Impact of Problematic Smartphone Use and Instagram Use Intensity on Self-Esteem with University Students from Physical Education

José-María Romero-Rodríguez 1, Inmaculada Aznar-Díaz 1, José-Antonio Marín-Marín 1,* and Carmen Rodríguez-Jiménez 1

1 Department of Didactics and School Organization, University of Granada, 18071 Granada, Spain; romejo@ugr.es (J.-M.R.-R.); iaznar@ugr.es (I.A.-D.); carmenrj@ugr.es (C.R.-J.)
2 Department of Didactics and School Organization, University of Zaragoza, 50009 Zaragoza, Spain; rsoler@unizar.es
* Correspondence: jmarin@ugr.es; Tel.: +34-958-246-687

Received: 2 May 2020; Accepted: 16 June 2020; Published: 17 June 2020

Abstract: Mobile devices are a revolutionary element that offer many possibilities, although they can also cause problems for users. This is the case with the development of addictive behaviors that can affect personal well-being. The purpose of this paper has been to analyze the influence of smartphone addiction and Instagram use intensity on the self-esteem of Physical Education students. A cross-sectional research design was adopted by applying an online survey to a sample of undergraduate students (n = 385). The results showed that gender and age were factors that influenced the problematic use of the smartphone. In turn, there was a significant positive correlation between smartphone addiction and Instagram use intensity. The influence of smartphone addiction on students’ self-esteem was also highlighted. In contrast, Instagram use intensity did not affect self-esteem. Finally, the findings are discussed, and the main implications of the study are established, where physical education students take on a special role in order to avoid the improper use of smartphones and Instagram through sport.

Keywords: problematic smartphone use; Instagram use intensity; Physical Education; university students; self-esteem

1. Introduction

Our present-day society is, in a generalized way, centered on technology and everything derived from it. Thus, people are increasingly dependent on this element [1]. The cell phone as a revolutionary element of the world as we understand it, has also been subject to change since the advent of the Internet and the different applications requiring its use [2].

Mobile devices have managed to make the world of video games, shopping and quick and easy access to information—among many other things—accessible to any user. In the same way, the information exchange of information through platforms and social networks has been streamlined and transformed, since the Internet has been a before and after in this regard [3].

To all this, we must add the appearance of smartphones [4], which have contributed to the development of these potentialities regarding intercommunications and access to the network [5].

However, despite the advantages of these advances in today’s society [6], The appearance of the smartphone and, therefore, its increasing use in all areas and contexts where its users operate, has also reported an irresponsible use of them that has caused the appearance of new phenomena such as cyber bullying [7,8], sexting [9,10] or addiction to these devices [11].
Similarly, the use of mobile phones has meant a massive use of elements such as social networks. These represent at the present moment a basic virtual element that is used by the majority of people in society [12]. Undoubtedly, where these elements are most successful is among young people, since they allow relations and the exchange of information and content on any subject to be reached between different levels. [13].

This new scenario presents novel situations where users browse and group according to their interests, tastes, age, etc. [14]. In this context is the social network Instagram, which in spite of being only a few years old among the population enjoys great relevance and presence among young people, occupying many hours of the daily life of its users. This social network enables different options for communication and for sharing audio-visual content, such as permanently publishing photos, videos or texts, however users may choose to limit that published material to only 24 hours. All these possibilities are complemented by the location, date and time—in real time or delayed [15].

This application has undergone a rapid growth in recent times, being a great source from which to extract content of different kinds in which users, although of different ages, belong mostly to what is understood to be adolescents and young people [16–18].

The advantages of using this social network are varied and affect elements such as oral or linguistic competence in the mother tongue or in a foreign language [19–21]. However, the inappropriate and irresponsible use of the Internet and its associated tools such as Instagram can cause different disorders, among which smartphone addiction and excessive use of this social network stand out. This causes a series of consequences, extrapolated to the excessive use of other social networks, since the individual’s commitment to this extreme behavior is problematic [22,23]. These consequences are as follows [24]: Loss of control; Interpersonal problems; Loneliness; Increased stress; Waste of time; Decreased performance; and Depression.

The question here arises when discerning what is causing this, the problematic smartphone use (PSU) or the social network in particular. It can be about the technology itself what causes it or what the technology provides [25]. There are several investigations that advocate more for the line of thought that considers that what makes users addicts is what they achieve through technology or through specific social networks [26,27]. This is due to the false feeling of happiness and acceptance that applications such as Instagram generate through “likes” and positive comments on publications.

