

## Sport-Sciences University students' perceptions related to the use of debates and e-portfolios as student-centered learning strategies\*

## Percepciones de los estudiantes universitarios de Ciencias del Deporte relacionadas con el uso de debates y *e-portafolios* como estrategias de aprendizaje centradas en el estudiante

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**Abstract:** This study analyzed Sports Science Degree university students' perceptions about the use of debates and e-portfolio as student-centered learning strategies. The study involved 426 students from the third and last year of the program (23% females; mean age = 20.6 ± 1.1). A questionnaire was used to collect data, and thematic analysis revealed four positive (active learning, information exchange, innovation, and skills development) and three negative (ignorance of methodology, lack of interest/distraction, and extra work) themes related to these strategies. Despite some negative perceptions, students highlighted the positive aspects of these methods, indicating that incorporating them can improve learning outcomes.

**Keywords:** Active learning strategies; opinions; Higher Education; Physical Education

**Resumen.** En este estudio se analizaron las percepciones de los estudiantes universitarios del Grado en Ciencias del Deporte sobre el uso de los debates y el *e-portafolio* como estrategias de aprendizaje centradas en el estudiante. En el estudio participaron 426 estudiantes del tercer y último año del grado (23% mujeres; edad media = 20,6 ± 1,1). Se utilizó un cuestionario para recoger los datos y el análisis temático reveló cuatro temas positivos (aprendizaje activo, intercambio de información, innovación y desarrollo de habilidades) y tres negativos (ignorancia de la metodología, falta de interés/distracción y trabajo extra) relacionados con estas estrategias. A pesar de algunas percepciones negativas, los estudiantes resaltaron los aspectos positivos de estos métodos, indicando que su uso mejoraría los resultados del aprendizaje.

**Palabras clave.** Estrategias de aprendizaje activo; opiniones; Educación Superior; Educación Física

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## INTRODUCTION

Nowadays, despite the emergence of learner-centered methodologies, lecturing continues to be the most used teaching method in higher education (Jiménez Hernández et al., 2020). Lecturing fosters passivity, individuality, and lack of participation of the student in the learning process, reducing their involvement, as well as discouraging reflection and the search for new information (Jiménez Hernández et al., 2020). Moreover, previous literature has shown that university students

lose their concentration after 15-20 minutes of lecturing (Malik & Juanjua, 2011). In this sense, the inclusion of the university system in the European Higher Education Area requires new changes in the teaching methodologies applied to develop the teaching-learning process (OECD, 2019). That is, the teaching-learning process should complement the habitual approach in which students receive the information that teachers transmit to them, with other in which students are active elements of their learning process. This means that teachers should facilitate students' learning through the application of complementary learning methodologies that encourage them to build their knowledge (Berné Manero et al., 2011). That is, it makes students more autonomous in their learning process (Berné Manero et al., 2011).

Active learning has been shown to be one of the most effective forms of learning in higher education (de la Cruz Tomé, 2003). Active learning can be defined as the strategies, technics, or methods that teachers use to encourage the active participation of students in the construction of their own learning (Bean & Melzer, 2021). It allows students to move from their habitual passive role as simple receptors of information to be the center of their learning process (Herrmann, 2013). The basic elements of active learning are listening, reading, speaking, writing, and reflecting (Bean & Melzer, 2021). Furthermore, according to Freire (2014), to make learning meaningful for students, teachers should consider their previous knowledge acquired during the lessons.

