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Article

Development and Preliminary Validation of Social Media as an Educational and Professional Tool Student Perceptions Scale (SMEPT-SPS)

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Abstract: Although social media has an increasing presence both in university and sports settings, in the sports-management education context, no instruments (without being focused on one particular social-media platform, e.g., Facebook and Twitter) have been developed and validated that globally allow the academy to explore the perceptions of sports-management students concerning the educational and professional learning potential that these tools offer. Therefore, this research's main objective is to develop and perform a preliminary validation of the social media as an educational and professional tool student perceptions scale (SMEPT-SPS). This study sample was composed of 90 Spanish undergraduate sports-management students ($M = 22.56$; $SD = 3.55$). A multigroup confirmatory factor analysis was performed to examine the psychometric properties of the SMEPT-SPS. The statistical analysis reflects the scale's three-dimensional nature, explaining 67.87% of the variance and presents adequate psychometric properties ($\alpha = 0.87$). Nevertheless, further validity and reliability analysis are required to confirm these initial findings with a larger and more representative sample. Considering the foregoing limitation, this research contributes to the literature by providing a new instrument, the SMEPT-SPS, that could help sports-management faculty expand the scope and understanding of social media's educational and professional potential.

Keywords: sports-management education; social media; higher education; scale development; preliminary validation; confirmatory factor analysis; psychometric properties; instrumental studies



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1. Introduction

The world is undergoing a social-media revolution that has transformed how we communicate and relate to each other [1]. Furthermore, the spread of social-media content and platforms among the population continues to grow [2]. In 2020, approximately 3.6 billion people were using social media worldwide, which is expected to increase up to approximately 4.41 billion by 2025 [3]. Concerning the most popular social media, according to Statista [4], in October 2020, the world's top 10 social media based on the number of active users were (in millions of users): (1) Facebook (2701), (2) YouTube (2000), (3) WhatsApp (2000), (4) Facebook Messenger (1300), (5) WeChat/Weixin (1206), (6) Instagram (1158), (7) TikTok (689), (8) QQ (648), (9) Douyin (600), and (10) Sina Weibo (523).

Social media has become an omnipresent phenomenon [5]. The field of sports has not been exempt [6], with these tools having a profound impact on the dissemination and consumption of sport [7]. Social media provides a unique atmosphere where sport stakeholders, including (but not limited to) athletes, sponsors, governing bodies and fans,

can communicate and engage [8]. On the other hand, social media's role has become even more relevant during the COVID-19 pandemic [9]. For instance, social media has been an essential way for teams, sport organisations, and athletes to connect with their fans [10,11], especially during lockdown periods. Furthermore, social media can be used under this context of social restrictions to inspire people to engage in physical activity and sport [12].

Similarly, education has also been redefined with the rise of social media [13], transforming the communication landscape for institutions of higher education [14]. These tools provide an innovative pedagogical approach to curriculum delivery and students' engagement [15–17]. Furthermore, in times of the COVID-19 pandemic, social media provides sustainability to the educational sector by giving it continuity through online learning environments, overcoming possible physical restrictions associated with social policies designed to stop spreading the COVID-19 disease. In fact, the pandemic has forced a shift from face-to-face learning to distance-learning methods [18,19]. Nevertheless, the United Nations [20] in the framework of the fourth sustainable development goal (e.g., "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"), reports that distance learning remains out of reach for at least 500 million students. Therefore, the accessibility of this type of technological resources such as social media and their use type in the classroom is a matter for reflection. In this sense, authors such as Barragán-Sánchez et al. [21] state that there is a need to redesign education to promote critical and responsible technology use in educational settings. To make this possible, teachers need instruments to assess these digital tools' impact when they are introduced in the classroom. In that sense, this work contributes to the progress of the field, through the development and preliminary analysis of the validity and reliability of a new instrument, that provides insight on the student's perceptions on the educational and professional possibilities offered by social media as a pedagogical tool in sports-management education.

2. Theoretical and Conceptual Background

2.1. Defining Social Media

The term "social media" has received various controversial definitions [22] with discrepancies in the way academics define the term in the academic literature [23]. For example, social media has been defined as "the tools, platforms, and applications that enable consumers to connect, communicate, and collaborate with others" [24] (p. 422). In accordance with Manca and Ranieri [22] (p.217), social media "refer[s] to a wide range of applications enabling users to create, share, comment and discuss digital content". On the other hand, one of the most cited definitions of social media among researchers is "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" [25] (p. 61). Another theoretical approximation to the social-media concept from the marketing perspective is provided by Hanna, Rohm, and Crittenden [26] who perceive social media as an ecosystem of related elements involving digital and traditional media elements together towards a common objective, creating spheres of influence.