As it has been seen, some of the consequences are directly associated with emotions and their management. A fundamental element to take into account in this regard is self-esteem, since it is likely to be affected when these phenomena occur [1]. Self-esteem should be understood as the evaluation that the person makes of himself, being aware of his limits, shortcomings and possibilities, judging his own actions and the importance of oneself [28]. Thus, there are many investigations [29–32] that clearly relate low self-esteem with a greater probability of falling into an addiction with respect to mobile phones or social networks such as Instagram [11,27,29], since it will also be associated with other elements such as insecurity in their social skills and attributes, and they need to be reaffirmed through the comments or opinions of third parties [33].

The youth population is the most vulnerable to this type of phenomenon, so a responsible education is necessary at this stage and throughout their training in the use not only of the devices, but of the management of their online profiles and the treatment of his information [34].

Due to all the aforementioned, the training environments have had to adapt for the implementation of all these elements in the Teaching-Learning (T-L) processes, creating new educational models and innovative methodologies, thus promoting the interconnection between the formal learning of the educational centers and informal learning that happens through technological resources outside the classroom [35].

Specifically, in the Spanish sphere, research in this regard in recent years has centered on different phenomena related to the Internet and its use [36,37], the problems that arise [38], and the impact of different social networks in different educational stages [39–41].
Based on these considerations, the objective of the study was to analyze the influence of smartphone addiction and Instagram use intensity on the self-esteem of the students of physical education. The research question was:

RQ1. What factors influence and what kind of influence is generated between the addiction to smartphones, Instagram use intensity and self-esteem of university students?

2. Materials and Methods

2.1. Participants and Procedure

A cross-sectional study design was adopted from the application of an online survey to a sample of undergraduate university students \( n = 385 \). The research was conducted based on a convenience sampling design. Before answering the questionnaire, students were informed of the purpose of the investigation and the anonymous treatment of their data. The informed consent of each participant was an essential requirement to participate in the study.

Specifically, the students were enrolled in the Physical Education specialty of the Primary Education Degree from various universities in southern Spain. The sample was made up of 147 men (38.2%) and 238 women (61.8%), with ages between 18 and 35 years \( (M = 22.17; \text{ Standard Deviation } – \text{SD} = 4.89) \). The distribution of the age range was less than or equal to 20 years \( (n = 100; 26\%) \), and from 21 to 35 years \( (n = 285; 74\%) \). Students’ employment status was divided into active \( (n = 199; 51.7\%) \) and inactive \( (n = 186; 48.3\%) \). The data collection period was established from January to February 2020.

2.2. Measures and Instruments

2.2.1. Social Media Intensity Scale (SMIS)

To assess the intensity of use in social networks, the Social Media Intensity Scale (SMIS) was used [42]. Specifically, the SMIS adaptation to the Instagram social network was applied [43]. The scale measures the intensity of Instagram use based on the response to seven items, with a four-level Likert scale response mode \( (1 = \text{Strongly disagree}; 4 = \text{Strongly agree}) \). Scores range from 7 to 28 points, higher scores on the scale indicate a higher level of use, intensity and engagement with Instagram, implying problematic use of Instagram. The psychometric properties and internal consistency of the scale are good [42]. The reliability obtained in this study through the Cronbach’s alpha coefficient was adequate \( (\alpha = 0.813) \).

2.2.2. Smartphone Addiction Scale (SAS-SV)

The PSU was evaluated through the short version of the Smartphone Addiction Scale (SAS-SV) [44]. The scale evaluates smartphone addiction based on the response to 10 items, with a four-level Likert scale response mode \( (1 = \text{Strongly disagree}; 4 = \text{Strongly agree}) \). Scores range from 10 to 40 points, higher scores on the scale indicate a higher degree of smartphone addiction. The scale in its multiple applications has collected adequate psychometric properties [45–47]. The reliability obtained in this study through the Cronbach’s alpha coefficient was adequate \( (\alpha = 0.822) \).

2.2.3. Rosenberg’s Self-Esteem Scale (RSES)

Self-esteem was assessed with the application of the Rosenberg’s Self-Esteem Scale (RSES) [48]. The Rosenberg scale evaluates global self-esteem from 10 items, with a four-level Likert scale response mode \( (1 = \text{Strongly disagree}; 4 = \text{Strongly agree}) \). The first five items present positive statements and the remaining five negative statements. The scale scores range between 10 and 40 points, the highest scores are associated with high self-esteem. The psychometric properties and internal consistency of the RSES are adequate, it is the most widely used instrument in the evaluation of self-esteem and presents its own Spanish adaptation [49]. The reliability obtained in this study through the Cronbach’s alpha coefficient was adequate \( (\alpha = 0.820) \).
2.3. Data Analysis

Different statistical tests were used; firstly the mean values and standard deviations for each independent variable were calculated and the possible existence of significant differences between groups was verified through the T test for independent samples.

