriers that may arise from a lack of knowledge, skills, and abilities related to any media used during e-mentoring.

In fact, Williams, Sunderman & Kim (2012) claims that as a result of e-mentoring activities mentors received not only psychological benefits, professional assessment, but also increased technological skills. Neely, Cotton & Neely (2017) add increased self-efficacy, self-confidence as well as extended communication skills, their support network, new knowledge in overall and job-related assistance. At least partially this is a result of the training as mentor training is not limited to digital skills improvement. Single & Single (2005) have observed that e-mentoring programs implement training differently, yet all the variations on training serves to get the e-mentoring relationships off to a good start. Neely, Cotton & Neely (2017) specifically emphasize that training must promote consistent contact between mentors

and protégés, realistic and timely goals, and accountability for the e-mentoring process. The authors claim organizations that try to encourage mentoring will often offer mentoring training. In connection to training activities, some empirical studies highlight the need for material preparation in advance when planning and preparing e-mentoring project. Thus, Shresta *et.al.* (2009) refers to positive experience when a range of materials were prepared to assist the mentors, including pre-prepared e-mail templates, activity sheets, and a set of general guidelines. Even the e-mail templates were designed for mentors to initiate communication with, and invite contributions from, mentees on a weekly basis.

Regarding communication, social media (e.g., Facebook, Twitter, Linkedin) can be useful platforms as they can foster interaction in e-mentoring relationships (Neely, Cotton & Neely, 2017). Critically assessing communication challenges in e-mentoring, Headlam-Wells, Gosland & Craig (2006) recommends for the mentor pair to meet before beginning their online relationship. They have found out that a blended approach is the most effective way of building successful relationships.

E-mentoring projects can be complicated and therefore mentor and mentees can be in need of medium – program coordinator of facilitator. Several empirical studies have stressed the significance to have the position of coordinator in e-mentoring projects. They are expected to provide support to mentors and mentees in an online format. The technical supports provided by facilitators involves assistance in maintenance, training, and support of the various Web site components (Smith & Israeli, 2010).

4.3. E-mentoring skills, knowledge and competences

Individuals' values, goals and job-relevant resources (e.g., knowledge, skills, and abilities) serve as important determinants of their intentions and behaviours, including:

- Joining and remaining in the organization
- Helping the organization meet its goals (Stone & Lukaszewski, 2009:136).

There have been attempts to identify online mentoring specialist competences and characteristics which could inform about standards of acceptable performance and provide guidance for training. In previous studies it is argued that e-mentors experience similar benefits and challenges as mentors in face-to-face processes with a few advantages and disadvantages inherent in the medium; however, there are few empirical evidence (Williams, Sunderman & Kim, 2012; Single & Single, 2005). The study by Mentee Project Consortium & Knowl Social Enterprise (2015) gives insight into business mentor competences and suggests that technological skills for e-mentoring as one aspect of mentor competences – competences for mentor

and e-mentor are overlapping at least partially. Nieto (2016) adds on the basis of previous studies that both "*traditional and e- mentoring function within similar parameters, and incorporate the key elements of reciprocity, developmental benefits, and consistent interaction*" (Nieto 2016: 6). Yaw (2007) noted that although e-mentoring relationships draw inspiration from traditional mentoring relationships and can emulate them in many ways, they develop differently and serve different needs. So different nature of used media, as well as organizational aspects and developmental distances must be taken into account also in the context of mentors` competences. Quite a few studies suggest to embrace mixed approaches to mentoring by combining face-to-face and e-mentoring activities thus it might be hard to make distinction between competences needed for traditional mentoring and e-mentoring. Therefore, in this section the competences and characteristics of mentors will be reviewed with special focus to the extra competences in need to be able perform e-mentoring.

Brian Tracy is an expert in the fields of management, leadership and sales. He has written dozens of topic related books. He believes there are two vital qualities of mentor - the first is character and the second is competence and considers character is by far the most important (Tracy, 2023). Academic studies does not deny the significance of mentor characteristics but rather identifies several equally significant domains of mentors` attributes. Thus Nieto (2016:4) has elaborated on the concept of The Archetypal Mentor with three subdomains (see Figure 4.2.). According to the author, "A" represents the intersection of professional and psychosocial development, the intersection of "B" reflects the nexus of professional and career responsibilities, and "C" the intersection of professional and career qualities.

Rose (2003) adds to discussion and refers to such mentor attributes as intellectual curiosity, open communication, availability, ethical behaviour. Panopoulos & Sarri (2013) have discovered that personal innovativeness positively impacts e-mentoring.

Nieto (2016) in the process of development of the model of The Archetypical Mentor has relied on the pervious study by Schichtel (2010) where the author has performed analysis of 320 related full-text studies and recurring competence themes were sorted into subject areas. As result four major competence domains were identified and classified:

- Generic professional competences
- Generic mentoring competences
- E-learning competences
- Specialist e-mentoring competences (Schichtel, 2010: 251).

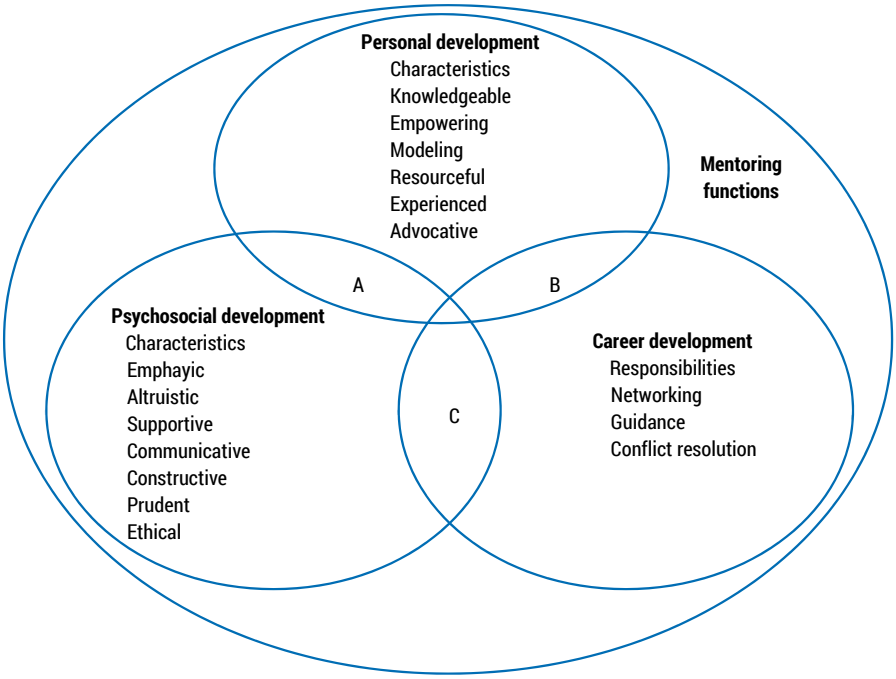


FIG. 4.2. The Archetypal Mentor

SOURCE: Nieto, 2016.

According to Schichtel (2010), the three generic competences – professional, mentoring and e-learning – were perceived as the foundational structure that supported the specialist e-mentoring domains.

Further seven specific and significant e-mentoring core-competence domains emerged. Though they overlapped to a degree with the foundational competences, they exhibited specific online attributes. According to Schichtel (2010), these seven domains characterize the e-mentoring competences required for medical educators although as seen the competences can be referred to e-mentors in general:

- Online developmental competence domain;
- Social;
- Cognitive;
- Teaching;
- Communication;
- Managerial;
- Online technical competence domain (Schichtel, 2010: 251).

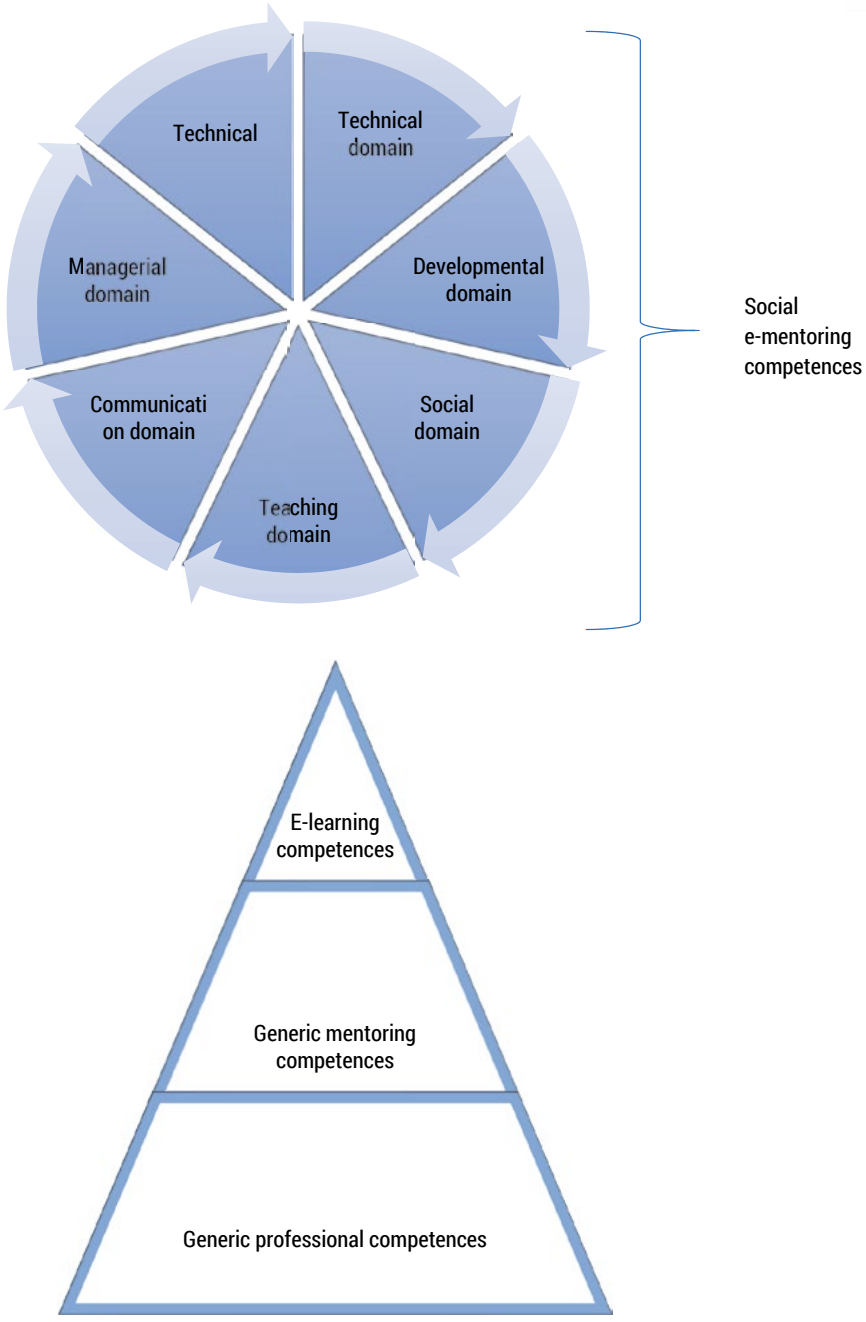


FIG. 4.3. E-mentoring competence model

SOURCE: Schichtel (2010).

Also Mentee project research attempts to embrace wider perspective to different attributes of business e-mentors and integrates personal characteristics and attitudes, skills, knowledge and competences. The study categorizes skills and competences mentor need to possess (1) to create trusting relationships and rapport; (2) to create and maintain clear communication; (3) to manage conflict within the mentoring relationship; (4) to facilitate the personal development of a mentee, supporting him/her in improving talents and bringing out the real potential. Additionally, it stresses the importance of (5) the personal characteristics and/or traits that are considered essential for a mentor (Mentee project Consortium & Knowl Social Enterprise, 2015).

TABLE 4. 2. Business mentoring competences identified for each one of the 3 levels of achievement

Level of achievement	**Level I – high potential**			
Mentoring competences cluster	• Building rapport (The ability to establish a meaningful dialogue. It includes the skills of active listening, empathizing and giving positive regard; of offering openness and trust to elicit reciprocal behaviour; and of identifying and valuing both common ground and differences.) • Active listening (It includes the skills of listening; observing as receiver; parallel processing; projecting; observing as projector; exiting) • Setting direction (It includes the skills of goal identification, clarification and management; personal project planning; testing the mentee's level of commitment to specific goals; reality testing)			
Mentors` key characteristics	• Openness • Integrity • Responsibility			
Competences	**Attributes / personal attitudes**	**Soft skills**	**Knowledge**	**Hard skills**
	• Orientation towards success • Integrity and reliability • Lifelong learning • Optimism	• Motivation • Giving and receiving feedback • Active Listening	• General business & management (goal setting, organizing, strategic planning, delegating etc.)	• Goals reframing skills • Managing mentoring meetings • Solution focused skills • Leadership skills • Results orientation • Planning skills finances

<table>
<tr><td>Level of achievement</td><td colspan="4">Level II – moderate potential</td></tr>
<tr><td>Mentoring competences cluster</td><td colspan="4">• Action planning and goal setting (it includes the skills of obtaining information on the mentee's goals; defining and detailing the mentoring goals; planning the achievement of the proposed goals; establishing and applying short-term and medium-term decision-making procedures)</td></tr>
<tr><td>Mentors` key characteristics</td><td colspan="4">• Creativity
• Honesty
• Enthusiasm for the field
• Emotional Intelligence</td></tr>
<tr><td rowspan="2">Competen-ces</td><td>Attributes / personal attitudes</td><td>Soft skills</td><td>Knowledge</td><td>Hard skills</td></tr>
<tr><td>• Respect of the perspective and individuality of the mentee
• Vision</td><td>• Understanding boundaries and confidentiality
• Patience
• Flexibility
• Adaptability</td><td>• Understanding boundaries and confidentiality
• Patience
• Flexibility
• Adaptability</td><td>• Business/ professional savvy (specific technical knowledge)
• Questioning skills
• Training skills</td></tr>
<tr><td>Level of achievement</td><td colspan="4">Level III – limited potential</td></tr>
<tr><td>Mentoring competences cluster</td><td colspan="4">• Building rapport (The ability to establish a meaningful dialogue. It includes the skills of active listening, empathizing and giving positive regard; of offering openness and trust to elicit reciprocal behaviour; and of identifying and valuing both common ground and differences.)</td></tr>
<tr><td>Mentoring competences cluster</td><td colspan="4">• Active listening (It includes the skills of listening; observing as receiver; parallel processing; projecting; observing as projector; exiting)
• Setting direction (It includes the skills of goal identification, clarification and management; personal project planning; testing the mentee's level of commitment to specific goals; reality testing)</td></tr>
<tr><td>Mentors` key charac -teristics</td><td colspan="4">• Openness
• Integrity
• Responsibility</td></tr>
</table>

	Attributes/ personal attitudes	Soft skills	Knowledge	Hard skills
Competences	• Positive thinking • Strong and constant faith in mentees capabilities • Understanding diversity • Empathy • Willingness to share and acquire knowledge and experience	• Storytelling • Networking • Sustaining commitment • Emotions regulation • Persistence	• Finance (planning, budgeting, accountancy etc.) • Human resources management (recruitment/ selection, training, compensation etc.) • Information & Communication Technology (social media, informational portals, support communities & forums etc.) • Sales (planning sales, building rapport, presenting products/ services to customers, negotiating contracts, influencing decision makers etc.)	• Use of technology (e-mentoring) • Drafting Business Plans • Processes management skills

Source: Mentee project Consortium & Knowl Social Enterprise, 2015.

Lane and Clutterbuck (2004) defined five pairs of matched capabilities, which are associated with the most efficacious mentors.

- Self-awareness and behavioural awareness (understanding others);
- Business/professional savvy and sense of proportion;
- Communication and conceptual modelling;
- Commitment to own learning and interest in helping others to learn
- Relationship management and goal clarity.

Tominaga and Kogo (2018) performed preliminary study in university regarding-mentoring for online course participants. They asked students about preferred attitude and behaviour by mentor as well as about knowledge and skills required in a mentor. Results revealed nine categories of attitudes and behaviours that learners expected from their e-mentors (Dos), 10 categories of attitudes and behaviours they wanted e-mentors to avoid (Don'ts), and six categories of knowledge and skills that they felt were necessary for e-mentors (See Table 4.3.) (Tominaga & Kogo, 2018)

TABLE 4.3. **Categories of attitudes and behaviours expected from e-mentors**

	Category
Dos	Cooperation with teachers, Quick feedback, Meticulous support, Empathetic attitudes/behaviours, Affinity, Humility, Fairness, Calm, Common-sense attitudes/behaviours
Don`ts	Attitudes/behaviours like teachers, Inappropriate attitudes/behaviours as e-mentors, Overbearing, Stern, Forsaking, Unfair, No response, Default, False, Business-like
Knowledge and skills	Specialized subject skills, IT skills, Writing skills, Reading skills, Communication skills, Teaching skills

SOURCE: **Tominaga and Kogo, 2018.**

The same study by Tominaga and Kogo (2018) includes quantitative survey (n=260) that allowed to identify the differences between e-mentor and face-to-face mentor skills as the results were compared with previous studies concerning qualities of mentors. The authors discovered that some factors overlapped while unique for e-mentoring – factors named "Support for learners" (in this factor in the absence of non-verbal communication is absent and wording is emphasizing, thus e-mentor should use words that do not confuse or demotivate learners) and factor "Consideration for learners" (online discussions are often conducted in chat rooms or social networking spaces where e-mentors can also participate in the discussion. Hence, e-learners were concerned that it was possible to view the kind of comments e-mentors made to anyone) (Tominaga & Kogo, 2018:1782).

Philips (2003) has used different approach and elaborated The Mentoring Skills Mode where key skills for both parts - mentees and mentors are reflected. According to this research, the most valued mentoring skill is giving encouragement.

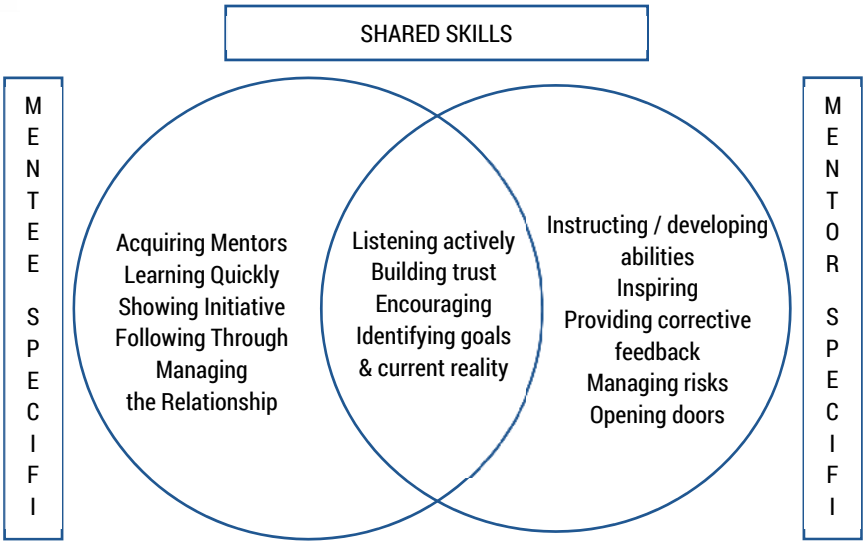


FIG. 4.4. The mentoring skills model

SOURCE: Phillips-Jones, 2003.

Study by Panopoulos & Sarri (2013) take into account sociodemographic attributes of the e-mentor. The authors claim mentors' age and gender are correlated with e-mentoring adoption. Neely, Cotton & Neely (2017) also have discussed the impact of sociodemographic attributes in e-mentoring and they have summarized different opinions and claim the choices about mentors and protégés will likely depend on perceived similarity in attitudes, goals, and values but not necessarily demographics. In the model of e-mentoring, the authors present both types of attributes. Studies are not in agreement about the background similarities of mentors and mentees - some authors argue that mentors with different backgrounds offer different perspectives and that such a difference benefits protégés the most while others contend that similarities between mentors and protégés bolster the development of rapport while differences support learning outcomes (Neely, Cotton & Neely, 2017).

