Bridging sports and academics: user perception of an e-learning platform in the edusport project

Conciliación de vida académica y deportiva: percepción del usuario sobre una plataforma e-learning en el proyecto EduSport

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Abstract

Introduction: The dual career initiative aims to harmonize sports and academic life, enabling athletes to obtain a quality university education without compromising their athletic performance. As part of the EduSport Project, an e-learning platform based on Moodle has been developed to enhance interaction between student-athletes, sport tutors, and coaches, incorporating virtual advisors to improve communication and learning.
Objective: This study aims to analyze the perceptions of users (i.e., athletes, coaches, and sport tutors) regarding the e-learning platform developed within the EduSport Project.
Methodology: A total of 45 participants completed a questionnaire assessing the user-friendliness and utility of the platform.
Results: The overall user perception of the platform was highly positive, regardless of their role. Specifically, athletes rated the platform with the highest score (5 points on a 1–5 scale) for all questionnaire items: user-friendliness (90%), attractiveness (80%), clarity of instructions (83.3%), utility (90%), encouragement (83.3%), and overall satisfaction (90%). Similarly, all coaches (100%) assigned a score of 5 to user-friendliness, clarity of instructions, and overall satisfaction, while 90% rated attractiveness, utility, and encouragement with the maximum score. Lastly, all sport tutors (100%) gave a score of 5 to every item in the questionnaire. Regarding item 6, all participants, regardless of their role, preferred the digital system over the traditional system.
Discussion/Conclusions: The findings demonstrate that users perceive the EduSport Project's e-learning platform very positively, with consistent ratings of 5 on a 1–5 scale across all roles. Participants highly valued its user-friendliness, attractiveness, clarity of instructions, utility, and encouragement.

Keywords

Dual career; e-learning; virtual advisors; sport tutoring; athlete support system.

Resumen

Introducción: La iniciativa de carrera dual tiene como objetivo compatibilizar vida deportiva y académica, permitiendo a los atletas conciliar educación universitaria y rendimiento deportivo. Como parte del Proyecto EduSport, se desarrolló una plataforma de e-learning para mejorar la interacción entre estudiantes-deportistas, tutores deportivos y entrenadores, incorporando asesores virtuales para mejorar tanto comunicación como aprendizaje.
Objetivo: Este estudio pretende analizar la percepción de los usuarios sobre la plataforma de e-learning desarrollada.
Metodología: 45 participantes completaron un cuestionario en el que se evaluaba la facilidad de uso y utilidad de la plataforma.
Resultados: La percepción global de los usuarios fue excelente, independientemente de su rol. Concretamente, los deportistas valoraron la plataforma con la puntuación más alta (5 puntos en una escala de 1-5) en cada ítem del cuestionario: facilidad de uso (90%), atractivo (80%), claridad de las instrucciones (83,3%), utilidad (90%), estímulo (83,3%) y satisfacción general (90%). Igualmente, cada entrenador (100%) puntuó con 5 la facilidad de uso, claridad de las instrucciones y satisfacción general, mientras que el 90% calificó el atractivo, la utilidad y el estímulo con la máxima puntuación. Finalmente, los tutores deportivos (100%) puntuaron con 5 cada ítem del cuestionario. Referente al ítem 6, todos los participantes, independientemente de su rol, prefirieron el sistema digital al tradicional.
Discusión/Conclusiones: Los usuarios percibieron favorablemente la plataforma de e-learning del Proyecto EduSport, con valoraciones consistentes de 5 en cada rol. Se valoró muy positivamente la facilidad de uso, atractivo, claridad de las instrucciones, utilidad y estímulo.

Palabras clave

Carrera dual; e-learning; asesores virtuales; tutoría deportiva; sistema de apoyo al deportista.

Introduction

The dual career initiative aims to harmonize sports and academic life, enabling athletes to obtain a quality university education without compromising their athletic performance (Aquilina & Henry, 2010). The European Union (EU) has demonstrated significant interest in developing initiatives and policies to support professional athletes during and after their sports careers (European Commission, 2007, 2012). From an ethical standpoint, Schweiger (2014) argues that athletes serve their communities through sports and, therefore, deserve the right to education at all stages of life, as stated in Article 26 of the Universal Declaration of Human Rights (United Nations, 1948).

In the EU, various research groups are actively working on the dual career by designing training programs tailored to student-athletes across different sports and educational contexts. In Spain, the regulatory framework for the dual career is established in the Organic Law of Universities (i.e., Articles 90 and 91) and Royal Decree 1791/2010, which approves the Student Statute. Universities are required to provide dual career support services to student-athletes (Aquilina & Henry, 2010).