Several strategies have emerged in the higher education context to complement and make more active the teaching-learning process (Alcoba González, 2012). One of the most useful is the debate which is defined as a method characterized by the confrontation of opinions around a topic under the direction of a moderator, in which students can line up around two or more positions depending on the format (Alcoba González, 2012). Debates promote the active engagement of students since it gives them the responsibility of comprehending the content developed to show and discuss it with their peers and teacher (Snider & Schnurer, 2002). According to Johnson et al. (1999), a discussion is one of the most powerful and important teaching strategies. These authors also consider debates as an advanced form of cooperative learning. The debate has been widely applied in higher education as an active teaching-learning method showing benefits for students (Cariñanos-Ayala et al., 2021; Healey, 2012; Kenedy, 2009). For example, a recent systematic review in the nursing context found that applying debate improved argumentative

ability, declarative ability, idealistic moral judgment, and realistic moral judgment of university students (Cariñanos-Ayala et al., 2021; Healey, 2012). Furthermore, debating encourages students' commitment for learning (Healey, 2012) and help them achieve short and long-term learning outcomes (D'Souza, 2013). Additionally, debating helps students to develop communication skills, as they find themselves needing to discuss a certain topic (D'Souza, 2013). Likewise, other studies highlighted debate as a method that promotes critical thinking through the development of analysis, synthesis and evaluation, helping students to achieve high-order knowledge and skills in Bloom's Taxonomy (Kennedy, 2009).

Regarding students' perceptions about the use of debates as a student-centered learning strategy in the university setting, several studies have been developed in different knowledge areas (e.g., nursing, tourism, or English: Alén et al., 2015; Cariñanos-Ayala et al., 2021; Kennedy, 2009; Rosas-Maldonado et al., 2020). For instance, students pointed out that debates allow them to improve their research skills and critical thinking (Alén et al., 2015; Rosas-Maldonado et al., 2020). Moreover, students perceived self-confidence and motivation (Rosas-Maldonado et al., 2020), interest in the topic developed, enjoyment, and improvement of their public communication abilities (Alén et al., 2015) when they perform in-class debates. Kennedy (2009) also adds that students perceived that they developed empathy, as well as acquired knowledge regarding the contents developed through in-class debates.

In this sense, much is known about the use of debates, but little is known about its joint use with other active strategies of learning. For instance, one active learning tool that can be used together with debates for educational purposes is the e-portfolio because of its essential quality assurance (Akleh & Wahab, 2020). E-portfolio can be defined as the product, created by the learner, as a result of a collection of digital artefacts articulating experiences, achievements, and learning (Chaudhuri & Cabau, 2017). Thanks to e-portfolios, students can systematize and record the information obtained in the debates (Flynn, 2022). E-portfolios have been applied to achieve numerous goals in the context of higher education showing benefits for students (Bolliger & Shepherd, 2010; Flynn, 2022; Kabilian & Khan, 2012; Lin, 2008). For example, students perceived that the use of e-portfolios developed their teaching competence and organizational skills (Lin, 2008), their reflection and critical thinking capacities (Bolliger & Shepherd, 2010; Kabilian &

Khan, 2012), as well as trained them for the teaching profession (Dalton, 2007). Moreover, using an e-portfolio helps students to engage deeply with the syllabus content (Flynn, 2022). In this sense, students have also recognized the e-portfolio as a useful resource for career advancement (Ciesielkiewicz, 2019). For the aforementioned reasons, teachers are encouraged to design the teaching-learning process of their syllabus including the active participation of students through in it (Ciesielkiewicz, 2019).

However, although in recent years much research has been published regarding students' perceptions about the use of debate and e-portfolio as student-centered learning strategies, few of them have focused on analyzing their joint use. Furthermore, to our knowledge no previous studies have been found analyzing both positive and negative students' perceptions about the use of the aforementioned student-centered learning strategies in the Sports Sciences Degree in the higher education context.

Within this framework, the main goal of the present study was to analyze Sports Sciences Degree students' perceptions about the use of debates and the e-portfolio as student-centered pedagogical strategies to improve and enrich a more active teaching process that facilitates students' involvement in their own learning.

## 1. METHOD

### 1. 1. Participants

A total of 426 students, 328 males and 98 females ( $M_{age} = 20.6 \pm 1.1$  years old) from the third, and last, year of a Sports Sciences Degree of the University of Maia (Maia, Portugal), belonging to three different academic courses (i.e., 2017-2018, 2018-2019, and 2021-2022), volunteered to participate in this study. At the time of the study, students were enrolled in the subject "Teaching Methodology in Physical Education (PE)", specifically on the syllabus of the "Models-Based practice in PE" delivered by the last author of this article (RM). In each academic year, students were divided into eight classes, consisting of an average of 24 students (minimum of 20 and a maximum of 32 students per class). The protocol conforms to the Declaration of Helsinki statements (64th WMA, Brazil, October 2013). All participant names

referred to in this paper are pseudonyms to ensure anonymity in the reporting of results.