4.4. Conclusion

Overall previous studies emphasize that e-mentoring should be perceived in wider context of how supportive the organization culture towards these types of activities is and how organizational culture is presented in coping with challenges of e-mentoring. Previous research has identified that the main challenges of e-mentoring are related to the limitations of using digital technologies, communication problems,

the difficulty of creating effective mentor-mentee pairs, and the fact that mentoring relationships are easy to start in practice, but just as easy to stop because one of the parties does not communicate actively enough, either due to lack of time or for other reasons. There has been a lot of discussion about the qualities of e-mentoring. Researchers agree that mentoring and e-mentoring share common ground, but the specificity of e-mentoring is the presence of digital technologies and the distance in time and space between the e-mentor and the protégé. Regarding e-mentor attributes, the studies identified necessary and desirable competencies, knowledge, skills, attitudes, and even personality traits to perform responsibilities of mentor and facilitate professional development of protégé.

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5. E-MENTORING - REVERSE MENTORING

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5.1. Theoretical introduction

The reverse mentoring concept and definitions

Within the field of mentoring and e-mentoring, in both scientific research and practical application, reverse mentoring (also known as inverted mentoring) is a relatively new concept that refers to a process where a younger or less experienced individual takes on the role of the mentor and shares their knowledge with an older or a more experienced person who acts as the mentee (Murphy, 2012; Gadomska- Lila, 2020).

Reverse mentoring was developed as a response to changing socio-economic conditions (especially dynamic changes and digital advancement in society) and a reality where younger generations often have greater digital skills and knowledge, allowing them to provide guidance and support as well as transfer knowledge to the older generation. In this process, the mentor, even though he or she has a shorter professional experience than the mentee, possesses more extensive knowledge in the selected area or has greater specialist (expert), managerial (management of unique projects or teams), or soft (social, communication) competences (Foundation of Business Leaders). Reverse mentoring is seen as an innovative way to encourage learning and facilitate cross-generational relationships (Murphy, 2012).

The concept of reverse mentoring was invented by the former CEO of General Electric - Jack Welch, who first institutionalized its practice in the late 1990s (Chaudhuri, 2015).

Current, very dynamic technological progress has become an important impetus for the development of reverse e-mentoring. Reverse e-mentoring uses technology and online tools for communication and the sharing of knowledge between the mentor and the mentee. In the reverse e-mentoring model, interactions and collaboration mainly take place through online platforms such as email, chats, web discussion forums, video chats, social platforms, educational platforms, and others. Unlike traditional mentoring, e-mentoring utilizes electronic means as the primary channel of communication between mentors and mentees (Hamilton &

Scandura, 2003). This allows individuals who previously had limited access to mentoring to reach a diverse range of mentors as well as enables relationship development within the virtual space making e-mentoring a valuable career development and management tool (Clutterbuck et al., 2017; Headlam et al., 2005).

Reverse mentoring is currently being researched and implemented within various fields, including education (Zauschner-Studnicka, 2017; Süss-Stepancik & Permoser, 2017; Morris, 2017), management (Gabriel et al., 2020; Sisodia & Agarwal, 2019), professional development, entrepreneurship, medicine, healthcare (Madhavanprabhakaran et al., 2022), and intercultural mentoring (Napier, 2006). It offers a unique perspective on mentoring that uses generational and digital diversity as a driving force for development and mutual support. It is an effective form of mentoring that utilizes technological potential to support personal and professional growth in the context of intergenerational interactions. Reverse mentoring possesses the characteristics of relational mentoring based on a community approach where mentors and mentees experience mutual growth, learning, and development (Haidusek-Niazy et al., 2023).

Reverse mentoring research objectives

Research done on reverse mentoring, particularly on reverse e-mentoring, is still in its early stages of development, with practice being far ahead of theory. In recent years, however, reverse mentoring has garnered significant interest in scholarly literature and has become increasingly prevalent in practice.

A review of reverse mentoring research shows that its initial and main goals include the transfer of knowledge as well as the bridging of the technological divide between generational groups (Chaudhuri, Park & Johnson, 2022). What is more, with the transition from a knowledge economy to a learning economy (Chaudhuri, 2015), more recent research also includes the idea of learning partnerships between generations (Zauschner - Studnicka, 2017) as the focus has shifted towards intergenerational learning (Gadomska-Lila, 2020; Satterly et al., 2018; Sajinčič et al., 2019; Rupčić, 2017; Murphy, 2012), including intercultural learning (Napier, 2006). Learning is a fundamental principle of reverse mentoring and addresses contemporary challenges such as the two-way brain drain in organizations. On the one hand, there is the issue of older workers approaching their retirement age who will take their organizational knowledge with them when they leave. On the other, younger employees (mostly millennials) change jobs very often, also taking their knowledge with them (Chaudhuri, Park & Johnson, 2022). Reverse mentoring can help bridge the thus-created intergenerational knowledge gap (Chaudhuri & d Ghosh, 2012; Hechl, 2017; Cotugna & Vickery, 1998).

In recent years, the sum of the goals of research into reverse mentoring and its use has grown extensively (Garg & Singh, 2019) and now includes such important aspects as the management and development of talents of multiple generational groups, the creation of intergenerational relations (Gadomska-Lila, 2020), addressing

of diversity and inclusion issues, as well as leadership development (Gabriel et al., 2020; Nagi, 2020 Murphy, 2012). The main goals of reverse mentoring research have been presented in Figure 5.1.

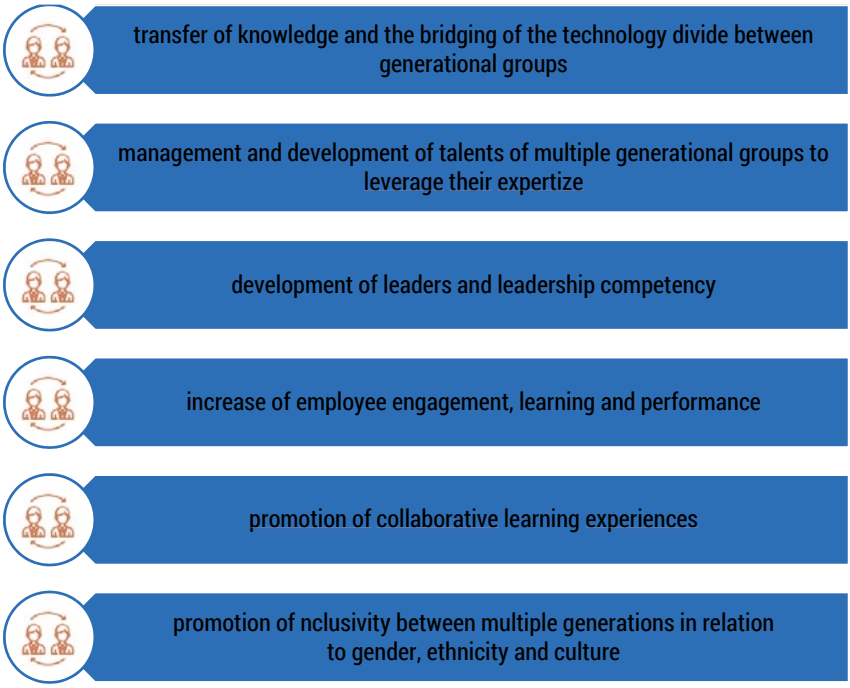


FIG. 5.1. Research objectives of reverse mentoring

SOURCE: own elaboration based on Chaudhuri, Park & Johnson (2022).

Chaudhuri, Park & Johnson (2022), based on an analysis of scientific literature as well as on their practical experience, have divided research in the field of reverse mentoring into the following categories: technology, diversity and inclusion, leadership (Nagi, 2020; Gabriel et al., 2020; Chaudhuri, 2015; Murphy, 2012), engagement (Chaudhuri and Ghosh, 2012), communication (Breck et al., 2018), social media and subject matter advances (Gabriel et al., 2020) (Figure 5.2).

Various theoretical frameworks that expand with increasing progress in practice are utilized in research on reverse mentoring. A comprehensive review of studies conducted by Chaudhuri, Park, and Johnson (2022) indicates that the primary theoretical frameworks for research on reverse mentoring include:

- Social exchange theory (Chaudhuri & Ghosh, 2012);
- Leader-member exchange (LMX) theory (Hechl, 2017);
- Development theories and learning theories (Zauschner-Studnicka, 2017);
- Career development theory (Boyle, 2019);

- Organizational age theory (Chaudhuri & Ghosh, 2012);
- Behavioral management theory (Gabriel et al., 2020).

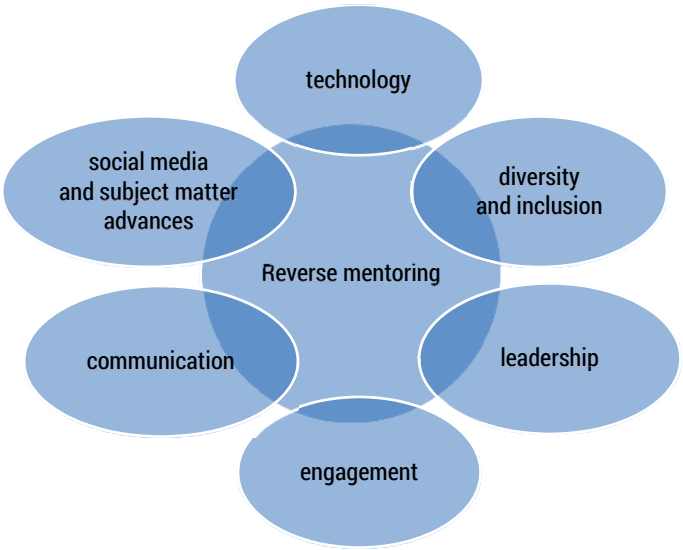


FIG. 5.2. The use of reverse mentoring - knowledge areas

SOURCE: own elaboration based on Chaudhuri, Park & Johnson (2022).

Research dealing with e-mentoring focuses on the instrumental rather than the developmental or personal aspects of e-mentoring (Shpigelman et al., 2009; Ensher et al., 2003). However, this concept should be studied from a broader perspective that goes beyond perceiving it solely as technology-related (Garg & Singh, 2019) because technology is only the catalyst for establishing a reverse mentoring relationship (Chaudhuri, 2015). Since motivation, including the motivation to learn, plays an important role in the process of reverse mentoring (Kaše et al., 2019; Chen, 2016), Chaudhuri, Park, and Johnson (2022) indicate a need for future research into the motivation of participants to learn within the reverse mentoring process as well as into the impact of having a reverse mentor on the changing of the behavior and skills of mentees. So far, there is little research into the phenomenon of e-mentoring from a psychological perspective (Shpigelman et al., 2009).

5.2. Advantages of reverse mentoring

Reverse mentoring offers numerous benefits for the mentor and the mentee, as well as the organization where it is utilized. (Gadomska-Lila, 2020; Chen, 2016) (Figure 5.3). The benefits of reverse mentoring include intergenerational transfer of knowledge

and skills (especially in the field of new technologies), better understanding of other generations, better communication and cooperation, and better professional development of both mentor and mentee. Reverse mentoring promotes intergenerational learning, encourages cooperation between different age groups, thus allowing the establishment of intergenerational relationships based on mutual understanding, acceptance, and trust, as well as contributes to personal development and career support. It has also led to an increase in job satisfaction and employee involvement in the organization (Garg & Singh, 2019; Hechl, 2017; Chaudhuri, 2015; Chaudhuri & Ghosh, 2012).



FIG. 5.3. Advantages of reverse mentoring

SURCE: own elaboration based on Gadomska-Lila (2020).

Reverse mentoring takes advantage of generational differences as well as varying technological skills and perspectives. The main benefits of reverse e-mentoring include:

- mutual exchange of knowledge and skills between generations - younger people can pass on their technological knowledge, digital skills, more recent approaches, and fresh perspectives, while older people can pass on their organizational knowledge along with their life and professional experience (Gadomska-Lila, 2020);
- support in adapting to changes - older people can often find it difficult to adapt to the rapidly changing digital world and new technologies. Reverse mentoring can help them learn and understand new tools (such as social media, new applications, or working in the cloud), which, in turn, improves their professional and social competencies;
- increasing social competencies – through mentoring older people, young people learn important social skills, such as empathy, communication, and the ability to cooperate. This mutual interaction contributes to the development of their leadership skills (Nagi, 2020), which is important today since digital leadership skills in particular have now become highly sought after by managers (Khaw et al., 2022).
- increased motivation and self-esteem - younger people who act as mentors often experience increased motivation and self-esteem. The responsibility of helping others further their development can positively impact younger employees' self-esteem and perception of themselves as competent and valuable members of the community.
- supporting diversity, equality, and inclusion in organizations;
- increasing the creativity, openness, and innovativeness of the organization – by learning alternate ways of thinking, employees belonging to different generations can more easily generate new ideas.

Reverse e-mentoring shares many features with traditional reverse mentoring, including the reversal of the role of mentor and mentee, as well as the exchange of knowledge and experience between different generations. One key difference is that the mentor may not consider themselves experienced enough to be a mentor (PushFar…). However, young people often have valuable expertise in areas such as technology, digital media, current industry trends, and diverse cultural perspectives and, by engaging in reverse mentoring, older people can gain new insights into and better understand emerging technologies and trends (Gadomska-Lila, 2020).

The use of online tools in reverse e-mentoring creates additional opportunities and benefits. Thanks to the use of technology, reverse e-mentoring permits the mentee to simultaneously communicate and cooperate with different mentors, thus allowing him or her to gain access to a wide network of support and diverse perspectives as well as to build a network of contacts, both professional and personal.

Furthermore, online reverse mentoring enables contact flexibility in terms of time and location. The mentor and mentee can communicate and exchange information without regard for geographical distances making it easier to establish relationships between people from different regions or even countries. It thus minimizes the physical and mental distance between people in mentoring programs. Using reverse e-mentoring, the mentor and mentee also have access to a variety of online resources (e.g., articles, videos, online courses, etc.). They can review and analyze these resources together, which enriches the mentoring process and broadens the knowledge of the mentee.

After the outbreak and conclusion of the COVID-19 pandemic, e-mentoring has become the most popular mentoring model (Haidusek-Niazy, 2023). Electronic communication can overcome the organizational, geographic, demographic, and time constraints of traditional in-person mentoring and promote reverse mentoring (Ensher & Murphy, 2007). E-mentor relationships allow mentors and mentees to enjoy maximum flexibility (Ensher, 2013).

Some disadvantages of reverse e-mentoring involve delayed building of trust and relationships as well as differing levels of technical skill between mentors and mentees (Ensher & Murphy, 2007), with mutual trust and respect being the foundation of a successful mentoring relationship. Interaction frequency is yet another key factor in building trust in a mentoring relationship (DiRenzo et al., 2010).

To increase the chances of benefiting from reverse mentoring, it is important to innovatively institutionalize reverse mentoring in organizations as well as to effectively recruit and appropriately select pairs of mentors and mentees with consideration for matching their personalities (Budzewski, 2015). The effectiveness of reverse mentoring depends on the level of involvement in the mentor-mentee relationship as well as the level of organizational support (including the creation of an appropriate organizational culture and a good atmosphere for cooperation) (Gadomska-Lila, 2020).

5.3. Practical implications

Reverse mentoring has proven to be successful in fields like: business, education, technology medical education, health sciences. It can help senior leaders better understand their junior colleagues. It also helps them get inside the minds of younger consumers and clients (Woll, 2022).

Reverse mentoring programs can also be beneficial for virtual teams. It can help to strengthen trust and improve communication and collaboration among remote team members (Newington Blake 2022).

There are a few of the global corporations who offer formal reverse mentorship programmes (Newington Blake 2022): Ernst & Young, General Motors, Citibank, Johnson & Johnson, Mars, Cisco and Proctor and Gamble. A brief description of good practices in the use of reverse mentoring in business is presented in Table 5.1.

TABLE 5.1. Good practices of using reverse mentoring in business

Entity implementing the reverse mentoring project	Short description
Pricewaterhouse Coopers (PwC)	As part of its efforts to promote diversity and inclusion, PwC implemented a reverse mentoring initiative. Within this program, PwC enlisted the support of 122 millennials who took on the role of mentors, providing guidance to 200 partners and directors. The mentors and their mentees held monthly meetings to exchange knowledge and insights.
Deloitte	The project aimed to provide support for women and ethnic minorities within the company's workforce. A total of 30 young individuals were paired with senior leaders to facilitate the exchange of experiences and knowledge. This initiative enabled senior leaders to gain new perspectives and insights on achieving ethnicity and gender targets.
Heineken	Heineken's reverse mentoring program has achieved remarkable success. The program boasted an impressive success rate, with 86% of senior leaders who participated as mentees expressing their strong desire to connect with junior employees and acquire new skills
Caterpillar	Caterpillar implemented an employee resource group (ERG) as part of its reverse mentoring program. This initiative involved younger employees taking on the role of mentors and providing guidance to senior employees on topics such as new technology and generational shifts. The program aimed to leverage the unique perspectives of millennials, allowing senior executives to gain valuable insights and knowledge about the evolving work world.
General Electric	GE was an early adopter of reverse mentoring, implementing a mentoring program that promotes collaborative learning. In this program, top executives actively engage in mentoring employees across all levels of the organization. The program not only focuses on imparting critical skills but also emphasizes the importance of fostering genuine human connections between executives and employees. Through this initiative, GE encourages a culture of mutual learning and development.

Entity implementing the reverse mentoring project	Short description
Procter & Gamble	Their reverse mentoring program aimed to pair senior leaders with employees who had disabilities. By doing so, the company was able to identify accessibility challenges within the workplace and tackle them head-on. This program played a crucial role in raising awareness about the specific needs and perspectives of employees with disabilities.
Bain and Company	Bain and Company strives to foster one-on-one connections, robust interpersonal relationships, and personal growth within its organization. As part of this commitment, every consultant at Bain is assigned a mentor, ensuring that both junior and senior employees have the opportunity to benefit from this valuable relationship
BBC	Due to the rise of online streaming services and a decline in viewership among the under 30 demographic, the BBC has been experiencing a loss of viewers in this age group. To address this challenge, the BBC introduced a reverse mentoring program. Managers within the education and radio departments were paired with employees under the age of 30, enabling them to gain insights and understanding on how to better appeal to younger audiences. The aim of the program was to bridge the generation gap and leverage the perspectives of younger employees to make content and programming more relevant and engaging for the target audience.
Virgin Atlantic	Virgin Atlantic implemented a reverse mentoring program under the leadership of Patrice Gordon, a renowned personal development coach with extensive qualifications. The primary objective of this program was to drive transformative change in the organization's perspectives on gender, race, and skills. The program's success has been significant, to the extent that it is credited with contributing to the company's growth even in the aftermath of the Covid pandemic.

SOURCE: own elaboration based on: R. Skarbek 2022, Reverse mentoring to klucz do rozwoju i utrzymania młodych talentów, https://www.empowerment-coaching.com/post/reverse-mentoring-to-klucz-do-rozwoju-i-utrzymania-mlodych-talentow; 3 Companies with great mentoring programs and why you should have one too jacob morgan, september 17, 2020, https://thefutureorganization.com/3-companies-with-great-mentoring-programs--and-why-you-should-have-one-too/; How to Start a Reverse Mentoring Program, https://www.knowledgecity.com/blog/how-to-start-a-reverse-mentoring-program/; Business focus: Reverse mentoring, https://www.law.ac.uk/resources/blog/business-focus-reverse-mentoring/; M. Reeves 2023, Reverse mentoring: Connecting a multi-generation workplace, https://www.togetherplatform.com/blog/reverse-mentoring-the-future-of-work.

In reverse mentoring, it is worth taking an interest in who can accept the mentee role. In the context of gaining a different perspective on their work to enhance decision-making, individuals in senior leadership positions such as the CEO, senior executives, VPs, and senior managers can assume the role of mentee. Engaging

in a mentoring relationship allows these senior professionals to benefit from fresh insights, diverse viewpoints, and alternative approaches that can broaden their perspectives and improve their decision-making abilities (Reeves, 2023).