To establish the structural equation model, it was necessary to confirm the hypothesis of multivariate normality of the data. The univariate normality values of each scale were previously calculated using the Kolmogorov–Smirnov test to posteriorly check the hypothesis of multivariate normality from the Mardia coefficient [50]. The model’s goodness of fit indexes was also estimated, and were adequate [51,52]. Attention was paid to measures relating to the ratio $\chi^2/df$; Goodness-of-Fit Index (GFI); Root Mean Squared Error of Approximation (RMSEA); Normalised Fit Index (NFI); Comparative Fit Index (CFI); Adjusted Goodness-of-Fit Index (AGFI); Standardized Root Mean Square Residual (SRMR).

After this, the hypothesis testing was carried out from the path analysis, where the relationships between endogenous and exogenous variables were established.

Data analysis was carried out with the help of the statistical packages IBM SPSS and IBM SPSS Amos, version 24 (IBM Corp., Armonk, NY, USA).

3. Results

The mean values obtained on the three scales were disparate depending on gender, age and employment situation (Table 1). However, significant differences were established between the age groups regarding the Instagram use intensity ($p = 0.000$), with the highest average score corresponding to the stratum of 20 years or less ($M = 18.66$), and with respect to the PSU ($p = 0.034$), where the highest average score was obtained by the stratum of 20 years or less ($M = 20.93$). Significant differences were also established between the employment status of students in the Instagram use intensity ($p = 0.002$) and PSU ($p = 0.011$), where the highest average score was obtained in the inactive population for both cases (Instagram use intensity $M = 17.54$; PSU $M = 20.66$). Regarding gender, no significant differences were established on any scale, as was self-esteem, which was not a factor where differences were generated between population groups.

Table 1. Means, standard deviations and differences between independent variables in different scales.

| Variables        | Instagram | PSU | Self-Esteem |
|------------------|-----------|-----|-------------|
|                  | M        | SD  | $p$        | M       | SD  | $p$        | M       | SD  | $p$        |
| Gender           |          |     |            |         |     |            |         |     |            |
| Male             | 16.72    | 4.715 | 0.912 | 19.88    | 5.704 | 0.943 | 32.68   | 5.755 | 0.444 |
| Female           | 16.78    | 4.884 | 0.912 | 19.92    | 5.613 | 0.943 | 32.20   | 6.076 | 0.444 |
| Age              |          |     |            |         |     |            |         |     |            |
| $\leq$ 20        | 18.66    | 4.582 | 0.000 | 20.93    | 6.130 | 0.034 | 31.41   | 6.309 | 0.057 |
| 21–35            | 16.09    | 4.721 | 0.000 | 19.54    | 5.424 | 0.034 | 32.73   | 5.795 | 0.057 |
| Employment status|          |     |            |         |     |            |         |     |            |
| Active           | 16.02    | 4.621 | 0.002 | 19.20    | 5.768 | 0.011 | 32.93   | 6.200 | 0.063 |
| Inactive         | 17.54    | 4.903 | 0.002 | 20.66    | 5.415 | 0.011 | 31.80   | 5.634 | 0.063 |

Note: $p$ calculated through the T test; PSU = Problematic Smartphone Use; SD = Standard Deviation.

In relation to univariate normality, the asymmetry showed a symmetric curve for the SMIS scale data, for the SAS-SV scale data the curve was asymmetrically positive and for the Rosenberg scale data the curve was established with a negative asymmetry. While the kurtosis took a platicúrtica distribution for SMIS, mesocúrtica for SAS-SV and leptocúrtica for the Rosenberg scale [53]. For its part, the Kolmogorov–Smirnov test showed that the distribution of the data was not normal ($p < 0.05$) (Table 2). Thus, it was necessary to check normality through the distribution of the scores in the histograms for each scale (Figure 1). Histograms showed normality for the SMIS scale data. The data distribution on SAS-SV and the Rosenberg scale did not follow a normal distribution.
Table 2. Univariate data normality.

| Dimension                        | Skewness | Kurtosis | Kolmogorov–Smirnov |
|----------------------------------|----------|----------|--------------------|
|                                  |          |          | K-S                |
| Instagram Use Intensity          | −0.108   | −0.594   | 0.061, 385, 0.002  |
| Problematic Smartphone Use       | 0.609    | 0.031    | 0.082, 385, 0.000  |
| Self-esteem                      | −0.744   | 0.054    | 0.114, 385, 0.000  |

Note: df = degrees of freedom.

Figure 1. Histograms on the distribution of data by construct; SMIS = Social Media Intensity Scale; SAS = Smartphone Addiction Scale; ROSENBERG = Rosenberg’s Self-Esteem Scale.