One way or another, the academic literature shows that a specific definition for social media may be elusive [25]. Furthermore, the term has been used interchangeably with terms such as social networking or online social networks [27], as well as "Web 2.0" [28]. All of this could cause some controversy or confusion among both researchers and users. For this part, Tess [27] and Manca and Ranieri [22] pointed out another element that complicates defining social media. The authors highlight that it is more complex and challenging to define social media due to these tools' characteristics, mainly in a constant state of change. Indeed, social media has rapidly diversified, expanded, evolved, and grown in numbers and functionalities [28], usually incorporating new or enhanced features that satisfy the industry and users' needs. Other times, social media is simply replaced by new platforms [29].

All the previously stated issues about social-media definition could cause some controversy or confusion among both researchers and users. Nonetheless, most social-media

definitions agree that these tools are linked to digital technologies, emphasising the possibility of users generating content or interaction [25]. Furthermore, we concur with Tess' [27] statement, acknowledging that maybe social media has become one of those implicit terms that is difficult to define and categorise but is colloquially understood. In any case, as pointed out by Papacharissi [30], what is clear is that "social" is always within the concept of social media in some way and given the constant evolution that social media is having, combining with each other, there is not just one perspective [31]. For this reason, when considering the design of a new scale to measure social media as a whole, the proposed items must leave room for the different idiosyncrasies of existing social media and those to come.

2.2. Social Media as an Educational and Professional Learning Tool in Sports-Management Education

The academic literature has already pointed out a great diversity of benefits linked to the introduction of social media in university courses. Marr and DeWaele [32] proposed to use Twitter within the sports-management classroom as this social media can provide interesting opportunities linked with the teaching–learning process such as engaging, discovering, or creativity. Furthermore, social-media classroom usage is a good channel for reaching students and enhancing their course engagement [33,34]. For its part, O'Boyle [35] examined the practical uses of Facebook and Twitter within a sports-and-recreation-management degree, reporting a high level of student and staff interaction. In addition, Manning et al. [36] indicate that social media's educational introduction could lead towards new more-participative educational learning experiences, stimulating student interest and critical thinking. Finally, Zachos et al. [37] conducted a review about social-media implementation through higher education indicating that articles analysed confirmed the connection of social media with successful academic outcomes in different educational areas (e.g., support, upgrading of educational processes, co-operation, and performance).

Considering the relevance that social media has on the sports industry [7], it could be worth it that sports-management faculty introduce these tools in their courses' dynamics [38]. Indeed, the higher-education sector needs to be aware of industry development and attentive to the industry's challenges and changes [39,40]. Therefore, sports-management education can prepare a graduate for a professional career, meeting the demands of technology in the sports industry [41], including social media as pedagogical tools [42] serving for valuable professional learning purposes [43]. In this sense, social-media educational experiences can be useful for students after graduation [40], by stimulating professional networking and enabling the follow-up of the latest developments in the industry [27,32].

Despite the various benefits that the inclusion of social media in the educational and professional fields can have and although there are several studies that value and reflect the educational impact of the class introduction of specific social media such as Facebook [35], Twitter [32,35,36,40,44,45], or LinkedIn [38,44], to the best of our knowledge, there are no studies that have created and validated an instrument to measure the perceptions that sports-management university students have of these tools as a whole. Likewise, there are no validated scales to measure social media's potential to develop students' professional profiles and as a tool for interaction with the sports industry. In this sense, the creation and validation of research instruments could help advance the knowledge of the social-media subfield in sports-management education, providing valuable information for teaching staff towards introducing new educational experiences that exploit the social media to their full potential. Therefore, the aim of this work is, on the one hand, as follows:

- (a) to develop a new instrument to measure sports-management university students' perceptions towards social media as an educational and professional tool (the "social media as an educational and professional tool student perceptions scale" [SMEPT-SPS]).

On the other hand, considering the difficulty in obtaining a large and representative sample of students enrolled in sports-management courses due to enrolment lim-

itations at the university where this study was conducted, the second objective was adjusted accordingly:

- (b) to assess preliminary validity of the SMEPT-SPS through multigroup confirmatory factor analysis (MG-CFA), a procedure that encompasses three different analyses: (1) exploratory factor analysis (EFA), (2) confirmatory factor analysis (CFA) and invariance analysis (IA).

3. Methods

A quantitative quasi-experimental cross-sectional research design with a non-random convenience sampling was designed to address the research objectives.

3.1. Scale Development

Several procedures were carried out to ensure the content validity of the scale. First, given the novelty of the phenomena investigated, the study's authors carried out an extensive review of social media on sports-management education literature. As a result of this review, the first author developed an initial bank of 23 items, to measure sports-management students' perceptions of social media.

Second, all the authors compared and discussed the items, refining and clarifying the language and phrasing. As a result of this step, the authors discarded two of the items as not meeting in full the study's objectives and merged two of them because of their similarity, leaving a bank of 20 items. Furthermore, the authors grouped them in three themes: (1) items focused on assessing the inclusion of social-media tools into university course teaching–learning dynamics; (2) items to assess the possibilities that social media offer to develop a student's professional profile; and (3) items to assess the opportunities that social media creates to interact with the sports-industry actors and to keep abreast of the field's latest developments.