Examples of reverse mentorship relationships, as described by Cook (2023) and Reeves (2023), include:

- An editor at a business publication receiving mentorship from a junior reporter on digital storytelling.
- A VP of sales receiving coaching from a recent marketing graduate on utilizing social media for identifying new business leads.
- A Gen Z employee mentoring a baby boomer on leveraging TikTok as a marketing channel.
- A millennial teaching a Gen X accountant how to integrate QuickBooks Online with Slack to enhance asynchronous communication.
- A VP of finance receiving mentorship from a junior analyst on the latest trends in financial technology (fin-tech).
- A Gen Z employee mentoring a Gen X employee on the newest technology trends.

The given examples show the wide range of topics and expertise that can be shared in reverse mentoring relationships, covering issues such as digital storytelling, social media, technology integration and emerging trends in various fields.

The three main steps in reverse mentoring include: defining the goal, agreement and matching pair. Detailed activities included in each of the three steps are presented in Figure 5.4.

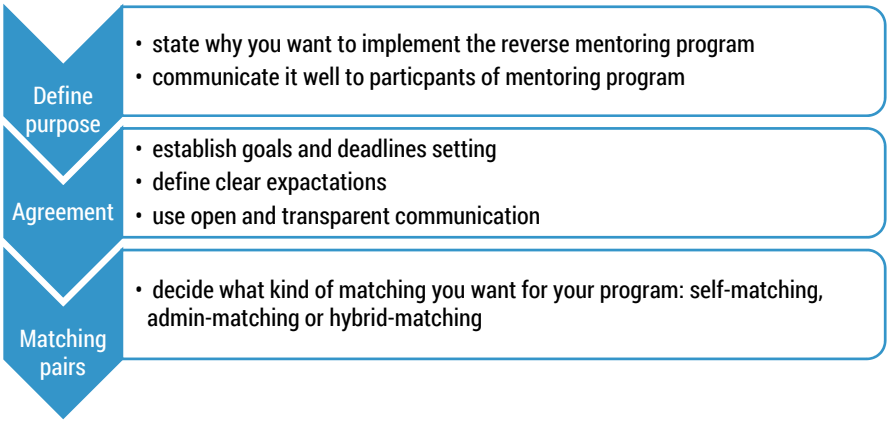


FIG. 5.4. Steps of reverse mentoring

SOURCE: own elaboration based on: Reverse Mentoring – How To Make It Work, https://www.mentoringcomplete.com/reverse-mentoring-complete-guide/.

In the table 5.2. the example of the toolkit for structuring reverse mentoring relationships is presented. The development is based on a TEDtalk by Patrice Gordon[3] (Carruthers, 2021).

TABLE 5.2. The example of the toolkit for structuring reverse mentoring relationships

Name of the step	Description
Show interest	The mentee must be genuinely interested in what his mentor has to teach him. This is essential for the success of this type of mentoring project. If the mentor is not interested in gaining knowledge or skills from the experience, it just won't work.
Create a match thoughtfully	You have to match the "pairs" accordingly. Choose two people who get along well or have something in common they can build on. The main reason for running a reverse mentoring program is to show leaders different perspectives, but that doesn't mean couples shouldn't have anything in common. The similarity may be in temperament or communication style.
Agree on ground rules	Start by establishing a few basic rules. The mentee will be responsible for setting the agenda. Agree that conversations will be confidential. You should also be clear about what should not be discussed, such as participants' personal lives.
Break the ice	Encourage the mentor and mentee to start by breaking the ice. Share who you are and your professional experiences. Look for similarities, not differences. This is where reverse mentoring can be at its strongest.
Don't switch roles	Watch out for role reversal. The mentee may be tempted to assume a leadership role, but don't let him give career advice. The leader is there to learn.
Remember to reflect	Take time to reflect during your mentoring experience. Sit down and write a list of important requests after meetings, whether by email or at the end of the session.
Share successes and give credit	Give credit where it is due. With traditional mentoring, you don't have to offer credit. But with inclusion-focused reverse mentoring, you need to recognize feedback or ideas that will be used in future DEI initiatives or programs.

SOURCE: own elaboration on the base: R. Carruthers 2021, Reverse Mentoring: A toolkit for diversity and inclusion initiatives, https://www.togetherplatform.com/blog/reverse-mentoring-toolkit.

It should be emphasized that it is necessary to properly prepare for the reverse mentoring project. Practical guides indicate the need to implement the following actions (Business focus…):

- Provide resources - offer details regarding program expectations, the proposed timetable, participant responsibilities, and the goals they need to achieve.

[3] https://www.ted.com/talks/patrice_gordon_how_reverse_mentorship_can_help_create_better_leaders

- Develop discussion topics - certain pairs may initially find common interests. However, there may be instances when the conversation digresses. The following questions can assist in guiding the conversation back on track: What are your expectations and goals for this mentorship program? Can you share your professional journey and experiences thus far?
- Create a goal-setting framework - devise a template for setting goals that both participants can complete and utilize throughout each meeting. An example of such a template is shown in table 5.3.

TABLE 5.3. An example of a template to help you plan a reverse mentoring project

1.	Short term goals for the mentee	–
2.	Long term goals for the mentee	–
3.	Timelines	
4.	Key Performance Indicators (KPIs) How a mentor can help to achieve the KPIs How often the progress should be monitored	
5.	The schedule of how often mentees should meet up and how long each session should be	
6.	List of tasks that both mentees should follow up	
7.	Feedback loop	

SOURCE: own eleboration based on: Business focus: Reverse mentoring, https://www.law.ac.uk/resources/blog/business-focus-reverse-mentoring/.

Reverse mentorships need a true partnership between the mentor and mentee that's built on five key principles: compassion, mutual respect, transparent communication, willingness to learn and commitment (How a Reverse Mentoring Program…).

In the process of reverse mentoring, attention should be paid to the observance of the above principles. It is essential to create an atmosphere of compassion where mentees feel comfortable expressing their lack of knowledge or experience without fear of judgment. It is important to emphasize that the program is a judgment-free zone and make it clear to all participants. Prior to the program's launch, project coordinator should allocate time for mentors and mentees to establish mutual respect. This initial relationship-building phase can help foster a positive and productive mentoring dynamic. Effective communication is also key for both mentors and mentees. The role of project coordinator is to encourage to honest and authentic dialogue, ensuring that both parties feel safe and supported in expressing their thoughts, concerns, and feedback. Mentorship coordinators can provide guidance and support in facilitating communication between mentors and mentees.



FIG. 5.5. Principles of the reverse mentoring

SOURCE: own elaboration based on: How a Reverse Mentoring Program Is Better for Business, https://www.personio.com/hr-lexicon/reverse-mentoring.

It is also crucial for both mentors and mentees to approach the program with an open mind and a genuine willingness to learn. Senior mentees should recognize the value and knowledge that their junior mentors bring to the table. Foster an environment that encourages humble learning and active listening without preconceived judgments.

Before initiating the mentoring program, it is important to ensure that mentors and mentees have the necessary time and energy to fully engage in the process. Project coordinators should clearly communicate the program's scope, expectations, and duration to all participants, allowing them to make informed commitments and actively contribute to the program's success.

5.4. Conclusion

The present chapter represents an overview of reverse e-mentoring. It starts with a theoretical introduction about this form of mentoring. In particular, the reverse mentoring concept and definitions as well as reverse mentoring research objectives were discussed. In the next part, attention was paid to the benefits of the reverse

mentoring and e-mentoring to the organization, the mentor, and above all the mentee. At the end, the practical aspects of the project in the field of reverse e-mentoring were described: good practices of using this form of mentoring were presented, as well as tools and a template that could be helpful in reaching for reverse mentoring were made available.

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6. PEER E-MENTORING

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6.1. Introduction

Since 2006, substantial changes have occurred in European society and economy, including digital and technology advances, shifts in the labor market, and demographic shifts. Numerous occupations that existed ten years ago will be replaced by entirely new ones in the next decades. The way we organize public opinion is shifting as a result of factors such as increased mobility and cultural variety, as well as new modes of communication and interactions. Sustainable development is defined as a factor essential to all societal endeavors in light of climate change and the limitations of environmental resources, as well as economic and social inequities. First, the word 'continuing VET' cannot be defined consistently.

In order to help people "improve or increase their knowledge and/or skills; to acquire new skills for a career move or retraining; to continue their personal or professional development," continuing VET2 is defined as "education or training after the initial education or entry into professional endeavors" (CEDEFOP[4] and Tissot, 2004, p. 50). Continuing vocational and educational training is a subset of adult education that focuses on career advancement. Through on-the-job training, workers' ability to do their jobs well can be enhanced through the provision of continuing vocational education and training (VET) (CEDEFOP, upcoming a). In order to fully grasp what is meant by "continuing VET," at least three terms need to be separated. Understanding workplace-related training and education requires a) learning by doing; b) learning on the job; and c) learning about doing.

The nature of employment and opportunities for advancement are shifting as a result of demographic shifts, globalization, and new technology. The future of employment will be profoundly impacted by digitalization in the next decades. Advances in computing power, big data, the rise of the Internet, the Internet of Things, artificial

[4] https://www.cedefop.europa.eu/files/3070_en.pdf

intelligence, and online platforms are just a few of the processes that are altering our assumptions about the nature of future workplaces and the people who will occupy them.

In 2014, the European Commission established the larger phrase "digital and online learning" within the scope of "Education and Training 2020" to emphasize the two fundamental components of contemporary e-learning. Learning in the digital age involves the integration of several ICTs (information and communication technologies). Today's most popular kind of distant education (Demiray & Oşman, 2001)[5] is online learning, in which students access course materials from any location using any device (desktop or mobile) connected to the Internet. The utilization of UNESCO-approved OERs is also a possibility.

The traditional forms of pedagogical instruction will undoubtedly evolve as a result of this development. When it comes to small and medium-sized enterprises (SMEs), generational exchange in the workplace becomes increasingly important as digitalization and education converge.

The term 'intergenerational learning ' is used to describe the process through which people of different ages may teach and learn from one another. An integral aspect of lifelong learning is intergenerational learning, which occurs when people of different ages learn from one another. Knowledge sharing is only one benefit of intergenerational training; it also fosters mutual respect and builds social capital and social cohesiveness in our increasingly multigenerational communities. Strengthening social solidarity through the adoption of intergenerational trainings is one strategy to cope with the massive demographic shifts now taking place across Europe.

A individual or group of people can be directed, instructed, and trained through coaching in order to accomplish goals or develop particular abilities (Kaur, 2019). Consultation is the process of talking with someone to get their opinion or advice about a certain service (Hennig-Thurau et al., 2004).

A key strategy for creating a better learning environment is mentoring. It updates the students' knowledge, beliefs, and learning strategies. Weaker learners benefit more from rigorous mentoring when the mentor provides the mentees with learning support (Raabe & Beehr, 2003; Tyler, 1998).

Homer's Odyssey was the first work to emphasize the idea and importance of mentoring (Gumus, 2019). The son of Odysseus' teacher was regarded as a young mentor. The inexperienced Telemachus (son of Odysseus and Penelope) was led, guarded,

[5] Al Musawi, Ali. (2010). E-Learning from an Omani Perspective (In Demiray, Ugur: e-Learning Practices: Cases on challenges).

and schooled by him (Conyers, 2004). A mentor is regarded as a smart and understanding advisor with this historical context and information (Gumus, 2019). Learning can be facilitated by mentoring, where the mentor plays a supporting role (Smith, 2007).

For the mentee, mentoring can be a fulfilling experience. A mentor can help a mentee achieve academic achievement, career development, and professional progress by serving as a valuable source of guidance and information as well as a sounding board for the mentee's ideas (RWSA Secretariat, 2020). For successful mentoring to be established, the relationship is necessary. Mentoring must include all of the following fundamental components: an agenda, formality, time limit, intensity, and reciprocity. Both the mentor and the mentee are aware of their respective roles and responsibilities during the mentoring process. Respect is essential to the success of the mentoring relationship, and mentors consistently encourage and support their mentees. An essential component of the mentoring relationship is the mentor's constructive criticism. The main goal of mentoring is to support the mentee's academic and professional goals through activities including practicing skills or tasks, taking on new projects or assignments, and ongoing learning. Similar to mentees, mentors can also grow as leaders through information sharing and constructive criticism from their mentees.

From that perspective, mentoring is solely about giving professional advice and benefiting from one another.

6.2. Traditional mentoring and mentoring supported by internet technologies

Traditional mentoring (t-mentoring) involves institutional planning, direction, and support. Formal mentoring typically involves face-to-face practice at a specific location and time. On the other hand, mentoring that is enabled by technology online lacks a set format or structure. Online mentoring that is backed by technology can be improved by the mentee and mentor having mutual interest, respect, and desire. It might happen at any time, anywhere.

E-mentoring is a well-known type of this mentoring (Risser, 2013), which is a technique where the mentor and mentee can meet (often online) to talk about goals, expectations, and interests.

The general goals of e-mentoring are to: (1) use online technology to update the mentee's knowledge; (2) identify strategies or activities to support the mentee's learning goals (such as ongoing learning, practicing skills or tasks, and trying new projects or assignments); (3) share information and expertise; and (4) pinpoint areas for improvement.

In learning and professional development, e-mentoring has gained popularity (York-Barr & Duke, 2004). It is necessary for long-term, deliberate learning with the main objective of assisting mentees in acquiring critical competencies (Pfund et al., 2016). When the mentee is instructed and supervised by a mentor, professional goals, expectations of the mentor and the mentee, career development, constructive criticism, enthusiasm for the learning opportunity, motivational spirit, learning approaches, and career plans can all take on the proper shape when a mentor instructs and mentors the mentee. The mentor and mentee are able to learn from one another thanks to the network that connects them.

An overview of online mentoring is delivered and it is discussed the potential benefits associated with it. The main contributions of this study are to highlight the role of e-mentoring as an addition to traditional mentoring in bridging gaps in learning and development, enrich related literature, provide additional support for career-building, skill-acquisition, and coaching, provide action steps to promote an e-mentoring program in learning, and attempt to provide a specific mentoring guideline that isn't just for school, college, and university students but also for students in other industries.

There are various types of mentoring, including peer collaboration, co-mentoring, e-mentoring, mutual mentoring, collaborative mentoring, critical constructivist mentoring, dialogical mentoring, and reciprocal mentoring, according to the socio-constructivist theory of learning (Pennanen et al., 2016). Other types of mentoring include peer mentoring, mentoring circles, peer-group mentoring, apprenticeship, and tutoring (Fyn, 2013). A successful mentoring program should include training, success, and inspiration, guidance, support, and coaching. Every mentorship program should focus on learning concerns and should be created with ontological specificity (Pennanen et al., 2016).

A senior experienced individual (the mentor) helps the mentee develop ideas, knowledge, concepts, and professional competence through the process of mentoring (Achinstein & Fogo, 2015; Klinge, 2015). Another type of mentoring that is expanding in acceptance across the globe is e-mentoring (McCarthy, 2012). With a relative benefit for computer self-efficacy and personal interest, where age or seniority does not gain weight, this mentoring technique is associated with a supportive

relationship between the mentor and mentee (Panopoulos & Sarri, 2013). Laura Bierema and Sharan Merriam (2002) assert that mentorship is not always centered on a wise elder imparting knowledge.

With a relative benefit for computer self-efficacy and personal interest, where age or seniority does not gain weight, this mentoring technique is associated with a supportive relationship between the mentor and mentee (Panopoulos & Sarri, 2013). Laura Bierema and Sharan Merriam (2002) contend that mentoring is not always dependent on an experienced mentor giving guidance and instruction to a mentee. The impersonal nature of online e-mentoring may make it challenging for the mentor to participate.

E-mentoring has recently been linked to academic, professional, and psychosocial development and lessens the drawbacks of the conventional mentoring technique (Bierema & Merriam, 2002). In the information age, mentoring techniques including e-mentoring, tele-mentoring, and computer-mediated communication (CMC) are common (Haran & Jeyaraj, 2019). It is simple for the mentor and mentee to speak with one another from and to any location. E-mentoring, according to Bierema and Merriam (2002), has more potential for effective mentoring. In comparison to the conventional mentoring strategy, this offers more benefits. This incorporates the exchange's egalitarian characteristics and lacks any boundaries in its construction. According to Noe (1988), the psychosocial aspects of e-mentoring provide precise guidance for interpersonal skills connected to the workplace. The effectiveness of e-mentoring depends on the mentor's performance, internet and bandwidth capabilities, time and geographic restrictions, and technological prowess.

Geographic and scheduling restrictions are not obstacles for efficient mentoring, according to Peg Single and Carol Muller (2005), because they connect the mentors and mentees on their own. Although Kevin Hunt and Glen Atherfold (2004) contend that ineffective communication techniques, a lack of trust, and the misalignment of time zones between two different geographical locations may hinder e-mentoring practice, the special qualities of electronic communications can improve the mentoring relationship. E-mentoring practice may also be hampered by incorrect setup and poor administration of internet technologies (Schechter, 2014). The practice of e-mentoring is strongly correlated with participation in webinars, summer research schools, job market accessibility, and online training courses provided by various research institutes or universities (Badri et al., 2017).

Mentoring students in higher education improves their chances of succeeding academically and keeping them from dropping out. Mentors play a crucial role in the educational and professional development of their mentees. Computer-mediated mentoring gives students new means to communicate with their mentors in an era when online and remote education is on the rise. The effectiveness

of online mentoring has been the subject of studies in the field of higher education mentoring. There is a steady interest in the topic among educational researchers, but little is known about virtual mentoring in higher education for students participating in off-campus internships.

To define what is meant by 'digitally competent', the European Commission created the European Framework for Digital Competences. It's called DigComp, and it's a tool designed to boost people's digital competence by allowing self-evaluation, the establishment of learning objectives, the detection of training and employment prospects, and the like. DigComp 2.0 summarizes the major aspects of digital competence in the following five categories:

1. Information and data literacy: defining information requirements; accessing relevant information; evaluating the credibility of a given source; storing, managing, and organizing digital information and material.
2. Interaction, communication, and cooperation via digital technology, cultural sensitivity, and diversity.
3. The third competency is the creation and editing of digital material, which includes learning about and applying suitable computer system knowledge, as well as enhancing civic awareness of copyright and license application.
4. Protecting one's digital devices, content, data, and privacy; safeguarding one's physical and mental health in tandem with an awareness of digital technologies for social well-being and social inclusion; learning about the effects of digital technologies on the natural world and how to mitigate them.
5. The ability to use digital tools for process and product innovation and to learn about the digital development; the ability to recognize requirements and difficulties and to solve conceptual problems and circumstances in a digital environment; problem solving.

6.3. Peer mentoring and E-mentoring

Peer Mentoring

Peer mentoring, which is characterized by the relationship of two equal people who are often either on the same level or position in the hierarchy or fall into the same age group, is thought to be one of the most advantageous forms of mentoring in modern culture. Peer mentoring relationships are typically defined by a specific level of status, interests, experience, and expertise in common. The existence of a mentor-mentee connection between peers assumes a certain equality of position, authority, and responsibility between individuals who often work in the same organizational context and share a common awareness of the nuances of the environment.

Peer mentoring can be a great tool for social support and assistance because of this in-depth insider knowledge; it can also give mentees crucial counsel on the quirks of the working world.

In general, peer mentoring is widely believed to have positive occupational and psychosocial effects that significantly advance one's personal and professional development through consistently effective performance and personal feedback, as well as priceless information sharing and emotional support within the workplace.

The best levels of learning and the most efficient growth of problem-solving abilities are achieved through teamwork and cooperation between people with similar degrees of expertise.

E-Mentoring

Although the majority of society understands mentoring to only be one-on-one interactions where a senior expert forms a lasting relationship with a younger and less experienced person to support their development, the modern definition of mentoring entails a more flexible and effective approach to mentor-mentee interactions.

In order to strengthen the effectiveness of the mentoring process and allow a larger population of people to benefit from mentoring practices, mentoring has recently moved toward the virtual reality, utilizing the digital reality. Additionally, mentoring software is a very helpful tool for facilitating the mentoring process because it makes it easier to gather data on mentors and mentees and conduct initial steps in matching them together.