Although there was no univariate normality in some cases, the hypothesis of multivariate normality was confirmed (Mardia = 58,743). This value was less than 783, a result of the formula $p \times (p + 2)$ [54], where p corresponded to 27 (total number of observed variables). The confirmation of multivariate normality served to obtain evidence of the adequacy of the data for the preparation of the SEM. In turn, the SEM goodness-of-fit indices were adequate based on the criteria established for each of them (Table 3).

Table 3. Goodness of fit measure.

| Fit Indices | Obtained Values | Criteria |
|-------------|-----------------|----------|
| $\chi^2$    | 10.44           |          |
| $df$        | 8               |          |
| $\chi^2/df$ | 1.305           | $\leq 3$ |
| GFI         | 0.993           | $\geq 0.90$ |
| RMSEA       | 0.028           | $< 0.05$ |
| NFI         | 0.973           | $\geq 0.90$ |
| CFI         | 0.993           | $\geq 0.90$ |
| AGFI        | 0.969           | $\geq 0.90$ |
| SRMR        | 0.025           | $< 0.08$ |

Note: GFI = Goodness-of-Fit Index; RMSEA = Root Mean Squared Error of Approximation; NFI = Normalised Fit Index; CFI = Comparative Fit Index; AGFI = Adjusted Goodness-of-Fit Index; SRMR = Standardized Root Mean Square Residual.

On the other hand, the estimates established in the path analysis collected only significant values in: the relationship between gender and Instagram use intensity ($p = 0.048$), being a positive and significant influence; age relationship and Instagram use intensity ($p = ***$), being a negative and significant influence; relationship Instagram use intensity and number of photographs ($p = ***$), being a positive and significant influence; relationship Instagram use intensity and number of followers ($p = ***$), being a positive and significant influence; PSU and self-esteem relationship ($p = ***$), being a
negative and significant influence (Table 4). The correlation between Instagram use intensity and PSU was also significant and positive ($p = ***$).

### Table 4. Parameter estimates of final model.

| Associations between Variables | RW  | SE  | CR  | $p$  | SRW |
|-------------------------------|-----|-----|-----|------|-----|
| Instagram ← Gender            | 1.034 | 0.523 | 1.976 | 0.048 | 0.104 |
| Instagram ← Age               | -2.658 | 0.632 | -4.202 | *** | -0.242 |
| Instagram ← Employment situation | 0.687 | 0.523 | 1.313 | 0.189 | 0.071 |
| Instagram → No. Photos        | 8.460 | 2.030 | 4.168 | *** | 0.205 |
| Instagram → No. Followers     | 92.338 | 16.954 | 5.446 | *** | 0.268 |
| Instagram → Self-esteem       | 0.083 | 0.069 | 11.199 | 0.230 | 0.067 |
| PSU ← Gender                  | 0.630 | 0.645 | 0.977 | 0.329 | 0.054 |
| PSU ← Age                     | -1.073 | 0.769 | -1.395 | 0.163 | -0.084 |
| PSU ← Employment situation    | 1.124 | 0.632 | 1.777 | 0.076 | 0.100 |
| PSU ← No. Photos              | -0.001 | 0.001 | -0.518 | 0.605 | -0.025 |
| PSU ← No. Followers           | 0.000 | 0.000 | -0.959 | 0.338 | -0.045 |
| PSU → Self-esteem             | -0.333 | 0.059 | -5.668 | *** | -0.316 |
| Instagram ↔ PSU               | 0.172 | 0.028 | 6.154 | *** | 0.492 |

Note: PSU = Problematic Smartphone Use; RW = regression weights; SE = standard error; CR = critical ratio; SRW = standardized regression weights; *** $p < 0.001$; ←, → = relationship direction; ↔ = correlation.

The path analysis graphically collected the associations between the study variables. Only the coefficients that were significant were shown to facilitate the interpretation of the data (Figure 2). The main constructs were Instagram use intensity and PSU, which were both influenced by three independent variables (gender, age and employment situation). In the case of PSU, the influence of the number of photos and number of followers was also established. In turn, the relationship of the Instagram use intensity with the number of photos, number of followers and with self-esteem was established. The relationship between PSU and self-esteem was also shown. Finally, the correlation between the two main constructs was exemplified: Instagram use intensity and PSU. The percentage of variation of each construct established by the coefficient of determination was 6.9% for Instagram use intensity ($R^2 = 0.069$), 0.9% for PSU ($R^2 = 0.009$), and 8.4% for self-esteem ($R^2 = 0.084$).

