THE ROLE OF TEACHING PRESENCE AND SOCIAL PRESENCE IN
STUDENTS' SENSE OF COMMUNITY DURING COVID-19 EMERGENCY
REMOTE TEACHING

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ABSTRACT

THE ROLE OF TEACHING PRESENCE AND SOCIAL PRESENCE IN STUDENTS' SENSE OF LEARNING COMMUNITY DURING COVID-19 EMERGENCY REMOTE TEACHING

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The COVID-19 pandemic has brought about profound transformations in the higher education experience for students. During this period, Emergency Remote Teaching was applied, which have changed how important learning constructs play a role in education and in students' learning experiences in the pademic conditions. This quantitative thesis study aims to re-examine the importance of social presence, teaching presence, and sense of community in the context of university education during the COVID-19 Remote Teaching. To this end, this study employs a structural model to examine the relationship between these constructs. An online questionnaire was conducted among 65 undergraduate students from a state university in Turkey to measure students' perceptions regarding this constructs. Partial Least Square Structural Equation Modeling (PLS-SEM) was used to analyze the research hypotheses and validate the research model.

The research findings revealed a positive correlation between students' sense of community and social presence. Interestingly, no positive correlation was observed between teaching presence and sense of community. However, teaching presence was found to bolster the relationship between sense of community and social

presence, suggesting that the subcomponents of the construct can be reinforced through direct instruction. These insights provide valuable information on the influence of social presence, teaching presence, and sense of community in distance education, which may inform the pedagogical strategies for more effective management of future educational processes. This study underscores the importance of these elements and emphasizes the need for education systems to exhibit flexibility and adaptability in the face of similar crises in the future. Thus, the findings not only shed light on the current situation but also pave the way for future improvements in the educational sector.

ÖZ

COVID-19 ACİL DURUM UZAKTAN ÖĞRETİM SIRASINDA ÖĞRENCİLERİN ÖĞRENME TOPLULUĞU ALGISINDA ÖĞRETSEL VE SOSYAL BURADALIĞIN ROLÜ

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COVID-19 pandemisi, öğrenciler için yükseköğrenim deneyiminde derin dönüşümlere neden oldu. Bu dönemde, acil uzaktan eğitim uygulandı ve bu da öğrenme yapılarının eğitimde ve öğrencilerin pandemi koşullarındaki öğrenme deneyimlerinde oynadığını rolü değiştirdi. Bu nicel tez çalışması, COVID-19 Uzaktan Eğitim dönemi boyunca üniversite eğitimi bağlamında sosyal buradalık, öğretsel buradalık ve topluluk duygusunun önemini yeniden incelemeyi amaçlamaktadır. Bu hedefle, bu çalışma bu yapılar arasındaki ilişkiyi incelemek için bir yapısal model kullanmıştır. Türkiye'deki bir devlet üniversitesinden 65 lisans öğrencisi arasında çevrim içi bir anket yapılarak öğrencilerin bu yapılar hakkındaki algılarını ölçülmüştür. Araştırma hipotezlerini test etmek ve araştırma modelini doğrulamak için Kısmi En Küçük Kareler Yapısal Eşitlik Modelleme (PLS-SEM) kullanılmıştır.

Araştırma bulguları, öğrencilerin topluluk duygusu ile sosyal buradalık arasında pozitif bir ilişki olduğunu ortaya koymuştur. Ancak, pandemi sürecinde, öğretsel buradalık ile topluluk duygusu arasında olumlu bir ilişki gözlemlenmemiştir. Ancak, öğretsel buradalığın, topluluk duygusu ile sosyal mevcudiyet arasındaki ilişkiyi

güçlendirdiği tespit edilmiş, bu da bu yapının alt bileşenlerinin doğrudan öğretim yoluyla güçlendirilebileceğini göstermiştir. Bu perspektifler, uzaktan eğitimde sosyal buradalık, öğretsel buradalık ve topluluk duygusunun etkisine dair değerli bulgular sunmaktadır ve gelecekteki eğitim süreçlerinin daha etkili yönetimi için pedagojik stratejilere yol verme potansiyeline sahiptir. Bu çalışma, bu unsurların önemini vurgulamakta ve gelecekte benzer krizlere karşı eğitim sistemlerinin esneklik ve ataptasyon gösterme gereksinimlerini ortaya koymaktadır. Bu nedenle, bulgular sadece mevcut durumu aydınlatmakla kalmamakta, aynı zamanda eğitim sektöründe gelecekteki iyileştirmelerin de yolunu açmaktadır.

Anahtar Kelimeler: COVID-19 Pandemisi, Acil Durum Uzaktan Öğretim (ERT), Topluluk Duygusu, Sosyal Buradalık, Öğretsel Buradalık

To My Family

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LIST OF ABBREVIATIONS

CEIT   Computer Education and Instructional Technology

DI   Direct Instruction

DO   Design & Organization

ERT   Emergency Remote Teaching

F   Facilitation

FD   Facilitation and Design

TP   Teaching Presence

TV   Task Value

SOC   Sense of Community

SP   Social Presence

CHAPTER 1

INTRODUCTION

The COVID-19 pandemic has become one of the biggest global health crises of the 21st century, affecting millions of people around the world and causing dramatic changes in education.

Due to the pandemic, many countries have been forced to close schools and universities or switch to distance learning. According to Kerres (2022), online learning has become an important tool for continuing education, but it has also shown the difficulty of accessing digital technologies and virtual classrooms. In addition, students faced social and emotional problems. The main purpose of this study is to examine the effects of the role of Teaching Presence and Social Presence in Students' Sense of Community more closely in the distance education process, which is considered a common experience at the global level, and to offer pedagogical suggestions for improvements. Providing training in this field with the results obtained and ensuring a more effective distance education management in similar crisis situations in the future. This information will guide educational institutions and educators to better cope with similar situations in the future and will enable more effective use of Remote Education.

1.1 Background of the Study

In the context of emergent distance learning, a sense of community plays an important role in creating a supportive and interactive learning environment. According to Palloff and Pratt (2007), a strong sense of community is characterized

by meaningful interactions among participants, common goals, and a sense of belonging. In the context of emergent distance learning, cultivating this sense of community becomes even more important as physical distance separates instructors and students.

The "Community of Inquiry" framework developed by Garrison, Anderson, and Archer (2000) is a fundamental theory that emphasizes the integration of cognitive, social, and teaching assets in online learning environments. This framework can contribute to the development of a sense of community by encouraging students to interact, work together, and focus on a common goal. This can provide an important foothold, especially during urgent distance learning.

The importance of the concept of Sense of Community (SoC) during the Covid-19 pandemic has been highlighted by a number of academic studies, especially in the context of Emergency Remote Teaching (ERT). In this context, the study titled "Building Online Learning Communities" developed by Palloff and Pratt (2007) examines effective strategies in creating online learning communities. In the event of Emergency Distance Learning, implementing these strategies can help create a sense of community that is more effective in responding to students' emotional and academic needs.

A study by Dennen, Darabi, and Smith (2007) also examines the perceived importance of student-teacher interactions on SoC in online courses. This study highlights that student-teacher communication can play a critical role in creating a sense of community that addresses students' emotional and academic needs. In this context, a special focus on student-teacher interactions in emergent distance learning conditions can help build a stronger SoC.