One of the most well-liked modern iterations of the conventional idea of mentoring is e-mentoring, also known as virtual mentoring, online mentoring, or telementoring. In order to effectively build mentor-mentee relationships and transfer knowledge, skills, and support from a more capable and competent person (the mentor) to a less experienced person (the mentee), Rowland states that virtual mentoring entails combining traditional mentoring practices with electronic means of communication. E-mentoring succeeds in creating a more flexible but still strong bond between mentor and mentee through the use of various electronic tools, including online platforms and email communication. This results in a more efficient transfer of knowledge and skills as well as an improved learning environment. E-mentoring achieves a more flexible but still strong bond between mentor and mentee and leads to a more efficient transfer of knowledge and skills as well as an improved sense of adaptability and cultural comprehension. This is accomplished through the use of various electronic tools, such as various types of conferencing programs, online platforms, and email communication.

Technology is also a crucial component of e-mentoring relationships because it makes it possible to bridge the mentor-mentee relationship more effectively and foster a number of vital functions, including the development of the person's role-modeling, psychosocial, and professional abilities.

Despite being a relatively new phenomenon, e-mentoring has already garnered some detractors. Participants in the survey identified an absence of facial emotions and an inability to understand the body language of another individual as the most significant problem. Previous studies have also uncovered similar problem with online coaching. When it is asynchronous, online mentoring is one of the most controversial forms of instruction because it precludes both the mentor and the mentee from viewing the other person's facial expressions and body language. However, the proliferation of new technologies such as online video coaching has mainly made this critique obsolete. Another complaint that is more difficult to overcome is the possibility that participants may have less confidence in the mentoring relationship when it is conducted online. The proposed techniques are about how the confidentiality of this connection needs to be protected while acknowledging that the internet's security could not be ideal. Therefore, there is a chance that the specifics of the confidential mentoring relationship might be discovered by a third party. Our participants have a high level of confidence in one another, and they do not suspect that there has been a breach of trust in any way. E-mentoring has a number of drawbacks, the most effective method for minimizing the negative effects of which is to ensure that all parties are aware of the dangers involved and come to an agreement about the parameters of the relationship, just as is done in traditional mentoring relationships (Lee JM, Anzai Y, Langlotz CP, 2006). Few students who belonged to peripheral areas faced internet availability issues. Few mentors had reservations about using technology in the initial few sessions but they are in the improvement phase. Students are primarily aware of the use of technology. Internet-related challenges and level of *information technology proficiency* are the issues needed to be addressed. With time after training of mentors, *reasonable matching* of mentees and mentors, will make online mentoring programs meet the expectations of both sides as in face to face mentoring (Rhodes S., 2019).

Even though the majority of the mentees said that they should have the freedom to pick their mentors, it is important that mentees be able to switch to different mentors at any point throughout their first five years of medical school if they feel the need to do so. The majority of those who took part in the discussion advocated for more training workshops to be held so that it is possible to train an acceptable number of mentors at the same time. The mentors believed that the students who responded to their prompts were easier to communicate with. In a different piece of research, the researcher hypothesized that students who "owned their process more," who took the initiative, and who were more aggressive in seeking for help

had a better chance of remaining on track and advancing through the process at a faster rate. It was the consensus of both the mentees and the mentors that in-person meetings between the two parties prior to beginning online mentoring would be beneficial to the establishment of a healthy mentor-mentee relationship. According to Shamim (2013), the mentor and mentee connection may be evaluated, and there is also the possibility of re-pairing the individuals involved in the program. Both the mentors and the mentees proposed that the mentoring take place in a hybrid fashion, that is, the mentoring should take place primarily online with some in-person meetings interspersed here and there. The mentorship program is able to make use of a variety of contact channels, beginning with a face-to-face encounter, then moving on to a chat by phone or Skype, phone call, email, virtual classroom, Facebook, etc. In the strange world of the 21st century, a mixed communication model may be an excellent and practical solution for individuals to construct and sustain their professional and social connection growth (Murphy, 2011).

6.4. Role of a telementor

Email and other forms of asynchronous online contact, such as discussion forums and message boards, are the most common ways that online mentoring is carried out. People are turning to online mentoring because it frees them from the constraints of time and place, and it also reduces the impact of other potential barriers, such as the cost. The term "telementor" can also be used to refer to an online mentor. Research has revealed that in order to be an effective online telementor for other students, telementors need model particular behaviors for those students. They ought to be supportive by being kind and delivering words of encouragement to one another. Support recipients who participate in telementoring should be able to consult the telementor for advice that is authentic, rational, constructive, and optimistic in nature. Telementors are persons who provide students with academic guidance in addition to providing improvement ideas from a certified source. Additionally, telementors provide students with information and services (Buchanan, Myers, Hardin, 2005). According to Stein and Glazer (2003), the duty of a telementor entails the obligation of assisting the telementee in the development of abilities in critical and reflective thinking. In addition to this, they are there to offer academic help in order to facilitate the achievement of scholarly objectives.

Buchanan et al. (2005) report the findings of a research that investigates the significance of a telementor's role in an online educational setting as well as the functions that it performs in that setting. The researchers use a survey that includes both open-ended and closed-ended responses in order to collect the viewpoints of online graduate students. According to the findings, 67 percent of the individuals

who took part in the study said that having access to a telementor would be beneficial to them since it would facilitate an increase in the amount that they were able to learn. Participants believe that having access to a telementor would assist them in navigating the 'institutional maze' by assisting them with concerns related to registration and resources provided by the university, particularly student services. In addition, they believe that having access to a telementor would be beneficial in reducing feelings of isolation as well as misunderstanding.

The research that is presented by Durrington and Yu (2004) is based on a study in which undergraduate and graduate students take part in three distinct types of technology education courses that are delivered entirely online. It has been decided that some of the conversations would be led by the students, while others will be led by the teacher. When compared to when the teacher moderates the discussion, the results of an initial t-test indicate that students substantially contribute more when another student moderates a discussion as opposed to when the instructor moderates the discussion. When comparing students at the undergraduate and graduate levels in terms of interaction, there is no discernible difference between the two groups. One possible explanation for this outcome is because highly motivated individuals brought it about. In most cases, every single student in the class will get a turn acting as a student moderator at some point throughout the semester. According to the findings of the research conducted, it is essential not to confound the functions of a student moderator and a telementor in any way. Telementors, in contrast to student moderators, are not often other students from the class; rather, they are typically graduate students or persons who have prior experience in the subject matter of the course that is being provided with the inclusion of a telementor. The amount of research that examines the use of student moderators is limited, and studies that compare student-moderated discussions with instructor-moderated discussions is even less.

According to Chang (Chang, 2004), an online mentor or telementor is someone who can assist instructors in teaching and who can also serve to encourage learning through the use of online venues. The researcher acknowledges that there is a worry over the efficacy of online courses when compared to courses taught in a traditional classroom setting. However, the researcher also observes that the findings of the comparison when it is made in studies are still unclear. When a department of remote learning at a university in the southeast was tasked with assisting in the development of 82 online programs, they devised and implemented a model of online learning communities with online mentors (OLCOM) to assist in making certain that the programs were successful. This model helped to ensure that the programs were successful. The program's mentors are often graduate students who have already obtained their master's degrees. They first go through training with the mentor support staff before they are given a role as a mentor for

one of the courses. According to Stumph et al. (2005), colleges that provide online degree programs and online courses often rely on the university's faculty members for creating and implementing the entirety of the online course. Students have claimed that the mentors who mediated their talks were consistent and that they reacted with comments within a time period that the students believed was suitable when they were asked about satisfaction using a 5-point Likert scale poll. According to the reports, the direction provided by the mentor with regard to the substance was essential. The students' grade point average records and their completion rate records from the academic year 1999-2000 imply that when compared to all of the face-to-face students' grade point average records and completion rate numbers, the students may have fared better because they had a mentor present to advise them. This conclusion is drawn from a comparison of the students' records to those of the face-to-face students. However, given that the records of completion rates and higher average GPAs have not been gathered from a controlled comparative research, the relevance of the indicated implications will still need to be determined over the course of an actual investigation. Chang outlines a number of other study possibilities. It is still need to conduct research on topics such as how successful a mentor may be in a computer-mediated discussion, what motivates people to learn, and how they experience a sense of community.

The training that mentors participate in allows them to get more familiar with Blackboard's features and functions. They are then eligible to begin guiding preexisting classes after receiving a Mentor Certificate from the institution, which they obtain if they have successfully completed the training program. Conceptually, the Online Learning Community with Online Mentors (OLCOM) Model is depicted in Figure 6.1.

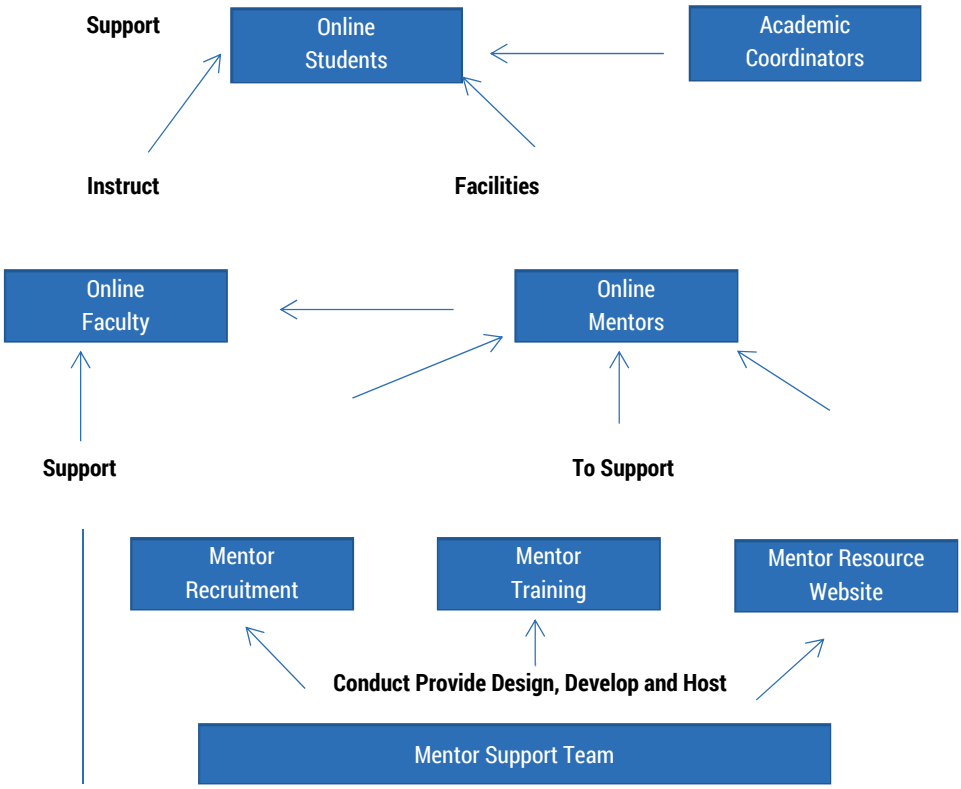


FIGURE 6.1. **Online Learning Community with Online Mentors**

SUORCE: **Adapted on Chang, 2004 Learning Community with Online Mentors (OLCOM) Model.**

E-peer mentoring, like traditional mentoring, can follow various models depending on the specific objectives, the population being served, the resources available, and other factors. The best model is often one that is tailored to the unique needs and circumstances of the participants. Here are a few successful models that are frequently used or can be adapted to the e-peer mentoring context:

- One-on-one mentoring: In this model, one mentor is paired with one mentee. This is the most traditional model and can be very effective in the e-peer mentoring context. It allows for personalized mentoring, focusing on the individual mentee's needs.
- Group mentoring: One mentor is paired with a group of mentees. This model can be a good fit for e-peer mentoring, especially when it's combined with an online group platform that allows for regular discussions, Q & A sessions, and sharing of resources.

- Team mentoring: Multiple mentors work with small groups of mentees. This model encourages peer-to-peer interaction among both mentors and mentees, which can increase the exchange of ideas and perspectives.
- Reverse mentoring: This is where less experienced individuals mentor more experienced individuals, usually around topics such as technology or emerging trends. In an e-peer mentoring setting, this could be very effective as younger generations are typically more comfortable with digital tools and can help older mentees become more familiar with new technologies.
- Peer mentoring: This is where people of the same experience mentor each other. It is based on the belief that individuals can benefit greatly from the mutual exchange of ideas, experiences, and knowledge. In the e-peer mentoring setting, this could be facilitated through online forums, social media groups, or dedicated mentoring platforms.
- Self-paced mentoring: In this model, resources (like videos, articles, and exercises) are provided for mentees to progress at their own pace. Mentors can then be available for questions or discussions as needed. This model may work well in an e-peer mentoring context, where face-to-face meetings are less feasible.

In addition to these models, a successful e-peer mentoring program often includes:

- Effective matching of mentors and mentees: This can be done based on shared interests, goals, or experiences. The matching process can significantly influence the success of the mentoring relationship.
- Regular communication: Regular check-ins and updates are crucial, and these can be facilitated through various digital tools like emails, video calls, or online platforms.
- Clear goals and expectations: It's important for both the mentor and the mentee to understand what they hope to achieve through the mentoring relationship.
- Training and support for mentors: This could include training on effective mentoring techniques, resources to assist with mentoring, and ongoing support throughout the mentoring relationship.
- Feedback and evaluation: Regular feedback and evaluation can help ensure that the mentoring is effective and beneficial for all parties involved

6.5. Peer e-mentoring good practices

MENTORNET.ORG

The primary objective of Mentornet's online mentoring program is to establish and spread mentoring culture among college students. By following a strict mentoring methodology, the online site pairs experienced mentors with younger persons who might benefit from their counsel. All participants in the mentoring process must have profiles on the platform, replete with relevant personal information,

to be utilized in the process of connecting mentors and mentees. Moreover, professionals and students alike take use of online training programs and a wide range of online tools, including individualized e-mails, an online chat interface, and well-known virtual platforms like Google and Skype. The use of digital resources improves the mentoring process by making it easier for mentors and mentees to communicate and by creating more trusting and open relationships between them. More young people will become enlightened as a result of the initiative, and they will spread the information and experience they have gained through the online platform by mentoring others.

Mentoring process in MentorNet

MentorNet is a website where STEM professionals and college students may establish profiles detailing their interests and ideal mentor. All of this profile data goes towards making recommendations for compatible mentorships.

Each mentee is given a list of nine (9) potential mentors whose profiles are most similar to their own. It is important to note that the profiles of mentors and mentees are not accessible to the general public on MentorNet. Instead, MentorNet relies only on its recommendation system to pair mentees with mentors.

The mentoring relationship begins when the mentee chooses a mentor and sends them an invitation through email. After reading the mentee's profile, the chosen mentor decides whether or not to accept the position. In the event that a mentor declines to work with a mentee, MentorNet will suggest another STEM expert and provide the mentee with a new set of nine mentor options.

When a mentor agrees to work with a mentee, they enter a four-month commitment. Mentors and mentees can coordinate meeting dates and methods using MentorNet's built-in chat interface, Skype, Google Hangouts, email, phone, or text message.

They are given weekly 'prompts', or subjects, to talk about. MentorNet's questions are tailored to the mentee's current academic standing and center on issues that increase the likelihood of the mentee's academic and professional success in the STEM fields.

MentorNet actively seeks out mentees who have gone on to successful careers in STEM and invites them back into the network as mentors. And MentorNet actively seeks out STEM experts to serve as master mentors. Our goal of "creating a pervasive culture of mentoring in STEM that equips individuals to persevere and succeed in their fields" is progressing as our community expands.



FIGURE 6.2. MentorNet program

SOURCE: MentorNet – Great Minds in STEM.

Since its inception in 1997, MentorNet has connected college and university students with mentors from the STEM fields through online forums and communication tools. During that time, we have facilitated over 32,000 fruitful mentoring relationships between students and professionals in the STEM fields. In December of 2014, MentorNet became a part of the Great Minds in STEM family of programs, expanding our ability to provide three distinct tiers of individualized mentorship programs to businesses, academic institutions, and trade groups.

Business Initiatives/Programs

Companies that rely on a broad pool of STEM professionals often invest in outreach initiatives aimed at connecting with the next generation of employees on college campuses. Internships, scholarships, job fairs, and other similar events may be

offered to help develop future employees. MentorNet's branded mentoring community may help your business keep in touch with kids by facilitating online mentoring relationships between your staff and the students in question.

Courses at Universities and Colleges

Do you want your school to provide successful mentorship programs in STEM fields? Connecting your STEM students with local and national STEM experts is easy with MentorNet's customized program. The STEM workers of tomorrow can benefit greatly from the advice and guidance of today's alumni.

Programs for Professional Organizations

If you wish to boost the involvement of your professional members, give more value to your student members in the STEM fields, and recruit more students to join your organization, MentorNet's online mentoring service can pair the students you wish to help with your organization's working professionals for fruitful, hassle-free online mentoring relationships.

MentorNet for Students - MentorNet - The Power of Two and What it Can Do (for students) - YouTube

MentorNet for Organizations - MentorNet - The Power of Two and What It Can Do (for organizations) - YouTube

Mentee Testimonial - MentorNet - Great Minds in STEM

- Program, platform and user concerns to : amcconkey@greatmindsinstem.org;
- Please send all other inquiries to : info@mentornet.net;
- For specific investment details regarding the Affiliate, Partner, and Premier level programs, please contact: Lupe Munoz-Alvarado, Director, Innovation & Education Programs Great Minds in STEM lmalvarado@greatmindsinstem.org

MentorNet is a division of Great Minds in STEM (GMiS), which is recognized as a non-profit organization by the IRS Code Section 501(c)(3). Tax ID #95-4577359



Online Tutoring for International Students with Personalised Teaching and 24/7 Access to Course Materials

WS Learning Hub is a reputable online tutoring platform that accommodates to the specialized educational requirements of international students. Their mission is to ensure that their students achieve their academic objectives and realize their maximum potential by providing a high-quality education that emphasizes individualized instruction and teacher guidance. IWS Learning Hub recognizes that each student is unique and has distinct educational needs. Their knowledgeable and enthusiastic instructors provide individualized instruction, tailoring our courses to meet the unique requirements and learning styles of each student. IWS teachers provide guidance and support throughout the learning process, enabling students to comprehend concepts and develop a solid academic foundation.

Access to course materials around-the-clock is one of the primary benefits of using IWS Learning Hub. Students have the option to examine and consolidate their work at their own tempo, allowing them to strengthen their subject knowledge. This feature enables students to study at their own tempo, providing international students with maximum flexibility and convenience.

IWS delivers attendance and progress reports to students and parents in order to keep everyone up to speed on how well each kid is doing. Students are able to analyze their progress and discover areas in which they may improve thanks to these reports, which give insights into attendance levels, the percentage of schoolwork that has been completed, and overall development. Students are kept motivated and interested throughout the course by our frequent updates, which also offer a clear idea of how far they have progressed as individuals.

Interactive and Multimedia Tools

The interactive courses offered by IWS are along with accompanying visual aids, which make the learning process more interesting and useful. In order to strengthen students' understanding of ideas and encourage active learning, we make use of multimedia materials, visual representations, and other interactive tools. We want to do this by developing a dynamic and engaging educational setting that encourages inventive problem-solving, critical thinking, and creative thinking among our students.

Web: https://iwsonlinetutoring.co.uk/about-us/
Instagram: https://www.instagram.com/iwsonlinetutoring/
TikTik: https://www.tiktok.com/@iwstutoring
Live on TikTik: https://www.tiktok.com/live

MENTORSME.CO.UK [6]

MentorsMe.co.uk is the first online portal in the United Kingdom that caters to the needs of small and medium-sized businesses searching for mentoring services.

Mentor organisations



Businesses all throughout Britain may have access, through this free website, to a list of organizations that provide mentoring services for businesses. A search engine that is simple to use enables businesses to tailor their queries according to the stage of development that their company is now in as well as their location inside Britain.

The purpose of this website is to provide a quick and simple method for companies to locate a mentoring organization that is suited to their specific requirements.

