TEACHING PRESENCE AND ACADEMIC ACHIEVEMENT: THE MEDIATING ROLES OF SOCIAL AND COGNITIVE PRESENCES

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ABSTRACT

The purpose of this study was to explore the relations between teaching presence, social presence, cognitive presence and academic achievement based on a model testing the mediating role of social and cognitive presence between teaching presence and achievement. The study group of the study was composed of 248 pre-service teachers, chosen based on the convenience sampling method. The Community of Inquiry Survey was used to determine pre-service self-reported perceptions on teaching presence, social presence and cognitive presence while pre-service teachers' grades in the Research Methods in Education course was accepted as the academic achievement scores. Analysis based on the serial multiple mediator model showed that teaching presence not only directly and positively predicted academic achievement, but it also had an indirect and positive impact on academic achievement through social presence and cognitive presence. Results suggest that enhancing teaching presence improve academic achievement while it also serves to improve social and cognitive presences. The potential negative influence of social presence on academic achievement could also be avoided if instructors can use social presence as an vehicle to enhance cognitive presence. Further studies could also be performed with different study groups and courses based on data collection tools that particularly examine students' actual learning performance within the framework of Community of Inquiry.

Keywords: Community of inquiry, teaching presence, social presence, cognitive presence, academic achievement.

INTRODUCTION

With technological developments, online learning environments have become widespread in different fields, offering lifelong learning opportunities for all (Turgut & Civelek Kutay, 2023). Due to the COVID-19 pandemic, online learning has also become an evident trend in education as the world witnessed an emergent shift to online learning environments (Kim & Gurvitch, 2020; Mutezo & Mare, 2023). It appears inevitable that online learning will persist as a crucial factor across all domains of education (Shea, Richardson, & Swan., 2022). Within this framework, substantial inquiries arise regarding the efficacy of online instruction, emphasizing the criticality of effectiveness and efficiency in educational outcomes (Kozan & Richardson, 2014). An important theoretical framework to enhance the effective practice of online learning by understanding and designing online learning experiences is the Community of Inquiry framework (Arbaugh et al., 2008; Garrison, 2009; Guo, Saab, Wu, & Admiraal, 2021).

The Community of Inquiry (CoI) is a theoretical framework designed to organize the learning process in an online environment (Stenbom, 2018). Conceptualized by Garrison, Anderson and Archer (2000), the CoI model posits that the primary stakeholders in the educational process are teachers and students. This framework suggests that learning transpires through the interplay of cognitive presence, social presence, and teaching presence, which are regarded as the fundamental components (Garrison et al., 2000). These three key components of learning are deemed contributors to the most effective design of the educational experience (Kim & Gurvitch, 2020). In other words, effective learning is built upon the suitable balance and integration of all three presences (Garrison, 2003).

Cognitive presence (CP) is regarded as the most essential component for achievement in higher education, and it refers to the degree to which individuals within a community of inquiry can construct meaning through communication collectively (Garrison et al., 2000). It is characterized by the inquiry process where learners construct meaning through a given task based on discourse and purposeful reflection. In this process, the first step refers to the recognition and definition of a specific issue. The second step requires exploring the problem by searching relevant information. While the third step is making sense of information, the fourth phase is testing the most plausible solution (Garrison, 2009; Garrison, Cleveland-Innes, & Fung, 2010).

As asserted by Garrison (2003), cognitive presence does not occur independently; rather, social presence is integral within any community of inquiry. Social presence (SP) reflects individuals' capacity to affiliate with the community, engage purposefully in a supportive atmosphere, and cultivate interpersonal connections through the expression of their individual characteristics (Garrison, 2009). Social presence refers to participants' capability to authentically convey their personal traits within the community, so that they could present themselves to others as genuine individuals. This element is critically important as it supports cognitive presence, indirectly enhancing the collective process of critical thinking (Garrison et al., 2000).

Teaching presence (TP) is deemed a tool for enhancing social presence and cognitive presence in order to attain learning outcomes (Garrison et al., 2000). TP is a multi-faceted construct encompassing three core areas of responsibility which are design, facilitation and direct instruction (Arbaugh et al., 2008). The first teaching presence responsibility is designing the curriculum, tasks and timelines, while the second one is facilitating various learning activities through supervising and directing purposeful collaboration and reflective practices. The third responsibility involves ensuring that the participants achieve the defined learning outcomes by giving specific ideas, identifying misconceptions, or summarizing the discussion (Garrison, 2009; Garrison et al., 2010).