A key figure in the dual career of student-athletes is the sport tutor, whose role is to ensure that athletes successfully transition into professional careers after completing their studies, without allowing sports performance to hinder their future employment opportunities. Sport tutors offer personalized guidance, helping student-athletes balance their academic and athletic commitments. In primary and secondary education, this role is often assumed by physical education teachers and sports coaches. However, at high school, vocational training, and university levels, a designated sport tutor is essential to mediate between academic and athletic domains. Several studies have highlighted the challenges student-athletes face when transitioning to university (Brown et al., 2015; Cosh & Tully, 2014). Therefore, the role of the sport tutor is critical to ensuring the success of student-athletes in the dual career framework (P. R. Álvarez-Pérez et al., 2014; Pedro. Álvarez-Pérez et al., 2014; Sánchez-Pato et al., 2016; Vilanova & Puig, 2016). The primary responsibilities of a sport tutor include: Actively listening to student-athletes and showing a supportive attitude; Facilitating communication with teachers; Justifying academic absences due to competitions; personal and academic support; Assisting with time management and administrative issues Helping with exam rescheduling; Being sensitive to the specific challenges faced by student-athletes Being open, flexible, and non-directive; Managing new distance learning tools and utilizing social media as a learning environment (Koustelios et al., 2017; Sánchez-Pato et al., 2018).

In the dual career context, the relationship between student-athletes, coaches, and sport tutors is crucial (Pedro. Álvarez-Pérez et al., 2014; Stambulova et al., 2021; Wagino et al., 2024), and effective communication among them must be ensured. To facilitate this, we propose the implementation of an e-learning platform to support online interaction between students, sport tutors, and coaches. Given the need for immediate and interactive communication among all involved stakeholders, we developed an online teaching-learning platform as part of the EduSport Project (https://proyectoedusport.es). This platform is an adaptation of Moodle (Moodle Project, 2020) a widely used, scalable, and cross-platform learning management system. Moodle offers a range of resources that fulfill the training, interactive, and assessment needs of the EduSport Project. A key innovation of this platform is the incorporation of virtual advisors, one of the project's major contributions. While traditional educational platforms have limited capacity for integrating artificial intelligence, this feature is an integral component of the EduSport Project.

The e-learning platform offers several advantages (Pedro. Álvarez-Pérez et al., 2014; Stambulova et al., 2021; Wagino et al., 2024): autonomy, elimination of travel requirements, enhanced communication and interactivity, flexibility, Integration of various educational materials, Live, personalized, and collaborative learning experiences. The interaction of different stakeholders such as academic tutors, sport tutors, coaches, and virtual advisors, requires a suitable, scalable platform capable of accommodating role assignments, fostering interaction, and enhancing motivation and adherence. Considering this background, the aim of this study is to analyze the perception of users (i.e., athletes, coaches, and sport tutors) regarding the e-learning platform developed in the context of the EduSport Project.

Method

Participants

Forty-five participants (n = 45) completed a questionnaire assessing the user-friendliness and utility of the e-learning platform. Regarding their roles, 30 participants were athletes, 10 were coaches, and 5 were sport tutors. Table 1 presents the characteristics of the participants, and the main features associated with each role.

Before participating in the study, all subjects received detailed information about the objectives and procedures and provided written informed consent. This study complies with the ethical standards outlined in the World Medical Association's Declaration of Helsinki (2013) and was approved by the Institutional Review Board of the University of Granada (2546/CEIH/2022).

Table 1. Characteristic of participants, considering their roles (i.e., athletes, coaches and sport tutors).

Athletes (n=30) Role´s description: university students who are training and competing under a federative license			
Age (years old)	Sex (n, %)	Performance level (n,%)	Sport modality (n,%)
21.4 ± 3.2	Men: 24 (80%) Women: 6 (20%)	Low: 3 (10%) Medium: 10 (33%) High: 17 (57%)	Running: 30 (100%)
Coaches (n=10) Role´s description: trainer of the student-athlete			
Experience (years)	Athletic level (n, %)	Sport modality (n, %)	
13.9 ± 4.7	Low: 0 Medium: 3 (30%) High: 7 (70%)	Running: 8 (80%) Ski: 2 (20%)	
Sport tutors (n=5) Role´s description: the person in charge of allowing the student-athletes to be successful in obtaining a professional career after completing their studies, not allowing sports performance to negatively affect their working life			
Experience (years)	Athletic level (n,%)	Sport modality (n,%)	
6.1 ± 2.6	Low: 0 Medium: 0 High: 5 (100%)	Running: 5 (100%)	

Procedure

This cross-sectional study has a descriptive purpose. An ad-hoc questionnaire was designed and distributed to participants of the EduSport Project via Google Forms. The link provided to participants varied based on their role, with different versions of the questionnaire for athletes (https://forms.gle/kA2nDGHsGveirHtH8), coaches (https://forms.gle/zxcPsCFAXsb21mqNA), and sport tutors (https://forms.gle/HfwD8BM2gLXxogsRA). This research was conducted in compliance with the European General Data Protection Regulation (EU GDPR; EU 2016/679).