## **1. 2. Data collection**

Data collection was carried out at the end of the teaching period of the “Teaching Methodology in PE” subject in three different academic courses (i.e., 2017-2018, 2018-2019, and 2021-2022). In the academic courses 2019-2020 and 2020-2021 data were not collected because the teaching-learning strategies used (i.e., debates and OneNote) could not be applied due to the pandemic situation caused by the COVID-19, since the lessons had to be performed online and debates required being performed in person face-to-face.

## **1. 3. Questionnaire**

Students’ perceptions of positive and negative points of the active strategies used (i.e., debate and OneNote e-portfolio) for learning the Models-Based practice in PE as part of the Teaching Methodology in PE subject were evaluated through an ad hoc online open questionnaire. It consisted of two questions: 1) What positive aspects would you highlight about the teaching methodology used (debates and OneNote)? and 2) What negative aspects would you highlight about the teaching methodology used (debates and OneNote)? Answers were made during the last lesson-period of the semester, carried out individually on computers available in the university’s facilities, with the presence of the teacher in the room, but without any intervention. The students were informed that answers would not have any influence on the assessment of their academic performance (since the whole process was anonymous). The average response time was 11 minutes and 24 seconds.

## **1. 4. Procedure**

The debate activities were carried out during the last two weeks of the semester. Firstly, topics for the debates were designated by the teacher, and originated from the teaching models for PE (Models-Based practice in PE), according to the organization presented by Metzler (2011).

Within each class, students were organized into eight groups of two to four members each. Each group was assigned a pedagogical model or being moderator by lottery. Then, a calendar was established to know the date on which the different debates about specific teaching models would take place. The dynamics consisted of two final debates, which were preceded by six preparatory classes, in the presence of the teacher. To prepare for the debates, students could use all the resources (i.e., books, articles, chapters, conferences, etc.) they found during their research to collect information about the teaching model assigned. The information collected by each student had to be introduced in an organized way in their e-portfolio using OneNote (see description below) before the performance of the debate. The contents prepared by each group were constantly monitored by the teacher, either through feedback provided face-to-face in the preparatory classes for the debates or through comments that the teacher made regularly in the e-portfolios that the students prepared.

The duration of each debate was 60 minutes: Each discussion group had between three and five minutes to make their opening statements, followed by a debate led by the moderator (approximately 30 minutes). After that, there was an interval of about eight minutes (in which the members of each group met among themselves), to then make the final arguments (about two minutes for each group). Four groups performed each debate. Three of them had to present the teaching model previously assigned to them, as well as to prepare arguments for side of it. Moreover, these three groups should prepare arguments against the other two teaching models assigned to the other two groups in order to enrich the debate. The fourth group acted as a moderator and had to study the three teaching models that were going to be discussed in the debate to also enrich it. Therefore, in the end, each group had to study and to know in a deep way three teaching models. Moreover, it is important to highlight that in each group there was a spokesman who was the responsible of performing the debate. That is, during the development of the debate only four students spoke. The other four groups of the class acted as viewers. Nevertheless, if someone of the viewers had a question, he or she could intervene in the debate. Additionally, during the development of the debate all students had to take notes in order to build (i.e., viewers) or complete (discussion groups) their notes on the theme worked (i.e., teaching models in PE). These notes had to be included in their OneNote e-portfolios.