Based on the theoretical framework of CoI, a wide range of studies have been conducted to yield empirical data that verify the associations between TP, SP and CP. While some studies showed significant correlations between TP and CP (Akyol, 2009; Arbaugh et al., 2008), some also indicated positive relationship between CP and SP (Cakiroglu, 2019; Li, 2022). Research results also yielded proof for the mediating role of SP and CP. Kozan and Richardson (2014) revealed that CP could significantly impact the correlation between TP and SP. Li (2022), on the other hand, revealed that SP partially mediates the link between TP and CP. Similarly, Garrison et al. (2010) found that TP directly impacts perceptions of both SP and CP, while perceptions of SP significantly predict CP, indicating that SP mediates the link between TP and CP. Shea and Bidjerano (2009) showed that TP and SP could explain 70% of the variance in CP. Similarly, Ozturk, Erdem and Deryakulu (2017) found that SP and TP were identified significantly predict CP, with SP accounting for the majority of variance in CP.

Research on the correlation between CoI framework and learning outcomes in educational contexts have yielded proof showing the positive contribution of the framework to student outcomes excompassing learning performance (Taghizade, Rasouli, & Hosseini Largani, 2023) and engagement (Ang Ng, Lee, & Yong, 2024; Zhao, 2023). There are also studies with a limited focus on each presence and its effect on learning outcomes. Some yielded results proving the positive contributions of SP and CP on learning outcomes. Richardson and Swan (2003) found that higher SP resulted in higher perceived learning and satisfaction with the instructor. Choy and Quek (2016) revealed that CP had an effect on student satisfaction. Li (2022) also showed that SP and CP significantly predicted learning outcomes. Cakiroglu (2019) determined a moderately positive correlation between CP and academic achievements. Akyol and Garrison (2008) identified CP and TP as crucial factors affecting student learning and satisfaction, whereas SP was found to be related primarily to student satisfaction. There are similar results indicating the positive influence of TP on learning outcomes, including satisfaction (Caskurlu, Maeda, Richardson, & Lv, 2020; Li, 2022), student engagement (Su et al., 2024; Zhang et al., 2023), online self-regulation (Yang, Zheng, Wang, & Sun, 2024). While a growing body of research which has investigated the significance of TP for achievement in online learning environments including both students' actual learning (Byeon, Chu, & Yoon, 2021; Yang & Cai, 2023; Yu, 2022) and perceived learning (Maddrell, Morrison, & Watson., 2011), research that focus on the effects of presences on actual learning is rather scarce (Caskurlu et al., 2020; Martin, Wu, Wan, & Xie, 2022). Furthermore, research that explored the mediating roles of SP and CP on the link between TP and learning outcomes is also quite limited. Joksimovic, Gasevic, Kovanovic, Riecke and Hatala (2015) demonstrated that TP moderated

the relationship between SP and academic performance, indicating that a course design enhancing SP will consequently improve students' academic performance. Based on theoretical background and empirical evidence, this study aimed to explore the relations between four variables which are teaching presence, social presence, cognitive presence and academic achievement based on a model testing the mediating role of social and cognitive presence between teaching presence and achievement.

HYPOTHESES OF THE STUDY

H1: Social presence will mediate the relationship between teaching presence and achievement.

H2: Cognitive presence will mediate the relationship between teaching presence and achievement.

H3: Social and cognitive presence will serially mediate the relationship between teaching presence and achievement.

METHOD

This research investigated the relationships between teaching presence, social presence, cognitive presence and academic achievement. In this respect, this research is correlational. In correlational studies, the possibility of relationships among two or more variables are explored without any attempt to influence them (Fraenkel, Wallen, & Hyun, 2012, p. 331).

Participants

The study group of the study was composed of 248 pre-service teachers from a state university in Ankara in Turkiye. The participants were chosen based on the convenience sampling method through which data was collected from pre-service teachers taking the Research Methods in Education course since it was easier and quicker to inform the participants in the defined course about research objectives. Participants were composed of 44 male (17,7%) and 204 female (82,3%) pre-service teachers.

Data Collection

After necessary permissions were obtained from the authors of the Community of Inquiry Survey to use the data collection tool, approval of the ethics committee was obtained. Data was collected from the pre-service teachers taking the Research Methods in Education course in the 2022-2023 spring term. As in the pandemic, Turkiye implemented online education in the 2022-2023 spring term in higher education after two catastrophic earthquakes struck Turkiye on February 6, 2023. Thereby, the courses were offered synchronously through the learning management system. As the same system was used during the pandemic, pre-service teachers were familiar with this system. They could easily communicate with the instructor and other pre-service teachers participating in the course simultaneously. Pre-service teachers were informed about the goal of the research. They were assured that the data collection tool was anonymous and their responses would not be shared with others. Those who agreed to participate in the research were asked to fill out the online data collection tool via Google Forms. The participants were asked to respond to items considering the instructional practices and process in the online Research Methods in Education course and they were asked to note their grades in the same course as the academic achievement score.