During ERT, instructors face the challenge of recreating the social dynamics typically present in traditional classrooms. As examined by Rovai (2002), social integration and engagement are integral components of a positive online learning experience. Using technology to facilitate meaningful interactions in this unique educational environment is vital. Collaboration tools, discussion forums, and virtual

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meetings can provide ways to build a sense of community. The study by Shea et al. (2014) emphasizes that instructor rapport, openness of communication, and timely feedback are important in creating a supportive online community. Using these strategies, educators can bridge physical distance and contribute to building cohesion during Emergency Remote Learning.

Additionally, students' emotional and psychological well-being is an important consideration in developing a sense of community during ERT. Dennen, Darabi, and Smith (2007) argue that creating a supportive community helps alleviate feelings of isolation and increase motivation. In response to unexpected disruptions, it is important that instructors recognize and address the unique challenges students may face. By embracing empathetic communication and providing resources for emotional support, educators can contribute to the resilience and integrity of the learning community.

1.2   Problem Statement

Teaching Presence (TP) and Social Presence (SP) play pivotal roles in shaping the Sense of Community (SoC) in online educational settings. TP involves the design, facilitation, and direction of the educational experience, including instructional design & organization, and direct instruction by the educator. On the other hand, SP refers to the degree of sociability and perceived realness in the online learning environment, emphasizing the interpersonal relationships and social interactions among participants.

Research has shown a strong link between TP, SP, and SoC in traditional online teaching environments. Garrison, Anderson, and Archer (2000), in their development of the Community of Inquiry framework, highlighted the interconnectedness of TP, SP, and Cognitive Presence in fostering a vibrant online learning community. Effective TP, with well-designed instructional activities and clear Facilitation, contributes to the establishment of a structured and supportive

online learning environment. Simultaneously, SP, through the cultivation of interpersonal connections and a sense of community, enhances the overall online learning experience (Shea et al., 2014).

However, in the context of Emergency Remote Teaching (ERT), the effects of TP and SP on SoC might differ due to the abrupt and unforeseen nature of the transition. While traditional online teaching involves a planned and deliberate instructional design, ERT is characterized by an urgent shift from face-to-face to online instruction in response to unforeseen events, such as the Covid-19 pandemic.

Emergency Remote Education differs from traditional online teaching or distance education in its immediacy and the reactive nature of the transition. In traditional online teaching, educators have the opportunity to carefully plan and design the online learning experience, considering the unique needs and characteristics of the online environment. Distance education, similarly, is typically designed for asynchronous learning, allowing for a more structured and planned approach.

In contrast, ERT involves a sudden and reactive shift to online instruction, often without the time for comprehensive instructional design. The urgency of the transition may impact the implementation of TP and SP strategies, potentially influencing their effectiveness in building a strong Sense of Community.

However, it is important to acknowledge that research examining Sense of communities (SoC) during the Covid-19 pandemic is quite limited. Although the importance of SoC, which is an online and distance learning opportunity, is understood in the literature, the unique conditions provided by the pandemic have caused paradigm changes in education and a need for more specific research has arisen.

An important framework in the existing literature concerns the examination of the roles of Teaching Presence (TP) and Social Presence (SP) in shaping Sense of Community, especially during Emergency Distance Learning as the spread of the Covid-19 pandemic. TP involves the design and Facilitation of the educational

experience, while SP is concerned with personal uses and interactions in learning; both are critical in the online education environment. However, there is a distinct lack of indications of how these services are delivered in ERT conditions and specifically available on the SoC during the pandemic.

Considering the unique characteristics of the global health crisis and the challenges posed by the rapid transition to Emergency Distance Learning becomes essential for educators and policy practices as they implement the dynamics of SoC. A comprehensive review of the data found to show that strong learning can occur during Emergency Distance Learning can provide valuable insights. Moreover, examining the distribution of the roles of TP and SP during the pandemic, revealing specific strategies and interventions to increase the overall episode increase. With the educational environment undergoing continuous evolution, scholars have opportunity to conduct targeted study that sheds light on the complex dynamics of SoC during emergent distance learning.

1.3   Purpose of the Study

The central objective of this research is to offer a comprehensive exploration of the interconnections among Teaching Presence (TP), Social Presence (SP), and Sense of Community (SoC) within the unique context of Emergency Remote Teaching (ERT) prompted by the Covid-19 pandemic. Utilizing a structural model as the analytical framework, the study seeks to unravel the nuanced dynamics shaping the learning environment during this crisis. Through a cross-sectional quantitative approach, data was systematically collected from students participating in diverse courses that underwent a swift transition to remote instruction amid the pandemic. By delving into these relationships, the research endeavors to contribute valuable insights into the mechanisms through which TP and SP influence SoC, shedding light on the critical role these elements play in fostering a cohesive and supportive online learning community during times of unprecedented global challenges.

Furthermore, the study aims to discern potential variations in the effects of TP and SP on SoC within the Emergency Remote Teaching setting as compared to traditional online instruction. The urgency and unforeseen nature of the transition during the pandemic may introduce distinct dynamics that necessitate a closer examination of these relationships. By addressing this gap in the literature, the research aims to provide practical implications for educators, instructional designers, and policymakers grappling with the evolving landscape of remote education, ultimately contributing to the enhancement of teaching practices and the overall learning experience in emergency contexts.

1.4   Importance of Study

The global outbreak of Covid-19 has thrust the entire world into unforeseen circumstances, compelling an unprecedented transformation in the realm of education. Despite Distance Education being touted as an alternative method in many countries, its application has been limited to specific populations, with little development or support in other educational groups. This limitation stems from the perception that distance education is not a universal solution but rather a necessary adaptation to the challenges posed by the pandemic. Research underscores that students' perspectives play a pivotal role in determining the quality and effectiveness of this method, as evidenced by Ling's (2022) analysis of students' attitudes towards distance education.

In this obligatory educational shift, attempts were made to provide education to every student within available means; however, regional and logistical constraints rendered it impossible for some students. The inherent inequality of opportunities in this system, with a lack of balance, results in some students being unable to access the benefits of distance education.

The pandemic has created unique and challenging learning conditions, which might have different consequences on important constructs in education, such as Sense of

Community (SoC), Social Presence (SP), and Teaching Presence (TP). In this regard, understanding how these constructs and their relationships with each other hold during Emergency Remote Teaching conditions becomes crucial. New research evidence is necessary for comprehending these relationships and their dynamics.

This study aims to make a significant contribution to the literature by unraveling the nuanced interplay between SoC, SP, and TP in the context of Emergency Remote Teaching during the Covid-19 pandemic. By providing empirical insights, it seeks to offer valuable guidance for educators and policymakers grappling with the challenges of remote education, thereby enhancing our understanding of effective instructional strategies and support mechanisms in these exceptional circumstances. The data gathered aims to serve as a foundation for conducting further studies and navigating the challenges posed by unprepared transitions to remote education.

The goal of this study is to assist educators and teachers in analyzing deficiencies in developing the online education model for future generations, taking into account the students' exposure to the identified constructs. By shedding light on the experiences and perspectives of the target group, this research endeavors to contribute valuable insights that can inform the ongoing evolution of education in the wake of the global pandemic.

1.5   Assumptions and Hypotheses of the Research

This study aims to answer the following questions:

1   Is there a positive relationship between Teacher Presence and Sense of Community?

2 Is there a positive relationship between Social Presence and Sense of Community?

3 Is there a positive relationship between Teacher Presence and Social Presence?

In order to find solutions to such questions, the hypotheses of the study are as follows.