Additionally, business experts are granted the opportunity to advertise their expertise as business mentors for organizations that are listed on the website. Those who aspire to become mentors could have a specific area of knowledge to contribute and a desire to work in a particular region of Britain. They are able to identify mentorship organizations that are the most appropriate fit for their profile via the use of the search engine.

6 https://www.mentorsme.co.uk/

Mentorsme.co.uk's collection of online resources, which includes articles about mentoring and case studies of productive business mentoring partnerships, has another one of its primary goals as being to educate people about the many positive aspects of the business mentoring relationship.

The Business Finance Taskforce is responsible for the operation of the website mentorsme.co.uk. This taskforce was established by the British Bankers' Association and is comprised of the following five banks: Barclays, HSBC, Lloyds Banking Group, Royal Bank of Scotland, and Santander. The purpose of the taskforce that was created was to assist businesses in gaining access to the necessary financial resources so that they can expand.

The goal of the site is to give users with a centralized and straightforward search engine via which they can identify organizations that offer mentoring services to those operating small companies as well as those interested in beginning a business.

Their objective is to give consumers with access to all current mentoring organizations and networks under one umbrella, and they want to do this without duplicating or competing with the identities, connections, and services that such organizations already provide.

YOUTH ASSISTING VIRTUAL MENTORING PROGRAMS & ACTIVITIES

https://youthassistingyouth.com/activities2/virtual-programs/

Young Assisting Youth has compiled a collection of virtual programs and activities in order to assist our young mentors and mentees in remaining connected during this trying time. This is done to guarantee that physical distance does not translate into a loss of social connection between participants.

It is more crucial than ever before to take advantage of the power that comes from mentoring connections. Even though the method in which we build and support these connections looks a little bit different now that we do it online, we continue to enable mentoring relationships that are powerful and life-changing for at-risk and newcomer adolescents who are suffering difficulty. This is something that we do for young who are facing adversity.

Group Mentoring Sessions Conducted Virtually. Students are able to maintain their connections, engagement, and support systems with the aid of Virtual Group Mentoring, which incorporates a broad variety of virtual activities centered on education, entertainment, and the arts.

Virtual Girls Empowerment Program. Through a series of virtual workshops that involve group discussions as well as creative and exciting activities, disadvantaged and immigrant girls will be given the tools they need to become self-sufficient.

Volunteer mentors are given the opportunity to participate in a training program called Virtual Youth Mental Health & Learning Disabilities Training. This program educates volunteer mentors on the various mental health challenges and learning disabilities that YAY mentees are experiencing, hence assisting them in being more effective mentors and role models. Before being linked with mentees, mentors are required to finish this program.

DIGITAL TOOLS[7]:

Several applications and online services, which were not especially designed for educational and mentoring use, can be used to put online mentoring resources and ensure interactions between mentor and mentee. All modern applications claim to be participative, they give the Internet user the possibility of being active by creating different resources and sharing them in social networks, which, in turn, also allow the creation of resources to share. Today's highly developed software tools provide huge variety of opportunities for peer e-mentoring. According to (Ongoz, 2018) ICT tools application in the area of interest provides the following advantaged: greater access, reduced costs, equalization of status, decreased emphasis on demographics, and a record of interactions. In addition to traditional e-mail, phone conversations, instant messaging, SMS and other, many contemporary tools like social media, shared storage / shared documents, blogs, learning management systems, brainstorming tools and many others.

Using virtual mentorship tools automates much of the mentoring process, thus reducing the needed time for involved participants (mentors, mentees, administrators) for the mentorship managing. In addition, this method removes location limitations, which on its turn leads to removing the limitations for peering mentor-mentee and peer groups formation, as otherwise peers should be at the same location at the same time. Using e-mentoring techniques the need for travel time, and when e- mentoring software tools are used as a programmatic framework, the time needed for progress tracking is reduced. E-mentoring in peer groups allows

[7] CVETNET - A collection of good practices Programs and courses for SMEs – digital transformation and intergenerational learning

members to participate in asynchronous mode using business communication tools like Slack, video conferencing tools like Microsoft Teams, Zoom, Google Meet, etc., or recorded sessions, available through shared platforms.

For online surveys (PollEverywhere, Surveymonkey, etc.) - Poll Everywhere is an online platform that allows presenters to engage and interact with their audience through live polls, surveys, and other interactive activities. It provides a way to gather real-time feedback, opinions, and responses from participants during presentations, meetings, or events.

With Poll Everywhere, presenters can create multiple-choice polls, open-ended questions, word clouds, quizzes, and other interactive activities that participants can respond to using their smartphones, tablets, or computers. The responses are then displayed in real-time as visualizations such as charts or word clouds, allowing the presenter and the audience to see the collective results instantly.

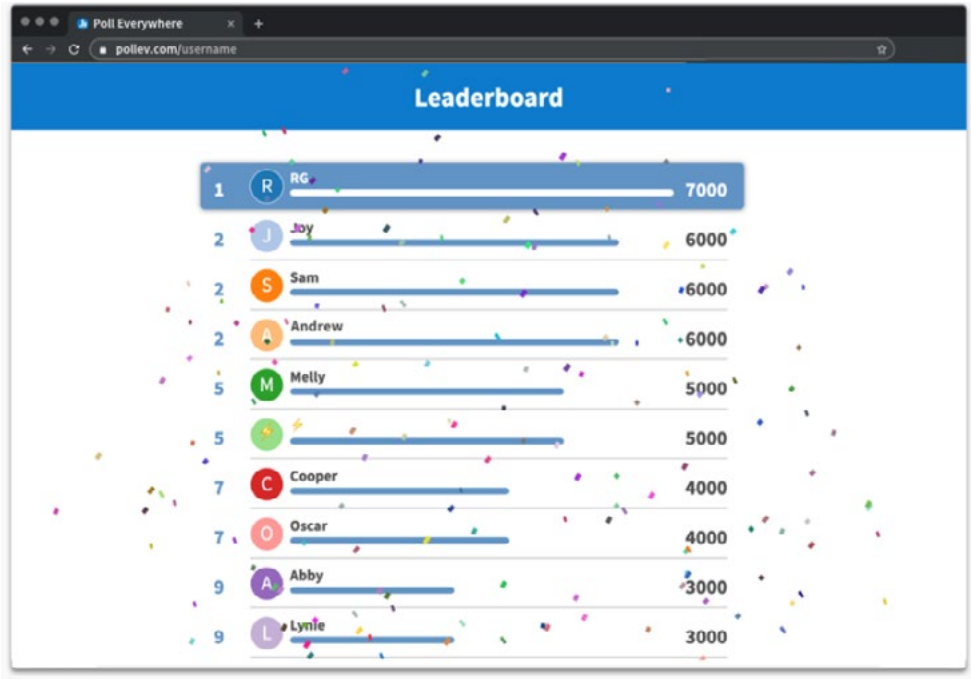


FIGURE 6.3. Leaderboard

SOURCE: https://www.polleverywhere.com/features/participants.

Doodle (meeting coordination) - Doodle is a popular online scheduling tool that helps individuals and groups coordinate meetings and events. It simplifies the process of finding a suitable time for everyone involved by eliminating the back-and-forth communication often required to settle on a date and time.

Here's how Doodle works:

- Creating a Poll: The organizer starts by creating a poll on the Doodle website or app. The poll includes a list of potential dates and times for the meeting or event.
- Sharing the Poll: The organizer shares the poll with the intended participants, either by sending them a direct link or by inviting them via email. Participants do not need to have a Doodle account to respond to the poll.
- Participant Responses: Each participant visits the Doodle poll and selects the dates and times that work best for them from the options provided. They can also leave comments or additional information if necessary.
- Finding the Best Option: As participants respond, Doodle compiles the responses and displays an overview of the most popular time slots that have been selected. This allows the organizer to quickly identify the option that works for the majority.
- Finalizing the Schedule: Once the organizer has reviewed the responses, they can choose the most suitable date and time for the meeting or event. They can then inform the participants of the finalized schedule and any other relevant details.

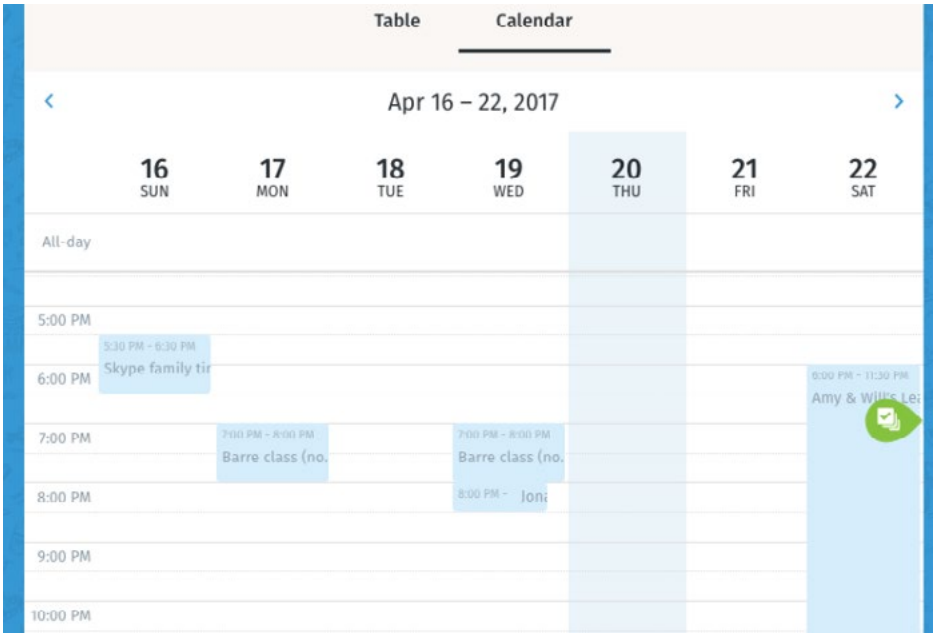


FIGURE 6.4. **Doodle outlook**

SOURCE: **https://www.pcmag.com/reviews/doodle.**

Stormboard (interactive tool for group work) - Stormboard is an online collaboration and brainstorming tool designed for group work. It provides an interactive and digital platform where teams can collaborate, organize ideas, and work together remotely.

The main purpose of Stormboard is to facilitate virtual meetings and collaborative work sessions, allowing participants to contribute their ideas, thoughts, and feedback in real-time. It offers a flexible canvas where users can create and organize sticky notes, post-it notes, images, and other media elements to represent their ideas visually.

With Stormboard, team members can collaborate synchronously or asynchronously, depending on their preferences and availability. They can contribute ideas, comment on others' contributions, and engage in discussions directly on the platform. Stormboard also supports features such as voting, prioritization, and task assignment, which help teams streamline their decision-making process and progress towards their goals.



FIGURE 6.5. **Sotmboard outlook**

SOURCE: https://www.mind-mapping.org/blog/2010/09/edistorm-for-brainstorming/.

Stormboard provides a variety of templates and frameworks tailored for different purposes, such as brainstorming, project management, agile workflows, retrospectives, and more. These templates serve as starting points and provide structure to guide teams through their collaborative work.

Overall, Stormboard aims to enhance team collaboration and engagement, particularly in remote or distributed work environments. By providing a digital space for brainstorming and idea generation, it enables teams to work together effectively, regardless of their physical location.

Plickers (moment feedback)

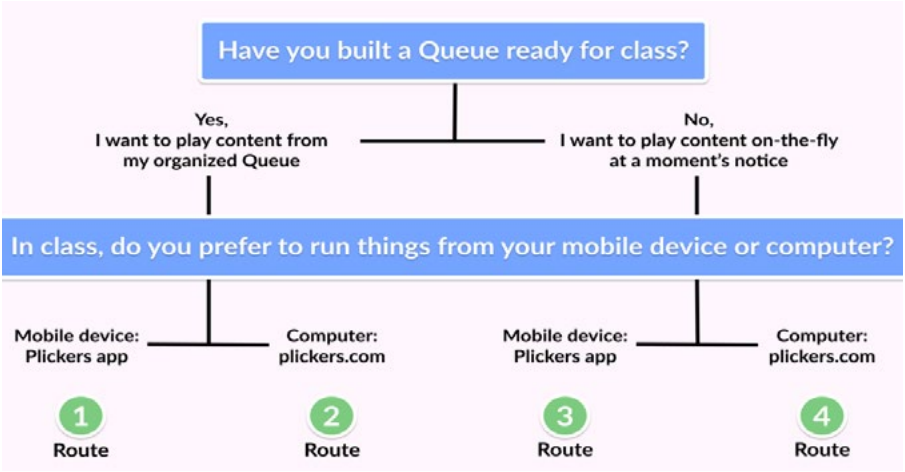


FIGURE 6.6. Pickler's outlook

SOURCE: https://help.plickers.com/hc/en-us/articles/360009089673-How-to-play-content-to-your-students.

Padlet (tool for collecting joint ideas) - Students have the option of posting their replies either before or during the course of an online teaching session. This active learning technique can benefit from a novel approach, which can be provided by designing a debate activity that uses the Padlet wall.



FIGURE 6.7. Padlet outlook

SOURCE: https://www.youtube.com/watch?v=I1j0kVNp1wk.

Wordcloud (graphic representation of terms)[8] - A word cloud is a graphic representation of terms or words, where the size of each word corresponds to its frequency or importance within a given text or dataset. It is a popular visualization technique used to quickly understand the key themes, topics, or trends present in a collection of words.

In a word cloud, the words are typically presented in a visual arrangement, with more frequently occurring or significant words appearing larger and bolder, while less important words appear smaller. The positioning and orientation of the words are often randomized to create an aesthetically pleasing design. Word clouds are widely used in various fields, including data analysis, text mining, content analysis, and information visualization. They provide a quick visual summary of the most prominent words in a text or dataset, allowing users to easily identify patterns, themes, or keywords of interest. Word clouds are often used in social media analysis, market research, sentiment analysis, and summarizing text documents.

Bubble.us (collaborative mind map) - is an online collaborative mind mapping tool. Mind maps are visual diagrams used to organize and represent information, ideas, or concepts. Bubble.us allows multiple users to create and edit mind maps together in real-time. It provides a user-friendly interface where you can create bubbles (nodes) representing ideas or topics and connect them with lines to establish relationships or hierarchies between the bubbles. This collaborative feature makes it suitable for brainstorming sessions, project planning, or organizing thoughts collectively.



FIGURE 6.8. **Bubble**

SOURCE: **https://bubbl.us/.**

[8] https://www.mentimeter.com/features/word-cloud

Kahoot (online tests via smartphone) - Kahoot is known for its gamified approach to learning, encouraging active participation, and fostering a sense of competition and fun. It is widely used in educational institutions, corporate training, and other settings where interactive and engaging assessment methods are desired.



FIGURE 6.9. Kahoot

SOURCE: https://usercontent.one/wp/www.tech4marketing.be/wp-content/uploads/2021/12/Kahoot-Quiz--Active-Users-2020.jpg.

Wooclap[9]

Wooclap is a voting system, which allows users to provide answers to some questions of various types, while communicate face-to-face or remotely. In synchronous mode the results appear directly on the screen and provide immediate voting percentage, as well as post-course reports for detailed answers. For the e-mentoring purposes, it can be used for voting in peer group for some topic and/or create word clouds while free answer to some question is provided. In this case the open-answer questions could be used as a brainstorming tool, which highlights the most common answers.

Padlet[10].

This tool is part of the online services that allow the creation of virtual walls on which peers can post almost anything they want or at least everything needed for the mentoring process. Thus, on a virtual wall, you can download text documents in doc or pdf format, PowerPoint presentations, integrate video capsules (short videos that represent some idea), interactive exercises, links to other resources. Walls created with Padlet can be shared in several ways - only in consultation, with the possibility of adding resources and with the possibility of editor/administrator of the wall. This

[9] https://www.wooclap.com/

[10] https://padlet.com/

functionality is very interesting from the pedagogical point of view; it can transform the virtual wall into a discussion space or a collaborative workspace that includes discussion and the exchange of different documents.

It is a very easy-to-use, very intuitive tool and can be used by different audiences of learners. As it does not provide any monitoring and evaluation of learners' activities, it is very useful for peer e-mentoring process, where peers are at a similar level from professional point of view and motivated enough to participate in the e-mentoring process on their own.

Document sharing platforms. These platforms (Google Drive, Microsoft OneDrive, Dropbox, etc.) are not complicated, but very useful for collaborative content creation. The content could not be text-only, but in form of electronic tables (Google Tables, Microsoft Excel in Office 365), presentations (Google Presentations, Microsoft PowerPoint in Office 365), surveys (Google Forms, Microsoft Forms, etc.). With them peers that mentor themselves can organize and follow the discovery work at home, rather than face-to-face work.

Distance work:

- put and organize all kinds of files into folders and sub-folders
- share files in different ways - consultation, comment, writing
- organize a group work with the sharing function
- follow the work of participants with profile on Google
- evaluate the work by proposing surveys

Peer mentoring activities:

- discussion on the results of a survey or on the contributions of participants in a group document
- presentation made with Google slides
- organize a vote on a subject or a brainstorm session (Mentimeter, Google Forms, etc.).

Trello[11]

Trello is a collaborative cloud platform for project task definition and workflow tracking. It is based on the Kanban method, originating from Japan and applied by Toyota in the 1950s. Its purpose is to visualise tasks by placing labels on a notice board (Naik, 2020) and to optimise production, efficiency and collaboration (Horvath, 2019).

In the case of peer e-mentoring it could be applied for virtual office workspace, where peers collaborate. They may set up a startup as a project they work on using boards feature, to assign a task to each participant and to track the work progress.

[11] https://trello.com

It is based on a virtual board, where participants add cards, containing information for sharing, for example for a specific activity. Each card could be assigned a specific deadline. The participants can add checklists, comment about their task and/or upload content regarding their work while peers track their progress. Each board could be assigned to as many participants, as needed and they will be notified in any change of board content.

In addition, Trello is integrated with many of the popular platforms like Google Drive, Slack, GitHub, Twitter, etc. and has responsive design, suitable for mobile devices.

In addition to the tools, discussed above, there are many other tools that may be applied successfully in peer e-mentoring process, some of them follow:

- News readers – tools that allow to keep up-do-date with news in a specific topic, like FeedReader[12], which supports also podcasts, RSS Reader[13], which downloads news in XML format and displays them in readable format; Awasu[14], which is a very professional feed reader, allowing also news archiving for future purposes, etc.
- Bookmark collectors / managers – these tools allow users to save / delete, search through bookmarks for future use. Such tools are del.isio.us[15], a social bookmarks collector, using tags for searching; Diigo, which collects bookmarks and highlights the selection while searching and maintains sticky noted; and many others.
- Mindmapping tools – there are plenty of such tools, where peers could share and discuss ideas, like Mindomo[16], MindMeister[17], Mindmup[18] and many others. Using these tools, peers can do structure writing while preparing a business plan, marketing strategy, article, etc., create storyboards, and collaborate on current projects they work under.

6.6. Conclusion

This chapter provides a brief outline of software tools that could be successfully implemented into peer e-mentoring domain. Of course, the list is indicative and contains examples of various platforms, while many other exist. There is no single tool, which will be enough for e-mentoring domain, but many platforms should be used

[12] http://www.feedreader.com/
[13] http://www.rssreader.com/
[14] http://www.awasu.com/
[15] https://delicious.com/
[16] http://www.mindomo.com/
[17] https://www.mindmeister.com/
[18] https://www.mindmup.com/

in combination. The presented tools are free or offer free versions; are easy to use, but still effective. Despite they are not designed originally for e-mentoring, are easy to transfer to another context and domain like peer e-mentoring, as many of them contain series of features, that enhance organizational communication, skills development and fostering professional engagement both as mentor or mentee.

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7. E-Mentoring Program's Evaluation, Zane Beitere-Selegovska

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7.1. Introduction

Mentoring programs are increasingly designed to strategically use the benefits of e-mentoring for specific purposes, such as mentoring youth in rural areas, those with chronic illnesses, those interested in certain professions or higher education, and individuals with disabilities (Kaufman, 2017). E-mentoring could also be a very good support and encouragement program for shy individuals who find it difficult to communicate face to face or in a strange group (Mentoring Methodology, 2013).