Measure

The Community of Inquiry Survey, originally developed by Arbaugh et al. (2008), was subsequently adapted into Turkish culture by Olpak and Kilic-Cakmak (2018). The survey was a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). It was composed of 34 items, organized into three sub-scales: teaching presence, social presence and cognitive presence. There were 13, 9 and 12 items in teaching, social and cognitive presence sub-scales, respectively. Exploratory factor analysis (EFA) was performed and results indicated that the threedimensional structure convenient with the CoI model explained 75.277% of the total variance. Confirmatory factor analysis (CFA) was used and goodness-of-fit indices were presented

in Table 1. The Cronbach's α coefficients were calculated as 0.965 for TP, 0.953 for SP and 0.972 for CP respectively (Olpak & Kilic-Cakmak, 2018). Before starting analysis for research hypotheses, CFA was performed to check the construct validity of the data collected in this study. The indices found for the Community of Inquiry Scale in this study were given in Table 1, confirming the three-dimensional structure of the scale (Brown, 2006; Kline, 2011; Tabachnick & Fidell, 2013). Reliability coefficients calculated in the current study were considered good for TP (α=0.93 and ω=0.94), SP (α=0.90 and ω=0.90) and CP (α=0.93 and ω=0.93).

Table 1. Fit indices

Source	X^2/df	RMSEA	CFI	NNFI	RMR	SRMR	IFI
Olpak & Kilic-Cakmak (2018)	2539.14/ 522=4.86	0.082	0.99	0.99	0.063	0.039	0.99
CFA results of this study	1337.32/524=2.55	0.061	0.98	0.98	0.056	0.068	0.98

Data Analysis

Pearson correlation analyses were used to reveal the relations among variables. The serial multiple mediator model was conducted using PROCESS macro for SPSS 25.0 to test "the direct and indirect effects of X on Y while modeling a process in which X causes M1, which in turn causes M2, and so forth, concluding with Y as the final consequent" (Hayes, 2013). In this framework, Model 6 was used to investigate whether two mediators, SP and CP, mediate the relationship between TP and achievement. Before performing analyses in line with the research hypotheses, the missing values, outliers and normality assumptions were examined. Since the data were collected online, there was no missing value in the data. The scores obtained from each scale were converted into z-scores to determine univariate outliers. As analysis of the z-scores indicated there were four univariate outliers higher than +3.29, they were omitted. All remaining values were between +3.29 and -3.29 indicating no univariate outliers (Tabachnick & Fidell, 2013). To examine the multivariate outliers, Mahalanobis distances at p<0.001 level were compared with the value obtained from the chi-square table at the k=2 freedom level. Considering Cook's distance values, it was determined that the maximum value was less than 1. According to these results, it can be stated that no multivariate outliers were found in the data (Tabachnick & Fidell, 2013). To examine the normality of the scales, the skewness and kurtosis of the scores obtained from both subscales and the overall scale were examined for all three scales. The skewness and kurtosis values were in the range of +1 and -1 for all three scales (Table 2), which indicated normal distribution (Bowen & Guo, 2012). For multicollinearity variance inflated factor (VIF) and tolerance values were calculated. The tolerance values ranged between 0.358 and 0.558 (>0.10), and the VIF value ranged between 1,793 and 2,791 (<10). When the tolerance and VIF values obtained and the independent correlation value were evaluated, it was determined that there was no multicollinearity problem (Field, 2009).

FINDINGS

In order to explore the relations between teaching presence, social presence, cognitive presence and academic achievement, firstly, Pearson correlation analysis was used. The means, standard deviations, skewness, kurtosis values and Pearson correlation coefficients are given in Table 2.

Table 2. Descriptive statistics and intercorrelations (n = 248)

	M	SD	Skewness	Kurtosis	1	2	3	
1.	TP	4.06	0.61	-0.542	0.852			
2.	SP	3.35	0.77	0.200	-0.366	0.506**		
3.	CP	3.76	0.65	-0.390	0.497	0.722**	0.664**	
4.	Achievement	3.23	0.79	-0.245	0.221	0.237**	-0.016	0.197**

*Note. **p<.01*

The results showed that there were moderate, significant and positive correlations between TP and SP (r=0.506, p<0.01), and CP and SP (r=0.664, p<0.01). A strong, significant and positive correlation was found between TP and CP (r=0.722, p<0.01). It was also found that academic achievement and CP was significantly and positively correlated (r=0.197, p<0.01). A significant and positive correlation coefficient was also found between academic achievement and TP (r=0.237, p<0.01). On the other hand, no significant correlation was found between SP and academic achievement (r= -0.016, p>0.05).