Third, twenty experts received the initial draft of the scale to receive their feedback concerning the questionnaire's design. In order to obtain different points of view, which would enrich this phase of the process, four main criteria were followed when choosing the experts: (a) up-to-date knowledge of the sports-industry sector concerning social media; (b) current teaching in sport management at the university level; (c) knowledge of methodological aspects linked to teaching methods; and (d) closeness to the scale's target audience. All the authors were responsible for discussing which experts were to be selected according to the above criteria. Consequently, five experts were elected from the business world of sport management using social media as a management tool in their companies; five were sports-management university professors; five were university professors specialised in educational methodology; and five were undergraduate sports-management students. These experts were responsible for reviewing the content, clarity, reliability, and format of the items proposed to avoid possible confusion in their interpretation and offer suggestions for improvement. After analysing and discussing the feedback received, two items were discarded, two pairs of items were merged, and one new item was added. Furthermore, some changes were made with the item wording to improve its understanding and adjust it to the study's objectives.

The outcome of the three previous procedures resulted in a preliminary draft of the SMEPT-SPS composed by 17 items (see Table 1) distributed in three dimensions: university teaching–learning dimension (items 1–6), professional development dimension (items 7–13), and information and interaction with the sports professional sector dimension (items 14–17). The scale was formatted as a single matrix with the main statement above and the items below: "Evaluate the social media perceptions you have as a student of sport management presented in the following items. Rate each of them on a scale of 0 to 5, with 0 meaning 'I strongly disagree' and 5 meaning 'I strongly agree'".

Table 1. The preliminary draft of the social media as an educational and professional tool student perceptions scale (SMEPT-SPS) composed of 17 items.

Item n ^o	Item
1	I believe that university teachers have mastered the use and are aware of the possibilities offered by social media
2	I believe that university students have mastered the use and understanding of the possibilities offered by social media
3	I believe that social media is a positive educational tool for students that should be included more in university classes
4	I believe that including social media in university classes makes it easier for the university to be more connected to society
5	I would like to see more training on social media at university
6	I see the positive side of the university's commitment to greater inclusion of social media
7	I believe that companies today demand knowledge in the use and management of social media
8	Social media can help me in my professional development
9	Mastering social media can increase my chances of finding a job
10	Mastering social media can make it easier for me to set up a business
11	Mastering the management and use of social media can help me create and/or enhance my personal brand
12	Social media encourages entrepreneurship
13	As social media can help develop a professional profile, university teachers should integrate it more into their classes
14	Social media can make it easier for you to connect with sports organisations or sports companies
15	Social media can make it easier for you to connect with athletes, coaches and journalists
16	Through social media I can keep informed of news and innovations in my professional field
17	Social media can encourage contact with the stakeholders in my professional sector

Finally, it should be pointed out that the scale was developed and administered in Spanish. Therefore, for the present study, it has been translated into English firstly by the authors, and secondly, it was revised and approved by an English and Spanish native speaker. The final version of the SMEPT-SPS can be consulted in Appendix A.

3.2. Participants and Testing Procedure

Ninety undergraduate sports-sciences students enrolled in the “Management and Organisation of Sporting Bodies and Events” course at the University of Valencia (Spain) during the second semester of the 2018–2019 academic year participated in this study. Males were more represented than females (80% vs. 20%), with a mean age = 22.56 (SD = 3.55). Notably, 93.70% of the students were in the third year of their degree, while the remaining 6.70% were in their final year.

The data were collected at the beginning of the first lesson of the aforementioned sports-management course. Besides, second testing was done to obtain the necessary data to perform the invariance analysis at the end of the semester. Participants' answers were collected using the Google Forms online survey application. The investigation was carried out following the Declaration of Helsinki's guidelines and the University of Valencia ethics code. Thus, before carrying out the questionnaire, students were introduced to the study to be carried out, informing them of their voluntary participation, guaranteeing their anonymity and confidentiality, and signing an informed consent form. The first author supervised the questionnaire's passing and was available to the respondents to resolve any possible doubts.

3.3. Statistical Analysis

To validate the scale, an MG-CFA was performed to ensure the invariance of the instrument. This procedure encompasses three different analyses: (1) EFA, (2) CFA, and (3) IA. Before performing the CFA, indicators should be used to evaluate if the first level's correlations are adequate to be factorially analysed at the second level. These indicators are related to sampling adequacy measures and are an important previous stage of the CFA. These indicators assess if this model analysis is appropriate for the data [46]. Once the condition has been verified, the degree of joint relationship between the items should be evaluated. The most common measure is Kaiser's [47] KMO, which evaluates to what extent each item's scores are predictable from the others. The range of KMO values is from 0 to 1, the higher the value, the more relationship between items. Kaiser [47] suggested that KMO be equal to or greater than 0.80 in order to ensure that the correlation matrix is appropriate.