![Figure 2. Estimates of the structural equation model. Note: r = correlation coefficient; *p < 0.05; ***p < 0.001. Discontinuous arrow = not significant.](image)

### 4. Discussion

The 21st century society is characterized, among other things, by the use of technology as an inescapable instrument for communicating and relating. The appearance of mobile telephony at the end of the last century opened the door to communication beyond the limits of homes and industries to extend relationships to other areas and spaces. An exponential leap in these levels of communication occurred with the incursion of the smartphone in the lives of people. The possibilities they offered to interact and explore new forms of interaction also brought about the appearance of new problems
associated with the use of these devices and the applications to which they had access [7–11]. In this sense, the study carried out on the problem of the use of the smartphone, the social network Instagram, and its influence on their self-esteem in university students has produced very enriching data which is in tune with other previous studies. [25–27].

In response to the questions that were posed at the beginning of this study, among the interesting findings is the non-existence of significant differences according to gender in the three scales (SMIS, SAS-SV and RSES) (Table 1), so it can be assumed that both smartphone addiction, intense use of social networks and self-esteem do not depend on gender. On the other hand, when the variable is age, there are significant differences, both in Instagram use intensity and in PSU, in those who are 20 years old or younger, corroborating previous studies [13].

On the other hand, and based on sociodemographic factors, specifically, with the work situation, the existence of higher scores, and with significant differences, in the Instagram use intensity and the PSU in those people in those whose work situation is inactive has been observed. This fact may be derived from the consequences already listed [23,24], which is coupled with excessive use of social networks and smartphones.

Another of the questions raised in this work was the degree of intensity of use of Instagram by university students and the influence of other sociodemographic factors. In this sense, the results show that both gender and age are two variables that contribute significantly to the intensive use of this social network, as can be seen through path analysis. Furthermore, the data suggest that Instagram use intensity significantly influenced the number of photos published on the social network, in that the influence was positive; that is, the more intensive use, the greater number of followers, and vice versa. This same prevalence occurs between the Instagram use intensity and the increase in followers on this social network. More Instagram use intensity encourages more followers, and vice versa.

A relevant aspect of this research is the correlation between Instagram use intensity and PSU. Thus, the SRW value determines that the relationship between these two variables is positive and highly significant, revealing that the more intensive use of the social network is made, the greater the addiction to the smartphone will be and vice versa. These results are clearly in line with the most recent studies [38,40,41,43].

According to the parameter estimates of the final model, the employment situation is not an element that significantly influences Instagram use intensity or PSU. Similarly, other sociodemographic factors such as age and gender or exogenous factors such as the number of photographs and the number of followers, are also not significant on the PSU. These data are important because they confirm the idea that smartphone addiction is not promoted by the device itself, but that the use of certain applications is what determines and encourages problematic use of this device [25,36].

Regarding self-esteem, the results obtained (Table 1) evidenced the absence of significant differences between this and the different independent variables proposed in the study. On the contrary, the path analysis shows that the PSU had a negative and significant influence on the self-esteem of the students, as evidenced by other studies [29–32]; while the Instagram use intensity had no effect on it. This last fact contrasts with other investigations [33,43], which suggest that participation in social networks is linked to elements such as insecurity, poor social skills or attributes.

Among the limitations presented by this study is the cross-sectional nature of the study, since it only represents that sample and at that time. A longitudinal study would be necessary to obtain data that could be assumed to be representative. In addition, the study has been carried out only with students in the specialty of physical education and by means of convenience sampling.

5. Conclusions

The study carried out shows that the self-esteem construct, as part of the person’s personality, is negatively affected by the PSU. This PSU is encouraged by socio-demographic factors such as youth, an inactive work situation, and participation in social networks such as Instagram. On the other hand,
an intensive use of this social network does affect the PSU and the need to publish more photographs and the increase in the number of followers.

As it can be seen, the relationships between the three dimensions (PSU, Instagram, and Self-esteem) are clearly defined in the path analysis, where self-esteem decreases in relation to the increase in the PSU, and this, in turn, increases with Instagram use intensity. In this sense, training in the responsible use of technological devices at early ages plays a determinant role in the prevention of future cases of PSU. Furthermore, this training should be aimed at making subjects aware of the importance of their privacy and ensuring a coherent digital identity, understanding that the public exposure of personal facets may have negative consequences in the present and in the future.

The study has answered the four questions raised by providing very significant data that can offer a very interesting line of work. This line of work could be aimed at studying the attitudes developed by people who have a PSU and intensive use of Instagram, and propose specific actions for its prevention and treatment.

**Author Contributions:** Conceptualization, J.-M.R.-R., and I.A.-D.; methodology, J.-A.M.-M., and C.R.-J.; software, R.S.-C.; formal analysis, J.-M.R.-R.; investigation, I.A.-D.; R.S.-C.; J.-A.M.-M., C.R.-J., and J.-M.R.-R.; writing—original draft preparation, I.A.-D., C.R.-J., and J.-M.R.-R.; writing—review and editing, I.A.-D.; R.S.-C.; J.-A.M.-M., and C.R.-J.; visualization, J.-A.M.-M.; supervision, R.S.-C. All authors have read and agreed to the published version of the manuscript.