Hypothesis 1: Social Presence positively affects Sense of Community.

Hypothesis 2: Direct Instruction has positively affects Social Presence.

Hypothesis 3: Direct Instruction has positively affected the Sense of Community.

Hypothesis 4: Design & Organization has positively affected the Sense of Community.

Hypothesis 5: Design & organization have positively affected Social Presence.

Hypothesis 6: Facilitation has positively affected Social Presence.

Hypothesis 7: Facilitation has positively affected the Sense of Community.

CHAPTER 2

LITERATURE REVIEW

In response to the global challenges presented by the COVID-19 pandemic, the international community chose not to halt education but, instead, opted for a temporary closure of schools while ensuring the continuity of learning through diverse methodologies. In alignment with this global shift, Turkey transitioned from conventional education to Emergency Remote Teaching in March 2020. Despite the varied impact of the pandemic across educational institutions, particularly in undergraduate settings, the prevailing sentiment is that remote education has been employed with notable efficacy. According to Durak (2020), participants in a comprehensive study universally found remote education valuable and advocated for its widespread adoption.

Conversely, a global examination of various studies reveals that face-to-face or blended education is more advantageous and preferable than remote education. In a study by Tatlis (2021) involving 1500 students, 76% preferred traditional learning, while 24% favored remote education.

Analyzing the impact of the remote education method on students' learning processes reveals the significance of fundamental elements such as a sense of community, Teaching Presence, and Social Presence (Christopher et al., 2020). While these elements are not exclusive to distance education, they are integral to effective learning in both remote and traditional settings. The practical implementation of these elements necessitates a meticulous examination of methods and strategies to enhance the overall learning experience.

Examining examples from the literature, online platforms have created interactive group studies, discussion forums, and virtual communities, fostering a sense of community. To fortify their Teaching Presence, educators have adeptly guided the learning process by providing diverse learning materials and offering guidance (Berry, 2019). Creating opportunities for online interaction, such as through virtual events or group projects, has been confirmed by studies as an effective means to enrich the learning experience, enhancing students' motivation and engagement.

In the COVID-19 Emergency Remote Teaching environment, crucial elements that shape students' learning processes include a sense of community, Teaching Presence, and Social Presence. These concepts are not exclusive to remote education; they are also vital for effective learning in both traditional and COVID-19 Emergency Remote Teaching environments. This study aims to explore the interactions among these elements and their overall impacts on students' learning processes during the pandemic period.

2.1   Emergency Remote Teaching (ERT)

Although Emergency Remote Education is a globally recognized term, it started to be widely used with a major global crisis such as Covid-19. This transformation is emphasized by the dynamic nature of education driven by advances in technology. Gunawardena and McIsaac (2013) argue that the traditional scope of Emergency Distance Learning reflects a transformative journey beyond boundaries to encompass a broader range of educational practices facilitated by technology. As technology developed, education transitioned from traditional methods to distance education tools. After the invention of radio, the foundations of radio education were laid, and then educators began to provide educational content to students through interactive tools (Neal, 1999).

Emergency Remote Teaching, while not a new concept, gained popularity globally with the proliferation of the internet. In this context, teachers and students engage in

education without physical contact, utilizing tools such as video conferences and interactive presentations.

Like tarditional education, Emergency Remote Teaching Presents both advantages and disadvantages. One notable advantage is that students can tailor lessons to their own comprehension speed, allowing for a student-centered and subjective course flow. This flexibility promotes knowledge retention and ease of learning. Furthermore, the absence of geographical restrictions ensures equality among students, providing the opportunity for education under the same conditions, irrespective of individual circumstances.

However, challenges exist in Emergency Remote Teaching that affect the learning experience. The flexibility offered by this model may become a disadvantage for students lacking discipline, as it requires a self-directed approach. Additionally, the delayed resolution of questions poses a significant challenge, as instant interaction, common in traditional classrooms, is generally not feasible in Emergency Remote Teaching. Students may have to defer their questions for future meetings or other interactions with teachers, potentially leading to delayed query resolution and disruptions to the learning process.

The education system has also been affected by the pandemic. With the epidemic, schools and universities had to switch to distance education and the education processes of students were moved to digital platforms. In a study conducted by Tan (2020), while distance education has been an important tool for sustaining education processes, some challenges have emerged regarding digital inequalities and the quality of education of students.

Along with all these effects, Turkey has struggled with social solidarity and conscious behavior during the pandemic process. The effects of the epidemic continue and better preparations for the recovery process and similar future situations are an important issue.

With the development of technology, distance education has gained an important place in education systems and has become an important tool that ensures uninterrupted education, especially in emergencies such as pandemics.

However, although Turkey had prepared for digital learning with distance education before, it had to make a mandatory transition due to the pandemic. As a result of this, distance learning has had many effects on students who have adapted to traditional education. This study aims to make sense of the impact of the Covid-19 pandemic, which has recently shaped the academy, on university students.

2.2   Sense of Community (SoC)

The concept of Sense of Community is characterized by the conviction that the collective efforts of a group meet the needs of students sharing the same learning environment, fostering a shared sense of belonging among all members (McMillan and Chavis, 1986; Yuan and Kim, 2014). It underscores the importance of cultivating a feeling of belonging and shared responsibility within the community or group (Sarason, 1974).

In the context of Remote Education, student participation in the course should be viewed as a blend of personal and social communication (Woods, 2002). Ensuring that students perceive themselves as integral members of the class, fostering a sense of connection rather than isolation, is paramount. However, given that student participation in distance education predominantly occurs through written texts, expressing emotions and showcasing personalities becomes challenging for students. This presents one of the significant challenges exacerbated by the nature of distance education.

2.3   Teaching Presence

Teaching Presence, an essential concept, signifies the effectiveness of the teacher in guiding and shaping the learning processes. This concept encompasses a wide range of activities, from the teacher structuring the overall framework of the course to organizing the content and engaging with students. The design and organization of the course are critical to providing a consistent structure to enhance student understanding and support learning. Simultaneously, in-course interaction, the second component of Teaching Presence, involves the teacher actively engaging in dialogue with students and enriching learning by interacting across various online platforms.

The third component of Teaching Presence, learner support, emphasizes the teacher's ability to deliver course content and provide direct instruction to students. This component requires the teacher to play an active role in guiding students, explaining topics, and supporting the learning process. By guiding students in reaching their learning objectives, the teacher makes the learning experience more effective and interactive. These three components create a robust framework for understanding the teacher's role in Teaching Presence more deeply and delivering effective education in online learning environments.

The Community of Inquiry approach (Garrison, 2011) might assist in demystifying what it means to "teach" online by providing a framework for considering the essential elements of successful online learning. Three overlapping "presences"— cognitive, social, and teaching—are represented by a Venn diagram in the paradigm.

Experienced online educators understand the paramount significance of thorough upfront course design in online instruction, surpassing its importance in traditional classroom settings. Engaging in activities such as discovering and crafting instructional resources, mapping out lesson sequences, and formulating assignment instructions and assessment criteria are integral aspects of effective course design. In the most successful courses, these components are meticulously organized to

manifest what Anderson et al. (2001) aptly term the "grand design" of the course, providing clarity and coherence throughout the learning experience.