The serial multiple mediator model was used to examine the direct and indirect effects of teaching presence on academic achievement based on a model in which teaching presence (X) causes social presence (M1) that in turn causes cognitive presence (M2), which consequently impacts academic achievement (Y). The regression analysis results are given in Table 3 and Figure 1. style.

Table 3. Unstandardized structural path coefficients and 95% bootstrap confidence intervals

	M_1			M_2			*Achievement (Y)*		
	Estimate	Lower	Upper	Estimate	Lower	Upper	Estimate	Lower	Upper
TP (*X*)	0.64**	0.50	0.78	0.56**	0.46	0.65	0.28*	0.05	0.50
SP (M_1)				0.34**	0.27	0.41	-0.28**	-0.44	-0.11
CP (M_2)							0.27*	0.03	0.51
		R^2 = 0.26			R^2 = 0.64			R^2 = 0.10	

*Note. *p<.05, **p<.01*

Results demonstrated that TP predicted SP (B = 0.64, p <0.001), which was found to have a significant negative effect on academic achievement (B = -0.28, p <0.001). Furthermore, the direct effect of TP on academic achievement was also significant (B = 0.28, p <0.05). It was also found that TP predicted CP (B = 0.56, p <0.001), which also predicted academic achievement (B = 0.27, p <0.05). SP was found to be have a significant positive effect on CP (B = 0.26, p <0.01).

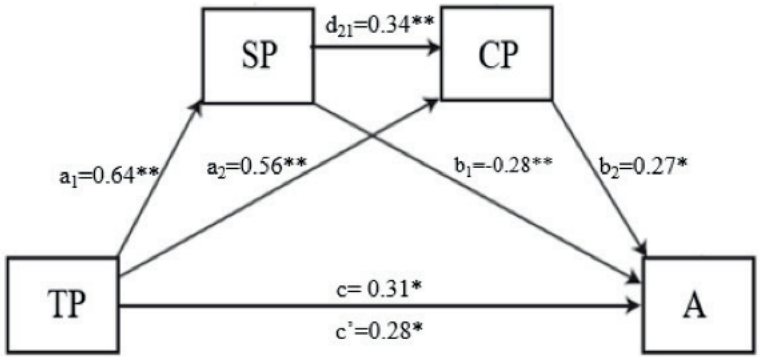

Figure 1. Results of the serial multiple mediator model

Table 3 demonstrates the bootstrap test results which indicated that SP and CP mediated the relationship between TP and academic achievement. The indirect effect of TP → SP → achievement path was significant (B = -0.18, SE = 0.05, 95% CI = [-0.29, -0.09]). The indirect effect of TP → CP → achievement path was also significant (B = 0.15, SE = 0.07, 95% CI = [0.02, 0.29]). The results on serial mediation revealed that SP and CP serially mediated the relationship between TP and academic achievement (B = 0.06, SE = 0.03, 95% CI = [0.01, 0.13]).

Table 4. Serial mediation effect of social and cognitive presence on the relationship between teaching presence and achievement (n=248)

Path relationship	Estimation	Bootstrap *SE*	Boot *LLCI*	Boot *ULCI*
Total effect				
TP → ACH	0.31	0.08	0.15	0.46
Direct effect				
TP → ACH	0.28	0.11	0.05	0.50
Indirect effect				
TP → SP → ACH	-0.18	0.05	-0.29	-0.09
TP → CP → ACH	0.15	0.07	0.02	0.29
TP → SP → CP → ACH	0.06	0.03	0.01	0.13

DISCUSSIONS AND CONCLUSION

The study investigated the direct and indirect effects of teaching presence on academic achievement based on a model in which teaching presence causes social presence, which in turn causes cognitive presence, which consequently influences academic achievement. Results showed that teaching presence directly and positively predicted academic achievement. Furthermore, teaching presence also had an indirect and positive impact on academic achievement through social presence and cognitive presence.