**Funding:** Vice-rectorate for Research and Transfer of the University of Granada (Spain), programme of pre-competitive research projects for young researchers (Reference: PPIJB2019-06).

**Acknowledgments:** To the researchers of the research group AREA (HUM-672) of the University of Granada.

**Conflicts of Interest:** The authors declare no conflict of interest.

**References**

1. Sahu, M.; Gandhi, S.; Sharma, M.K. Mobile Phone Addiction Among Children and Adolescents. *J. Addict. Nurs.* 2019, 30, 261–268. [CrossRef]
2. Moreno-Martinez, N.M.; Leiva-Olivencia, J.J.; Matas-Terrón, A. Mobile learning, Gamificación y Realidad Aumentada para la enseñanza-Aprendizaje de idiomas. *IJERI* 2016, 6, 16–34.
3. Firth, J.; Torous, J.; Stubbs, B.; Firth, J.A.; Steiner, G.Z.; Smith, L.; Alvarez-Jimenez, M.; Gleeson, J.; Vancampfort, D.; Armitage, C.J.; et al. The “online brain”: How the Internet may be changing our cognition. *World Psychiatry* 2019, 18, 119–129. [CrossRef]
4. Park, Y.; Chen, J.V. Acceptance and adoption of the innovative use of smartphone. *Ind. Manag. Data Syst.* 2007, 107, 1349–1365. [CrossRef]
5. Hinojo-Lucena, F.-J.; Díaz, I.A.; Romero-Rodriguez, J.-M. Dispositivos móviles para el aprendizaje: Análisis de la investigación doctoral sobre mobile learning en España/Mobile devices for learning: Analysis of doctoral research on mobile learning in Spain. *Texto Livre: Linguagem e Tecnologia* 2018, 11, 154–175. [CrossRef]
6. Atzori, L.; Iera, A.; Morabito, G. Understanding the Internet of Things: Definition, potentials, and societal role of a fast evolving paradigm. *Ad Hoc Netw.* 2017, 56, 122–140. [CrossRef]
7. Palermiti, A.L.; Servidio, R.; Bartolo, M.G.; Costabile, A. Cyberbullying and self-Esteem: An Italian study. *Comput. Hum. Behav.* 2017, 69, 136–141. [CrossRef]
8. Watts, L.K.; Wagner, J.; Velasquez, B.; Behrens, P. Cyberbullying in higher education: A literature review. *Comput. Hum. Behav.* 2017, 69, 268–274. [CrossRef]
9. Barrense-Dias, Y.; Berchtold, A.; Suris, J.-C.; Akre, C. Sexting and the Definition Issue. *J. Adolesc. Health* 2017, 61, 544–554. [CrossRef]
10. Gámez-Guadix, M.; De Santisteban, P.; Resett, S. Sexting among Spanish adolescents: Prevalence and personality profiles. *Psychol J.* 2017, 29, 29–34.
11. Samaha, M.; Hawi, N.S. Relationships among smartphone addiction, stress, academic performance, and satisfaction with life. *Comput. Hum. Behav.* 2016, 57, 321–325. [CrossRef]
12. Mero, K.; Merchán, E.; Mackenzie, A. Las redes sociales y su importancia en la Educación Superior. *Revista Electrónica Interactiva Opuntia Brava* 2017, 9, 1–15. [CrossRef]
13. Alvarado, E.; Ochoa, M.; Ronquillo, G.; Sánchez, M. Importancia del uso de las redes sociales en la educacIón. Revista Científica de la Investigación y el Conocimiento 2019, 3, 882–893.

14. Aaen, J.; Dalsgaard, C. StudentFacebookgroups as a third space: Between social life and schoolwork. Learn. Media Technol. 2015, 41, 160–186. [CrossRef]

15. Simon, E.F.; Fell, C.P. Using Mobile Learning Resources in Foreign Language Instruction; Educause Review: Louisville, CO, USA, 2016; Available online: https://er.educause.edu/articles/2012/6/using-mobile-learning-resources-in-foreign-language-instruction (accessed on 10 April 2020).

16. Duggan, M.; Smith, A. Demographics of Key Social Networking Platforms; Pew Research Center: Washington, DC, USA, 2013; Available online: http://www.pewinternet.org/2013/12/30/demographics-of-key-social-networking-platforms/ (accessed on 8 April 2020).

