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Conceptual Article

Video enhanced e-mentoring as a new era in exercise and sport sciences

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In this paper, we discuss some of the recurrent issues in mentoring practices from the perspective of two distinct research field, exercise and sport sciences and educational sciences. We also presented different types of mentoring applications and specifically focused on e-mentoring. How to design e-mentoring content is also an issue in professional development models. The use of videos as contemporary approach that has emerged in recent years has been presented in this paper by giving examples from the relevant literature, and how similar applications can be carried out in exercise and sports sciences are discussed in this paper.

Keywords: E-mentoring, Exercise and sport sciences, Educational sciences, Videos

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1. Introduction

Although the concept of mentoring has come to the fore in the field of exercise and sports sciences as well as education in recent years, its historical origin relies on mythology. According to the legend, The King of Ithaca, Odysseus, preparing to embark on the Trojan expedition, entrusts his family and son Telemacus to Mentor to keep an eye on him while he is away. While the King is on a mission, the Mentor protects, educates and guides Telemacus. It is rumored that Odysseus was a prisoner of war for 10 years during this war. When Telemacus grows up, he falls in search of his father. Ultimately, the father and son are reunited. In fact, it was the goddess Athena who guided Telemacus during this time, disguised as Mentor. After that day, it is claimed that the word mentor is used to mean a reliable advisor, friend, teacher, and knowledgeable person (Brown et al., 1999). Examining the definitions of the term *mentor* in view of today's practices, it is referred to an older, experiences and mature person who assists to improve the life skills of students and trainees (Danish et al., 1993). A mentor from the perspectives of exercise and sports sciences perspective serves as examples to emulate. According to Pato et al. (2017), mentors have crucial roles in assisting student-athletes during their transition from their profession as sportswomen/sportsmen to academic life (p. 25). In a similar definition, Kocabaş and Yirci (2011) defined mentoring as the process of assisting an experienced employee to provide personal and professional development to her colleague, called mentee, who has less experience than himself/herself. In the context of educational sciences, mentoring is a process conducted by experienced teacher for their novice colleagues in order to provide their professional development (Moore, 2008). In this conceptual paper, our intention is to focus on mentoring from an integrative window of two distinct research fields, exercise and sports, and educational sciences. In the following sections, the types of mentoring, the characteristics of e-mentoring as a special one of these types, and finally, the potential of videos in enriching the content of e-mentoring are presented.

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2. Types of Mentoring

Bozeman and Feeney (2007) defines mentoring as the process of knowledge transmission, psychosocial support and social capital which is related to work. The "work" specified here refers to the field in which mentoring activities are carried out. Since the mentoring is a process and should be considered from a developmental perspective (Noam et al., 2013), it becomes important how effective mentoring should be in achieving this development. This search has made different types of mentoring come to the fore over time. Various classifications are made in the mentoring literature. Existing literature shows that mentoring is basically divided into two as formal and informal mentoring and that the types are defined separately under these two headings.

Informal mentoring is described as a natural component of relationship that arises throughout not only in the society and place where the person works but also family and professional activities (Inzer & Crawford, 2005). The emergence of the informal mentoring has arisen from the needs of the people during their career and advancement in business life where one gains support, knowledge and wisdom to his/her colleague. In other words, people need the guidance of a friend they feel close to and get help from this person in order to improve themselves in their profession and to provide their professional development (Kram & Isabella, 1985; Olson & Jackson, 2009). Unlike spontaneous informal mentoring, formal mentoring is deliberate and planned for a specific purpose (Friday & Friday, 2002). Formal mentoring, which is more systematic compared to the informal mentoring, is a type of mentoring in which the organization operates the support mechanism in a planned and programmed manner to ensure that participants have clear objectives and the support they may need to establish a successful relationship (Karkoulian et al., 2008). In another definition, Griffiths and Inglis (2010) pointed out that formal mentoring is a mentoring model to achieve a predetermined target in a limited duration, with the participation of a guide who initiates and monitors during the process. The main differences between formal and informal mentoring are as summarized in Table 1.