Next, the EFA was performed for the extraction of the main components using a Varimax rotation. Items with factorial loads lower than 0.40 were deleted, and those with loads higher than 0.40 were placed in several constructs. To evaluate the scale's validity and usefulness, CFA is stronger and more conclusive than EFA, which provides only initial evidence of the scale's relevant factors [48]. Therefore, for the evaluation of the global adjustment, different indices of fit-goodness literature [49,50], as the significance of χ^2 and its robust correction were provided by Satorra–Bentler ($S-B\chi^2$) [51,52]. Other coefficients were calculated such as the ratio of χ^2 and its degrees of freedom (χ^2/gl) [53], being acceptable values lower than five [54,55]. Besides, the coefficients of the robust goodness-of-fit indices of the proposed models corresponding to the compared adjustment index (CFI), [56], the incremental adjustment index (IFI) were checked and the to the non-normal adjustment index (NNFI) [57]. In all these indicators, values above 0.90 are considered a good fit [58]. Finally, the root-mean-square error of approximation (RMSEA) was also calculated, considering values lower than 0.08 as appropriate for a model's satisfactory adjustment [49].

For assessing the reliability of the scale, three measures were considered: Cronbach's α , compose reliability (CR), and the average extracted variance (AVE). According to Cronbach and Shavelson [59], for internal consistency, Cronbach's α values ≥ 0.70 are high, ≥ 0.60 are adequate, and 0.60 are low. For the CR, values should be greater than 0.70 [60], and for the AVE, according to Fornell and Larcker [61], they should be greater than 0.50 for each factor. Finally, for discriminant validity that ensures the distinction between any pair of constructs, the method suggested by Fornell and Larcker [61] was used to measure it. This method ensures discriminant validity if the square root of the AVE value of a factor is greater than the correlation coefficients between the factor and any other factor of the proposed scale. Another criterion for ensuring discriminative validity is that the different factors' correlations must be lower than 0.85 [50]. These two criteria were considered to assess the discriminant validity of the scale.

Finally, an invariance analysis was performed to discover whether the SMEPT-SPS works well in two different moments in order to ensure its metric invariance. The model of the SMEPT-SPS has been calculated for the subsamples to later make an analysis of invariance that combines both samples and assumes some restrictions. The restriction of variance was added first, and then the restriction of factorial loads was added (equal factor loadings) [62]. Lastly, a test was performed to evaluate if the change between the χ^2 and the robust χ^2 was significant when comparing both models (more restrictive vs. less restrictive model). If the $p > 0.05$, the invariance of the scale can be ensured.

This data analysis was performed using two different statistical packages: SPSS (Version 23, IBM Corp, Armonk, NY, USA) and the EQS version 6.3 for Windows programme. Descriptive analysis of variables (mean and standard deviation), scales reliability (Cronbach's α), and the correlation between factors (Pearson's correlation) were performed with the first statistical package. Structural equation modelling (SEM) was calculated using the second statistical package.

4. Results

This section presents the results that lead to the validation of the SMEPT-SPS. For this purpose, firstly, the analyses relating to the EFA are shown. Secondly, the descriptive statistics and Cronbach's alpha of each factor of the scale are presented. Next, the CFA results are shown with the analyses to evaluate the convergent and discriminant validity of the scale.

4.1. Exploratory Factor Analysis

The first step was to perform the EFA with the 17 items from the draft used to assess the sports-management university student's perceptions of social media as an educational and professional tool. The KMO value was 0.825 ($p < 0.05$), confirming the measure of sampling adequacy, and Bartlett's test of sphericity value was 829.52, $df = 136$ ($p < 0.001$), providing evidence for a significant correlation among the items. The loadings from the four factors extracted in the first step have the cumulative value of 67.25% in explaining the total variance in data. Throughout the EFA procedure, the items that did not load properly on a specific factor (<0.40) or if they had crossloadings in two or more factors were deleted. Accordingly, the following items had to be removed: 1. "I believe that university teachers have mastered the use and are aware of the possibilities offered by social media"; 2. "I believe that university students have mastered the use and understanding of the possibilities offered by social media"; 7. "I believe that companies today demand knowledge in the use and management of social media"; 12. "Social media encourages entrepreneurship"; and 13. "As social media can help develop a professional profile, university teachers should integrate it more into their classes".

The remaining 12 items were retained for the next step of EFA. As presented in Table 2, the second round of EFA with varimax rotation yielded three factors. The refined model explained 67.87% of the cumulative variance. In this stage, both the KMO measure (0.812; $p > 0.50$) and Bartlett's test of sphericity (606.10; $gl = 66$; $p = 0.000$) were significant. The first dimension explained 41.42% of the variance, the second dimension 12.44%, and the third, 12% of the variance. In Table 2, the results of the three dimensions extracted could be observed.

Table 2. Factorial loads of the items of the factor extracted and explained variance of each factor and reliability.