As it has been mentioned before, the platform used to create students' e-portfolio was OneNote (Chaudhuri & Cabau, 2017). OneNote is a free program specifically designed for being used in an educational context. It allows students typing text, embedding images and video, uploading presentation files, inserting hyperlinks, recording audio, and sharing information with peers and teachers. Moreover, students can organize content into separate sub-sections, which are visible to the teacher (Grijalva-Borja et al., 2020). As a means of ensuring individual accountability, the teacher frequently utilized the OneNote feature that facilitates identification of the students who have made modifications to the various sections of the e-portfolio. Upon detection of imbalances in the contributions from individual members of the groups, the teacher emphasized the significance of equitable participation from all group members.

### **1. 5. Data analysis**

Data was analyzed using an thematic analysis (Libarkin & Kurdziel, 2002), following the six phases outlined by Braun and Clarke (2022). This method identified those common recurring elements that participants expressed in their answers. Firstly, answers were read several times to get a general sense of the meanings conveyed by all the respondents. This part of the data analysis was conducted by the lead author. The second phase consisted of identifying codes and themes by systematically working through the data set: A code describes a feature within the data that can be assessed and is considered relevant to the research question and may contribute to a theme; while a theme describes a recurring pattern that captures something meaningful within the data set (Braun & Clarke, 2022). Thirdly, agreed codes were then incorporated into candidate themes; codes that described a similar feature within the data set were subsequently combined. The fourth phase consisted of reviewing the themes to ensure that they accurately reflected the data set and that each theme was distinct from the other. The coding categories and themes identified during these fourth phases of analysis by the lead author were critically examined through a reflective dialogue, which included discussed and dialogued interpretations among both authors, for example, the perceived meanings and certain phrases spoken by the student respondents (Dale, 2000). In the fifth phase each identified theme was named and clearly defined. The last phase required providing



evidence for the themes by choosing data extracts that communicated the essence of the theme and supported the analysis of the data set.

To ensure the trustworthiness of the results, the information established in each theme was directly linked to the questions established in the data collection instrument used, thus guaranteeing the objectivity and linearity of the research (Oliver-Hoyo & Allen, 2006). In addition, each theme collects information that addresses various topics, which have been structured into sub-themes within the results. This structuring favors the triangulation and saturation of the data obtained. To avoid bias and guarantee independence in assigning the results to the sub-themes, an independent analysis of each of the researchers was carried out, making contributions that were later agreed upon for their final consignment.

The thematic analysis explicated seven themes that described the participants' perceptions about positive (four themes) and negative (three themes) aspects of the use of debate and e-portfolio as student-centered learning strategies, respectively. These were: 1) Meaningful and active teaching and learning environment, 2) information exchange and relationships, 3) innovation and motivation, and 4) technical and non-technical skills for positive perceptions; and 1) ignorance of methodology, 2) lack of interest, distraction, and reduced learning, and 3) extra work for negative perceptions. In quotations utilized below, examples of evidence of the themes established is provided through data extracts that communicate the essence of the theme and supported the analysis of the data set.

## 2. RESULTS

### 2.1. Positive perceptions

#### 2.1.1. *Meaningful and active teaching and learning environment*

This theme illustrates how students perceived that the student-centered learning strategies used to develop the teaching-learning process facilitated them the acquisition of the content. This was, because of the previous work that debates require anticipating the *for-arguments* of a teaching model, as well as the *against-arguments* of the other models object of the discussion. Moreover, this preparation also includes the organization and revision by the teacher of the information collected in students' e-portfolio before the debate. Thank to this collection of

information through OneNote, students pointed out that they could have access whenever they want using their laptops, tablets or mobile phones.

As for the debate, I found it quite interesting and motivating due to the previous preparation that we had to have. This led us to want to be well prepared for it and therefore committed to the task. That is, knowing the pros and cons of the different teaching models that were going to be discussed. Regarding OneNote, it is an interesting methodology because all the information is stored and in the form of a book, giving us the possibility of seeing it whenever we need it through our computers or mobile phones. (Luis)

Secondly, students considered that preparing the debates and the collection of the information researched well organized and revised in OneNote allowed them to develop their critical thinking, as well as to acquire a deeper and more lasting knowledge of the content worked. Furthermore, they learned to consider and accept different viewpoints; being exposed to different perspectives and arguments also led students to critically reflect on their own opinions in line of their own research.