Table 1

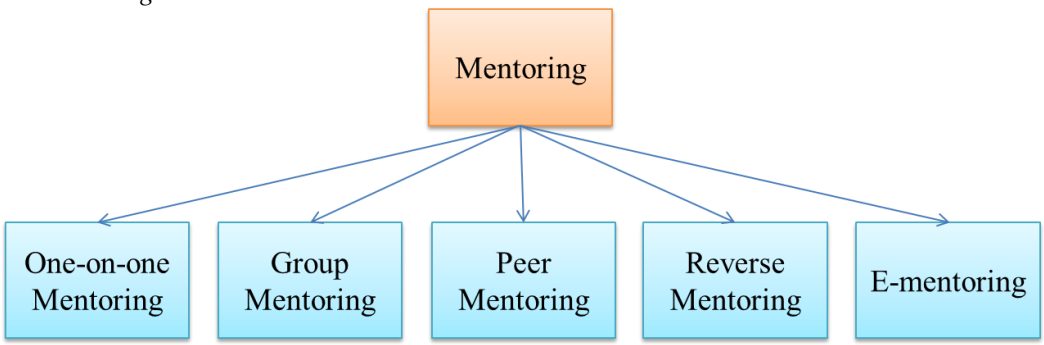
Formal mentoring versus informal mentoring

Formal mentoring	*Informal mentoring*
Mentors and mentees are paired within a program.	The match is random.
The steps of the program to be executed are predetermined.	Support items are shaped in the process.
The relationship between mentor and mentee is shorter term.	The relationship term between mentor and mentee is longer.
The place and time of the mentoring activity has been previously determined by the coordinator.	There is no pre-plan for the place and time, the mentor and mentee are formed spontaneously in the process.
Before starting the mentoring, the objectives, goals and the framework of the mentoring relationship are clear.	Goals are shaped over time in line with the needs of the mentee.
The mentor-mentee relationship is formal and procedural.	There is a warm and sincere mentor-mentee relationship.
The outcomes of the mentoring program are measurable.	Outcomes are usually not measured.
Organizations benefits directly	Organizations benefits indirectly
The content of the program is more directive.	The content of the program is less directive.

Informal mentoring is not open to outside intervention because it is mostly related to friendship relations and it occurs spontaneously in an unplanned progress. The difficulty in measuring the outcomes and the direct need-based treatment have not been impossible, it necessitates the application of formal mentoring in educational research. Thus, our focus is on formal mentoring, as this paper will present ways videos embedded in mentoring as a different way of providing professional development for a specific purpose.

In the studies on mentoring models in the field of education and sport sciences, it is seen that there are basically five mentoring models (see Figure 1) (Crisp & Cruz 2009).

Figure 1
Mentoring models



In addition to the first four models, the electronic mentoring (e-mentoring) model, which we encounter frequently in the last decades and has become more important especially with the COVID-19 pandemic.

The most common usage area of *one-on-one mentoring* is that an older person assists a novice new to the profession in enhancing professional development (Leimann et al., 2008). Some researchers also call this type of mentoring face to face mentoring, and the model refers to the mentor and mentee meeting directly without a different third party in the setting. The various use of one-on-one mentoring refers to train a new manager instead of the older manager (Kuzu et al., 2012). The mentoring conducted with the participation of a group of mentee to provide professional needs is called as *group mentoring*. This type of mentoring is being carried out at least three to four mentee and this number may increase. In cases where group members are trained in line with similar learning goals, it can be claimed that this model is more effective comparative to the one-on-one mentoring, because the interaction within the group is versatile (Dansky, 1996). Group mentoring does not always refer to a community consisting of a single mentor and a group of mentees. At the same time, the support provided by more than one mentor to one or more mentees is also a part of group mentoring (Kroll, 2015). Various studies in the literature have investigated the effect of group mentoring (Darwin & Palmer, 2009; Raposa et al., 2019).

Peer mentoring is a mentoring type where some activities performed by individuals in the same age group and with similar characteristics (Griffiths et al., 1995). Although the history of peer learning relies on the period of Aristotle (Wagner, 1982), it is not a widely preferred model in education. However, in recent years, peer mentoring applications have been embedded into sport sciences to support freshman undergraduate students to assist their academic life (Abrahamson et al., 2019). Existing practices represent a process where peer mentors are mostly selected from the second and third years, and these students help new enrollments in the program (Keller, 2005). In a study conducted by Hughes and Fahy (2009) aimed to reveal the outcomes of a peer-mentoring process to accelerate the adaptation period of students from high school to university. The study concluded that the program provided students' sense of belonging. In a similar manner, Heirdsfield et al. (2008) assigned third and fourth grade pre-service teachers, whom they selected according to certain criteria, as mentors to first grade pre-service teachers, but the results of this study were also limited to the psychological comfort of the prospective teachers, which is the variable examined. In contrary to the other mentoring programs, the forefront in *reverse mentoring* is not the mentor, but the mentee. Reverse mentoring in the most general sense means "arrangement in which younger workers serve as mentors to senior employees to teach new skills in technology and other areas" (Biss & DuFrene, 2006; Marcinkus-Murphy, 2012).