In Latvia, mentoring is associated with social support programs for young people, business mentoring for developing entrepreneurial skills (students of vocational schools) or starting/developing a business (for young entrepreneurs). Abroad, e-mentoring is widely used in various fields, including workplaces as a training program for new employees and in schools to increase the competence of new teachers.

When planning or making improvements to the mentoring program, one should start with defining the meaning of the mentoring program, selecting the program participants, identifying the needs of the planned target audience and the general goals of the program (Ko, Zhadko, 2023).

Five stages are distinguished in the mentoring process: relationship building, goal setting, action, conclusion and moving forward (Kas ir mentorings (What is mentoring), 2022). Program evaluation, like any phase of a mentoring program, must be closely related to the overall goals of the program.

The main difference between e-mentoring and traditional mentoring is the type of communication used, that is, in the case of e-mentoring, information and communication technologies (ICT) are used. In the age of information technology, the role of e-mentoring has naturally developed alongside the rapid development of various

ICTs. Online communication has become very popular, especially among young people, however, it must be admitted that it is really a way to have a quick and easy conversation or clarify important issues.

E-mentoring nowadays means communication without borders. Due to ICT, geographical and psychological distance between people does not exist (Risquez, 2008). This type of communication allows people who live far away from each other and may never even have seen each other to communicate with each other and build relationships. In the context of mentoring, this means that mentor pairs or groups are not tied to a specific geographic location and mentoring sessions can be scheduled even while traveling (Kasprisin et al., 2003). The time of the Covid-19 pandemic has forced society to review all previously known opportunities to communicate virtually and raised them to unprecedented heights, forcing institutions to review their opportunities, even those that never imagined that all types of information could be transferred only virtually (including educational institutions).

Studies have been conducted (The Kirkpatrick Evaluation Model...), which indicate that mentoring does not always bring benefits, often the mentees do not apply the knowledge gained in the program or there are no visible positive changes in their behavior. There could be several reasons for this, but it cannot be ruled out that one of the reasons may be an underestimation of the effectiveness of the mentoring program.

In the framework of the article, the mentor's clients - the inheritors of experience will be called mentees, because depending on the mentoring program, they can be young people of the target group, young entrepreneurs/teachers, participants of a project or beneficiaries of support (project PĀRDOMĀT/RETHINK, 2020).

7.2. A theoretical perspective on mentoring program evaluation

The Russian psychologist, founder of the sociocultural theory, Lev Vygotsky (Vygotsky, 2002) believed that people are better able to learn through discussion, including dialogue with those who are able to challenge existing knowledge and structure further learning. Mentoring structures learning, therefore it can be considered directed learning (Kanaška, 2020). Therefore, one of the conditions for starting a mentoring program is clearly defined goals, these goals will also help to evaluate the program, as well as to make tactical decisions on how to build the structure of the program and the personalities to be included. The selection of mentors plays the second most important role, because a strong, confident and knowledgeable mentor is able to motivate, however, in parallel with knowledge, he must also be endowed with good abilities to listen and lead, so it is necessary to invest not only in the creation and development of the program, but also in mentor training (Top Mentoring Program Mistakes Organizations Should Avoid).

There are studies (Opengart, Bierema, Cremona) that indicate the importance of studying emotional intelligence for both participants in the mentoring process, emotional intelligence affects the mentoring relationship and its effectiveness for both the mentor (uses his emotional competence to maximize the potential of the mentoring relationship) and the mentee (emotional intelligence is positively related to the extent to which a learner learns, thus it is related to job satisfaction and attitudes toward career and business) (Baltov M. et al., 2021).

One of the most important challenges that may be faced when developing e-mentoring programs is the lack of skills, including reading comprehension and expressive written communication, as well as ICT skills or writing skills. These limitations may lead to lack of interest in the program or misunderstandings in electronic correspondence. The effectiveness of e-mentoring, of course, also depends on functioning technologies, and time delay can create feelings of abandonment, panic and also dissatisfaction for both the mentor and the mentee (Kaufman, 2017). It should be noted that all the above-mentioned problems apply to both parties involved in mentoring, for example, an older mentor will have excellent knowledge to give to the mentee, but may not be sufficiently familiar with computer skills or the use of various computer programs. When evaluating the program, remember to include the following questions in the surveys.

E-mentoring can be divided into virtual and hybrid or mixed, where mentors and mentees use a face-to-face activity or F2F (*face-to-face* in English) in parallel to the virtual environment, such as lunch meetings, focus groups or question-based seminars (Neely, Cotton, Neely, 2017). This should be taken into account when choosing the most suitable models and methods for evaluation.

Program evaluation is an activity that organizations carry out from time to time, formally or less formally, to ascertain customer satisfaction, program compliance with customer needs, etc. Often, especially when starting a new program, the emphasis is on the program itself, with evaluation postponed until the end of the program (Garvey, Stokes, Megginson, 2018). David Megginson (Megginson et al., 2006) emphasizes that it is important to be aware of the success criteria at the start of the program.

Typically, assessment is divided into:

- formative or process evaluation (performed throughout the program);
- in the summative or results evaluation (performed after the conclusion of the program) (Course for mentor in the sector of eco-industry).

Establishing a strict program evaluation system has many benefits. For example, it allows:

- make on data-based decisions to improve the program;
- determine whether resources are allocated in the most efficient way;
- tell partners, funders, participants and other interested parties about the success of the program (Getting Started with Program Evaluation).

The best-known objective-based training evaluation model is Kirkpatrick's (1959) model, and although it was developed to evaluate training and education programs, it is also useful for evaluating coaching and mentoring programs. It is very simple and flexible and therefore has been used for a long time (Research Methodology, 2020). Each level of this model has corresponding evaluation methods. All levels are equally important and the assessment of each level aims to reveal information that is important both for the evaluation of learning benefits, for the further improvement of learning programs, and for evaluating the entire organization's learning strategy. However, it should be noted that fully utilizing the model for deep and serious program evaluation can be a very time-consuming process. Therefore, organizations often stop at the evaluation of the first two levels, because the evaluation and administration of these stages is simple and fast (Lūse, Gredzens, 2009).

The CIRO (Warr et al., 1978) evaluation model is different from the Kirkpatrick model. This model also has four levels (context, input, reaction, and outcome), but focuses more on the context in which learning occurs (Garvey et al., 2018). CIRO focuses on pre- and post-training measurements, so it is considered by many to be better suited for evaluating management-oriented programs to inform program developers about program effectiveness (CIRO Model).

Another common way to evaluate the program is the outcome-based model (OBE-outcome-based model), which emphasizes the goals that the program must achieve, applying them to the person receiving the organization's/institution's services. This model focuses on the benefit that a person gets from using the program in question, not on the service provider (Research Methodology, 2020).

7.3. Features of mentoring program evaluation models

When starting the acquisition of knowledge in the program, it is important for the mentee to realize what he wants to get from the mentoring program and to know that he has full support of all kinds, also from the mentor. As indicated by Montgomery (Montgomery, 2017), the mentor must understand the mentee's personal values and future goals and be able to provide the most effective mentoring according to the mentee's skills and knowledge (Baltov et al., 2021).

It has been observed that in case of successful mentoring, there is a positive interaction between the two parties involved in the mentoring, as they complement each other. Therefore, the beneficiary is also a mentor, realizing or making sure of some skills (e.g. management, technical, etc.), gaining more self-confidence about his abilities and/or knowledge, increasing communication skills, etc. It has been observed that more successful cooperation occurs in cases where the mentee and the mentor can

self-select each other (Baltov et al., 2021). In this case, the relationship is formed organically (Neely, Cotton, Neely, 2017), one of the selection criteria will be a common language and trust, which is very important in such programs. However, in e-mentoring, the selection of a mentor and mentee pair is even more important, because it is possible that in real life the mentor and the mentee do not meet at all. Therefore, in e-mentoring, it is recommended to form pairs by allowing the mentee to choose their own mentor. Taking into account this peculiarity of e-mentoring - less pronounced mutual interaction, within the program it would be good to foresee that at least one meeting is planned in person and it would be desirable in the initial period of the program (Neely, Cotton, Neely, 2017). This will allow communicating on a different level, better understanding, appreciating each other and possibly also understanding some peculiarities of our mutual communication.

In order to make the most of the mentor-mentee relationship, the emotional intelligence of both should be measured in the early stages of the relationship, and self-confidence should be discussed and developed on both sides, thus it is possible to increase the desire to learn, start a more successful mentoring relationship, improve persistence and effectiveness (Baltov et al., 2021). Assessment of emotional intelligence can also help in further evaluation of the program, for example by studying the mentee's behavior or outcomes in the follow-up after the end of the mentoring program. Emotional intelligence studies have found that the higher the mentor's emotional intelligence, the greater the mentee's trust in him. The qualities to look for in an emotionally intelligent mentor include self-awareness, self-regulation, motivation, empathy and social skills. An emotionally intelligent person is able to cooperate with others, lead others, build relationships both at work and in private life, and manage his emotions. Without understanding how emotional intelligence affects the mentoring relationship, the key to mentoring success cannot be found (Opengart, Bierema, 2015).

Neely, Cotton, Neely (2017) recommend paying special attention to certain individual differences that make people more involved in e-mentoring: gender, age, extraversion and proactive personality. The authors express the opinion that e-mentoring could be chosen better than traditional mentoring by people who, first of all, are computer literate and this may also have a close connection with the generation (younger people are more familiar with and accept ICT challenges faster). Looking at generational differences, millennials might be more interested in e-mentoring than traditional mentoring. Secondly, various character traits can determine the desire to communicate better at a distance, for example, a person is shy, insecure, individualistic by nature, etc. And as mentioned above, this should be taken into account for both mentees and mentors. Thirdly, women may be more interested in e-mentoring (due to family status (e.g. young children or maternity leave, lower self-confidence)) and minorities (due to society's attitude).

It is important to carry out the evaluation of the mentoring program in a complex manner, in several stages, in order to solve or help solve any problem that has arisen between the two parties involved in the mentoring over time. Also, it is not enough to evaluate the program after its end, which is usual in various courses, seminars and other short programs, where the feedback is measured in the context of *like/dislike*. Kirkpatrick's model recognizes this as only one of a set of assessment measures (Garvey et al., 2018). In general, the use of the model in the assessment provides multi-layeredness. The model consists of 4 levels (see Figure 7.1).

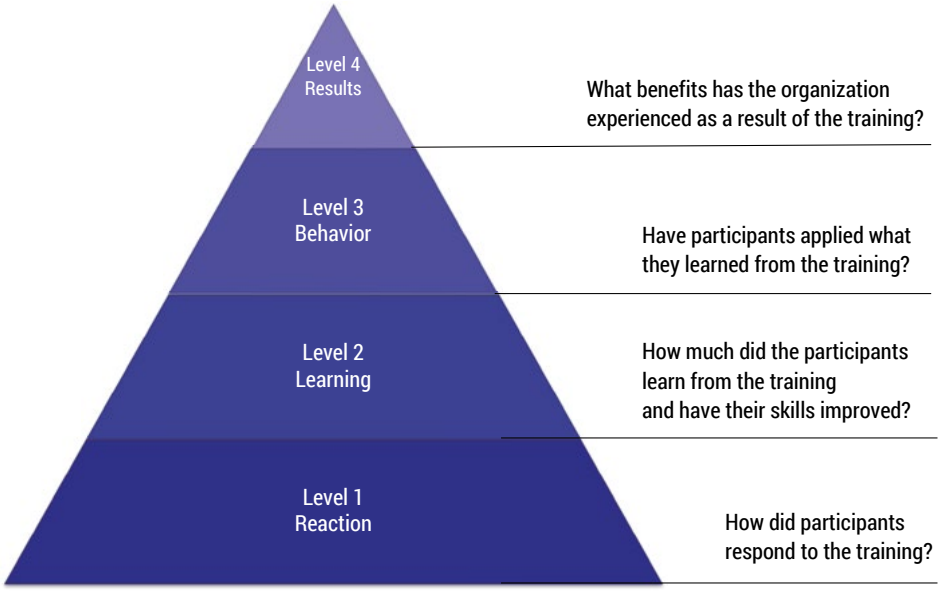


FIG. 7.1. Levels of Kirkpatrick evaluation model (Lucid Content Team)

SOURCE: https://www.lucidchart.com/blog/how-to-use-the-kirkpatrick-evaluation-model.

The purpose of the 1st level is to assess the reaction and satisfaction of the participants regarding learning immediately after learning the program, in addition to the general reaction, satisfaction in certain aspects of the program is also studied - in the context of mentoring, these would be the mentor's competence and operating style, content, methodology, time plan, mode of mentoring etc. (Lūse, Gredzens, 2009). Questionnaires are used for evaluation.

The purpose of level 2 is to determine what the participants have learned during the program, particularly focusing on the framework of goals defined in the program. This is easily done with the help of various tests. However, it is worth remembering that not all learning is always based on technical skills, sometimes it is a matter of attitude (Using the Kirpatrick model to evaluate your mentoring program).

Behavior or 3rd level skills are more difficult to observe, because each situation in communication can be different (Lūse, Gredzens, 2009). But changes in behavior are very important in mentoring programs, because they are the ones that show the development of leadership or other skills. Ideally, the mentee will change behavior during the program. If this does not happen, it is important to understand why learning does not create an impact (Using the Kirkpatrick model to evaluate your mentoring program). The purpose of this level of assessment is to find out whether the participants of the training program are able to use the new knowledge and behavior patterns at work. It should be added here that the motivation of the mentees themselves and a positive attitude towards what they have learned in the program will be important (so the results of the 1st and 2nd levels are important), as well as a positive and motivating real work/study environment and conditions (encouragement, cheering up, trust and other types of recognition) (Lūse, Gredzens, 2009).

The purpose of level 4 of Kirkpatrick's model is to find out how changes in behavior have affected outcomes. These results should correspond to the objectives of the mentoring program (The Kirkpatrick Evaluation Model). At this level of evaluation, the knowledge acquired in the mentoring program may not be the only variable that influenced the results. Implementation of the knowledge gained in the mentoring program in work/life is a time-consuming process, and during this period of time various events may occur that have side effects on the mentee.

The CIRO model also evaluates the program at four levels (see Figure 7.2), but does not include behavioral measurements. The name is an acronym formed from all four levels in English (cotext, input, reaction and output).

Basically, in the evaluation of the program according to the CIRO model, the emphasis is placed on obtaining recommendations on what changes should be made in the training (mentoring) program. The aim is to find out if there is an appropriate training format and which stages of training should be improved. (Deepak, 2020).

The 1st or context level refers to the identification of training needs and the definition of goals, based on the collection of information about operational deficiencies. A context assessment helps to note all the factors that can affect the training process. The identified needs can be divided into three levels: final goals (eliminate specific organizational deficiencies, such as poor customer service), intermediate goals (goals that may require changes in the work behavior of employees to achieve the final goal) and immediate goals (acquiring new skills and knowledge through training as a result, which may also include a change in employee attitudes).

At the 2nd or input level, gather information about possible training techniques and methods, evaluation helps to choose the best methods. This phase also covers

the development, planning, management and implementation of the training programme. It analyzes the organization's resources and determines how best to use them to achieve the desired goals.

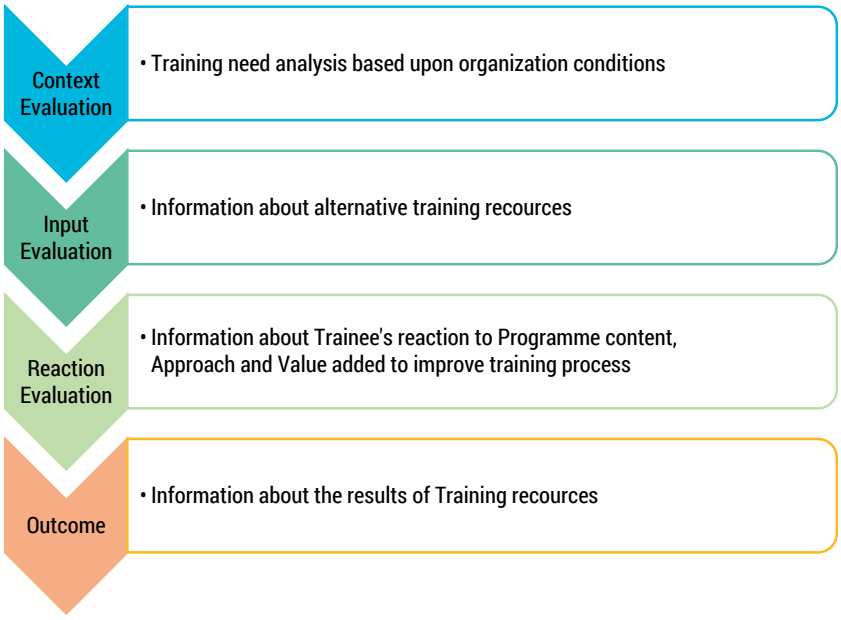


FIG. 7.2. CIRO Model (CIRO Model)

SOURCE: https://theintactone.com/2019/03/14/td-u4-topic-13-ciro-model/.

The 3rd or reaction evaluation level involves gathering the participants' opinions and suggestions about the training they received, evaluating it from the aspects of content, approach used and added value. The information collected is used to find ways to improve the program.

The 4th or results level includes the presentation of results at three levels: immediate (understands how the mentees were and if they succeeded to complete the program), intermediate results level (implementation of intermediate results may require some time, for example, changes in program content or resources) and final level results (key organizational goals that have a far-reaching impact on the organization). These results can be measured at different levels: at the learner (mentee) level, at the workplace (training) level, at the team (group or department) level, and at the business level, depending on the purpose of the assessment and available resources (Deller, 2021).

Using the CIRO model, data can be obtained faster and easier, which facilitates the evaluation process, however, it should be remembered that more emphasis is placed on gathering recommendations for improving the program. The other

major difference between the Kirkpatrick and CIRO models is at the level of results. Using Kirkpatrick's model, outcomes can be derived from three levels - learning, behavior and outcome. It focuses on cumulative training, while CIRO on pre- and post-training measurements (CIRO model).

In the outcome-based evaluation (OBE) model, evaluation of the process of the mentoring program and research on the quality of the relationships of the participants involved in the mentoring help to more accurately interpret the outcomes measured in the program.

- process evaluation helps to identify program implementation problems that may affect mentees' results;
- measuring relationship quality helps identify factors that contribute to positive relationships between mentors and mentees (Garringer, bg).

The evaluation system should measure how well the program is implemented, how strong the quality of the relationship between mentors and mentees is, how the mentees work to achieve the planned results of the mentoring program.

According to Garringer (Garringer, bg), one of the most important aspects of running a successful mentoring program is evaluating both participant outcomes and the quality of service delivery. Evaluation is an essential tool for creating effective mentoring programs that truly make a difference. Evaluation is not a one-time activity – it is a system used to collect information that helps improve the program over time (see Figure 7.3).

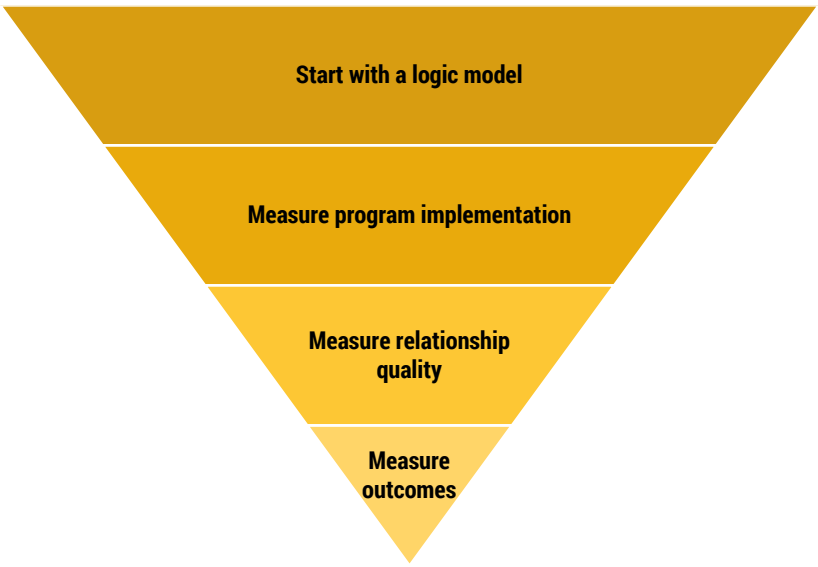


FIG. 7.3. Basic components of mentoring program evaluation (Garringer, bg)

SOURCE: https://www.mentoring.org/resource/getting-started-with-program-evaluation/.