Items (12 Items, 3 Factors)	Dimensions		
	1	2	3
3. I believe that social media is a positive educational tool for students that should be included more in university classes	0.787		
4. I believe that including social media in university classes makes it easier for the university to be more connected to society	0.876		
5. I would like to see more training on social media at university	0.862		
6. I see the positive side of the university's commitment to greater inclusion of social media	0.872		
8. Social media can help me in my professional development		0.689	
9. Mastering social media can increase my chances of finding a job		0.847	
10. Mastering social media can make it easier for me to set up a business		0.745	
11. Mastering the management and use of social media can help me create and/or enhance my personal brand		0.730	
14. Social media can make it easier for you to connect with sports organisations or sports companies			0.883
15. Social media can make it easier for you to connect with athletes, coaches and journalists			0.873

Table 2. Cont.

Items (12 Items, 3 Factors)	Dimensions		
	1	2	3
16. Through social media I can keep informed of news and innovations in my professional field			0.600
17. Social media can encourage contact with the stakeholders in my professional sector			0.797
% explained variance	41.42	12.44	12.00
Cronbach's alpha	0.91	0.84	0.79
Eigenvalue	5.39	1.62	1.82
Total explained variance		67.86%	

4.2. Description of the Items and Reliability Analysis

Then, the 12 items of the SMEPT-SPS were analysed. The final items, averages, standard deviations, total item correlations, and Cronbach's alpha without the item are presented in Table 3. In general, considering that a five-point ascending Likert scale was used to measure the items, their averages were high. Considering the three dimensions that emerged, the highest score was obtained in the third dimension and the lower in the first dimension.

Table 3. Means and standard deviations of items (SD), corrected element correlation (r_{ij}) and Cronbach's alpha value if the item is deleted (α -x).

Items	M	SD	r _{ij}	α -x
Dimension 1: Social media as a university teaching-learning tool ($\alpha = 0.91$); M = 4.06; SD = 0.75				
3. I believe that social media is a positive educational tool for students that should be included more in university classes	4.02	0.83	0.712	0.910
4. I believe that including social media in university classes makes it easier for the university to be more connected to society	4.06	0.83	0.819	0.874
5. I would like to see more training on social media at university	4.03	0.88	0.793	0.883
6. I see the positive side of the university's commitment to greater inclusion of social media	4.13	0.85	0.857	0.860
Dimension 2: Social media as a professional profile development tool ($\alpha = 0.80$); M = 4.33; SD = 0.52				
8. Social media can help me in my professional development	4.41	0.62	0.646	0.732
9. Mastering social media can increase my chances of finding a job	4.42	0.75	0.694	0.697
10. Mastering social media can make it easier for me to set up a business	4.33	0.81	0.524	0.793
11. Mastering the management and use of social media can help me create and/or enhance my personal brand	4.29	0.69	0.588	0.753
Dimension 3: Social media as a tool to interact and get informed about the sports industry developments ($\alpha = 0.84$); M = 4.45; SD = 0.43				
14. Social media can make it easier for you to connect with sports organisations or sports companies	4.38	0.53	0.784	0.750
15. Social media can make it easier for you to connect with athletes, coaches, and journalists	4.43	0.52	0.733	0.774
16. Through social media I can keep informed of news and innovations in my professional field	4.63	0.51	0.518	0.842
17. Social media can encourage contact with the stakeholders in my professional sector	4.38	0.55	0.678	0.798

Concerning the reliability analysis using Cronbach's alpha of the extracted three factors, each element's contribution to the scale seems to be satisfactory. In Cronbach's alpha, the cut-off value of 0.60 was considered due to it being recommended by the literature [59]. The removal of any element did not seem to improve the whole scale's reliability ($\alpha = 0.87$). Thus, the reliability of the refined model was established.

Furthermore, the reliability of each factor was also calculated. In this case as well, the removal of any element did not seem to improve the reliability of each factor ($\alpha = 0.91$; $\alpha = 0.80$; $\alpha = 0.84$). Therefore, all items were retained. Overall, the results show that all the factors composed of four items present good reliability indexes. Some researchers suggested a minimum of two valid items for a construct in EFA for the scale development [63]. This aspect is fulfilled since all dimensions are composed of four items.

4.3. Confirmatory Factor Analysis

Once the number of factors that compose the scale and the items that make up each factor were assessed; a CFA was performed. SEM was used to check the measurement model's properties in terms of convergent validity and discriminant validity [64,65]. The confirmatory analysis of this scale with the three dimensions was performed. In this way, all the indicators of the model presented good adjustment indices: χ^2 (gl) = 76.03 (51); S-B χ^2 (gl) = 67.62 (51); S-B χ^2 / (gl) = 1.33; NNFI = 0.95; CFI = 0.96; IFI = 0.96; and RMSEA (CI) = 0.061 (0.00–0.96). As can be observed, the χ^2 / gl (1.33) is lower than 5, as the literature suggests [54,55]. Also, the NNFI, CFI, and IFI (0.95, 0.96, and 0.96, respectively) present values higher than 0.90, as the literature suggests considering a good fit model [58]. Finally, RMSEA (0.61) was lower than 0.08, which is appropriate for a good adjustment of the model [49]. In Figure 1, these results can be observed.