2.3.1   Facilitation

The concept of Facilitation plays a pivotal role, particularly in establishing a robust teacher presence in online learning environments, as emphasized by Anderson and others (2001). Facilitators guide students throughout their academic journeys, actively engage in interactive discussions, and provide prompt responses to create a dynamic online learning environment. This emphasis aligns with the idea discussed by Anderson and colleagues (2001) that empowering individuals or groups to learn on their own significantly contributes to the success of education in online settings.

The cornerstone of an effective teaching presence lies in Facilitation, especially within the realm of online learning. The role of the instructor as a facilitator becomes paramount in the digital age, where face-to-face interactions are limited. To cultivate an environment that fosters meaningful engagement and collaboration, facilitators guide and support students throughout their academic journeys. Effective online facilitation involves actively participating in discussions, providing clarifications, and offering prompt responses to create a dynamic and engaging learning atmosphere. The success of education is significantly enhanced by the facilitator's ability to cultivate a Sense of Community, encourage critical thinking, and address the unique needs of each student. Instructors can enhance their Teaching Presence by adeptly navigating virtual spaces, answering queries, and moderating discussions, thereby fostering a welcoming online environment that promotes effective learning and establishes a Sense of Connection between students and course content.

Facilitation is the act of assisting individuals or groups in the learning process, facilitating consensus-building, or solving problems without imposing or controlling a specific course of action. It empowers individuals or teams to learn independently and address challenges on their own. Sustaining students' interest, motivation, and

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active participation in the course requires continuous monitoring and reflection on their contributions and work, which is integral to facilitation. In this process, the instructor plays a crucial role by setting an example for the kind of effort they expect from their students.

2.3.2 Design & Organization

In the realm of online education, a robust Teaching Presence rests heavily on the foundation of intentional course design and structure. A well-organized course, characterized by clear navigation and logical module sequencing, offers students a stable and coherent learning journey (Anderson, 2004). Clearly defined learning objectives act as a guiding compass, instilling a sense of purpose and aligning student progress with instructional principles (Garrison, 2011). To further enhance engagement, instructors can leverage the power of multimedia components. By catering to diverse learning styles and piquing student interest, multimedia elements reinforce the instructor's presence and provide a richer learning experience (Mayer, 2014).

Building a vibrant online community is another key facet of a strong Teaching Presence. Discussion boards and collaboration spaces promote communication and active student participation, fostering a Sense of Community and reinforcing the instructor's engagement in the learning process (Shea & Gu, 2015). Additionally, efficient feedback systems and seamless technological integration enhance Teaching Presence by offering prompt guidance and streamlining communication between instructor and student (Rockinson-Palmer, 2005). Ultimately, a dedication to inclusive and accessible course design, where every student feels empowered to participate regardless of their individual needs, paves the way for a thriving learning environment where students feel seen, supported, and motivated to excel (Harper & Stone, 2015).

2.3.3 Direct Instruction

The online learning landscape presents unique challenges and opportunities for educators. In this setting, direct instruction and Teaching Presence forge a powerful synergy, amplifying the overall learning experience.

In the virtual realm, precise communication, the essence of direct instruction, takes on heightened importance. Instructors play a pivotal role by explicitly articulating expectations and learning objectives, fostering a purposeful and supportive learning environment (Moore, 2018). Given the absence of immediate face-to-face interaction, there is an increased emphasis on cultivating a dynamic online community. This involves providing frequent and personalized feedback intricately connected to the overarching learning goals (Beşoluk et al., 2018).

Furthermore, interactive strategies woven into both Teaching Presence and direct instruction ignite collaboration and active learning in the digital sphere (Zheng, 2012). Modeling and scaffolded learning, hallmark features of direct instruction, become even more crucial in guiding students through complex concepts and supporting independent learning in the online environment (Hattie & Zierer, 2017).

In this digital domain, transparency and equity in assessment are upheld by both the teaching entity and direct instruction through clearly defined evaluation criteria and accessible assessment pathways (Warren et al., 2022). Finally, the thoughtful integration of technology acts as a catalyst, providing teachers with a diverse array of interactive resources and collaborative learning platforms to elevate the virtual learning experience (Hew, 2013).

As the educational landscape continues to evolve, the harmonious interplay of direct instruction and Teaching Presence is increasingly shaping the future of successful online education. By skillfully weaving these elements together, educators can cultivate a dynamic and engaging learning environment where students blossom in the digital realm.

2.4   Social Presence

According to Tu and McIsaac (2002), the complex relationships of Social Presence on student interaction in distance education have been examined in detail. It offers important insights into how Social Presence, especially in online classrooms, can deeply impact interactions and communication between students. Tu and McIsaac highlight the critical role of Social Presence by revealing the effects of Social Presence on student participation and online communication in distance education (2002).

Garrison, Anderson, and Archer (2000) provide a fundamental definition, describing Social Presence as the degree to which learners interact with each other and their instructors. This definition underscores the growing importance of Social Presence in the context of remote education, playing a crucial role in fostering meaningful interactions among students and cultivating a sense of virtual community (Garrison et al., 2000).

The concept of Social Presence in remote education holds the potential to positively impact both student-student and student-teacher interactions. Tu and McIsaac's (2002) study emphasize the active role that educators should play in enhancing Social Presence within online courses. It is evident that instructional strategies designed to connect students and foster a Sense of Community can significantly enhance the overall learning experience.

In the realm of remote education, Social Presence emerges as a foundational determinant of interactions between students and teachers. This concept has the power to establish meaningful connections among students, creating a Sense of Community within virtual learning environments. By facilitating students' ability to interact, express emotions, and collaborate, Social Presence enriches the online education experience. Educators must prioritize Social Presence and formulate effective strategies to strengthen these connections, thereby creating a more participatory learning environment. This not only supports the transfer of knowledge

in remote education but also enhances students' ability to engage with each other and feel part of a community. Consequently, Social Presence transcends its role as a mere communication tool in remote education; it becomes a key element that renders the learning experience more meaningful and effective.

2.5   Similar Research Studies

In the literature, there are different perspectives on the effects of a Sense of Community, Teaching Presence, and Social Presence on student engagement. For instance, a study conducted by Law et al. (2019) demonstrated that Teaching Presence directly influenced student engagement. This research revealed that when teachers provided more supportive feedback, student participation increased. However, another study by Borup et al. (2015) found no impact of Teaching Presence on student engagement when analyzed in terms of feedback support. These findings underscore the complex interactions of Teaching Presence and Social Presence on student engagement.

Numerous studies in the literature have delved into understanding the intricate relationship between Teaching Presence and Sense of Community. As underscored by Oliphant and Banch-Mueller (2016), the instructor's immediacy and prompt responsiveness emerge as pivotal factors in sustaining the development of a vibrant research community. This accentuates the critical role of Teaching Presence in nurturing the growth of community dynamics, particularly within online learning environments. Nevertheless, a recurring theme in the literature revolves around the often-limited interaction observed between Teaching Presence and Sense of Community, particularly in the context of online learning. This observation suggests that the efforts made by instructors to engage with students and cultivate a Sense of Community may encounter constraints and produce outcomes that fall short of expectations. This paradox serves as a guiding point for future research endeavors, offering insights into unraveling the complexities of the Teaching Presence and

Sense of Community relationship and providing valuable directions for enhancing the overall online learning experience.