The most positive aspect of this teaching methodology is that it forces the student to go in search of knowledge and ends up learning better and acquiring more lasting knowledge. (Ana)

...debates make us think about how we are going to defend and “attack” our opponent, and this helps to have critical thinking and other points of view. (Pedro)

Students also highlighted that these learning strategies gave them autonomy, because they were the main character of their teaching-learning process. That is, they were responsible of their learning, so they had to research, look for information, and organize it to build the knowledge that they were going to present and discuss in a logic way with their peers.

In my opinion, a positive aspect of using discussions and OneNote as a teaching method was the fact of engaging the student in the learning, that is, learning through the research of the topic and the subsequent explanation to the peers (through of the discussion). I think it awakens or develops a sense of responsibility and autonomy on the part of the students,

since they are responsible for their learning/development just like their peers. (Carlos)

Students also described how the use of debates and OneNote put them into the necessity of being out of their comfort zone and face the limitations they put on themselves.

The most positive aspects of the teaching methodology used are [...] and being a methodology that forces students to leave their zone of comfort, facing their limitations and preparing them for their near future. (José)

### ***2.1.2. Information exchange***

This theme refers to the availability, organization, and access to the information researched and collected. Most of the students surveyed said that thanks to the strategies used, more specifically OneNote...

It was easier and faster to find content in a future search and the information is more organized. (Francisco)

...Just by putting all the information collected prior to the development of the debates, as well as that given in the classes in OneNote each week, the learning was in our minds... (Amaia)

### ***2.1.3. Innovation and motivation***

This third theme highlights students' perception that the strategies applied fostered innovation and motivation. As one student pointed out, the dominant approach to teaching in the university context is lecturing, and these strategies were an alternative to the traditional use of paper and ballpoint, providing creativity in the transmission of the contents.

It was a different experience in my life as I had only faced the habitual method of instruction. (Nuno)

One of the positive aspects was that we were given a different, innovative way of learning... (Filipa)

The most positive of these methods was the creativity of the content transmission. (Sandra)

Additionally, the strategies applied also touched upon the emotional dimension of students' learning. Most of them perceived that lessons were less monotonous, more dynamic, stimulated personal involvement and implication, that is, fostered their motivation toward learning.

I think that both methodologies are good because they are different from the habitual teaching method and this motivates the students. (Ana)

With this teaching methodology, I found it more motivating and easier to learn and assimilate the material given, since with the debates the classes become less monotonous and more dynamic and with the OneNote platform it becomes more appetizing to investigate the contents started in the classes. (Catarina)

#### ***2.1.4. Technical and non-technical skills***

This theme collects students' perceptions about technical and non-technical skills developed with this different approach. In particular, students acknowledged that the strategies used developed their argumentation capacity and their communication skills to present and explain information to an audience in a clearer and more coherent way.

The most positive aspects of the teaching methodology used were the fact that the classes ... developed our ability to argue and the exchange of ideas with other classmates was important. (Noemi)

Additionally, students highlighted that, during the preparation of debates, their interaction was good and quite natural, as well as between them and the teacher. In this sense, they pointed out that these interactions are more present and "easy" in this type of teaching-learning strategies that in any other type that they have experienced before as students.

Undoubtedly, teacher-student and student-student interaction prevails over any other type of methodology used to transmit knowledge. (Inés)

In short, preparing and participating in the debate encouraged teamwork through the exchange of information and cooperation with the same objective.

Another positive point was that when applying these types of methods we work in cooperation with our colleagues, giving us the opportunity to develop individual and social skills, which is always fundamental. (Eduardo)

## **2.2. Negative perceptions**

### ***2.2.1. Ignorance of the methodology***

This theme focuses on students' perceptions about their ignorance of the strategies used to develop the teaching-learning process of teaching models in PE. According to them, at the beginning of the process they felt quite confused and ignorant because in most of the cases this was the first time they worked through debates and they were not familiar with OneNote. At the beginning, they expressed insecurity because, when they had to research and collect information about the teaching model assigned and put it organized into OneNote prior to the debate, they were not totally sure if it was correct or not. In this line, several students showed that some functions of OneNote were difficult to find and not very intuitive. Furthermore, the lack of habit with these teaching strategies sometimes made it difficult to present the information with clarity. However, despite these initial difficulties students perceived that the situation was gradually improving.