Based on the main purpose of this study, three hypotheses were formulated. The results confirmed the first hypothesis, which postulated that social presence would mediate the link between teaching presence and academic achievement. In this framework, teaching presence positively influenced social presence which was found to affect academic achievement negatively. In other words, a better teaching presence has been found to have a positive association with social presence. This finding concurs with previous research revealing that TP was positively and significantly associated with SP (Kilic, Horzum, & Cakiroglu, 2016; Li, 2022; Maddrell et al., 2011; Topgul, 2023). On the other hand, results of this current study that indicate the negative impact of social presence on achievement differs from the previous studies since research on the association between social presence and achievement in educational contexts often emphasizes the positive effects of social presence on learning (Ambe et al., 2024; Richardson & Swan, 2003). Still, there are also few studies (Akyol & Garrison, 2008; Joksimovic et al., 2015; Reisoglu, 2014) which posited that student success was significantly associated with teaching and cognitive presence and was not significantly related to social presence. Similar to the result of this current study, Picciano (2002) found an insignificant but negative correlation between social presence perceptions of students and their examination scores whereas students of social presence perceptions were found to have statistically significant and positive association with the written assignment. Concerning these results, Picciano (2002) asserted that the social presence in the study depended on socialization through discussions which resulted in the positive correlation between written assignment and social presence while an objective, multiple-choice examination was not an expressive activity. Since it was rather an asocial impersonal activity, it possibly did not reflect social presence. Concerning this finding, Joksimovic et al. (2015) argues that if there is an alignment between the learning outcomes assessed and the skills enhanced through meaningful social interaction, a positive correlation will likely be found between social presence and academic performance. Within the scope of this study, a multiple choice examination was used to determine academic achievement which might not reflect skills developed throughout the term for the sake of social presence. There might also be other potential reasons that may explain the negative correlation between social presence and achievement. One might be interactions that are not related to the task and goal of the course. If social interactions detract from the focus on learning objectives, they could potentially harm achievement. These off-task interactions might most probably be related to technical problems that occured during online courses. Additionally, the negative correlation between social presence and achievement might also be a consequence of anxiety. Particularly learners who experience social anxiety in social situations might avoid participating in learning activities, which in turn harm achievement based on the negative association between social anxiety and achievement (Polat, Hopcan, & Arslantas, 2022).

The second hypothesis of this current study was also confirmed, showing that cognitive presence mediated the link between teaching presence and academic achievement. This implied that teaching presence was positively associated with cognitive presence. This finding aligns with previous research that also revealed that students' perception of TP had a significant positive correlation with CP (Li, 2022; Mutezo & Mare, 2023; Shea & Bidjerano, 2009; Yildirim & Seferoglu, 2021). In the second part of the mediation process, cognitive presence was positively correlated with achievement, which is similar to the findings of prior studies that detected a positive relationship between cognitive presence and achievement (Cakiroglu, 2019; Guo et al., 2021). This result implies that pre-service teachers who experience a good teaching presence are likely to be more successful partly because of cognitive presence.

The third hypothesis of the current study was confirmed, proving that the relationship between teaching presence and academic achievement was serially mediated by both social presence and cognitive presence. Within this framework, firstly, it can be asserted that as the level of teaching presence increases, pre-service teachers' academic achievement level increases as well. This finding is parallel to those of previous studies (Byeon et al., 2021; Martin et al., 2022; Yang & Cai, 2023; Yu, 2022) revealing that TP had a significant positive effect on achievement. It should be noted that there are also contradictory results in relevant literature. For instance, Maddrell et al. (2011), who found that teaching presence was significantly and positively associated with student perceived learning, revealed that there was no significant correlation between teaching presence and instructor-assessed measures of learning achievement. For a better and clearer understanding, further research is necessary examining the link between actual learning performance and teaching presence, which would also contribute to the limited number of studies focusing on actual learning within the framework of CoI.

Furthermore, results concerning the third hypothesis also showed that teaching presence was positively associated with social presence which was also associated with cognitive presence that positively influenced academic achievement. Likewise, previous research has posited that social and cognitive presences are positively correlated (Mutezo & Mare, 2023; Kilic, 2016) and social presence predicts cognitive elements (Gutierrez-Santiuste, Rodriguez-Sabiote, & Gallego-Arrufat, 2015; Ozturk et al., 2017). There is also research showing that SP had a positive impact on CP and had a partial mediating role on the link between TP and CP (Li, 2022). Kozan (2016) also assigned social presence as a partial mediator between TP and CP and concluded that instructors can directly increase online learners' cognitive presence while they can also contribute to congitive presence by supporting their social presence.

