

SOCIAL PRESENCE AND SATISFACTION IN ONLINE PROFESSIONAL DEVELOPMENT FOR PHYSICAL EDUCATION TEACHERS DURING COVID-19: A MOROCCAN CASE STUDY

Samir Abaakil

Dept. of Learning, Cognition and Educational Technology, Faculty of Educational Sciences
University of Mohammed-V, Rabat, Morocco, samir_abaakil@um5.ac.ma

Laila Belhaj

Dept. of Learning, Cognition and Educational Technology, Faculty of Educational Sciences
University of Mohammed-V, Rabat, Morocco, l-belhaj@um5.ac.ma

Abstract

The COVID-19 pandemic has necessitated a rapid shift in teachers' OPD. Physical education teachers face unique challenges given the highly interactive nature of their subjects. However, few studies have examined how social presence influences satisfaction among this population in online training contexts. This study investigated the relationship between social presence and satisfaction among physical education teachers in Morocco, undertaking online professional development during the pandemic. A survey measured the perceptions of social presence and satisfaction among 723 teachers participating in an 8-week online training course. The relationship between satisfaction and presence was examined using the chi-square test. Significant positive relationships emerged between multiple facets of social presence and key dimensions of satisfaction. The results provide evidence that intentionally cultivating social presence can optimize engagement and outcomes in online professional development for physical education teachers during crises. Findings inform learning improvements by highlighting the need to build social presence. Further research should examine the nuanced causal mechanisms between the aspects of presence and satisfaction over time.

Keywords: social presence, satisfaction, online professional development, COVID-19, teachers, CoI.

Introduction

The COVID-19 pandemic has necessitated a sudden transition to online education, which has disrupted systems worldwide (Khaliq et al. 2023). While online learning has expanded access, teachers in developing countries often lack the skills, technology, and infrastructure for quality remote instruction (Maala & Lagos, 2022). Despite rapid adoption in Morocco, barriers such as readiness, support systems, and communication have impacted teachers' satisfaction with the transition (Vincent-Lancrin et al., 2022). Moving online presents several challenges for physical education teachers. These challenges include the need for access to technology and the ability to use it effectively for teaching purposes (Centeio et al., 2021). According to Shea et al. (2019), social presence refers to students' ability to project themselves into a community of inquiry, which is considered essential for facilitating classroom-based learning. Studies on social presence have

focused on how students present themselves online. Garrison et al. (2000) identified three indicators: emotional expression, open communication, and group cohesion. Richardson and Swan (2019) found that social presence positively affects course satisfaction and perceived learning. Students who perceive a higher level of social presence also report higher levels of satisfaction with the course and instructor as well as higher levels of perceived learning (Yang et al., 2022) .

Scholarly literature places significant emphasis on the significance of interactions between students in online environments as a crucial factor for enhancing student satisfaction. The framework of Community of Inquiry (CoI) was employed to provide a significant educational encounter, emphasizing three fundamental components: cognitive presence, social presence, and teaching presence. Establishing a community is crucial to the efficacy of online learning. This article centers on the concept of social presence and its subsequent analysis at an individual level. However, the flexibility of online education brings challenges, as the lack of face-to-face interaction can affect engagement and satisfaction (Yu, 2021). This study examined the relationship between social presence and satisfaction with online professional development for physical education teachers during the pandemic. Research Question: What is the relationship between social presence and satisfaction among physical education teachers in Morocco engaging in online professional development during the COVID-19 pandemic? H0: There is no significant relationship between social presence and satisfaction for physical education teachers in online professional development in Morocco during the pandemic. H1: There is a significant positive relationship between social presence and satisfaction for physical education teachers in online professional development in Morocco during the pandemic. This quantitative study surveyed 723 teachers in an 8-week online training course and measured social presence factors and satisfaction ratings. Chi-square tests were used to analyze the associations between variables. By evaluating whether social presence predicts satisfaction, this study provides data that can inform online learning improvements. The literature review examined four main ideas: what social presence means and how to grow it; professional development for teachers online during COVID-19; the Community of Inquiry (CoI) framework; and real-life connections between presence and satisfaction. By reviewing these topics, this study is situated within the current knowledge, and gaps requiring further investigation are identified. This review establishes the need for research on how social presence impacts satisfaction with online professional development for physical education teachers during crises.