After receiving ethical approval from the institutional review board, a pilot test was conducted with a small sample of participants (n = 5) to evaluate the clarity and content of the online Google Form. All the participants involved in the pilot test gave feedback that the online questionnaire was appropriate and suitable. The internal consistency of this tool was evaluated through the Cronbach's alpha (α).

Subsequently, all the members involved in the EduSport Project (athletes, coaches and sport tutors) were contacted and asked to fill up the questionnaire. Participants were informed about the potential use of their personal data for research purposes when they provided such information. Then, athletes/coaches/sport tutors who accepted to participate in the study were given a link to the online questionnaire. According to online informed consent procedures, participants were told of the purpose and details of the study through a participant information sheet. After consenting to participate in the study, participants filled in twelve items, divided into two main question blocks:

(i) Descriptive information (i.e., sex, years of experience, sport modality and performance level).

(ii) Participants´ perception on the e-learning platform, based on a 1-5 scale for every item.

Data analysis

Descriptive data are presented as means and standard deviation for interval variables and as frequency and percentage for nominal variables. In order to determine the reliability of the scale, the internal consistency coefficient alpha (i.e., Cronbach's alpha) was computed. The reliability of the scale is rated as good if the α found is equal or greater than 0.70 (Cronbach's Alpha Reliability Coefficient - ProQuest, n.d.). All statistical analyses were performed using the software IBM Statistical Package for Social Sciences Statistics, version 22.0 (IBM Inc, Armonk, NY).

Results

The degree of internal consistency for the seven items was determined by computing Cronbach's alpha for a small sample (n = 5). We found a Cronbach's alpha of 0.953 which reflects high inter-item correlations and consequently a high degree of internal consistency among items (i.e., good reliability).

Table 2 shows the results obtained in the questionnaire about the perception of participants, considering their roles (i.e., athletes, coaches and sport tutors). As for athletes, the e-learning platform got the highest value, five-points on a 1-5 scale, for each item included in the questionnaire: user-friendliness (90%), attractive (80%), clarity of instructions (83.3%), utility (90%), encouraging (83.3%), and overall satisfaction (90%). Regarding coaches, all participants (100%) rated as five-points the following items: user-friendliness, clarity of instructions and overall satisfaction; whereas the items related to attractive, utility and encouraging were rated as five-points for 90%. Finally, all the sport tutors (100%) rated as 5 in every item of the questionnaire.

As for the item number 6, all of participants, regardless their role, selected "digital system" as preferred option rather than traditional system (i.e., 100% of participants for athletes, coaches and sport tutors).

Table 2. Perception of participants about the use of the e-learning platform.

Items	Score	Athletes (n=30)	Coaches (n=10)	Sport tutors (n=5)
User-friendliness	1 (n, %)	-	-	-
	2 (n, %)	-	-	-
	3 (n, %)	-	-	-
	4 (n, %)	3 (10)	-	-
	5 (n, %)	27 (90)	10 (100)	5 (100)
Atractive	1 (n, %)	-	-	-
	2 (n, %)	-	-	-
	3 (n, %)	2 (6.7)	-	-
	4 (n, %)	4 (13.3)	1 (10)	-
	5 (n, %)	24 (80)	9 (90)	5 (100)
Clarity of instructions	1 (n, %)	-	-	-
	2 (n, %)	-	-	-
	3 (n, %)	1 (3.3)	-	-
	4 (n, %)	4 (13.3)	-	-
	5 (n, %)	25 (83.3)	10 (100)	5 (100)
Utility	1 (n, %)	-	-	-
	2 (n, %)	-	-	-
	3 (n, %)	-	-	-
	4 (n, %)	3 (10)	1 (10)	-
	5 (n, %)	27 (90)	9 (90)	5 (100)
Encouraging	1 (n, %)	-	-	-
	2 (n, %)	-	-	-
	3 (n, %)	2 (6.7)	-	-
	4 (n, %)	3 (10)	1 (10)	-
	5 (n, %)	25 (83.3)	9 (90)	5 (100)
Preference	Traditional system (n, %)	-	-	-
	Digital system (n, %)	30 (100)	10 (100)	5 (100)
Overall satisfaction	1 (n, %)	-	-	-
	2 (n, %)	-	-	-
	3 (n, %)	-	-	-
	4 (n, %)	3 (10)	-	-
	5 (n, %)	27 (90)	10 (100)	5 (100)

Discussion

This study aimed to analyze the perception of users (i.e., athletes, coaches, and sport tutors) regarding the e-learning platform developed within the EduSport Project. The results show that the overall perception of the platform is highly positive, with an average rating of 5 on a 1–5 scale, regardless of the user's role (i.e., athlete, coach, or sport tutor). Key aspects such as user-friendliness, attractiveness, clarity of instructions, utility, and encouragement received high scores from all users.