The most negative aspect was not being used to this method, so the initial impact was something strange, but with the time it all got better. (Filipe)

When we prepare the debates and develop them, since we are not very aware of the topic, even researching our own, sometimes we do not know or we are not 100% sure if we are dealing with everything important about our method or the method of other groups. (Cátia)

### ***2.2.2. Lack of interest, distraction, and reduced learning***

This theme reflects students' perceptions of their lack of interest in the strategies used for learning, the distraction they experienced during the process, and their reduced learning.

Firstly, students perceived the strategies applied as boring and uninteresting. In this line, some of them stated that they did not feel

comfortable researching a topic that it was not of their interest. Other students directly answered that they did not like this way of learning, but they did not specify why. Some highlighted that the cause of their disinterest and dislike was that they were not accustomed to “such uncommon” methods.

I did not like having to do autonomous research on content I was not comfortable with. (Telma)

This methodology is extremely boring and uninteresting and I think it is of little importance for future PE teachers, coaches or any other area related to sport. (Bruno)

Using this methodology made students more disinterested in their learning. (Luisa)

Secondly, students pointed out that learning through these strategies favored their distraction.

It can lead to greater distraction on the part of the students in some tasks, since it is not always easy to change the learning strategy due to the fact that we are used to another teaching methodology. (Juliana)

Also related to the lack of interest, students manifested that some groups did not prepare the information and the presentation of their teaching models in the terms agreed for all the groups. Several of them emphasized that during the process of researching, collecting, and organizing the information, as well as its posterior preparation to be discussed, not all members of the group worked in the same terms. According to them, this could affect the quality of the debates, and therefore it could limit the learning about specific teaching models. Others pointed out that sometimes, because of the lack of preparation, the discussions dispersed to other matters. Finally, several students highlighted the necessity that all students had the possibility of participating presenting the information of their groups instead of only doing it by one, the *spokesman* of the group.

The only negative aspect of the debate is that there are always less prepared groups, which makes it difficult to learn the model they defend, thus harming the learning of the rest. (Estela)

Due to lack of prior preparation, the discussion sometimes drifted a bit and led to talk of things that were not relevant to the topic. (Fernanda)

Finally, students acknowledged having difficulties to access resources like books and articles, which may lead to poor learning of the content. Additionally, due to their ignorance of the topic assigned, they could find incorrect information –if they could find any.

In the research work we could not access some books or articles because they were hidden, which made the process a bit difficult. (Helena)

The negative aspects are due in part to the lack of existing information on a specific topic, which does not allow a greater depth of it. (Andreia)

There is a lot of misinformation on the Internet, and students, because they do not know the subject, can find this information true. (Rogerio)

### **2.2.3. Extra work**

This theme collects students' perceptions regarding the fact that debates and OneNote required extra time and work preparing the content outside the lessons and updating it after the weekly debates.

It is necessary to spend more time outside the classroom, to successfully achieve the objectives of the curricular unit, compared to curricular units in which habitual methodologies are used. (Casimiro)

## **3. DISCUSSION**

The main goal of this study was to analyze students' perceptions about the use of debates and OneNote e-portfolio as student-centered learning strategies with Sports Science Degree university students.