1.Literature Review

The concept of social presence has become increasingly relevant in online learning research and practice. Social presence refers to the ability of learners to project themselves socially and emotionally in a course or learning environment (Lowenthal & Snelson, 2017). As Wang et al. (2023) stated, social constructivist learning theories show the importance of social presence in co-creating knowledge through shared discourse. The Community of Inquiry (CoI) framework proposed by Garrison et al. (2000) provides one of the most widely used models encompassing

cognitive, social, and teaching presence in the online learning experience. There are still some questions that need to be answered about how social presence may affect important outcomes, such as learner engagement and satisfaction, especially when it comes to teacher professional development and when there is an emergency that requires a quick switch to online modes of communication. This literature review synthesizes previous research on the CoI framework, conceptualizations of social presence, online professional development during the COVID-19 pandemic, and empirical relationships between social presence and satisfaction.

1.1 The Community of Inquiry (CoI) framework

The Community of Inquiry (CoI) framework developed by Garrison et al. (2000) underscores the significance of learner engagement in online settings as a determinant of student achievement (Akyol & Garrison, 2008, 2019; Arbaugh, 2008; Richardson et al., 2017). The framework comprises three fundamental components: cognitive, social, and teaching presence, which are interdependent and crucial for efficacy (Garrison et al., 2000). Based on Dewey's theories of community and inquiry (Garrison et al., 2010), Lipman's concept of a community of inquiry is utilized to understand various forms of presence (Garrison, 2000, 2010). The model is suitable for adult learners as it emphasizes collaborative learning approaches and content applicable to real-life situations (Garrison et al., 2000; Knowles et al., 2011). This framework has been extensively used in research on online learning (Arbaugh et al., 2008; Richardson et al., 2017). While our understanding of how people learn evolves, it is necessary to modify and validate this approach in various learning contexts (Syarifuddin, 2020).

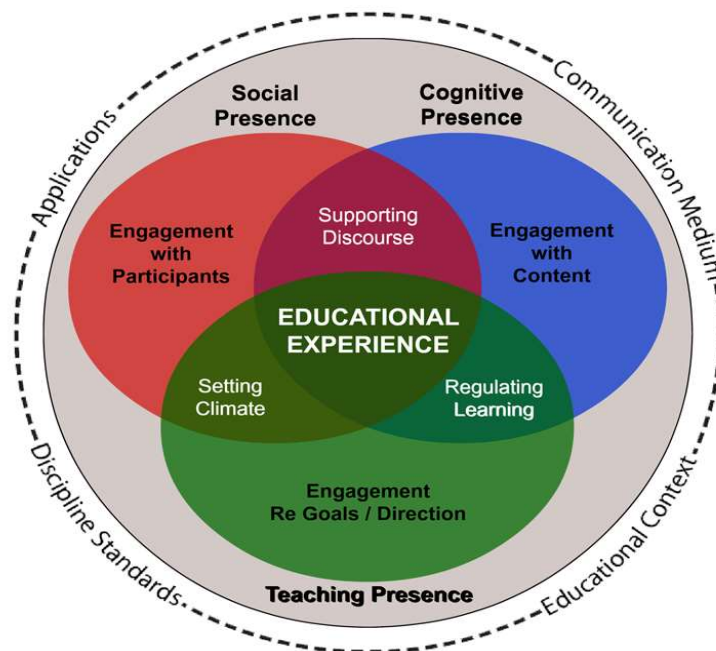


Figure 1: The Community of Inquiry Framework Image used with permission from the Community of Inquiry website and licensed under the CC-BY-SA International 4.0 license (<https://creativecommons.org/licenses/by-sa/4.0/>). The original image is located at <https://www.thecommunityofinquiry.org/framework>