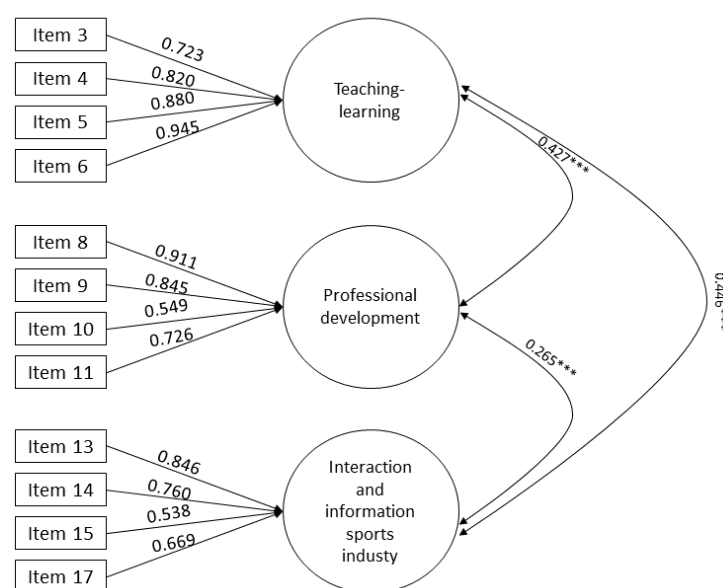


Figure 1. Three-dimensional model of the SMEPT-SPS. Note: *** $p < 0.001$; χ^2 (gl) = 76.03 (51); S-B χ^2 (gl) = 67.62 (51); χ^2 / (gl) = 1.49; NNFI = 0.95; CFI = 0.96; IFI = 0.96; and RMSEA (CI) = 0.061 (0.00–0.96). Teaching–learning, social media as a university teaching–learning tool; Professional development, social media as a professional profile development tool; Interaction and information sports industry, social media as a tool to interact and get informed about the developments in the sports industry.

4.4. Convergent Validity

Subsequently, the convergent validity was calculated. Although the internal consistency was calculated using Cronbach's alpha (see Table 4), this index does not consider the influence on the other construct's reliability. Then, to ensure the measurement's convergent validity, the AVE and CR [61] were calculated. All three dimensions presented acceptable values for the CR (0.80–0.91) and AVE (0.51–0.72). Table 4 reports that all constructs' CR

values exceed the cut-off level of 0.70 [60], and the AVE for all constructs is higher than 0.50 [61].

Table 4. Factorial loads of the items, compose reliability (CR), average variance extracted (AVE), and the square root of the extracted mean variance.

SMEPT-SPS		Factorial Loads	CR	AVE	Square Root AVE
Teaching–learning	SMEPT-SPS 3	0.723	0.91	0.72	0.85
	SMEPT-SPS 4	0.820			
	SMEPT-SPS 5	0.880			
	SMEPT-SPS 6	0.945			
Professional development	SMEPT-SPS 8	0.911	0.85	0.59	0.71
	SMEPT-SPS 9	0.845			
	SMEPT-SPS 10	0.549			
	SMEPT-SPS 11	0.726			
Interaction and information sports industry	SMEPT-SPS 13	0.846	0.80	0.51	0.77
	SMEPT-SPS 14	0.760			
	SMEPT-SPS 15	0.538			
	SMEPT-SPS 17	0.669			

4.5. Discriminant Validity

Finally, the discriminant validity of the scale was also tested. Thus, the AVE's square root was compared to the correlations between constructs, to establish discriminant validity. Table 5 presents AVE's square root (diagonal elements in bold) and the correlations between constructs (off-diagonal elements). It can be observed that the square root of AVE was greater than the off-diagonal elements both across the down and the row-column [61]. In addition, the correlations between the different factors ($r = 0.73$ – 0.17) are lower than 0.85 [50]. These results confirm the establishment of discriminant validity at the construct level.

Table 5. Correlation between dimensions and the square root of the extracted mean variance.

Dimensions	Teaching–Learning	Professional Development	Interaction and Information Sports Industry
Teaching–learning	0.85		
Professional development	0.47 ***	0.71	
Interaction and information sports industry	0.43 ***	0.37 ***	0.77

Note: *** $p < -0.001$. The square roots of AVE in bold.

Based on the results presented in Tables 2–5, besides Figure 1, the overall results for the measurement model have provided satisfactory empirical support for reliability, convergent validity, and discriminant validity.

Finally, an invariance analysis was performed to explore if the scale works well in different moments in order to ensure its metric invariance. Therefore, two different models, one for the pre-test, and another for the post-test were performed. As can be observed in Table 6, in both cases, all the fit indexes are appropriate. Then, the model comparing both data was calculated, adding the “Equal form” and the “Equal factor loadings” restrictions. In addition, both models presented good-fit indexes (see Table 6). Lastly, a test to evaluate if the change between the χ^2 and the robust χ^2 was significant when comparing both models was performed. However, no statistical differences were found. Thus, metric invariance of the instrument can be ensured. In Table 6, these results can be observed.