Examining the intricate interplay between Social Presence and Sense of Community reveals divergent perspectives. In alignment with Lomicka and Lord's (2007) insights, the projection of Social Presence characteristics emerges as a pivotal factor in not only establishing relevant communities but also fortifying a sense of harmony within them. Garrison et al. (2000) further accentuate the substantial contributions of Social Presence to fostering meaningful interactions among students, thereby fostering the creation of a Sense of Community. In a parallel vein, Remesal and Colomina (2013) advocate for the affirmative influence of Social Presence, emphasizing its role in cultivating both a Sense of Community and positive interpersonal dynamics in blended learning environments.

Conversely, proponents of the notion that a negative relationship exists between Social Presence and Sense of Community argue that media incorporating Social Presence may paradoxically be perceived as less social. According to Rogers and Lea (2005), the emphasis on maximizing visual and auditory cues to establish Social Presence, particularly in computer-mediated or virtual environments, implies an attempt to emulate face-to-face communication. This perspective challenges the prevailing belief that Social Presence inherently makes a positive contribution to the development of a Sense of Community.

An impactful study has scrutinized the ramifications of Teaching Presence (TP) and Social Presence (SP) on Sense of Community (SoC), especially within the context of the pandemic. In alignment with this trajectory, the present study delves into the nuanced landscape of students' perceptions regarding Emergency Remote Teaching (ERT), placing a specific focus on questions tailored to construct-specific criteria. Li's (2022) research emerges as a seminal resource, substantially contributing to our understanding of the intricate dimensions inherent in students' responses to construct-specific inquiries.

Li's (2022) research significantly contributes to the literature by investigating how distance learning impacted learners during the pandemic, shedding light on specific concepts and the intricate dynamics of the virtual classroom. By exploring the perspectives of students responding to construct-specific questions, Li's study provides insights into how characteristics such as resilience and self-control manifest in the realm of online learning. The findings offer crucial insights into the nuances of students' responses to construct-specific queries and their implications for effective distance learning, setting the stage for the current investigation.

The present study endeavors to deepen our comprehension of students' experiences by focusing on related construct-specific questions, building upon Li's (2022) research. While Li provides valuable information about the overall effects of remote learning on students, our objective is to delve deeper into the specific concepts influencing their learning journeys. By investigating a broader spectrum of construct-specific inquiries, our aim is to contribute nuanced perspectives to the existing body of knowledge.

Li's (2022) study, encompassing 215 Chinese students, revealed a positive and significant relationship between Teaching Presence (TP) and Social Presence (SP). These results align with prior studies conducted before the pandemic (Garrison et al., 2010; Joo et al., 2011; d'Alessio et al., 2019). Moreover, TP was found to be positively and significantly correlated with Sense of Community (SOC), confirming the hypothesis that SOC is positively influenced by both TP and SP, playing a constructive role.

Examining the work of Liu, Magjuka, and Lee, which explored the effects of Social Presence (SP) in online courses, it was concluded that Social Presence, instructor facilitation, and technology use significantly contribute to Teaching Presence in SoC. Among these variables, instructional facilitation emerged as the most substantial contributor, particularly in partial correlation coefficient analyses. The results underscore the importance of frequent interaction with students, utilizing diverse learning activities with incentives, and providing informative feedback to

deepen learning, all essential for building SoC in online courses. These findings align with previous research, particularly highlighting the work of Shea, Li, Swan, and Pickett (2002) and Rovai (2001).

Furthermore, these results corroborate transactional distance theory, as online instructors, by offering timely feedback and actively engaging students in various learning activities, diminish the perceived distance in the online learning environment and foster a stronger connection with the learning community (Moore, 1980). This consistency with similar studies emphasizes that online instructors, through active interaction and varied learning activities, play a pivotal role in cultivating a robust SoC in online courses.

CHAPTER 3

METHOD

3.1   Participants

The research participant cohort was meticulously curated, comprising a total of 65 individuals, deliberately selected through the method of convenience sampling. The decision to adopt this specific sample size emanated from the guiding principles of convenience sampling, which entail the selection of individuals or groups that are readily accessible to researchers. Noteworthy is the enrollment of these participants in courses specifically dedicated to Python, C Sharp, and web design at Middle East Technical University.

Table 3.1 furnishes a categorical breakdown of the participants' departments, manifesting a predominant representation from the department of Computer Education and Instructional Technology. However, to ensure an intricate and diverse array of perspectives, participants from an array of other departments were intentionally incorporated. The strategic curation of participants from three distinct courses was aimed at introducing variability into the sample, facilitating a more exhaustive exploration of students' opinions on a specific topic.

Moreover, the deliberate inclusion of participants from diverse departments serves a twofold purpose. Beyond enhancing the research with a broad spectrum of perspectives, it constitutes a conscious endeavor to fortify the research's validity. By proffering a comprehensive panorama of the institution's collective encounter with remote education, this research aspires to encapsulate the nuanced and multifaceted terrain of opinions among students.

Table 3.1 Participants' Departments on University

Departments	Frequency (N=65)	Percentage (%)
Computer Education and Instructional Technology	55	84.6
Biology	2	3
Mathematics	2	3
Physics	1	1.5
Physics Education	2	3
Elementary Math. Education	2	3
Architecture	1	1.5

The composition of the participant group predominantly consisted of students from the Department of Computer Education and Instructional Technology (CEIT), constituting 85% of the total participants and representing the majority in this study. The remaining 15% of participants encompasses not only CEIT students but also individuals from diverse academic disciplines. This inclusive subset features students from a range of professions, including architecture (1.5%), mathematics (3%), biology (3%), physics (1.5%), physics teaching (3%), and secondary school mathematics teaching (3%).

While the majority of participants hail from CEIT, this deliberate inclusion of students from various academic fields serves to enrich the overall participant profile. Furthermore, it presents a valuable opportunity to discern the experiences of students from diverse disciplines during the period of Emergency Remote Learning. This diversified mix of participants is anticipated to contribute to a more comprehensive understanding of the intricate interplay between students' varied academic backgrounds and their encounters with remote education.

3.2   The Research Setting

The three courses delineated in the preceding section were administered online by the same instructor at Middle East Technical University (METU) during the

pandemic period, following identical instructional design and procedures. Synchronous online lectures were conducted through Zoom, wherein interactive coding sessions took place. These sessions required students to actively engage by following the instructor's lead in small crafting code snippets and developing miniature applications. To facilitate the learning process, students were mandated to submit their codes at the conclusion of each lecture, utilizing the OdtuClass learning management platform—a Moodle-based system.

Furthermore, students were obligated to complete an online quiz in the evening following each lecture day, consisting of 5 multiple-choice questions. Post-lecture, all video recordings of the sessions were made available on the OdtuClass platform, affording students the opportunity to review topics or catch up on missed classes.

Weekly lab applications were structured in an asynchronous format, enabling students to complete assignments at their convenience within the week and subsequently submit their work. Communication and assistance between the instructor and students were facilitated through the Slack network, fostering collaborative interactions and providing a platform for inquiries and support.

3.2.1 Instruments for Data Collection

An online survey was used in this study for data collection. It consisted of 25 items aimed at measuring students' perceptions of the learning community and instructional presence (including design and organization, facilitative discourse, and direct instruction). Participants were informed that the survey results would be analyzed anonymously. In this survey, students' ID information was collected to assign them one extra point as an incentive. That their personal information was removed from the data after assigning their extra scores and before analyzing the survey results.