1.2 Social presence in online learning

Social presence refers to the ability to facilitate socio-emotional connections that are vital to online learning. This theory explains how people present themselves as "real" through communication media (Lowenthal & Lowenthal, 2010). Garrison et al. (2000) identified three categories of social presence indicators: emotional expression, open communication, and group cohesion. Richardson and Swan (2003) found that social presence positively impacts student and instructor satisfaction, with higher perceived social presence related to greater perceived learning. Social presence is derived from community and social constructivist viewpoints (Swan & Ice, 2010). According to Lowenthal and Snelson (2017), it is a subjective perception influenced by interactions, communication media, and privacy. Previous research has established that the inclusion of social interactions in online courses positively impacts student engagement, learning outcomes, and course satisfaction, among other factors. Several studies have identified key determinants of this positive effect, including self-regulation, emotional support, and online interaction (Richardson & Swan, 2019; Wu et al., 2021; Miao & Ma, 2022).

1.3 Online Professional Development

As in many countries, the 2020 disruption of schooling related to the COVID-19 pandemic made face-to-face professional learning either very difficult or impossible for teachers. This has led to renewed attention to online professional development options (OECD, 2021). Many governments, higher education institutions, and the private sector have made learning resources available for teachers or have provided professional development online to support adaptation to remote teaching. New opportunities to build professional online learning communities have also been explored. Successful adaptation requires meticulous planning, ongoing support systems, and the purposeful cultivation of social ties and interactions (Gupta et al., 2021). Teachers face particular difficulties with the loss of in-person collaboration and socialization opportunities, which are fundamental to their ongoing development (Macià & García, 2016). Focused attention on intentionally fostering social presence has become critical, yet few studies have examined these issues among physical education teachers navigating new online contexts (Chen et al., 2022).

1.4 Satisfaction in online learning

While numerous studies have confirmed positive empirical links between social presence, perceived learning, and satisfaction in broader online education contexts (Joksimović et al., 2015; Kim et al., 2016), few have investigated these dynamics within online professional development. Initial evidence suggests that learners' perceptions of social presence strongly predict their satisfaction with their teachers engaging in online training (Stephanie, 2020). However, there are

still large gaps in our knowledge on how social presence affects teacher satisfaction and outcomes in formal professional development programs across cultures. This illustrates the need for further investigation into the relationship between social presence and satisfaction in online professional development for physical education teachers during the COVID-19 pandemic, especially in developing countries such as Morocco.

2. Methodology

1. **Participants:** The sample consisted of 723 Moroccan physical education teachers who completed an eight-week online training program focused on coaching and refereeing skills for five Olympic sports hosted on the COLLAB platform. The Department of Education selected participants after conducting an initial survey of 1,970 teachers of interest and an administrative review of 958 qualified candidates. The inclusion criteria were more than two years of experience teaching physical education and an interest in sports coaching or refereeing. The final sample consisted of 723 teachers who fully participated in the four modules, with a dropout rate of 17%.
2. **Instrument:** A 17-item survey (see the Appendix) based on validated measures (Arbaugh et al., 2008; Kuo et al., 2013) was administered online to assess demographics, social presence, and satisfaction. The items assessed content, understandability, and expectations on a 5-point Likert scale ($\alpha = 0.82$ in previous studies). The CoI instrument (Arbaugh et al., 2008) was used to measure affective expression, open communication, and group cohesion ($\pm = .79$ in previous research). The survey was pilot-tested with 20 teachers and revised before implementation.
3. **Procedure:** After obtaining informed consent, an anonymous survey was distributed via email and WhatsApp. Of the 723 trainees, 388 completed the survey over a two-day period, with a response rate of 53%. The lower response rates may be due to the length of the survey and the distribution of the training results. Approval from the Institutional Ethics Review Board was obtained prior to data collection and analysis.
4. **Analysis:** The data were checked for anomalies or missing data. Chi-square tests were used to analyze the associations between social presence and satisfaction variables. This non-parametric test was selected based on the qualitative nature of the variables and a single sample of 388 respondents. Cross-tabulation facilitated a comparison of variable frequencies to determine the relationship between social presence and overall satisfaction.