Table 6. Calculation of the metric invariance of the SMEPT-SPS.

Samples	χ^2 (gl)	$\Delta \chi^2$ (Δ gl)	<i>p</i>	SBx2 (gl)	RMSEA (90% IC)	NNFI	CFI	IFI
PRE-TEST (n = 90)	76.03 (51)			67.22 (51)	0.061 (0.000–0.960)	0.95	0.96	0.96
POST-TEST (n = 76)	127.47 (51)			67.29 (51)	0.067 (0.000–0.106)	0.96	0.97	0.97
Metric invariance								
Equal Form	205.69 (105)			136.92 (105)	0.061 (0.026–0.088)	0.96	0.97	0.97
Equal Factor loading	217.77 (111)	12.04 (6)	0.06	146.06 (114)	0.059 (0.023–0.085)	0.96	0.97	0.97

5. Discussion

The study addresses the call by López Carril, Escamilla-Fajardo et al. [6] and Lebel, Danylchuk, and Millar [42] for studies focused on the introduction of social media in sports-management education. In this sense, this study contributes to the sports-management education literature by developing and conducting a preliminary validation of the SMEPT-SPS.

Regarding the first objective of the study, although to the date, multiple benefits of incorporating social media into university classes have been identified in the literature [32,33,37], there were no instruments that allowed for an approach to social media from a global and multidimensional perspective. Thus, the SMEPT-SPS goes beyond the study of a particular social media such as Facebook and Twitter, which have been the most studied social media [7,22]. Furthermore, the professional perspective and the interaction with the sports-industry approach were explicitly included, reflected in the second and third dimensions. Therefore, the development of the SMEPT-SPS expands the sports-management education field by offering an instrument to both the research and teaching community that will allow for the exploring of the sports-management students' perceptions of the educational potential of social media through a scale of 12 items distributed in three dimensions: (1) social media as a university teaching–learning tool; (2) social media as a professional profile development tool; and, (3) social media as a tool to interact and get informed about the developments in the sports industry.

Concerning the second objective of this research, the MG-CFA analysis procedures have confirmed that the SMEPT-SPS has appropriate psychometric properties. Thus, the preliminary validation reflects that the SMEPT-SPS is a reliable and suitable instrument to assess sports-management students' perceptions of social-media use in a multidimensional way. On the one hand, the EFA reflects that the three-factor model presents a good fit to the data. Furthermore, according to the literature [59,63], appropriate Cronbach alpha coefficients were obtained for the whole scale and the three subscales of the SMEPT-SPS, thereby evidencing good internal consistency and, therefore, good reliability of the instrument. Finally, the instrument's invariance has been checked and verified at two different times during the course. Therefore, the validity of the scale is ensured. Nevertheless, as stated in previous studies, although preliminary validation of scales were performed [66–68], it is necessary to conduct future studies with larger and representative samples to determine the validity and reliability of the SMEPT-SPS.

Finally, although it was not established as a research goal in itself, this study's results reflect the positive perceptions that sports-management students have towards social media as a learning tool, with high average values in all the items of the three dimensions of the scale. The third dimension presented the higher averages followed closely by the second. These results are noteworthy as they are in line with what has been indicated by several authors, e.g., [27,32,38], those who see opportunities in social media to connect students with the professional dynamics of the sports-industry and to develop their professional

profile. Thus, according to the results obtained, sports-management students perceive the professional potential concerning social-media education. Consequently, we stress the importance of introducing social media into sports-management classes from a professional perspective as Lebel, Danylchuk, and Millar [42] and Pate and Bosley [41] state.

5.1. Limitations and Future Research Lines

This study has some limitations, which are necessary to acknowledge. First, the sample size is not very high nor representative, even though in the sports-management educational context, several studies collect educational experiences that include social media present similar size samples [44,45]. Nevertheless, higher sample sizes are required to be certain of generalising the results. Second, the scale was administered on convenience nonprobabilistic sampling limited to the sports-management course where the authors had direct access. Furthermore, concerning gender, the sample was unbalanced, composed mostly of male students, although this gender distribution is frequent in sports-management scale-validation studies [69–71]. In addition, the sample was not distributed through the different parts of the country. Therefore, all the previously stated facts imply a possible substantial sample bias that should caution the results' interpretation.

The above limitations offer several opportunities for future research. Firstly, to validate the SMEPT-SPS with a larger, representative and homogeneous sample, and following randomised sampling procedures. Furthermore, it will be valuable to administrate the SMEPT-SPS in samples across different countries to determine if there are different perceptions about the use of social media in the three dimensions of the scale developed depending on the culture. To do this, it is advised to validate the SMEPT-SPS in English, so that it can be used by a more significant number of teachers and researchers. On the other hand, we encourage future research to evaluate and validate if appropriate, potentially further additions to the number of items that compose the three dimensions of the SMEPT-SPS or even to explore the creation of new dimensions. Finally, qualitative research methods could complement the information on the subject of study from other perspectives. The aforementioned research suggestions would enable to seek a greater understanding of the phenomenon under study.