The program logic model (see Figure 7.4) is defined as a picture of how the organization does its work - the theory and assumptions underlying the program.

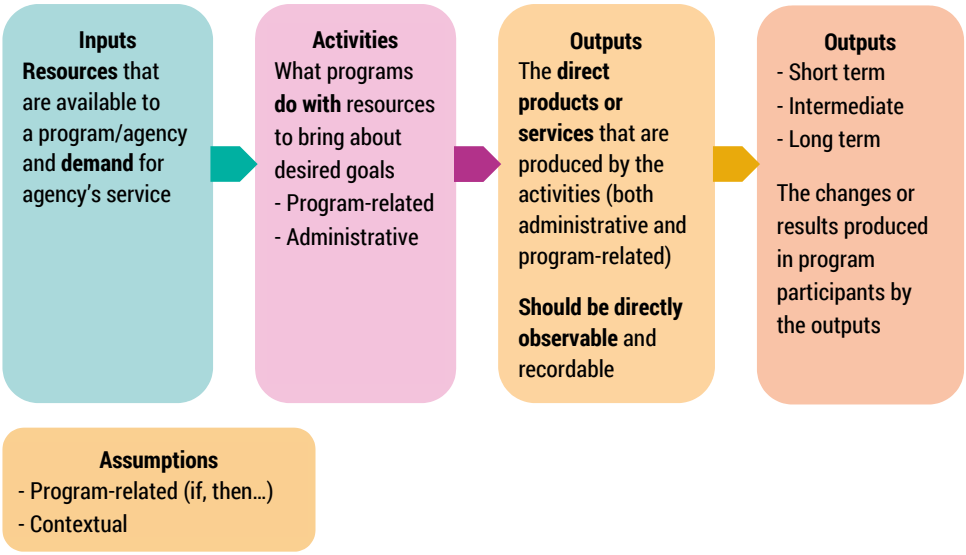


FIG. 7.4. Mentoring Program Logic Model (Garringer, bg)

SOURCE: https://www.mentoring.org/resource/getting-started-with-program-evaluation-1-building-a-logic-model/.

A program logic model links outcome (both short-term and long-term) to program activities/processes and program theoretical assumptions/principles. Mentees' achievable results identify the elements of the program that must be implemented to achieve those outcomes (Garringer, bg).

When thinking about measuring the quality of mentoring relationships, Garringer (Garringer, bg) offers a scheme by Nakkula and Harris (Nakkula, Harris, 2014):

- quality of internal correspondence - how the mentor and the mentee feel their relationship with each other:
  - relationship aspects – perception of compatibility, trust, satisfaction,
  - instrumental aspects - degree of orientation to growth, frequency of support received;
- coordination structure - how the mentor and the mentee decide how to plan the activities;
- quality of external correspondence - how external elements (work/study team, family, etc.) influence the development of the mentoring relationship.

7.4. Implementation of evaluation of e-mentoring programs

In order to create a mentoring program as a system, where both how to start and how to manage the program, as well as to evaluate the results are considered, it is necessary to determine the basic criteria and questions to be guided by (see Table 7.1.).

TABLE 7.1. Criteria and questions for e-mentoring program evaluation (adapted from Dāvidsone, Prikšāne, Sylla)

System aspect – criterion	Questions for analysis
The purpose of mentoring	How clear and focused is the purpose of the mentoring program? For what purposes do you use it/want to use it?
Selection of mentors	What skills should a mentor have? How to assess the suitability of mentors? How clearly defined is the mentors' expected time commitment to the program? What is the mentors' motivation for participating in mentoring? Whether and how to analyze it?
Establishing a mentoring relationship	Do mentees choose their own mentors? If not, what are the selection criteria? If and how is the compatibility of the mentoring pair assessed? In what cases and how can a mentor relate to a mentee and vice versa? What are the terms of a collaborative breakup and how is it negotiated? Are the principles of mentoring clearly defined when starting a mentoring relationship? How are those involved in mentoring informed about it?
Training	What training is required in the mentoring program? What mentor skills are considered critical, how are they developed? What skills are analyzed during the program? What kind of support is provided to make both parties aware of the boundaries of mentoring, the responsibility of each party?

System aspect – criterion	Questions for analysis
Resources	What methodological support materials are needed? Should you use a special virtual platform or separate technical solutions? What will be the pros and cons of each? What technical resources are needed to start an e-mentoring program? What is available from them and what else is needed? For what purpose will each information technology solution be used? Do the mentor and the mentee have all the necessary ICT provision (both internet connection and availability of programs, as well as the technical means themselves (computer, smartphone, camera, etc.))? Do all mentoring participants have sufficient computer skills and know how to use all communication networks? Is additional training/introductory seminar in the use of information technology needed?

SOURCE: https://www.mk.gov.lv/lv/media/14739/download?attachment; https://www.mentoring.org/wp-content/uploads/2023/01/E-Mentoring-Success-Guide.pdf.

When starting the program, it is important to precisely set the goals and achievable results, as well as to follow a common time schedule, so you need a carefully developed plan to work according to. When specifying the goals of the mentoring program, key performance indicators (KPIs in English) should be determined and the result should be measurable.

TABLE 7.2. An example of defining the goals of a mentoring program (after Reeves, 2021)

The aim	How mentoring can help	Main results
Career development	Helping employees achieve their career goals by developing their capabilities	80% of employees are positive about their career development
Develop future leaders	To help young people develop their leadership skills	Increase indicators by 10% during the year

Source: https://www.togetherplatform.com/blog/how-to-measure-your-workplace-mentoring-program.

To define measurable results, they must meet five characteristics (in English, the acronym SMART is used for this):

- concrete or specific (what exactly the program must achieve),
- measurable (how will you know that the goal has been achieved),
- achievable (are the set goals achievable),
- realistic (or, taking into account the time and resources allocated, the set goals are realistic),
- time limit (what is the deadline for achieving the goals) (Evaluating a mentoring program, 2011).

Selection of mentors is a very serious stage in the process of creating a mentoring program and may require additional training before starting the program. This is also a separate research topic. However, I would like to mention some necessary skills that a good mentor needs:

- demonstrating a positive attitude (as we know, a positive attitude is the key to success, a good mentor will show if he looks at life optimistically and is full of energy, he will also be able to inspire others. A skilled mentor will be able to see the bright side in every situation);
- active listening (communication skills are very important in building relationships, but you must not only be communicative, but also be able to listen to others). Mistakes we make, distracting ourselves from external sounds (phone ringing, door opening, etc.), thinking about what to say next, interrupting the speaker to interject our advice, etc.;
- empathy (the ability to "step into another's shoes", awareness of other people's feelings and emotions). The elements of empathy are emotional intelligence, attention, listening and showing interest through body language. Empathy is a critically necessary skill for a mentor, especially in e-mentoring, in fact every person needs it, which is why emotional intelligence research is so relevant at the moment;
- ability to give honest feedback. This is also a very important skill for mentors. Without being able to provide honest feedback, the mentee has no opportunity for growth. Skilled mentors are able to present negative feedback with a positive connotation. Good practice is, first of all, to create an atmosphere full of trust and respect, mentioning the mentee's weaknesses, also mentioning strengths and achievements, maintaining a calm and positive atmosphere, maintaining eye contact (What skills do you need to be a mentor).

In e-mentoring, the mentor must also be computer literate and familiar with various ICTs. The confidence with which the mentor acts also inspires confidence in the mentee, increases the attitude full of respect and trust.

The individual development plan of the mentee lists the competences and development goals to be developed during the mentoring program, as well as deadlines, records the criteria that will determine progress and the methods and measures to achieve them, as well as the necessary resources (Dāvidsone, Prikšāne, 2022).

Taking into account the individual development plan of the mentee, a mentoring performance plan should be created, in which the schedule of time and meetings, as well as the ICT to be used, should be coordinated. As mentioned above, it would be good to plan before that at least one of the first meetings could be in person, and to create the effect of presence, to increase trust and strengthen the relationship, you should definitely use the options of a video call or an online video conference. It has been studied that the use of different online media with different intensity and social level in the context of e-mentoring is positively related to trust and relationship quality. It is also increased by the mentor's use and familiarity with various virtual resources (virtual environment, games, e-learning materials) (Neely, Cotton, Neely, 2017).

According to the goals and results recorded in the plans, it will be easy to measure after the end of the program, when the independent activity of the mentor has already started, whether and to what extent these goals and results have been achieved (Lūse, Gredzens, 2009).

When evaluating a program, there are a number of methods that can be used to obtain results (see Table 7.3.).

TABLE 7.3. Methods used in program evaluation (according to Evaluation of mentoring. Best practices)

Method	advantages of use	Disadvantages of use
Archive analysis	The data is available, the accuracy of the data can be increased	Individual listings may not be accurate or fully described/missing
Focus groups	Provides in-depth information/ explanations on a question Data from multiple people at the same time	A time-consuming process to prepare for the discussion, a moderator is needed. Time-consuming process of capturing responses from notes or video/audio recording
Interviews	May contain sensitive information	Time-consuming, questions must be prepared, difficult to gather answers
Observations	Feedback can be obtained quickly, participation can be recorded	Doing a more detailed analysis can be a time-consuming process
Audiovisual evidence	Considerable evidence, can be stored	Analysis takes time. Quality equipment and data collection required (poor quality audio/video may not be usable)

Method	advantages of use	Disadvantages of use
Tests	Easy to administer	In advance, careful preparation/selection of questions for each group, specific tests, data analysis is required. The answers may not be objective.
Surveys/ questionnaires	Easy to administer, process, store (if online). Standardizable	It requires careful preparation of questions in advance, the right questions must be asked. The answers may not be objective

SOURCE: https://cfe.unc.edu/wp-content/uploads/sites/326/2019/01/Evaluation-of-Mentoring-Best-Practices.pdf.

The first task is to understand what kind of information there is an interest/need to obtain at the given stage. If the program has just started, perhaps the emphasis will be on its development/improvement - if it has proceeded as planned (in the first year of the program's operation, formative evaluation data is collected at least once a quarter, preferably once or twice a year), which has hindered progress, what are the strengths and weaknesses (process evaluation). If the program has been working stably for some time, the emphasis could be on the result - whether the desired results were achieved, what makes the program effective/ineffective, etc. Regardless of which type of evaluation is planned to be used, descriptive data about the program participants must first be collected, which will allow a better understanding of the evaluation results (Evaluating a mentoring program, 2011). The data includes:

- gender,
- age,
- work experience (if applicable),
- technical skills (both related to job duties (if applicable) and other skills, e.g. computer skills will be important in the case of e-mentoring),
- previous experience in mentoring relationships, etc.

In addition, when evaluating, an important indicator is also those mentees who have not completed or even started the program. The reasons for leaving must be ascertained. Perhaps this is the segment of the audience that needs to be worked on with improvements and they are returnable for mentoring.

When thinking about the mentor-mentee relationship, the following information might be important:

- do they know each other before (and how)
- and if so, what is their relationship like (friendship, for example)
- are both of the same gender,
- do they have a similar level of specific skills,

- by what criteria was the pair found (if the mentee did not have the opportunity to find a mentor himself), etc.

When using surveys for evaluation, attention should be paid to the variety of wording of questions, including questions that require in-depth answers/explanation of one's own answer, formulating statements and including rating scales (for example, 1-5 or 1-10: from completely agree to completely disagree), multiple-choice questions from which one or more options must be selected, and the opportunity to freely comment on the program or any part or aspect of it. In order to obtain the most open information possible, such surveys are conducted anonymously (Lūse, Gredzens, 2009). It is easy to create surveys virtually using one of the freely available online survey tools, such as:

- Survey Monkey: www.surveymonkey.com;
- Google Forms: www.google.com/forms/about/.

In these tools, it is not only possible to create questions of various constructions, but also to easily collect data by sharing the survey link, the obtained data can be viewed both as individual answers and in aggregated form (there is no need to spend time compiling the results after data collection), and can also be saved.

An effective method of qualitative research and a quick way, if you need to get data about the same area (for example, the opinion about something and how this opinion is formed) from several people, are focus groups. The discussion should be pre-structured and moderated. It is useful to record such focus group sessions (eg audio) and/or take notes (this should not be done by the moderator himself, so as not to disrupt the resulting discussion) to ensure the relevance of the information obtained (Garringer, bg). However, in order for the discussion to be organized and the results to be documented, it is preferable to plan a focus group with no more than 8 participants.

Achievement tests (standardized or specially developed) are used to evaluate the acquired knowledge, in which the participants must provide a certain result based on the learning objectives. In the preparation of effective tests, the previous level of preparation of the participants should be taken into account, so the mentee should be evaluated twice - at the beginning and at the end of the program (The Kirpatrick evaluation model...).

Many recruitment and consulting companies cooperate with emotional intelligence research practitioners who help leaders, managers, company employees understand and develop their emotional intelligence (e.g. www.darbaguru.lv). Emotional intelligence (EI or EQ) tests are used in the evaluation (see Table 4), which measure observable demonstrated behavior and relationships in the work environment after 180 degree (the mentee's self-assessment and his direct supervisor's assessment

of his ability to lead others), 360 degrees (additional evaluators from different categories are added to the 180-degree assessment (in the work environment they can be managers of different levels, colleagues, also clients) to create a platform, how people at different levels perceive the person being mentored and where it would be necessary to improve the attitude (Padhi, 2020) and the principle of self-evaluation. Research by Garvey, Stokes and Megginson (Garvey et al., 2018) found that individuals tend to inflate self-assessment of their performance and it only moderately correlates with other measures of knowledge and performance, so the assessment process requires a variety of tests to assess performance as comprehensively as possible and more objectively. Several measures measured by emotional intelligence assessments, such as *The Trait Emotional Intelligence Questionnaire (TEIQue) (Petrides, 2009),* are positively related to providing appropriate emotional responses and performing various mentoring functions (Baltov et al., 2021).

TABLE 7.4. The Sampling Domain of Trait Emotional Intelligence in Adults (https://www.eiconsortium.org/measures/teique.html)

Aspect	High scorers perceive themselves as
Adaptability	...flexible, willing to adapt to new conditions
Assertiveness	... forthright, frank, and willing to stand up for their rights
Emotion Perception (self and others)	...clear about their own and other people's feelings
Emotion expression	...capable of communicating their feelings to others
Emotion management (others)	...capable of influencing other people's feelings
Emotion regulation	...capable of controlling their emotions
Impulsiveness (low)	...reflective and less likely to give in to their urges
Relationships	... capable of having fulfilling personal relationships
Self-esteem	...successful and self-confident.
Self-motivation	... driven and unlikely to give up in the face of adversity
Social awareness	... accomplished networkers with excellent social skills
Stress management	... capable of withstanding pressure and regulating stress
Trait empathy	... capable of taking someone else's perspective
A feeling of happiness	... happy and satisfied with their lives
Optimism	...confident and likely to "look on the bright side of life".

SOURCE: https://www.eiconsortium.org/measures/teique.html.

For obtaining more objective information, a retrospective interview (the mentee, his work/group colleagues, direct manager and others with whom the mentee cooperates on a daily basis) would be useful, in which the behavior of the mentee before

and after the program is ascertained from each of the participants, they compare what contributed to the change, what proves it, etc. This is a very labor-intensive process that requires a lot of resources.

As the basis of e-mentoring, in addition to the transfer of knowledge, is also important communication and support from the mentor's side, so in parallel with the assessment of whether the goals set in the program have been achieved, it is also important to assess the cooperation between the mentor and the mentee. It could be a diary, where you note the times of the meeting, the issues/topics discussed, the results, various observations and the joint effectiveness of the meeting (Mentoring Methodology, 2013). The mentee's diary can be separate, where you can regularly record your thoughts or emotions about what is happening in the mentoring process, analyze your actions or express your confidence (Dāvidsone, Prikšāne, 2022). The diary can be supplemented with leading questions or small tasks to encourage the mentee to make an entry each time. Such a diary can serve not only as a means of reflection for the mentee himself, but if it is agreed in advance that it is also available for viewing by the mentor, it can help solve some problems in time or can also be used in evaluating the program.

Each meeting can be concluded with an easy-to-fill survey - evaluation of the meeting (see Table 7.5.) (Mentoring guidelines, 2013).

TABLE 7.5. **Meeting evaluation questionnaire (for the mentee)**

Date and time of meeting					
	Strongly agree.....strongly disagree				
I felt support from the mentor	1	2	3	4	5
The mentor listened to my opinion	1	2	3	4	5
The method of communication used (e.g. videoconference) was acceptable to me	1	2	3	4	5

SOURCE: created by the author.

It would allow the mentor to understand how the collaboration develops, whether the mentee meets deadlines, what the progress and the mentee's reaction and behavior are, whether feedback is given/received, etc. For the mentee, it would serve as confirmation for self-reflection. For objectivity, some questions could be asked by both parties, for example, related to the understanding of the topic or questions, technical solutions, evaluation of the relationship, etc., because it is possible that everyone has perceived the situation differently, there has been a misunderstanding in communication or there have been technical breakdowns that the other party did not noticed. In case of sharp contradictions, it would allow the management of the mentoring program to detect and solve problems in time or to study the situation in more depth. In the case of e-mentoring, a series of questions related

to the use of ICT must be included, which would make it possible to understand whether the appropriate technical solution and quality were chosen for the specific form of meeting, whether both parties had sufficient knowledge in the use of technology, what were the obstacles, etc. Thus, throughout the mentoring program, information is obtained both for the further process of the program (perhaps some improvements can be implemented already at the next meeting) and for further goals for the development of the program.

In order for the use of ICT not to be a barrier to mentoring for any age group, it would be worthwhile for e-mentoring program implementers to consider organizing ICT training or workshops on specific topics, as these can be positively related to maintaining positive relationships and better acceptance of e-mentoring programs (Neetly et al., 2017). Understanding the need for such workshops/trainings can be helped by the information obtained from the evaluation of the meeting.

It may be worth discussing the use of online mentoring platforms within the organization. Thanks to it, you can save a lot of time and material resources and make work easier, starting with technical provision and ending with informational - all data and information can be found in one place, it is possible to record virtual meetings, it is also possible to select data or document observations that can later be needed in program evaluation (What is mentor platform?). Using such platforms, it is easy for e-mentoring program managers to control the progress of mentoring by recording the dates when meetings/activities took place on the platform. If e-mentoring is planned in educational institutions, the e-study platforms already existing in the institutions, e.g. *moodle, zoom,* etc., can be adapted for the purposes of mentoring.

When starting a program evaluation, evaluation methods and times should be planned in advance. It would be logical to act according to a previously prepared evaluation plan. A good plan should contain the following elements:

- basic information about the program;
- evaluation questions (specific questions that are measurable);
- evaluation design (data collection methods; types of data to be collected; data collection procedures; analysis methods, etc.);
- timeline (dates and time ranges for key activities and results);
- use/communication of results;
- Evaluator/evaluation team (division of roles);
- Required budget (if applicable) (Course for mentor in the sector of eco-industry).

An evaluation performance form in a similar format can be useful for monitoring the implementation of the plan to easily track what has been done.

7.5. Conclusion

E-mentoring has naturally developed alongside the rapid development of various ICTs as well as it could be suitable for the new generation that prefers to communicate remotely.

Evaluating any program is not easy, it requires time and in-depth study, but it is definitely necessary and comprehensive enough to allow us to see improvements in the course of the program itself and reflected in the achievements of the mentees and the self-development of the mentors. It is also necessary to evaluate the established relationships between the participants involved in e-mentoring, measuring both their strength and quality. By including these elements, the evaluation process can provide a comprehensive assessment of the overall success and impact of the program.