Depending on the integration of technological developments into the various areas, mentoring activities was also affected in the last decades. As a result, the concept of e-mentoring, also known as electronic mentoring has emerged (Single & Single, 2005). Since the focus of this study is e-mentoring, this concept will be discussed under a separate title.

3. E-mentoring

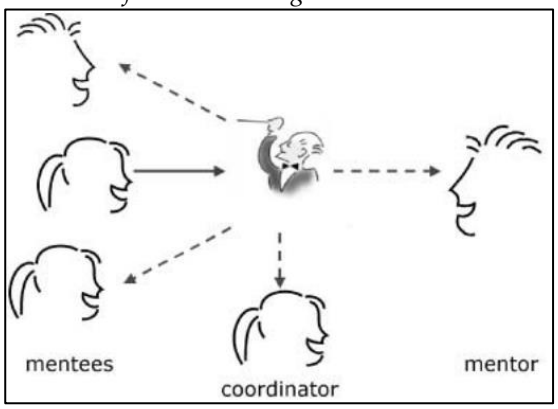
In addition to the types of mentoring outlined above, electronic mentoring (e-mentoring) applications have come to the fore in recent years, especially in terms of eliminating geographical limitations, time and space constraints. According to Mihram (2004), e-mentoring is a mentoring activity in which the development of individuals (mentee) with little or no experience is brought together with an experienced person (mentor) through electronic communication tools, regardless of time and space limitations. In order to support for the development of people with professional needs, e-mentoring is noteworthy as it is a flexible activity type

(Kahraman & Kuzu, 2016). On the other hand, one of the most important limitations of other mentoring, the difficulties in ensuring the coexistence of sufficient number of mentors and mentees is one of the main reasons why e-mentoring has become very popular in recent years (Ensher et al., 2003; O'Neill & Harris, 2004).

Current literature indicates that although e-mentoring model is not a common type of mentoring in Türkiye, various countries adopt the model in ensuring professional development of teachers (e.g. physical education, special education). For instance, a study conducted by Cothran et al. (2009) examined promises and pitfalls of e-mentoring in physical education in a-year long program and concluded several concerns with human and technical dimension of the process. Similar to other branch teachers, newly assigned physical education teachers also face the stress of working in an isolated and low-status space where there are role conflicts because they are more likely to find employment in urban areas (Stroot & Whipple, 2003). Especially in countries such as Türkiye, the task of beginning teachers more they employed in the countryside, it is obvious that teachers need professional support for the provision of professional adaptation process. In this regard, e-mentoring stands as an effective strategy and a useful tool.

On the other hand, electronic communication tools have important advantages in communication. One of them is to hide the social status during the communication process; it is a platform where a high-status individual and a low-status individual can easily relate. In this way, incompatibilities in mentor-mentee matching can be reduced (Sanyal & Rigby, 2017). In this way, designing an online environment to provide the professional development of the mentees, as in Figure 2, can encourage them to present their own reflections and encourage them to gain new knowledge and skills (Çetin, 2013).

Figure 2
Structure of an e-mentoring model



Note. Adapted from O'Neill et al., 2005, p.122)

4. E-mentoring and Sport Sciences

In sport sciences, e-mentoring has emerged as a transformative approach to learning, training, and professional development. The integrated use of technology in mentoring processes has been particularly successful in the sport sector, where it supports athletes, coaches, and other stakeholders to achieve high performance and develop essential competencies (Varriale & Tarufi, 2014). According to a study funded by the Higher Education Funding Council for England, online peer mentoring and collaborative reflection can be effective among bachelor degree students, but it also stresses the need for adequate knowledge, technological skills, and positive attitudes to participate effectively (Stoszkowski et al., 2017). The effectiveness of e-mentoring in extracurricular gifted education for gifted girls in STEM suggests its broader application in specialized fields such as sport sciences (Stoeger et al., 2017). A study conducted by an English university explored the interactions between school pupils and university students, enhancing the understanding of pedagogical processes (Lamb & Aldous, 2014), which demonstrates the benefits of e-mentoring in programs supporting gifted and talented students in physical education. Despite the benefits of e-mentoring for U.S. lacrosse coaches, technology barriers sometimes hindered effective teaching methods, illustrating the need for robust digital infrastructure (Grant et al., 2020). A structured e-mentoring model used in MentorNet for women engineering and science students illustrates e-mentoring's potential to overcome geographical and scheduling constraints. Due to the dynamic and often international nature of sport sciences, traditional mentoring opportunities may be limited. Using information technology in mentoring processes optimizes communication and knowledge sharing, facilitating the achievement of goals for mentors and mentees (Single & Muller, 2001). A number of publications have also discussed the