Overall, these results indicate that teaching presence has both direct and indirect effects on academic achievement. That is, TP has a direct positive effect on achievement. Furthermore, the higher TP means the higher SP, which results in the higher CP. This chain results in a higher academic achievement level. These results offer practical implications for online learning environments in higher education. While there is a positive correlation between teaching presence and achievement, social and cognitive presence serve as mediators in the relationship between teaching presence and achievement. This means that the influence of teaching presence on achievement is partially explained by its effects on social and cognitive presence. In other words, effective teaching practices lead to higher levels of social and cognitive presence, which in turn contribute to improved achievement. Thereby, instructors should not only focus on teaching presence but also aim to enhance social and cognitive presences. Accordingly, instructors should aim to enhance teaching presence by ensuring a clear communication to help students acquire course goals, topics and activities. Instructors should help students learn, and keep them on task. Additionally, they should give effective feedback, helping learners see their strentghs and weaknesses. These are important contributors to teaching presence while they also serve to improve social and cognitive presences. Then, instructors should aim to enhance social presence by developing a sense of belonging and collaboration among learners. In such a learning environment, instructors need to help learners feel comfortable to express themselves even when they feel their ideas differ from others. Learners should regard online learning environments as a suitable medium of communication and learning while feeling trust to both instructor and their classmates. Instructors' efforts to improve social presence also contributes to cognitive presence, which in turn influence achievement level. Therefore, instructors should increase students' motivation towards course content, help them reflect on topics, problems and solutions to have a better grasp of new knowledge. Instructors should give learners opportunities to use theory into practice. Using brainstorming and discussions could help

learners understand other ways of thinking as well. Hence, the potential negative influence of social presence on academic achievement could also be avoided. That is, because of potential reasons such as off-task behaviors or social anxiety, social presence may directly harm achievement, while its indirect influence on achievement through cognitive presence could be used effectively by instructors. In this sense, if instructors can use social presence as a vehicle to enhance cognitive presence, they may also eliminate potential negative effects of social presence on achievement by indirectly influencing achievement through cognitive presence.

This study has some limitations. The specific findings may vary depending on the context of the study, the population of learners, and the measures used for assessing teaching presence, social presence, cognitive presence, and achievement. First, the data was collected from pre-service teachers of an education faculty in Turkiye. Results could change based on different disciplines and study groups; therefore, the model needs to be tested on different samples. Secondly, data was collected based on the Research Methods in Education course which focused on theory rather than practice; thereby it is worthy of note that data could be collected in different courses that give much place for discussion, hands on activities and practice for participants, which might affect the correlation between achievement and social presence in particular. Thirdly, a multiplechoice exam was used to determine academic achievement in the defined course. Alternative assessment tools could also be used to determine whether results differ. Furthermore, since this study was limited to quantitative data, it was difficult to justify all results. Recognizing the potential challenges associated with social presence and implementing strategies to mitigate any negative effects is important for fostering a balanced and effective learning environment. Further studies are also needed to clarify potential variables influencing the link between actual learning and three presences.

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REFERENCES

Akyol, Z. (2009). Examining teaching presence, social presence, cognitive presence, satisfaction and learning in online and blended course contexts. (Doctoral dissertation). Middle East Technical University Graduate School of Natural and Applied Sciences, Ankara, Turkey. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 237614.

Akyol, Z., & Garrison, D. R. (2008). The development of a community of inquiry over time in an online course: Understanding the progression and integration of social, cognitive and teaching presence. *Journal of Asynchronous Learning Networks, 12*(3–4), 3–22.

Ambe, B. A., Agbor, C. E., Ukwetang, J. O., Olabisi, B. C., Etan, M. O., Onnoghen, U. N., Ojong, A. A., Nwogwugwu, C. E., Amalu, M. N., Bekomson, A. N., & Ofie, M. S. (2024). Exploring students' perceptions and the significance of social and cognitive presence in their educational voyage. *Journal of Applied Learning and Teaching, 7*(1), 1-11. https://doi.org/10.37074/jalt.2024.7.S1.2

Ang, J.W.J., Ng, Y.N., Lee, L.H.-W., & Yong, J.Y. (2024). Exploring students' learning experience and engagement in asynchronous learning using the community of inquiry framework through educational design research. *Education Sciences, 14*, 215. https:// doi.org/10.3390/educsci14030215

Arbaugh, J. B., Cleveland-Innes, M., Diaz, S., Garrison, D. R., Ice, P., Richardson, J., & Swan, K. P. (2008). 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

Bowen, N. K., & Guo, S. (2012). *Structural equation modeling.* New York: Oxford University Press.

Brown, T.A. (2006). *Confirmatory factor analysis for applied research.* New York: The Guilford Press.