The items measuring the Sense of Community was obtained from Rovai (2002). When the reliability of the survey was evaluated, high version levels were obtained

in programming using the Cronbach alpha amount and the half-split coefficient of equal length. Cronbach's alpha value was calculated as 0.93, and the half-split coefficient of similar size was calculated as 0.91, indicating the measurement tool has an excellent dispersion.

Items for measuring the Teaching Presence (TP) construct were determined based on the work of Fiock, Maeda, and Richardson (2021). The survey also measures the subcomponents of Teaching Presence, including Facilitation and Design (FD), Direct Instruction (DI), and Design and Organization (DO). Previous research indicated high reliability measuring these subcomponents. For example, for FD, $\alpha =$ .954 and $\alpha = .956$ were obtained in different contexts. Similarly, for DI, it was calculated as $\alpha = .887$ and $\alpha = .817$ were acquired in diverse settings. Furthermore, DO values calculated as $\alpha = .906$ and $\alpha = .893$. These results show that the measurement tools are reliable and perform based on solid technology.

The questions asked in these surveys were created on a 4-point Likert scale. Regarding the choice to use a 4-point Likert scale in this study, Johns (2005) argues that this scale may reduce the likelihood of participants choosing a neutral option due to the lack of a midpoint. The decision to use a 4-point Likert scale in both surveys was a conscious choice and was intended to encourage participants to provide clearer and more specific responses.

Table 3.2 Constructs of the SEM Model

Construct	Items
	I feel that students in this course care about each other.
	I feel connected to others in this course.
	I do not feel a spirit of community.
	I feel that this course is like a family.
Sense of Community	I feel isolated in this course.
	I trust others in this course.
	I feel that I can rely on others in this course.
	I feel uncertain about others in this course.
	I feel confident that others will support me.

Social Presence	Getting to know other course participants gave me a sense of belonging in the course.
	Online or web-based communication is an excellent medium for social interaction.
	I felt comfortable conversing through the online medium.
	I felt comfortable participating in the course discussions.
	I felt comfortable interacting with other course participants.
	Online discussions help me to develop a sense of collaboration.
Teaching Presence	
o Design & Organization	The instructor clearly communicated important course topics.
	The instructor clearly communicated important course goals.
	The instructor provided clear instructions on how to participate in course learning activities.
	The instructor clearly communicated important due dates/time frames for learning activities.
o Facilitation	The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.
	The instructor helped to keep course participants engaged and participating in productive dialogue.
	The instructor helped keep the course participants on task in a way that helped me to learn.
	Instructor actions reinforced the development of a sense of community among course participants.
o Direct Instruction	The instructor helped to focus on discussion on relevant issues in a way that helped me to learn.
	The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.
	The instructor provided feedback in a timely fashion.

3.   Research Design

To investigate students' perceptions of Sense of Community and Teaching Presence, this thesis adopts a quantitative approach. According to Koçoğlu and Tekdal (2020), studies utilizing quantitative methods are considered more significant and goal oriented. Quantitative approaches allow for data quantification and statistical analysis, facilitating a larger sample size, increased generalizability, and more precise conclusions.

This quantitative study employs a cross-sectional design. A cross-sectional study characterizes a cohort of subjects at a specific moment in time (Campbell et al., 2007). A distinctive feature of a cross-sectional design is the collection of data during a specific period or at a designated time point. In this context, the research aims to comprehend and evaluate students' perceptions at a specific moment. The cross-sectional design offers the advantage of capturing a diverse range of students and accurately representing their current circumstances. This methodological approach endeavors to provide a comprehensive perspective aligned with the study's objectives and a thorough assessment of students' experiences.

1.   Quantitative Method

Quantitative research, as defined by Creswell (2002), encompasses the systematic collection, analysis, interpretation, and reporting of quantitative data within a study. Utilizing a quantitative approach offers several advantages, including the ability to extrapolate findings to larger populations, ensuring accuracy through statistical analysis, and generating precise and quantifiable outcomes (Bryman, 2016). The process of data analysis involves the application of statistical techniques to evaluate the gathered quantitative data.

In this study, students' perceptions of the Sense of Community and Teaching Presence are measured and analyzed using a quantitative methodology, particularly during the COVID-19 pandemic. This approach, emphasizing the collection of

numerical data and employing statistical analyses, proves well-suited for objectively evaluating and analyzing student experiences throughout the semester in the context of remote learning.

3.3.2 Structural Equation Model (SEM) Research

A statistical modeling technique called Structural Equation Modeling (SEM) is used to investigate the nature of the interactions between one or more variables (Hair et al., 2019). As defined by Hoe (2008), this method offers a means of comprehending and quantifying interactions within a network of variables. SEM not only enables the measurement of multiple variables but also provides insights into the relationships interconnecting them. Its distinctiveness lies in its ability to incorporate numerous factors simultaneously, elucidating the multidirectional interactions among interconnected variables. Hoe (2008) emphasizes that SEM's capacity to scrutinize complex and multifaceted interactions sets it apart, allowing researchers to comprehend and clarify relationships among interrelated variables. Consequently, Structural Equation Modeling stands as a widely employed research technique in the social and behavioral sciences, particularly for scrutinizing intricate relationships and evaluating theoretical frameworks.

The primary objective of this study was to unveil the relationships among various constructs, specifically students' perceptions of Teaching Presence and Social Presence. SEM emerges as a fitting statistical technique for this purpose, offering the researcher the capability to account for inaccurate measurements and indirect interactions among identifiable variables within the model.

Structural Equation Modeling (SEM) stands out as a powerful quantitative research tool, offering distinct advantages for researchers across various disciplines. SEM's unique ability to simultaneously analyze direct and indirect relationships allows for a more comprehensive understanding of intricate causal models, moving beyond simplistic cause-and-effect scenarios (Kline, 2023).

One of SEM's strengths lies in its incorporation of latent variables, mitigating the impact of measurement errors inherent in real-world data. This explicit recognition and accounting for measurement error lead to more accurate and reliable estimates of model parameters (Hair et al., 2019).

According to Bollen (2014), SEM not only excels in data analysis but also in dynamic model testing and refinement. By scrutinizing hypothesized models against empirical data, researchers can continually enhance their understanding of studied phenomena, thereby enhancing the internal and external validity of research findings.

The integration of diverse data is another notable advantage of SEM, seamlessly bridging the gap between observed indicators and underlying concepts. This holistic approach enables a more nuanced understanding of complex phenomena by encompassing both measurable traits and unobservable constructs (Hoyle, 2012).

Furthermore, SEM empowers researchers to move beyond sample-specific findings. Leveraging robust statistical procedures and considering plausible causal relationships, SEM generates insights with broader applicability, allowing researchers to understand the causal mechanisms underlying relationships (Loehlin, 2004).

In conclusion, SEM emerges as a versatile and potent tool for empirical research, offering researchers a unique lens to unravel complex relationships, refine theoretical frameworks, and gain nuanced insights into the phenomena under study. Its capacity to handle measurement error, integrate diverse data, and explore both direct and indirect effects solidify its position as an asset for researchers across diverse academic domains.

3.3.2.1 PLS-SEM Analysis

Partial Least Squares Structural Equation Modeling (PLS-SEM) distinguishes itself from traditional Structural Equation Modeling (SEM) by its unique statistical approach. While covariance-based SEM maximizes explained covariance between

observed variables, PLS-SEM employs a latent structure model to elucidate the variance in observed variables.