evolution of e-mentoring, emphasizing its role in e-learning, e-business, and continuous education, all of which are relevant to professional development in sport sciences (Samuel et al., 2017). Changing from traditional communication to computer-mediated communication in mentoring relationships has redefined how mentoring is sought and offered, making mentoring more accessible to previously underserved groups and improving its effectiveness (Bierema & Merriam, 2002). Even though e-mentoring research is relatively new, models such as the Mentor Initiation Model and Protege Collaboration Model provide frameworks for understanding mentor-protege interactions in both asynchronous and synchronous contexts, which are critical for sport science professionals (Andersen & West, 2020). As a whole, e-mentoring represents a significant advancement in the field of sport sciences, offering flexible, accessible, and effective mentoring solutions.

5. The Use of Videos in E-mentoring within Sport Sciences

In sports sciences, videos are commonly used as part of e-mentoring to improve performance analysis, learning, and mentoring processes with technology. It is increasingly recognized that this method can improve both the technical and psychological aspects of sports training and education. Using technology to support e-mentoring in sport sciences is essential to the professional and psychological development of athletes and sports professionals. By providing a structured, goal-driven mentoring environment, it facilitates learning and competence development (Varriale & Tarufi, 2014). The integration of video technology into e-mentoring allows for a more dynamic and interactive learning experience. The use of video in sports coaching, for instance, allows both coaches and athletes to automatically record and review actions. Through this method, training videos can be parsed into browseable actions, making it easier to analyze and improve specific techniques in real time (Ring & Kokaram, 2007). Further, instructional videos are widely used in exercise and sport science to analyze techniques and improve performance. Videos are essential for capturing and reviewing clients' movements, which can assist in performance enhancement and injury diagnosis (Burden & Parker, 2008). The use of platforms like YouTube™ for delivering these instructional videos further democratizes access to high-quality training resources, allowing for broader dissemination and engagement. In educational settings, video-based tools like Flipgrid have been shown to facilitate collaborative online learning and reflection among sport coaching students. The platform encourages analytical interaction and reflection, which are essential for developing critical thinking and problem-solving skills in sports coaching (Stoszkowski & Collins, 2022). Similarly, video-based feedback is a common practice in elite sports, where it is used to provide detailed performance analysis and feedback to athletes. This approach helps in understanding the nuances of performance and preparing athletes for competitions (Britton, 2018). The use of video in mentoring is not limited to performance analysis but extends to pedagogical practices as well. For example, in physical education, video analysis is used to enhance teachers' pedagogical practices and mentoring skills. This approach allows for self-reflection and improvement in teaching methods, thereby benefiting both mentors and mentees (Wong & Tang, 2021). Furthermore, web-based physical activity interventions have been enhanced with video-based coaching, creating a more engaging and personalized experience. Even though video-coaching improved physical activity levels modestly, it was more effective than stand-alone computer-tailored advice (Alley et al., 2016). In conclusion, the use of real videos in e-mentoring within sport sciences offers significant advantages in terms of enhancing learning, performance analysis, and mentoring processes. It provides a versatile tool that can be adapted to various educational and training contexts, promoting a more interactive and reflective learning environment. However, the effectiveness of video-based interventions can vary, and further research is needed to optimize these approaches for different settings and populations. Overall, the integration of video technology in e-mentoring represents a promising avenue for advancing sport sciences education and practice.

6. Conclusion

The practice of e-mentoring has gained traction, particularly during the COVID-19 pandemic, as it offers a flexible and accessible alternative to traditional face-to-face mentoring. Youth mentoring, professional development, and education have all benefited from e-mentoring due to the need to overcome the barriers of distance and time (Güler & Çelik, 2022). Through structured online interactions with experienced mentors, e-mentoring has been shown to enhance the professional development of both preservice and in-service teachers by providing them with practical knowledge and career planning support (Erdoğan et al., 2022). It is an assumption that the mentoring process will always produce positive results, such as the effectiveness of a teaching strategy. Because mentor is neither a wizard nor a mentoring magic. However, like any claim, it

needs to be tested. Therefore, experimental studies in especially sport science are needed to validate this hypothesis.

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