Byeon, S. Y., Chu, S. K., & Yoon, H. G. (2021). Analysis of the relationship between teaching presence, academic achievement and learning satisfaction in a university online tutoring learning environment. *The Journal of the Korea Contents Association, 21*(11), 814-825.

Caskurlu, S., Maeda, Y., Richardson, J. C., & Lv, J. (2020). A meta-analysis addressing the relationship between teaching presence and students' satisfaction and learning. *Computers & Education, 157*, 103966.

Choy, J. L. F., & Quek, C. L. (2016). Modelling relationships between students' academic achievement and community of inquiry in an online learning environment for a blended course. *Australasian Journal of Educational Technology, 32*(4).

Cakiroglu, U. (2019). Community of inquiry in web conferencing: Relationships between cognitive presence and academic achievements. *Open Praxis, 11*(3), 243-260. https://doi.org/10.5944/openpraxis.11.3.968

Field, A. (2009). *Discovering statistics using SPSS*. London: SAGE Publications

Fraenkel, J. R., Wallen, N. E., & Hyun, H. R. (2012). *How to design and evaluate research in education* (8th edition) New York: McGraw-Hill.

Garrison, D. R. (2003). Cognitive presence for effective asynchronous online learning: The role of reflective inquiry, self-direction and metacognition. *Elements of quality online education: Practice and direction, 4*(1), 47-58.

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *Internet and Higher Education, 2*(2–3), 87– 105.

Garrison, D. R. (2009). Communities of inquiry in online learning. In P. Rogers, G. Berg, J. Boettcher, C. Howard, L. Justice, & K. Schenk (Eds.), *Encyclopedia of distance learning* (pp. 352-355). IGI Global.

Garrison, D. R., Cleveland-Innes, M., & Fung, T. S. (2010). Exploring causal relationships among teaching, cognitive and social presence: Student perceptions of the community of inquiry framework. *The Internet and Higher Education,* 13(1-2), 31-36.

Guo, P., Saab, N., Wu, L., & Admiraal, W. (2021). The Community of Inquiry perspective on students' social presence, cognitive presence, and academic performance in online project-based learning. *Journal of Computer Assisted Learning,* 37(5), 1479–1493. https://doi.org/10.1111/jcal.12586

Gutierrez-Santiuste, E., Rodriguez-Sabiote, C., & Gallego-Arrufat, M. J. (2015). Cognitive presence through social and teaching presence in communities of inquiry: A correlational–predictive study. *Australasian Journal of Educational Technology, 31*(3), 349-362. https://doi.org/10.14742/ajet.1666

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis.* The Guilford Press.

Joksimovic, S., Gasevic, D., Kovanovic, V., Riecke, B. E., & Hatala, M. (2015). Social presence in online discussions as a process predictor of academic performance. *Journal of Computer Assisted Learning,* 31(6), 638–654. https://doi.org/10.1111/jcal.12107

Kilic, S. (2016). *Investigation of the relationship between cognitive presence and academic achievement in the framework of community of inquiry model at simultaneous online teaching* [Unpublished master's thesis]. Karadeniz Technical University.

Kilic, S., Horzum, M. B., & Cakiroglu, U. (2016). Investigating teaching, social and cognitive presence of students in synchronous online environments. *Turkish Journal of Computer and Mathematics Education, 7*(2), 350-364. https://doi.org/10.16949/turcomat.35549

Kim, G. C., & Gurvitch, R. (2020). Online education research adopting the community of inquiry framework: A systematic review. *Quest, 72*(4), 395-409. https://doi.org/10.1080/00336297.2020.1761843

Kline, R. B. (2011). *Principles and practice of structural equation modeling.* New York: The Guilford Press.

Kozan, K., & Richardson, J. C. (2014). Interrelationships between and among social, teaching, and cognitive presence. *The Internet and Higher Education,* 21, 68–73. https://doi.org/10.1016/j.iheduc.2013.10.007

Li, F. (2022). "Are you there?": Teaching presence and interaction in large online literature classes. *Asian-Pacific Journal of Second and Foreign Language Education,* 7(45), 2-15. https://doi.org/10.1186/s40862-022-00180-3

Maddrell, J. A., Morrison, G. R., & Watson, G. S. (2011, November 8-12). *Community of inquiry framework and learner achievement* [Paper presentation]. The Association of Educational Communications & Technology, Jacksonville, FL.

Martin, F., Wu, T., Wan, L., & Xie, K. (2022). A meta-analysis on the community of inquiry presences and learning outcomes in online and blended learning environments. *Online Learning,* 26(1), 325-359.