3. Results

The purpose of this study was to examine the relationship between social presence and satisfaction among physical education teachers in Morocco engaging in online professional development during the COVID-19 pandemic. The hypothesis states that there would be a significant positive relationship between social presence and satisfaction.

The results of the chi-square tests indicate that there is a significant relationship between social presence and satisfaction among physical education teachers in Morocco engaging in online

professional development during the COVID-19 pandemic. The chi-squared values and p-values for each factor are presented in the table below.

Table 1: Factor Chi-square value p-value

Relationship between social presence and satisfaction	Chi-square values	P-value
The contribution of students' professional development		
The acquaintance of the other participants gives a sense of belonging to the group of this online training	270,295	<0,001
Online training, which allows us to form distinct impressions on certain participants	113,455	<0,001
The social interaction that online training allows	116,562	<0,001
The perception of recognition of the point of view by other participants in online training	173,893	<0,001
The contribution of students' professional development		
Online training, which allows us to form distinct impressions on certain participants	233,765	<0,001
The feeling of trust and ease in a situation of disagreement with other participants in an online training course	97,183	<0,001
Online discussions, which helped to develop a sense of collaboration		
The satisfaction of the level of interaction	328,311	<0,001
The participants' feeling of ease in discussions at the level of online training		
Willingness to follow online training again	24,489	<0,001
The feeling of comfort in interacting with other participants		
The level of satisfaction with the interaction at the level of online training	236,642	<0,001

The results of the chi-square tests revealed several significant relationships between social presence factors and satisfaction levels among physical education teachers engaged in online professional development during the COVID-19 pandemic. The study found that getting to know other participants, which made them feel like they were part of the group in the online training, was strongly linked to satisfaction ($\chi^2 = 270.295$, $p < 0.001$). This suggests that when teachers feel acquainted with their fellow participants, their satisfaction levels increase.

Additionally, online training, which gave some participants the opportunity to make their own impressions, had a strong connection with satisfaction ($\chi^2 = 113.455$, $p < 0.001$). This implies that the ability to form distinct impressions on specific participants during online training positively influences teachers' satisfaction levels.

Social interaction facilitated by online training was significantly related to satisfaction ($\chi^2 = 116.562$, $p < 0.001$). This indicates that when teachers had ample opportunities for social interaction in the online training environment, their satisfaction levels were higher.

Similarly, the perception of recognition of one's point of view by other participants in online training was significantly associated with satisfaction ($\chi^2 = 173.893$, $p < 0.001$). This suggests that when teachers feel that their viewpoints are recognized and valued by their fellow participants, their satisfaction levels are positively affected.

The feelings of trust and ease in a situation of disagreement with other participants in an online training course were significantly related to satisfaction ($\chi^2 = 97.183$, $p < 0.001$). This indicated that when teachers felt a sense of trust and ease in situations of disagreement with their fellow participants, their satisfaction levels were higher.

Additionally, the level of interaction within online discussions was significantly associated with satisfaction ($\chi^2 = 328.311$, $p < 0.001$). This suggests that when teachers were satisfied with their level of interaction during online discussions, their overall satisfaction levels were positively influenced.

Furthermore, willingness to follow online training again was significantly related to satisfaction ($\chi^2 = 24.489$, $p < 0.001$). This implies that, when teachers expressed their willingness to engage in online training again, their satisfaction levels were higher.

Lastly, the level of satisfaction with the interaction at the level of online training was significantly associated with satisfaction ($\chi^2 = 236.642$, $p < 0.001$). This indicates that when teachers were satisfied with the overall interaction experienced during online training, their satisfaction levels were positively affected. Based on these findings, we reject the null hypothesis (H_0) that there is no significant relationship between social presence and satisfaction. The data support the alternative hypothesis (H_1) that there is a significant positive relationship between social presence and satisfaction.