17. Lilia, K.; Gulnara, G. Mobile technologies in teaching English as a foreign language: A case study of using mobile application Instagram. In Proceedings of the 9th International Conference of Education, Research, and Innovation, Seville, Spain, 14–16 November 2016; pp. 6155–6161.

18. Shafer, S.; Johnson, M.B.; Thomas, R.B.; Johnson, P.T.; Fishman, E.K. Instagram as a Vehicle for Education. Acad. Radiol. 2018, 25, 819–822. [CrossRef]

19. Barbosa, C.; Bulhoes, J.; Zhang, Y.; Moreira, A. Utilizaçãóo do Instagram no ensino e aprendizagem de português língua estrangeira por alunos chineses na Universidade de Aveiro. RELATEC 2017, 16, 21–33. [CrossRef]

20. Jalaludin, A.M.; Abas, N.A.; Yunus, M.M. AsKINstagram: Teacher-Pupil Interaction. Int. J. Acad. Res. Bus. Soc. Sci. 2019, 9, 125–136. [CrossRef]

21. Supiandi, U.; Sari, S.; Subarkah, C.Z. Enhancing students higher order thinking skill through instagram based flipped classroom learning model. In Proceedings of the 3rd Asian Education Symposium (AES 2018), Bandung, Indonesia, 25–26 September 2018; Volume 253, pp. 233–237.

22. Haug, S.; Castro, R.P.; Kwon, M.; Filler, A.; Kowatsch, T.; Schaub, M.P. Smartphone use and smartphone addiction among young people in Switzerland. J. Behav. Addict. 2015, 4, 299–307. [CrossRef]

23. Kardefelt-Winther, D.; Heeren, A.; Schimmenti, A.; Van Rooij, A.; Maurage, P.; Carras, M.; Edman, J.; Blaszczynski, A.; Khazaal, Y.; Billieux, J. How can we conceptualize behavioural addiction without pathologizing common behaviours? Addiction 2017, 112, 1709–1715. [CrossRef]

24. Brooks, D.J.; Schefter, L. Technology Addictions and Technostress: An Examination of the US and China. J. Organ. End User Comput. 2020, 32, 1–19. [CrossRef]

25. Kuss, D.J.; Griffiths, M.D. Social Networking Sites and Addiction: Ten Lessons Learned. Int. J. Environ. Res. Public Health 2017, 14, 311. [CrossRef] [PubMed]

26. Dressing, H.; Bailer, J.; Anders, A.; Wagner, H.; Gallas, C. Cyberstalking in a Large Sample of Social Networking Users: Prevalence, Characteristics, and Impact Upon Victims. Cyberpsychol. Behav. Soc. Netw. 2014, 17, 61–67. [CrossRef]

27. Kuss, D.J.; Griffiths, M.D. Internet Addiction in Psychotherapy; Palgrave: London, UK, 2015.

28. Coopersmith, S. The Antecedents of Self-Esteem; H Freeman and Company: San Francisco, CA, USA, 1967.

29. Bahrainian, S.A.; Alizadeh, K.H.; Razeghinezhad, A.; Rasuli, A.; Khalaj, M.; Eshghi, F. Relationship of Internet addiction with self-Esteem and depression in university students. J. Prev. Med. Hyg. 2014, 55, 86–89.

30. Demirci, K.; Akgönül, M.; Akpınar, A. Relationship of smartphone use severity with sleep quality, depression, and anxiety in university students. J. Behav. Addict. 2015, 4, 85–92. [CrossRef]

31. Kim, Y.-J.; Jang, H.M.; Lee, Y.; Lee, D.; Kim, D.-J. Effects of Internet and Smartphone Addictions on Depression and Anxiety Based on Propensity Score Matching Analysis. Int. J. Environ. Res. Public Health 2018, 15, 859. [CrossRef] [PubMed]

32. Obeid, S.; Saade, S.; Haddad, C.; Batrouni, E.; Khansa, W.; Al Hajj, R.; Kheir, N.; Hallit, S. Internet addiction among Lebanese adolescents: The role of self-esteem, anger, depression, anxiety, social anxiety and fear, impulsivity, and aggression—A cross-Sectional study. J. Nerv. Ment. Dis. 2019, 207, 838–846. [CrossRef] [PubMed]

33. Calco-Huaytalla, K.P.; Rodríguez-Vega, S.; Jaime-Soncco, J. Riesgo de adicción a redes sociales, autoestima y autocontrol en estudiantes de secundaria. Rev. Científica de Ciencias de la Salud 2016, 9, 9–15. [CrossRef]

34. Chassiatkos, Y.R.; Radesky, J.; Christakis, D.; Moreno, M.A.; Cross, C. Children and Adolescents and Digital Media. Pediatrics 2016, 138, e20162593. [CrossRef] [PubMed]
35. Lozano-Blasco, R.; Cortés-Pascual, A. Problematic Internet uses and depression in adolescents: A meta-Analysis. *Comunicar* 2020, 28, 109–120. [CrossRef]