Mutezo, A. T., & Mare, S. (2023). Teaching and cognitive presences: The mediating effect of social presence in a developing world context. *Cogent Education,* 10(1), 2171176. https://doi.org/10.1080/2331186X.2023.2171176

Olpak, Y. Z., & Cakmak, E. K. (2018). Examining the reliability and validity of a Turkish version of the community of inquiry survey. *Online Learning Journal,* 22(1), 147-161.

Ozturk, E., Erdem, M., & Deryakulu, D. (2017). The predictive power of social and teaching presence on cognitive presence. *Kastamonu Education Journal,* 25(4), 1319-1336.

Picciano, A.G. (2002). Beyond student perceptions: Issues of interaction, presence, and performance in an online course. *Journal of Asynchronous Learning, 6* (1).

Polat, E., Hopcan, S., & Arslantas, T.K. (2022). The association between flipped learning readiness, engagement, social anxiety, and achievement in online flipped classrooms: a structural equational modeling. *Education and Information Technologies, 27*, 11781–11806. https://doi.org/10.1007/s10639-022-11083-8

Reisoglu I. (2014). Teaching, social and cognitive presence in 3D virtual learning environments. (Doctoral dissertation). Ataturk University Graduate School of Educational Sciences, Erzurum, Turkey. Available from the Council of Higher Education, National Dissertation Center, Dissertation ID: 356849

Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks,* 7(1), 68–88. https:// dx.doi.org/10.24059/olj.v7i1.1864

Shea, P., & Bidjerano, T. (2009). Community of inquiry as a theoretical framework to foster "epistemic engagement" and "cognitive presence" in online education. *Computers and Education, 52*(3), 543–553

Shea, P., Richardson, J., & Swan, K. (2022). Building bridges to advance the community of inquiry framework for online learning. *Educational Psychologist, 57*(3), 148-161. https://doi.org/10.1080/00461520.2022.2089989

Stenbom, S. (2018). A systematic review of the Community of Inquiry survey. *The internet and higher education,* 39, 22-32. https://doi.org/10.1016/j.iheduc.2018.06.001

Su, F., Zou, D., Wang, L., & Kohnke, L. (2024). Student engagement and teaching presence in blended learning and emergency remote teaching. *Journal of Computers in Education,* 11, 445–470. https://doi.org/10.1007/s40692-023-00263-1

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics.* Boston: Pearson.

Taghizade, A., Rasouli, Y., & Hosseini Largani, M. (2023). The relationship among motivation, self-efficacy, community of inquiry and learning performance in online learning environments: a path analysis. *Iranian Journal of Learning and Memory, 6*(22), 54-66. https://doi.org/10.22034/iepa.2023.402466.1431

Topgul, M. (2023). The role of teaching presence and social presence in students' sense of community during COVID-19 emergency remote teaching. (Master's thesis). Middle East Technical University Graduate School of Natural and Applied Sciences, Ankara, Turkey.

Turgut, Y.E., & Civelek Kutay, F. (2023). Content analysis on the research trends of community of inquiry model in Turkiye. *Educational Technology Theory and Practice,* 13(2), 328-351. https://doi.org/10.17943/etku.1188016

Yang, Y., & Cai, H. J. (2023). Teaching presence and academic achievement: the mediating role of psychological capital in online and offline hybrid college English course. *Open Journal of Modern Linguistics, 13,* 210-233. https://doi.org/10.4236/ojml.2023.131014

Yang, Y., Zheng, Z., Wang, J., & Sun, D. (2024). The relationships of motivation and self-regulation to students' cognitive presence and empowerment in online learning environment. *Education and Information Technologies.* https://doi.org/10.1007/s10639-024-12674-3

Yildirim, D., & Seferoglu, S. S. (2021). Evaluation of the effectiveness of online courses based on the community of inquiry model. *Turkish Online Journal of Distance Education, 22*(2), 147-163.

Yu, Z. (2022). The effect of teacher presence in videos on intrinsic cognitive loads and academic achievements. *Innovations in Education and Teaching International, 59*(5), 574-585. https://doi.org/10.1080/14703297.2021.1889394

Zhang, Y., Tian, Y., Yao, L., Duan, C., Sun, X., & Niu, G. (2023). Teaching presence promotes learner affective engagement: The roles of cognitive load and need for cognition. *Teaching and Teacher Education, 129,* 104167.

Zhao, F. (2023). Impact of CoI framework on online student engagement. *International Journal of Mathematics and Systems Science, 6*(3), 55-58.