5.2. Theoretical and Practical Implications

Despite the limitations set out in the previous subsection, once taken into consideration, the research raises several theoretical and practical implications that contribute to advancing the topic under study. First, linked to the theoretical field, the research approach to design the SMEPT-SPS is highlighted, since it is the first instrument in sports-management education scope that in a transversal way, allows one to explore the students' perceptions about these tools at a global level, instead of being focused on a particular one [45]. This will enable a broader understanding of these tools' educational impact as a whole, rather than focusing specifically on one.

Second, this study is one of the first that aims to connect the professional sports field with what is taught in the classroom through social media. Thus, it is trying to bridge these two areas in line with the recommendations provided by other authors [38,41]. This is particularly relevant as, according to several authors [40,72], developing students' professional skills linked to social-media use is important to promote their employability and postgraduation ventures. In this sense, the use of the SMEPT-SPS can help make this area of learning visible, which has been little studied until now.

Third, in a context where the COVID-19 pandemic effects have redefined the education system [13], social media is a powerful channel through which to develop university classes and a pedagogical resource that can give sustainability to the educational system in the face of the future that will define the pandemic. Indeed, authors such as Sobaih et al. [18] and Williamson et al. [19] have pointed to the growing importance of online or hybrid educational methodologies. Therefore, SMEPT-SPS can be a valuable option to assess the educational impact of future educational experiences that rely on social-media

inclusion in sports-management classes to create sustainable online learning environments. Then, faculty could obtain meaningful insights about their social-media teaching practices through the SMEPT-SPS from which to improve their teaching.

6. Conclusions

This study contributes to the sports-management education literature by developing and conducting a preliminary validation of the SMEPT-SPS (see Appendix A). The SMEPT-SPS is the first research instrument that enables one to measure sports-management students' perceptions towards the potential of social media as an educational and professional development tool. Three dimensions compose the new instrument: (1) social media as a university teaching-learning tool, (2) social media as a professional profile development tool, and (3) social media as a tool to interact and get informed about sports industry developments.

Based on the results achieved in this study, the SMEPT-SPS, could be considered a robust and reliable instrument. Nevertheless, given the sample's small size and low representativeness, the results should be taken with caution, and no generalisations should be made. In that sense, pending studies with larger and more representative samples should confirm the good SMEPT-SPS psychometric properties obtained from the analyses carried out. Acknowledging this sample limitation, the usefulness of the SMEPT-SPS for faculty to assess the impact of their teaching activities that include the use of social media is stressed. Therefore, the future data obtained through the SMEPT-SPS can be the point of reflection for professors, enabling them to reflect on their teaching practice and propose new educational experiences that take advantage of the potential for educational and professional development that social media has. This could be particularly relevant in the context of the COVID-19 pandemic, in which social media has become a prominent element in both the educational and sports-industry spheres.

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Appendix A

The "social media as an educational and professional tool student perceptions scale" (SMEPT-SPS) was validated in Spanish.

Original SMEPT-SPS	SMEPT-SPS Adapted to English
3. Creo que los medios sociales son una herramienta formativa positiva para el alumnado que debería incluirse más en las clases de universidad	3. I believe that social media is a positive educational tool for students that should be included more in university classes
4. Creo que incluir a los medios sociales en las clases universitarias facilita que la universidad esté más conectada con la sociedad	4. I believe that including social media in university classes makes it easier for the university to be more connected to society
5. Me gustaría que en la universidad se diese más formación sobre los medios sociales	5. I would like to see more training on social media at university
6. Veo positivo que la universidad apueste por una mayor inclusión de los medios sociales	6. I see the positive side of the university's commitment to greater inclusion of social media
8. Los medios sociales pueden ayudarme en mi desarrollo profesional	8. Social media can help me in my professional development
9. Dominar medios sociales puede aumentar mis posibilidades de encontrar empleo	9. Mastering social media can increase my chances of finding a job
10. Dominar los medios sociales me puede facilitar la creación de una empresa	10. Mastering social media can make it easier for me to set up a business
11. Dominar la gestión y uso de los medios sociales puede ayudarme a crear y/o mejorar mi marca personal	11. Mastering the management and use of social media can help me create and/or enhance my personal brand
14. Los medios sociales pueden facilitar que conecte con organizaciones deportivas o empresas del deporte	14. Social media can make it easier for you to connect with sports organisations or sports companies
15. Los medios sociales pueden facilitar que conecte con atletas, entrenadores y periodistas	15. Social media can make it easier for you to connect with athletes, coaches and journalists
16. A través de los medios sociales puedo estar informado/a sobre novedades e innovaciones que se producen en mi campo profesional	16. Through social media I can keep informed of news and innovations in my professional field
17. Los medios sociales pueden favorecer el contacto con los grupos de interés (stakeholders) de mi sector profesional	17. Social media can encourage contact with stakeholders in my professional sector

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