According to these findings, a number of elements, including familiarity, distinct impressions, social interaction, recognition of viewpoints, trust and comfort in disagreement, online discussions, and interaction, significantly contribute to the overall satisfaction that physical education teachers have with their online professional development during the pandemic.

The results of this study provide valuable insights for improving PE teachers' online learning experiences in similar contexts. By focusing on enhancing social presence factors such as promoting interaction and collaboration among participants, online training programs can be designed to optimize satisfaction and engagement among teachers.

In conclusion, the study supports the hypothesis that there is a significant positive relationship between social presence and satisfaction among physical education teachers engaged in online professional development during the COVID-19 pandemic in Morocco.

4. Discussion

These results highlight the critical importance of fostering a strong sense of social presence in online professional development courses for Moroccan teachers. Wu et al. (2021) and Stephanie et al. (2020) showed that social presence and satisfaction are positively related. This shows how important human connections and a sense of community are to the overall quality of learning. The results of this study provide compelling evidence of the benefits of promoting social presence in online learning environments. To enhance social presence, scholars must employ methods to improve student perceptions through course design (Stephanie et al., 2020). Lowenthal and Dunlap (2018) proposed the viability of conducting experiments to explore various strategies for establishing and maintaining social connections over an extended period. Whiteside et al. (2023) suggest social presence as a means of addressing the perceived lack of in-person components in online courses.

Castellanos-Reyes (2020) maintained that the implementation of a "Community of Inquiry" framework may stimulate motivation and foster interpersonal connections, both of which are crucial for achieving satisfaction. It is advisable to evaluate both low- and high-tech approaches to effectively involving students in online communities (Steinweg et al. 2006). However, it is important to recognize that the relationship between social presence and satisfaction can be complex and multifaceted and goes beyond simple expectations. Other critical factors, such as students' academic performance, the nature of online social environments, and the level of student engagement in the classroom, can significantly influence this relationship (Weidlich & Bastiaens, 2017).

Although this study found a strong association between social presence and satisfaction, further research is needed to fully understand and explore the range of factors affecting the digital learning environment in Morocco. The current study has several limitations, most notably the limited sample size and the specific focus on physical education teachers. These limitations require additional research in order to generalize the results to other professional areas. The cross-sectional design used in this study limits its ability to establish causal relationships. Future research using longitudinal and experimental methods is required to gain a deeper understanding of these underlying mechanisms. Qualitative feedback from interviews or focus groups with participants can provide valuable insight into their experiences and needs. This study represents a notable preliminary attempt to highlight the role of social presence as a determinant of online satisfaction in the specific context of Morocco. The suggested strategies support educators seeking to incorporate presence-enhancing techniques known to increase satisfaction. However, to achieve

optimal online professional development in Morocco, further research tailored to different academic fields is required.

Conclusion

This study provides evidence of a significant positive relationship between social presence and satisfaction with online PD among Moroccan teachers. Those reporting higher social presence during training were more likely to express a willingness to undertake future online learning and satisfaction with social interactions. These findings align with prior research demonstrating the benefits of presence-enhancing strategies. However, more research is needed to fully understand the factors affecting online learning environments across disciplines in a Moroccan context. These results underscore the importance of the purposeful integration of social presence in optimizing engagement and outcomes when designing online PD programs. Further studies should build on these preliminary findings by using a mixed-methods approach. Overall, this study highlights social presence as a promising area of focus for improving teachers' satisfaction with online professional development.