Currently, balancing academic life and high-performance sports has become a central issue in the education of student-athletes. This phenomenon is driven by two main factors (Stambulova et al., 2021): first, the increasing professionalization and structuring of sports, which has led more young athletes to combine their studies with a sports career; and second, the growing awareness among athletes of the importance of academic training to ensure their professional integration after their competitive phase ends. The existence of these dual-career scenarios underscores the need for a thorough analysis of the challenges student-athletes face and, more importantly, the development of specific tools to facilitate their integration into both domains without compromising their academic or athletic performance (Logan et al., 2021).

In this context, digital technologies emerge as a key solution to mitigating the difficulties encountered by student-athletes. Research has demonstrated that digital tools enhance communication, engagement, and academic performance in remote learning environments (Pedro. Álvarez-Pérez et al., 2014; Stambulova et al., 2021; Wagino et al., 2024). In this project, we propose the implementation of a tailored e-learning platform designed to facilitate online interaction between students, sport tutors, and coaches. Given the complexity of dual-career scenarios, where multiple stakeholders are involved and real-time communication is essential, developing an interactive and responsive online teaching-learning platform is imperative (Logan et al., 2021). A key innovation of our platform is the integration of Virtual Advisors, an advanced technology designed to support student-athletes in managing their academic and athletic commitments.

Virtual Advisors incorporate a combination of hardware and software components to create a highly interactive and adaptive system (Kattoua et al., 2016; Logan et al., 2021). These include realistic dynamic 3D avatars, integration of virtual reality, augmented reality, and mixed reality (i.e., VR, AR and MR technologies, respectively), biomedical and physical monitoring through wearables, and intelligent supervision via online forms (Kotsilieris & Dimopoulou, 2013). All these components operate within a single online platform, ensuring seamless interaction for student-athletes. The Virtual Advisor provides personalized guidance and recommendations by analyzing user data and generating real-time feedback through multiple communication channels, such as messages, sounds, videos, notifications, sensor-based actions, and interactive 3D avatars (Chae et al., 2016; Kotsilieris & Dimopoulou, 2013).

The intensive use of 3D animated avatars within the system enhances communication, making it more engaging, user-friendly, and motivational (16These avatars, powered by artificial intelligence engines, interact with students through VR/AR/MR environments, analyze behavioral patterns, monitor biomedical and physical indicators, and collect qualitative data via integrated questionnaires (Chae et al., 2016; Kotsilieris & Dimopoulou, 2013). By tracking daily routines, training loads, and academic responsibilities, Virtual Advisors offer tailored recommendations to optimize performance, health, and well-being in both educational and sports settings (Chae et al., 2016; Kotsilieris & Dimopoulou, 2013). Furthermore, Virtual Advisors do not function in isolation but rather in synergy with human sport tutors, who play a critical role in the guidance and mentoring process. While the technology provides real-time monitoring and intelligent recommendations, human tutors offer emotional support, personalized feedback, and strategic planning tailored to the student-athlete's needs. This combination of artificial intelligence and human expertise creates a hybrid support system that maximizes the potential of student-athletes, fostering self-regulated learning, time management, and overall well-being.

To the best of our knowledge, no existing educational platform has been specifically designed to address the unique challenges of dual careers in higher education. Moreover, traditional learning management systems have limited capacity to incorporate artificial intelligence engines, making our approach particularly innovative and highly applicable in both academic and sports environments. The development

of this intelligent, interactive, and adaptive platform represents a breakthrough in the field of dual careers, providing a comprehensive solution that aligns with the evolving needs of modern student-athletes.

Finally, some limitations must be considered when interpreting the findings. First, the sample size is relatively small, preventing an analysis of the potential influence of variables such as sex, athletic level, or age on user perception of the e-learning platform. Second, the questionnaire used was an ad-hoc tool created specifically to assess users' perceptions of the platform and, although the authors tested the consistency of the tool on a small group of participants, the use of an structured expert judgement process during the development phase, such as a Delphi method or content validity assessment, would have strengthened the methodological rigor and increased the validity of the instrument.

Conclusions

In summary, the findings indicate that users perceive the EduSport Project's e-learning platform very positively, with consistent ratings of 5 on a 1–5 scale across all roles (i.e., athlete, coach, and sport tutor). Participants highly valued the platform's user-friendliness, attractiveness, clarity of instructions, utility, and encouragement. Additionally, all respondents expressed a preference for digital solutions over traditional systems. From a practical perspective, this finding is particularly relevant, as it highlights the role of new technological resources in facilitating interactions between athletes, coaches, and tutors, ultimately supporting dual-career development.

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