An noteworthy strength of PLS-SEM lies in its handling of formative indicators. Unlike traditional SEM, which relies on reflective indicators, PLS-SEM utilizes formative indicators, collectively forming the latent structure.

Moreover, PLS-SEM is deemed more reliable, especially under conditions where data deviate from normal distribution, outliers are present, and sample sizes are small. According to Hair et al. (2017), PLS-SEM tends to produce more reliable results under such circumstances, justifying its selection in this study.

In summary, PLS-SEM's focus on explaining variance in observed variables makes it particularly suitable for addressing challenges posed by small sample sizes, non-normal data, and complex measurement models. Its adaptability to different indicator types and reliability in challenging data conditions contribute to its popularity across diverse research fields.

Factor analysis, a statistical technique for understanding relationships among observed variables, involves reducing variables into fewer, more meaningful factors (McDonald, 2014). Factor loadings, crucial values indicating the strength of the relationship between observed variables and the factor of interest, play a pivotal role in this analysis.

To evaluate factor loadings, various thresholds are considered. According to Smart-PLS, values below 0.7 (default threshold) are deemed insufficient, while literature suggests values above 0.6 are adequate. Notably, research studies recommend factor loadings exceeding 0.5 for optimal outcomes (Hulland, 1999; Truong & McColl, 2011).

In our analysis, standardized factor loadings surpassed the 0.4 threshold, aligning with criteria utilized in prior investigations (Ertz et al., 2016; Shrestha, 2021; Stochl et al., 1997). This ensures that factors effectively explain observed variable variance, reinforcing the representativeness of these variables by the factors.

In conclusion, factor loadings serve as fundamental tools for interpreting analysis results, offering insights into the relationships between factors and observed variables in structural equation modeling.

Path analysis, integral to structural equation modeling (SEM), enables researchers to test theoretical models and discern correlations between variables. Paths represent the relationships between variables, depicting the influence of one variable on another, combining latent and observable variables in the study.

The software SmartPLS facilitates SEM, allowing researchers to construct models, establish variable connections, and assess the statistical significance and strength of these connections using datasets. With an intuitive interface and robust statistical tools, SmartPLS streamlines path analysis studies.

Finally, bootstrapping, a statistical technique for assessing uncertainty and constructing confidence intervals, was employed using SmartPLS for SEM analysis. This iterative method, using preexisting data, enhances the reliability of statistical results by replicating sample distributions.

In essence, the combined use of path analysis, SEM modeling, and bootstrapping, supported by SmartPLS, provides a comprehensive and reliable framework for analyzing complex relationships within datasets.

3.4   Data Analysis

In the examination of students' perceptions, the study employed SPSS 23.0 for both descriptive and correlational data analysis. This involved the development of a model, exploration of correlations between variables, and rigorous evaluation of statistical significance. Correlation analysis, essential for quantifying the strength and direction between two quantitative variables, offers a spectrum ranging from -1 to +1. A positive correlation signifies a positive relationship, while a negative correlation indicates an inverse relationship (Saha, 2009).

Addressing the research questions necessitated the use of Partial Least Squares Structural Equation Modeling (PLS-SEM) to test hypotheses and predict structural relationships among latent constructs in the proposed model. As highlighted by Memon, PLS-SEM stands out as one of the most widely used methods for multivariate data analysis (p. 2). Recognized as a predictive model, PLS-SEM involves the estimation of conceptual models connecting various structural elements (Akter, Fosso Wamba, Dewan, 2017). Notably, its applicability with smaller sample sizes was a pivotal factor influencing its selection for this study (Hair, Matthews, and Sarstedt, 2017).

The study leveraged SmartPLS 4.0, the measurement software tailored for PLS-SEM methodology. Transforming numerous interrelated variables into a concise set of significant and independent factors was facilitated by SmartPLS. The use of path analysis, facilitated by SmartPLS, enabled the unveiling of both direct and indirect effects of external variables on internal variable(s) through illustrative path diagrams. The visualization of the relationships between hypotheses was made possible through SMART-PLS, and the precision of parameter estimates was rigorously tested using the bootstrap method. This comprehensive analytical approach illuminated intricate patterns and relationships within the quantitative data.

3.5   Ethical Considerations

The purpose of this study is to investigate how students' perceptions Social Presence, Sense of Community and Teaching Presence (including Direct Instructions, Design & Organization and Facilitation) were affected during Distance Education on COVID-19. Respecting study participants and conducting the procedure in a trustworthy and equitable manner are the two main goals of ethical considerations.

The subjects gave their informed permission at the start of the trial. The participants were fully informed about the goal of the study, its methodology, potential risks, and

its benefits, and their signed consent was acquired. This guaranteed that participants gave their informed permission and engaged in the study willingly.

Additionally, extra care has been taken to ensure anonymity and confidentiality. The researcher is the only person with access to participant data; it is not disclosed to outside parties. To guarantee the protection of any participant identity information, the data storage procedure was executed in a safe manner. The investigator respected the values of objectivity and dependability, steered clear of conflicts of interest, and oversaw the investigation on their own.

Furthermore, the approvals granted by the METU's Human Research Ethics Committee are entirely complied with by this study. The study was started after the required approvals were secured, and ethical guidelines were adhered to all along the research procedure. The study was carried out in compliance with ethical standards, and participant rights were upheld at every stage of the investigation within the parameters of these ethical concerns.

CHAPTER 4

FINDINGS

1.   Introduction

The analysis results and the main findings are shared in this section. The exploration of the effects of remote education on students' experiences and specific constructs involved a rigorous analytical approach. Utilizing the Smart-PLS application, the study conducted Factor Analysis, Path Analysis, and Bootstrapping. These analytical methods aimed to delve into the relationships between constructs and assess the reliability of these intricate connections. The subsequent sections provide a detailed account of the outcomes derived from Factor Analysis, Path Analysis, and Bootstrapping, offering valuable insights into the multifaceted dynamics of distance education on students' experiences.

2.   Descriptive Statistics

When using SmartPLS for factor analysis, you may model the connections between these factors and gain an understanding of how latent factors—which are theoretical concepts—connect to observable variables—observed data. Path Analysis was used to interpret the findings after Factor Analysis with Smart-PLS was used to assess the results' reliability. Following that, bootstrapping was carried out, and the data was analyzed to determine whether there was a connection between them.

The findings of this study are based on average values obtained in order to understand and evaluate students' distance learning experiences. The mean of 2.87 for the Sense of Community component indicates that students generally experience a Sense of Community. This indicates that the distance learning process creates a sense of bond and solidarity among students.

In evaluating the impact of distance education, the study examined key components through the lens of Teaching Presence and Social Presence. The Teaching Presence - Design & Organization component yielded a noteworthy mean of 3.75 (SD = 0.394), signifying that students perceive the course content to be well-designed and effectively organized. This positive experience suggests a high level of satisfaction with the clarity and structure of the course material.

Moving to the Teaching Presence - Facilitation component, the mean score of 3.63 (SD = 0.457) indicates that students have a positive experience with lessons being conducted in an interactive and participatory manner. The high mean value reflects the efficacy of the facilitation approach employed during distance learning.

The Teaching Presence - Direct Instruction component, with a mean of 3.56 (SD = 0.540), showcases students' high satisfaction levels with the direct instructions provided by their distance teachers. This outcome emphasizes the effectiveness of direct instructional methods in the distance learning context.