References

- Akyol, Z., & Garrison, R. (2019, February 9). The Development of a Community of Inquiry Over Time in an Online Course: Understanding the Progression and Integration of Social, Cognitive and Teaching Presence. *Online Learning*, 12(3–4). <https://doi.org/10.24059/olj.v12i3-4.1680>
- Arbaugh, J. B. (2008, June 30). Does the Community of Inquiry Framework Predict Outcomes in Online MBA Courses? *The International Review of Research in Open and Distributed Learning*, 9(2). <https://doi.org/10.19173/irrodl.v9i2.490>
- Arbaugh, J., Cleveland-Innes, M., Diaz, S. R., Garrison, D. R., Ice, P., Richardson, J. C., & Swan, K. P. (2008, January). Developing a community of inquiry instrument: Testing a measure of the Community of Inquiry framework using a multi-institutional sample. *The Internet and Higher Education*, 11(3–4), 133–136. <https://doi.org/10.1016/j.iheduc.2008.06.003>
- Castellanos-Reyes, D. (2020, March 24). 20 Years of the Community of Inquiry Framework. *TechTrends*, 64(4), 557–560. <https://doi.org/10.1007/s11528-020-00491-7>
- Centeio, E., Mercier, K., Garn, A., Erwin, H., Marttinen, R., & Foley, J. (2021, October 1). The Success and Struggles of Physical Education Teachers While Teaching Online During the COVID-19 Pandemic. *Journal of Teaching in Physical Education*, 40(4), 667–673. <https://doi.org/10.1123/jtpe.2020-0295>
- Gupta, R., Naik, B. N., Ganesh, V., Singh, A., Soni, S. L., & Puri, G. D. (2021, October 20). Evaluation of utility and usefulness of webinars on COVID-19 management: a questionnaire-based survey. *Ain-Shams Journal of Anesthesiology*, 13(1). <https://doi.org/10.1186/s42077-021-00187-x>
- Khaliq, N., Ahmed, S. F., Geelani, S., & Khaliq, F. (2023, July 1). Transition to online teaching during COVID-19 pandemic: Perspective of higher education teachers from India. *Indian Journal of Physiology and Pharmacology*, 67, 141–146. https://doi.org/10.25259/ijpp_552_2022

- Kuo, Y. C., Walker, A. E., Belland, B. R., & Schroder, K. E. E. (2013, January 10). A predictive study of student satisfaction in online education programs. *The International Review of Research in Open and Distributed Learning*, 14(1), 16. <https://doi.org/10.19173/irrodl.v14i1.1338>
- Lowenthal, P. R., & Dunlap, J. C. (2018, May 28). Investigating students' perceptions of instructional strategies to establish social presence. *Distance Education*, 39(3), 281–298. <https://doi.org/10.1080/01587919.2018.1476844>
- Lowenthal, P. R., & Snelson, C. (2017, May 4). In search of a better understanding of social presence: an investigation into how researchers define social presence. *Distance Education*, 38(2), 141–159. <https://doi.org/10.1080/01587919.2017.1324727>
- Maala, E. B., & Lagos, F. D. (2022, October 13). Technological Leadership of School Heads and Teachers' Technology Integration: Basis for the Development of a Training Program. *International Journal of Multidisciplinary: Applied Business and Education Research*, 3(10), 2074–2089. <https://doi.org/10.11594/ijmaber.03.10.19>
- Macià, M., & García, I. (2016, April). Informal online communities and networks as a source of teacher professional development: A review. *Teaching and Teacher Education*, 55, 291–307. <https://doi.org/10.1016/j.tate.2016.01.021>
- Miao, J., & Ma, L. (2022, October 13). Students' online interaction, self-regulation, and learning engagement in higher education: The importance of social presence to online learning. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.815220>
- Hocheol, Yang., Jihyun, Kim., Stephanie, Kelly., Kelly, Merrill, Jr. (2022). Learning in the Online Classroom: Exploring the Unique Influence of Social Presence Dimensions. *Communication studies*, <https://doi:10.1080/10510974.2022.2074491>
- OCDE (2021), *The State of School Education : One Year into the COVID Pandemic*, Éditions OCDE, Paris, <https://doi.org/10.1787/201dde84-en>.
- Richardson, J. C., & Swan, K. (2019, March 19). Examining Social Presence In Online Courses In Relation To Students' Perceived Learning And Satisfaction. *Online Learning*, 7(1). <https://doi.org/10.24059/olj.v7i1.1864>
- Richardson, J. C., Maeda, Y., Lv, J., & Caskurlu, S. (2017, June). Social presence in relation to students' satisfaction and learning in the online environment: A meta-analysis. *Computers in Human Behavior*, 71, 402–417. <https://doi.org/10.1016/j.chb.2017.02.001>
- Shea, P., Pickett, A. M., & Pelz, W. E. (2019, March 19). A FOLLOW-UP INVESTIGATION OF “TEACHING PRESENCE” IN THE SUNY LEARNING NETWORK. *Online Learning*, 7(2). <https://doi.org/10.24059/olj.v7i2.1856>
- Steinweg, S. B., Trujillo, L., Jeffs, T., & Warren, S. (2006, January 1). *Maintaining the Personal Touch in a Growing Program: Strategies for Establishing Social Presence in Online*. ResearchGate. https://www.researchgate.net/publication/50848830_Maintaining_the_Personal_Touch_in_a_Growing_Program_Strategies_for_Establishing_Social_Presence_in_Online_Classes