*Regarding positive perceptions*, results showed that students perceived that the strategies applied facilitated the acquisition of the content. This may be due to the necessity of preparing the debates before their development in class (Rodger & Stewart-Lord, 2020). That is, preparing a debate requires researching, revising, and selecting the information in order to consider both, the *for* and *against* arguments of the topic object of study (Rodger & Stewart-Lord, 2020). Moreover, and according to previous studies (i.e., Grijalva-Borja et al., 2020), having this information organized through e-portfolios like OneNote has been shown to be very useful because it also facilitates students' learning process. Additionally, students pointed out that they developed their

critical thinking and acquired deeper learning since they had to analyze and understand the information that they were going to use to defend their position. These findings are congruent with previous literature (Alén et al., 2015; Bolliger & Shepherd, 2010; Rodger & Stewart-Lord, 2020). Furthermore, preparing and participating in a debate helped students to be more open-minded, because they have to consider and accept different viewpoints on the topic discussed, leading students to critically reflect on their own opinions in line with their own research (Kennedy, 2009; Rodger & Stewart-Lord, 2020).

Similar to previous studies (Flynn, 2022; Onen, 2016), students highlighted that the use of debates and OneNote gave them autonomy in the teaching-learning process. In this scenario, they were the main characters of the process and they were in control of their learning, and therefore they were responsible for their final academic outcome (Rosas-Maldonado et al., 2020). Additionally, students indicated that these strategies offered them the opportunity to explore out of their comfort zone of learning. This could help students to face the limitations that they put themselves such as not knowing where to look for specific information on a given topic when they are learning new contents (Rodger & Stewart-Lord, 2020).

Students indicated that thanks to the use of OneNote they could organize the information that they found and critically selected in a better way, having access to it whenever they want and from different devices. According to Salman (2015), the facility of accessing the information included in OneNote from any device is one of the main benefits of this tool in the educational context. Similarly, Nasseif (2021) found that the use of OneNote helped students to better organize the notes that they picked up during classes.

Additionally, the strategies used were perceived as innovative. The main reason may be that the lecturing continues to be the most used teaching methodology for giving lessons in Higher Education (Jiménez Hernández et al., 2020). This fact is totally in line with students' perceptions since before this study they had only learned through this habitual method. Related to the innovative character, creativity was highlighted as another positive aspect of the strategies applied. Foster students' creativity leads them to be better prepared to confront different issues that take place in the educational context, as well as encourages their motivation toward learning (Cariñanos-Ayala et al., 2021; Flynn, 2022). In this sense, debates and OneNote were perceived as motivating



strategies for learning because they broke with the monotony and lack of dynamism of the habitual lessons performed through lecturing. Rosas-Maldonado et al. (2020) highlighted that although at the beginning students may perceive these strategies as stressful, in the end, they felt fun and motivated.

As it has been commented before, preparing a quality debate requires considering the *for* and *against* arguments of a specific topic. Students perceived that the strategies used developed their argumentation capacity and their communication abilities to present the information in public which will be very useful in the future students' professional development. Similarly, Cariñanos-Ayala et al. (2021) suggest that searching, organizing and presenting the information helps students to strongly defend their position, make it possible to improve these abilities. Furthermore, students perceived that the strategies used promoted different relationships during the teaching learning-process, nourishing teamwork and building a sense of community. Preparing and organizing the information for a quality debate requires the organization of students as a group, sharing information between them, as well as cooperating to achieve a common objective (Alén et al., 2015; Rosas-Maldonado et al., 2020). Another relationship is related to the teacher. Students highlighted that learning through debates and OneNote allowed them to keep continuous contact with the teacher thanks to the feedback that he provided them regarding the information they included in their e-portfolios, as well as regarding those they shared during the development of the debates. In this sense, previous literature pointed out that during the use of these teaching-learning strategies, the teacher's feedback plays an important role in the learning process (Flynn, 2022).

*Regarding negative perceptions*, the first theme points out students' ignorance, confusion, and insecurity about the strategies used to develop the teaching-learning process. As they recognized, this might be due to the fact that this was the first students' experience with these learning strategies. This is totally in line with the students' perception of innovation. In this sense, Kennedy (2009) observed that students acknowledged similar difficulties when they had to perform debates (e.g., not feeling totally sure speaking in public because of the lack of habit). More specifically, regarding OneNote, providing students with more technical support might reduce the negative perception about the ease of use and intuitive character highlighted (Ciesielkiewicz, 2019). Nevertheless, it is important to point out that despite the ignorance

underlined at the beginning of the process, with time students perceived that this situation evolved toward a better perception of the learning strategies applied.