36. Carbonell, X.; Chamarro, A.; Oberst, U.; Rodrigo, B.; Prades, M. Problematic Use of the Internet and Smartphones in University Students: 2006–2017. *Int. J. Environ. Res. Public Health* 2018, 15, 475. [CrossRef]

37. Rodríguez-García, A.-M.; Guerrero, A.J.M.; Belmonte, J.L. Nomophobia: An Individual’s Growing Fear of Being without a Smartphone—A Systematic Literature Review. *Int. J. Environ. Res. Public Health* 2020, 17, 580. [CrossRef] [PubMed]

38. Piqueras, J.A.; García-Oliva, C.; Marzo, J.C. Problematic internet use among adolescents: Relationship with gender, age, socioeconomic status, and frequency of internet use. *Acción Psicológica* 2020, 16, 129–146. [CrossRef]

39. Marín-Díaz, V.; Vega-Gea, E.; Passey, D. Determination of problematic use of social networks by university students. *RIED* 2019, 22, 2. [CrossRef]

40. Aparicio-Martínez, P.; Ruiz-Rubio, M.; Perea-Moreno, A.-J.; Martínez-Jiménez, M.P.; Pagliari, C.; Redel-Macias, M.D.; Vaquer-Abellán, M.; Aparicio-Martínez, P.; Manuel, R.-R.; Perea-Moreno, A.-J.; et al. Gender differences in the addiction to social networks in the Southern Spanish university students. *Telemat. Inform.* 2020, 46, 101304. [CrossRef]

41. Malo, S.; Viñas, F. Excessive use of social networks: Psychosocial profile of Spanish adolescents. *Comunicar* 2018, 26, 101–110. [CrossRef]

42. Ellison, N.B.; Steinfield, C.; Lampe, C. The Benefits of Facebook “Friends:” Social Capital and College Students’ Use of Online Social Network Sites. *J. Comput. Commun.* 2007, 12, 1143–1168. [CrossRef]

43. Robinson, A.; Bonnette, A.; Howard, K.J.; Ceballos, N.; Dailey, S.; Lu, Y.; Grimes, T. Social comparisons, social media addiction, and social interaction: An examination of specific social media behaviors related to major depressive disorder in a millennial population. *J. Appl. Biobehav. Res.* 2019, 24, e12158. [CrossRef]

44. Kwon, M.; Kim, D.-J.; Cho, H.; Yang, S. The Smartphone Addiction Scale: Development and Validation of a Short Version for Adolescents. *PloS ONE* 2013, 8, e83558. [CrossRef]

45. Cheung, T.; Lee, R.L.; Tse, A.C.; Wai, C.; So, B.C.; Szeto, G.P.; Lee, P.H. Psychometric Properties and Demographic Correlates of the Smartphone Addiction Scale-Short Version Among Chinese Children and Adolescents in Hong Kong. *Cyberpsychol. Behav. Soc. Netw.* 2019, 22, 714–723. [CrossRef]

46. Dharmadhikari, S.P.; Harshe, S.D.; Bhide, P.P. Prevalence and Correlates of Excessive Smartphone Use among Medical Students: A Cross-sectional Study. *Indian J. Psychol. Med.* 2019, 41, 549–555. [CrossRef]

47. Squires, L.R.; Hollett, K.B.; Hesson, J.; Harris, N. Psychological Distress, Emotion Dysregulation, and Coping Behaviour: A Theoretical Perspective of Problematic Smartphone Use. *Int. J. Ment. Health Addict.* 2020, 1–16. [CrossRef]

48. Rosenberg, M. *Society and the Adolescent Self-Image*; Princeton University Press: Princeton, NJ, USA, 1965.

49. Vázquez, A.J.; Jiménez, R.; Vázquez-Morejón, R. Escala de autoestima de Rosenberg: Fiabilidad y validez en población clínica española. *Apuntes de Psicología* 2004, 22, 247–255.

50. Mardia, K.V. Measures of multivariate skewness and kurtosis with applications. *Biometrika* 1970, 57, 519–530. [CrossRef]

51. Hu, L.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model.* 1999, 6, 1–55. [CrossRef]

52. Byrne, B.M. *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*, 2nd ed.; Multivariate Applications Series; Taylor & Francis: London, UK, 2013.

53. Gnanadesikan, R. *Methods for Statistical Data Analysis of Multivariate Observations*; John Wiley: New York, NY, USA, 1977.

54. Bollen, K.A. *Structural Equations with Latent Variables*; John Wiley: New York, NY, USA, 1989. [CrossRef]