- Swan, K., & Ice, P. (2010, January). The community of inquiry framework ten years later: Introduction to the special issue. *The Internet and Higher Education*, 13(1–2), 1–4. <https://doi.org/10.1016/j.iheduc.2009.11.003>
- Vincent-Lancrin, S., Cobo Romani, C., & Reimers, F. (Eds.). (2022, January 24). How Learning Continued during the COVID-19 Pandemic. <https://doi.org/10.1787/bbeca162-en>
- Wang, X., Wang, B., & Wei, P. (2023). Social Emotional Learning in the COVID-19 Pandemic: Opportunities and Challenges. *Creative Education*, 14(01), 11–18. <https://doi.org/10.4236/ce.2023.141002>
- Weidlich, J., & Bastiaens, T. J. (2017, July). Explaining social presence and the quality of online learning with the SIPS model. *Computers in Human Behavior*, 72, 479–487. <https://doi.org/10.1016/j.chb.2017.03.016>
- Whiteside, A. L., Dikkers, A. G., & Swan, K. (2023, July 3). *Social Presence in Online Learning*. Taylor & Francis.
- Wu, Z., Hu, X., Pan, Z., Li, C., Cai, Y., & Liu, M. (2021, February 1). Exploring the relationship between social presence and learners' prestige in MOOC discussion forums using automated content analysis and social network analysis. *Computers in Human Behavior*; Elsevier BV. <https://doi.org/10.1016/j.chb.2020.106582>
- Yu, Z. (2021, August 23). A meta-analysis and bibliographic review of the effect of nine factors on online learning outcomes across the world. *Education and Information Technologies*; Springer Science Business Media. <https://doi.org/10.1007/s10639-021-10720-y>

APPENDIX
Survey questionnaires

Demographic questions

1- What is your Sex?

- Male
- Female

2. What is your age group?

- 18-25
- 26-35
- 36-45
- 46-55
- + 65

3. What are your areas of training?

- Basketball refereeing
- Basketball coaching
- Handball refereeing
- Handball coaching
- Football refereeing
- Football training
- Rugby refereeing
- Rugby training
- Volleyball refereeing
- Volleyball training

Questions on social presence

Affective expression

4. Getting to know other course participants gave me a sense of belonging in the course.

5. I was able to form distinct impressions of some course participants.

6. Online or web-based communication is an excellent medium for social interaction.

Open communication

7. I felt comfortable conversing through the online medium.

8. I felt comfortable participating in the course discussions.

9. I felt comfortable interacting with other course participants.

Group cohesion

10. I felt comfortable disagreeing with other course participants while still maintaining a sense of trust.

11. I felt that my point of view was acknowledged by other course participants.

12. Online discussions help me to develop a sense of collaboration.

Questions on satisfaction

13. Overall, I am satisfied with this online training course.
14. This online training has contributed to my educational development.
15. This online training contributed to my professional development.
16. I am satisfied with the level of interaction that took place in this online training course.
17. In the future, I would be prepared to take online training again.

5-point Likert-type scale

1 = strongly agree, 2 = agree, 3 = neutral, 4 = disagree, 5 = strongly disagree.