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8. Tips for e-mentors

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8.1. Introduction

With the outbreak of the Covid-19 pandemic and the social distancing or stay-at-home policy integrated around the globe, many organizations and individuals had to adapt to new ways of working. The same applied to mentoring (Millet, 2020). Mentoring was forced to transform and operate in a digitalized form, nowadays known as e-mentoring or virtual mentoring (European Commission, 2023). This digital form of mentoring involves using online platforms and tools to connect mentors and mentees and seems to bring a range of benefits such as allowing communication and eliminating geographical barriers or transportation difficulties, as well as reducing travel expenses and travel time (European Commission, 2023).

However, research studies indicated that the use of digital tools and remote interactions caused a decrease in the sense of empathy felt among people, which is an element very important for successful e-mentoring (Crumpton, 2019). Specifically, a study on the working environment found that employees felt that their manager's empathy steeply declined during the peak of Covid-19. Employees reported feeling uncared for and were 69% more likely to look for a new job or report suffering from burnout (Manners, 2023). The same can be also applied in the case of e-mentoring where lower empathy from the mentor may result in lower mentee performance and well-being decline.

Empathy has been proven to be a crucial component influenced by a person's overall emotional intelligence (EQ). Based on Salovey and Mayer (1990) emotional intelligence (EQ) is the ability to understand, use, and manage one's own emotions in positive ways so as to relieve stress, communicate effectively, empathize with others, overcome challenges, and defuse conflict.

EQ has been proven to be vital in e-mentoring for various reasons. For example, studies found that emotions do play a part in human-computer activities and remote interactions make it more difficult to read emotional signposts, such as body

language and tone of voice. As a result, it is more difficult to understand how remote mentees are feeling and it seems that emotionally intelligent mentors are better equipped to face this issue by adapting to remote settings and maintaining effective in-person interactions and strong relationships (Lopatovska & Arapakis, 2011). In addition, it was shown that there is a positive relationship between a mentor's emotional intelligence and the degree of confidence that a mentee has in them (Chun et al., 2010). According to other studies, the relationship that may be established between mentees and mentors is vital in the creation of new knowledge because of the motivation and relationship that novice people have with those who have the patience and ability to guide others (Crumpton, 2019). Therefore, higher emotional intelligence in mentors leads to higher learning outcomes and better performance in mentees.

Based on all these benefits gained by having a high EQ, a frequent question is asked; "Is emotional intelligence a trainable trait or are people with high EQ simply born with it?". Emotional intelligence appears to improve with age which means that even though some people are more gifted than others, it is a skill that can be developed when people are intrinsically motivated, practice what they learn extensively, accept feedback, and reinforce their new skills (Serrat, 2017).

Hence, to ensure the success of virtual mentoring, an approach targeting emotional intelligence that makes mentors better equipped to adapt to remote settings, should be considered. It seems that enhancing one's emotional intelligent skills either prior to, or as part of an e-mentoring program will positively affect both mentor and mentee. As a result, below is a guide with tips and practical activities that mentors can use in their daily and professional lives to achieve higher levels of emotional intelligence. The tips mentioned below are divided into two broader categories addressing (a) approaches to increasing an e-mentor's EQ and (b) approaches to indicating a high EQ when mentoring online.

8.2. Approaches Increasing an E-mentor's Emotional Intelligence

Take an Emotional Intelligence Test

Based on Daniel Goleman Emotional intelligence (EQ) is defined by four attributes: (a) *Self-Management* – one's ability to control impulsive feelings and behaviors, manage their emotions, take initiative, and adapt to changing circumstances-, (b) *Self-Awareness* – one's ability to recognize their own emotions, their effect on thoughts and behaviors, their strengths, weaknesses and self-confidence-, (c) *Relationship-Management* -one's ability to develop and maintain strong

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relationships, communicate clearly, inspire and influence, work well in a team and manage conflict-, (d) *Social-Awareness* – one's ability to empathize, understand the emotions, needs and concerns of other people, understand emotional cues and feel socially comfortable.

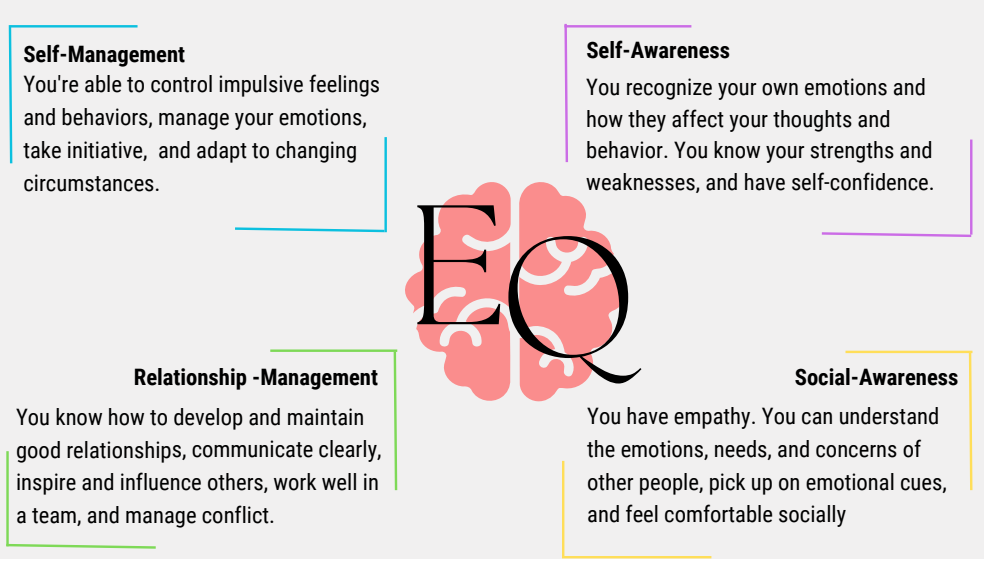


FIGURE 8.1. Daniel Goleman's Model of the Four Attributes Defined Emotional Intelligence

SOURCE: created by CANVA. Access link: https://www.canva.com/design/DAFghnDCfuE/MN4548MkNfVfN-DisjKm0dg/edit?utm_content=DAFghnDCfuE&utm_campaign=designshare&utm_medium=link2&utm_source=sharebutton.

As a result, taking an EQ test can enlighten you with insights and allow you to understand better your strong and weak EQ abilities. In other words, assessing your own EQ it is the first step towards improving it.

The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEITTM), created by academicians at Yale and the University of New Hampshire in collaboration with MHS, assesses emotional intelligence through a series of impersonal, objective questions. It evaluates the respondent's capacity for sensing, utilizing, comprehending, and controlling emotions. The MSCEIT examines how well people complete activities and resolve emotional problems rather than asking them to provide their own subjective assessment of their emotional skills. It is based on scenarios that are typical of everyday life. The MSCEIT test directly assesses a person's aptitude for reasoning with emotional information through a number of engaging and innovative challenges. The MSCEIT test is the best option for instances when respondents may desire to project a positive image or 'fake good' due to its ability-based

paradigm. The MSCEIT is appropriate for a variety of professional, academic, research, and therapeutic settings. Three samples were used to create the normative data for the MSCEIT. In terms of gender, age, ethnicity, and level of education, the sum of these samples yields a normative base of 5,000 respondents that is representative of the US general population (PsycTests Database Record (c) 2019 APA).

Develop Self-Awareness

Developing self-awareness is vital for higher EQ since it contributes to a better understanding of one's self, and then others (Crumpton, 2019). Self-awareness, as it was mentioned above, is the ability to identify and acknowledge one's own thoughts, feelings and emotions. As a result of knowing yourself and having a better understanding of it, it is easier to build trust in your relationships, have great communication and therefore build strong bonds. To achieve self-awareness, you can use an array of exercises like:

1. Mindful Observation
   This exercise can help a mentor become present and aware of their surroundings. They should take 5 minutes to observe their surroundings and notice details. They should sit somewhere comfortable and quiet. Then they need to take two deep breaths and try to identify five things they see, four things they hear, three things they feel, two things they smell, and one thing they taste. It is best to keep practicing this mindful observation whenever they feel the need to ground themselves (Epstein, 2003; Ackerman, 2017).
2. Mindful Meditation
   This exercise can help a mentor become more aware of their thoughts and feelings while also improving their focus and calming their mind. They should create a routine of meditating for 5 minutes every day. They should let their breath flow as deep down into their belly as is comfortable, without forcing it. Then they should breathe in through their nose counting from 1 to 5 and out through their mouth again counting from 1 to 5. Meanwhile, they should try to observe their thoughts, and emotions as they come and go. The aim of this exercise is to track whether a thought belongs to the past, future, or present. To do so, the mentor should sit somewhere comfortably and open the palm of their hand. Then they should place their index finger in the middle of their palm and move their finger in the direction their thought belongs. If the thought belongs to the present they should keep their index in the middle, if it belongs to the past, they should move it downwards toward their hand and if the thought belongs to the future, they should move their finger upwards toward their fingernails. At the end of the exercise, it is best to reflect on the direction of their thoughts and repeat the exercise to practice grounding themselves in the present (Epstein, 2003; Riopel, 2019).

3. Journaling
   This exercise can help mentors to understand better their emotions, their source, and their behavioural patterns. For this exercise, mentors need to take a journal, then write down the name of the emotion they are currently experiencing, afterward in a new column they should write down in a few lines the situation that is causing the emotion and, in another column, they should write the behaviours and actions they took because of that feeling. If journaling is not a suitable technique for a mentor, they may also try talking to the mirror or a loved one to express the above-mentioned (Klug, 2001).
4. Reflect
   This exercise can help a mentor to understand their emotions and needs better. Mentors should take 5 minutes at the end of each day to reflect on their experiences and interactions with others. They can make a list of self-reflection questions to ask themselves some reflective questions such as "What am I feeling right now?" "What do I need right now?", ''What went well today?'', ''Am I satisfied with how my day progressed?'', ''What I would change today to have a greater tomorrow?'' etc. (Stanley, 2017). Here is a link with more reflective questions developed by Edutopia: https://www.edutopia.org/pdfs/stw/edutopia-stw-replicatingPBL-21stCAcad-reflection-questions.pdf.

Improve Self-Regulation

High self-regulation is beneficial because it allows us to accept responsibility for our emotions and manage them on bad days, helping us to make clear, level-headed decisions (Faulkner, 2022). Based on that, mentors should be able to sufficiently manage their emotions since they also act as role models for their mentees (Grewal, 2006; Willis, 2018). To achieve self-regulation, one can practice identifying what triggers them, accepting that they cannot control everything, not (re)-acting impulsively, and putting negative emotions into perspective.

1. Identify Your Triggers
   This exercise can help a mentor identify and understand what triggers them so that they develop a plan for managing them. To achieve that, mentors should create a plan for how they will respond to challenging situations. They should think about the strategies that they can use to manage their emotions. For example, they can talk to someone about it, listen to music, engage in relaxation techniques (e.g., deep breathing, muscle relaxation), etc. Then they need to pay attention to situations or people that trigger negative emotions or behaviors in them and put their plan into action (Raypole, 2020).
2. Practice Self-Care
   This exercise can help anyone including mentors to reduce anxiety and stress, increase levels of happiness, and become more resilient. Self-care includes both physical and emotional needs (THC, 2022). Therefore, one should take enough sleep, exercise often, nurture their body with enough water and healthy food

while, engaging in activities they enjoy (e.g., dancing, walking, cooking, gardening, etc.,) meet with friends, practice positive self-talk, listening to their emotional needs (Bastos, 2019)

3. Seek Support
   This activity can help a mentor manage their emotions more effectively, by reaching out to their support system like friends, family members, or mental health professionals for help when they are feeling overwhelmed (Klynn, 2021).

Work on your Empathy

People with higher empathy levels develop stronger relationships, mutual respect, trust, and openness with others. In addition, empathy is an ability that can be developed with practice and thus, they are several ways to improve it (Sutton, 2020).

1. Look at a situation from the other's perspective
   This exercise can help a mentor to understand and empathize with another's perspective. One should imagine how the other person might be feeling, based on their circumstances and experiences. The mentor needs to ask him/herself how I would feel and what I would do in their situation so as to get in someone's shoes and better understand them (Sutton, 2020).
2. Focus on similarities than differences
   This exercise can help a mentor to understand what others might be going through and develop greater empathy toward them. One should reflect on their own experience, to identify similar situations when they have felt vulnerable, hurt, or misunderstood. Then they should identify the feelings of the other person and act with compassion. A mentor should aim to suspend judgment when interacting with others and instead, focus on understanding their point of view and learning more about them (Hogan, 2021).
3. Understand the person
   This exercise can help a mentor to understand others better and be able to show empathy when necessary. A mentor should be curious about the other person and show it by asking questions to get to know them or to assess how they are doing via regular check-ups. Mentors should pay attention to their body language, facial expressions, and tone of voice. They need to identify any change from their day-to-day interaction and what might cause the change (Segal et al., 2023)
4. Understand that people differ
   This exercise can help a mentor to broaden their understanding of different people and their experiences, gain a holistic perspective and develop a deeper sense of empathy. Mentors can read books, and watch movies and documentaries that explore different cultures, perspectives, and experiences. They can also seek out opportunities to interact with people from different backgrounds, cultures, and ethnicities (Segan et al., 2023; Ylopo, 2019)

It is important for someone to keep in mind that although increasing self-awareness, self-regulation, and empathy are processes that require effort and time, engaging in the above-mentioned activities on a regular basis, can help to ultimately become more in tune with their selves, their emotions, and, their needs.

8.3. Approaches Indicating a High EQ When Mentoring Online

Recall your feelings

Recalling is important to (not) re-create a situation with a certain outcome.

1. Express your feelings while using positive self-talk
   This exercise can help a mentor not only to blow off some steam but also to keep some memories alive due to remembering the emotions that arose in a situation. It also helps to transform negative feelings into positive which can result in a more pleasant experience of e-mentoring in the future. To do so, mentors should find creative ways to express their feelings like talking to someone, writing a journal, song, poem, drawing, dancing, or simply reflecting. Then identify what causes the emotion and reflect on the aspects/elements that contributed to the positive or negative emotion (Lopez, 2022). In addition, if a mentor is having a negative inner conversation, healthy self-expression of feelings may become extremely challenging (Hiçdurmaz et al., 2017). Hence, it is crucial that one takes into account whether the way he/she is talking to themselves is damaging. If that is the case then it is important to challenge these negative thoughts with some positive self-talk and reinforcement not only for a healthier self-reflection but also for feeling more confident before an online e-mentoring session (Lonczak, 2020).
2. Learn to create visual representations
   This exercise can help a mentor to develop a deeper understanding of the factors that contributed to an aroused feeling. Mentors should visualize in their minds a future situation that may cause that feeling (e.g., an online mentoring session). Then they need to imagine the elements that should be included and those that should be eliminated for a positive outcome. Finally, they should reflect on their feelings.

Learn to Communicate Effectively

Communication is a vital component of sound relationship development and it is especially challenging when it happens virtually. Therefore, it is very important to avoid misunderstandings, to seem visible and approachable as well as to have great listening skills (Sto, 2021).

1. Be careful when communicating
   This activity can help a mentor to avoid misinterpretations, and confusion while communicating online. Firstly, mentors should be concise and explain themselves clearly. They can achieve that by being specific and avoiding using complicated wording in their phrasing while asking a question, or answering. For written online forms they can also use short sentences, and bullet points, and check for grammar or spelling mistakes (Sto, 2021). In addition, they should read the entire message carefully and ask questions about anything that is unclear before composing their reply. The same applies when participating in an online meeting. Mentors need to ask for a repetition of the question or statement to clarify it and make sure that they understand the message correctly. Then they should take their time to think before responding. The use of emoticons and emojis can also be used when appropriate to make a message appear friendlier and add a tone to your message (Ackerman, 2019).
2. Respect and appreciate differences
   This activity can help a mentor to become more sensitive, and open to differences or opinions different from theirs, resulting in easier and more effective communication with various people.
   Firstly, mentors need to choose and use their words carefully. They should be sensitive regarding differences that their mentee may have. Mentors' ought to be polite and open to questions. They need to understand that everyone's view of the world is different from their own and remember that everyone is entitled to his/her opinions and beliefs. Hence, they should avoid lecturing and passing judgment (Ylopo, 2019).).
3. Actively Listen
   This exercise can help mentors not be just responsive but actually pay attention to what the other person is saying and effectively communicate. This can happen by keeping an eye conduct with the speaker, avoiding interruptions, and staying focused (Lopez, 2022). Mentors should ask open-ended questions and avoid those answered with a simple yes or no in order to be able to clarify any misunderstanding and gather more information when needed. In this way, they show the speaker that they are interested in what they are saying. They can also paraphrase what the other person told them to show that they have understood everything correctly and that they paid attention (Sto, 2021).
4. Seek feedback
   This activity can help mentors gather feedback to improve their skills and show that they care about other people's opinions and experiences. As a result, they will be able to clearly communicate any valuable changes, meet expectations and improve their communication skills.
   They can seek feedback while using online tools (e.g., Google Forms) to easily collect feedback and analyze the results. They can also ask for feedback, directly after a session, so people can give them their opinion on a matter. In either case, they should follow up with the person to thank them and ask any additional

questions. This shows that mentors value their feedback and that they are committed to improving. Furthermore, mentors should analyze feedback to identify trends and patterns. This can help them make informed decisions about how to make improvements. Once they have made changes based on feedback, they should communicate those changes to those who provided it in order to indicate that they listened to their feedback and acted on it (Reeves, 2022).

Adopt Digital Tool usage for your own benefit

It is well acknowledged that distance learning affected the social and emotional state of students globally, and therefore educators or mentors should adjust their teaching methods and approaches in ways that foster opportunities for emotional support. Technology and digital tools can nurture the emotional well-being of mentees not only in in-person education but also in virtual. They are several approaches that mentors should consider when aiming to demonstrate higher levels of EQ while mentoring online (Krehl & Büttgen, 2022).

1. Use interactive technologies
   This activity can help mentors to build a strong bond with mentees despite the physical distance. It allows someone to truly see and hear mentees, which can help build rapport and trust.
   Mentors can use video conferencing platforms (e.g., Zoom, Google Meets, etc.,) and collaborative tools (e.g., Google Docs, Miro, etc.,) to communicate with mentees online effectively. In addition, mentees can help one another, which improves their social communication, and learning, and allow you to understand better their needs, emotions, and thoughts. Moreover, mentors should get familiar with digital tools and technologies before utilizing them in their e-mentoring practices. In this way, it will be easier to manage online communication and distinguish what mentees feel and understand while participating in their session (Krehl & Büttgen, 2022).
2. Avoid distractions
   This activity can help mentors to be fully present giving their undivided attention in a virtual meeting, which is as important as in a face-to-face meeting.
   Mentors should aim to minimize distractions when mentoring digitally since distractions like notifications and email alerts can disturb their online communication. Whenever they are in a meeting, they should remember to turn off their notification, set their phone on silent mode, and advise their mentees to do the same. In addition, mentors should be in a place with minimal background noise, ensuring that everyone follows the flow of the session and can understand what they are doing, by asking frequent check-up questions. On top of that, when using online technologies mentors need to make sure that they mind their body language, which is vital to demonstrate a mentor with high levels of EQ. Specifically, they need to keep their posture straight and avoid slouching, to indicate attentiveness. They can also use their head to nod whenever

it is necessary in order to demonstrate interest. Mentors have to always face their cameras straight so that they can create a simulation of face-to-face interaction ("Remote learning has", 2022).

8.4. Conclusion

The chapter highlights the correlation between higher emotional intelligence in mentors and improved learning outcomes as well as enhanced performance in mentees. Emotional intelligence appears to improve with age which means that even though some people are more gifted than others, it is a skill that can be developed when people are intrinsically motivated, practice what they learn extensively, accept feedback, and reinforce their new skills. It presents a guide with tips and practical activities that mentors can use in their daily and professional lives to achieve higher levels of emotional intelligence. Concluding the entire monograph with the provided deep research material about e-mentoring, tips for e-mentors in this chapter stand out as exceptionally valuable.

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