Students exposed that the strategies used were the reason that justify their disinterest for learning since they are boring and uninteresting. Others directly answered that they did not like this way of learning, but they did not give any reason. This could be because students are used to receive the information that teachers transmit to them through lecturing (Jiménez Hernández et al., 2020). Furthermore, the topic used could also influence students' interest for their learning (D'Souza, 2013). According to D'Souza (2013), the topic plays an important role in learning process. In this sense, the topic used in this study could not meet students' interest, therefore influencing their predisposition toward learning, as well as favored their distraction as they pointed out. Additionally, although most students indicated that thanks to these strategies they achieved a deep learning, some of them acknowledged that their learning was limited because of the preparation of some groups for the debate. This could be because of organizational issues. That is, according to students' perceptions, in some groups not all members worked in the same terms to prepare the debate. Therefore, the quality of the debate could be affected. Rosas-Maldonado et al. (2020) also observed similar organizational problems inside the groups. In this sense, and according to Alén et al. (2015), the success of a debated depends on the students' interest and preparation. Thus, facilitating students several resources like data base webpages and teaching them how to correctly use before preparing the debates, could help to solve the difficulties pointed out regarding the access and lack of information about the topic assigned, therefore improving the quality of the debate. Even, it would also give them guarantees that the information found is correct, since it has been obtained from a high-quality data base.

Finally, as outlined in the third negative perceptions theme, similar to previous studies (i.e., Cheung et al., 2017), the extra work required to prepare the debates using OneNote was acknowledged. As it has been mentioned before, students mainly receive the knowledge as passive receptors (Jiménez Hernández et al., 2020). Therefore, working daily to have their notes introduced and organized in their e-portfolios is negatively perceived because they have to invest some time each day, and as they acknowledged in their comments, this required an extra effort (Cheung et al., 2017).

## CONCLUSIONS

In the current Higher Education setting, it is necessary to use a wide variety of teaching strategies because students learn in many different ways. To our knowledge, it was the first study that analyze both students' perceptions about the use of debates and OneNote e-portfolio as student-centered learning strategies in Sports Science Degree university students. This work provides a preliminary and comprehensive understanding of a phenomenon and facilitates the way for future work. Considering that the majority of the previous research has analyzed only positive perceptions and in other degrees, this study expands and complements this area of research, especially in the Sport Sciences Degree. This work provides a preliminary and comprehensive understanding of a phenomenon and facilitates the way for future work.

Through the preparation required for debates, students were able to anticipate arguments *for* or *against* different teaching models. Preparation also involved organizing and revising information collected in the students' e-portfolios, accessible to the students in OneNote, through their laptops, tablets or mobile phones. The preparation process stimulated the development of students' critical thinking and the respect and acceptance of different viewpoints. The student-centered learning strategies used also gave students autonomy, as they were responsible for their learning and had to research and organize information to build their knowledge.

Information exchange was another theme that emerged, with most students finding the information collected faster, easier, and more organized. The student-centered learning strategies used, particularly OneNote, allowed them to find the information they needed more efficiently. Additionally, the students' perceptions of innovation and motivation were also improved by the strategies applied. They described the experience as different from habitual teaching methods and more dynamic, which fostered their motivation toward learning. The strategies also touched on the emotional dimension of the students' learning, making lessons less monotonous.

However, the acquisition of knowledge about the topic developed was not assessed. Future research studies with the same study design should be performed in other similar degrees like PE in Primary Education to check if similar or different perceptions take place. Besides,

it could be interesting that future studies also assess if students acquired the basic concepts of the topic developed after working through debates and OneNote.

In short, the study highlights the positive impact that student-centered learning strategies such as debates and the use of OneNote can have on students' perceptions of teaching and learning. The strategies not only facilitated the acquisition of content but also developed students' critical thinking and emotional engagement with learning. The results of this study suggest that incorporating such strategies into the teaching and learning process can improve students' learning experiences and outcomes.

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