On the Social Presence front, the mean score of 3.01 (SD = 0.670) suggests that students' level of social interaction during distance learning is at an average level. These findings provide valuable insights into students' perceptions of their distance learning experiences, offering a basis for evaluating and enhancing teaching methods.

An examination of standard deviation values across components, including SOC, TP-Design & Organization, TP-Facilitation, TP-Direct Instruction, and Social Presence, reveals low standards (ranging from -0.394 to -0.670). These deviations (-0.486, -0.394, -0.457, -0.540, and -0.670, respectively) indicate homogeneity in student responses. In other words, students' evaluations of their distance learning experiences are generally consistent, and their perceptions of specific components align closely with each other.

Table 4.1 Descriptive Statistics (N=65)

Construct	M	SD	Skewness	Kurtosis
Sense of Community (SOC)	2.87	.486	-.058	.215
TP- Design& Organization (DO)	3.75	.394	-1.332	.277
TP-Facilitation (F)	3.63	.457	-.930	-.200
TP-Direct Instruct (DI)	3.56	.540	-1.052	.060
Social Presence (SP)	3.01	.670	-.368	.293

The skewness and kurtosis values presented in Table 4.1 remain between -2 and +2 for each structure, showing that the data exhibits a univariate normal distribution. As stated by George and Mallery (2010), the fact that all these values are within this range confirms that the measurement structures are homogeneous and student responses are close to each other. This shows that the obtained data set is reliable and consistent and that the further analyzes can be carried out safely. These findings emphasize that the study is based on statistically strong foundations and increases the reliability of the results obtained.

The study delved into the correlations among various components of distance learning experiences, employing Pearson correlation coefficients to discern relationships in Table 4.2.

Firstly, a robust positive correlation was observed between Teaching Presence - Design & Organization (TP_DO) and Teaching Presence - Facilitation (TP_F) with a coefficient of 0.805 (p < 0.001). This indicates a strong connection, suggesting that well-organized course content tends to align with interactive and participatory teaching methods.

Furthermore, Teaching Presence - Direct Instruction (TP_DI) displayed a positive correlation of 0.690 with TP_DO (p < 0.001) and 0.788 with TP_F (p < 0.001). These

results underscore the interrelated nature of direct instructional approaches with both well-organized course content and interactive teaching methods.

Examining Social Presence (SP), a moderate positive correlation emerged with TP_DO (r = 0.365, p = 0.003), TP_F (r = 0.465, p < 0.001), and TP_DI (r = 0.517, p < 0.001). This signifies that a conducive learning environment, interactive teaching, and effective direct instruction contribute positively to social interactions during distance learning.

Lastly, the Sense of Community (SOC) component exhibited positive correlations with TP_DO (r = 0.333, p = 0.007), TP_F (r = 0.432, p < 0.001), and TP_DI (r = 0.361, p = 0.003). These findings imply that a well-organized course, interactive teaching, and effective direct instruction contribute to fostering a Sense of Community among students in the virtual learning environment.

In summary, these correlations provide valuable insights into the interconnectedness of various components within the distance learning framework. The positive associations underscore the importance of holistic approaches in course design, teaching methods, and instructional strategies to enhance overall student experiences and community building in the digital learning landscape.

Table 4.2 The Data of Correlations from SPSS

		TP_DO	TP_F	TP_DI	Social Presence (SP)	Sense of Community (SoC)
TP_DO	Pearson's r	-				
	p-value	-				
TP_F	Pearson's r	,805**	-			
	p-value	<,001	-			
TP_DI	Pearson's r	,690**	**,788**	-		
	p-value	<,001	<,001	-		

Social	Pearson's					
Presence	r	,365**	,465**	,517**	-	
(SP)	p-value	,003	<,001	<,001	-	
Sense of	Pearson's					
Community	r	,333**	,432**	,361**	,507**	-
(SoC)	p-value	,007	<,001	,003	<,001	-

p< .001 , (N=65)

4.3 Factor Analysis

Considering the factor loads evaluated according to the literature, items with factor loads less than 0.4 were systematically excluded from the assessment (Comrey & Lee, 2013), leading to the removal of four questions associated with the "sense of community-connectiveness" construct. This rigorous process underscores the measurement tool's capacity to exhibit internal consistency and reliability while accurately reflecting the intended concepts, ultimately ensuring the production of valid results. Comrey and Lee (2013) provide a comprehensive discussion on factor analysis, emphasizing that factor loadings above 0.4 are often considered significant, aligning with the criteria applied in this study. Table 4.2 presents the outcomes, including Cronbach Alpha (CA), composite reliability (CR), and Average Variance Extracted (AVE) values, along with item factor loadings for the latent constructs.

For "DI" (Direct Instruction), "DO" (Design and Organization), "F" (Facilitation), "SOC" (Sense of Community), and "SP" (Social Presence), the Cronbach's Alpha values were calculated as 0.750, 0.892, 0.863, 0.887, and 0.872, respectively, based on the provided data. The robust Cronbach's Alpha values further affirm the internal consistency and reliability of these constructs, reinforcing the validity of the measurement tool.

Validity tests, including convergent and discriminant validity assessments, were conducted to ascertain the scale's ability to measure the intended constructs accurately. The outcomes of these tests indicate a harmonious relationship between scale items and latent constructs, affirming the precision of the scale. Convergent validity was established with factor loadings and Cronbach's Alpha values exceeding 0.7. Furthermore, the composite reliability index surpassed 0.7, and the Average Variance Extracted (AVE) for latent constructs exceeded the recommended threshold of 0.50.

Table 4.3 Construct Reliability and Validity

Construct	Items	Factor Loadings	CA	CR	AVE
Sense of Community (SOC)	SOC_Q1	0.811			
	SOC_Q2	0.715			
	SOC_Q3	0.652			
	SOC_Q4	0.696			
	SOC_Q5	0.687	0.887	0.899	0.526
	SOC_Q6	0.784			
	SOC_Q7	0.770			
	SOC_Q8	0.707			
	SOC_Q9	0.691			
Social Presence (SP)	SP_Q1	0.684			
	SP_Q2	0.643			
	SP_Q3	0.884			
	SP_Q4	0.832	0.872	0.891	0.615
	SP_Q5	0.845			
	SP_Q6	0.786			
Teaching Presence- Direct Instruction (DI)	TP_DI-Q1	0.847			
	TP_DI-Q2	0.864	0.750	0.783	0.664
	TP_DI-Q3	0.726			

Teaching Presence- Design & Organization	TP_DO-Q1	0.935			
	TP_DO-Q2	0.858	0.892	0.903	0.756
	TP_DO-Q3	0.852			
	TP_DO-Q4	0.828			
Teaching Presence- Facilitation	TP_FAC-Q1	0.776			
	TP_FAC-Q2	0.852	0.863	0.884	0.706
	TP_FAC-Q3	0.898			
	TP_FAC-Q4	0.830			

Additionally, convergent and discriminant validity tests were conducted to further evaluate the validity of the scale shown in Table 4.4. The outcomes of these tests demonstrate a harmonious association between scale items and latent constructs, reinforcing the precision of the scale in measuring the intended concepts. Convergent validity was established with factor loadings and Cronbach's Alpha values surpassing the recommended threshold of 0.7, emphasizing the reliability and accuracy of the measurement tool in assessing latent constructs. Additionally, the composite reliability index should be greater than 0.7 and the Average Variance Extracted (AVE) of latent constructs should be greater than 0.50.

Table 4.4 Discriminant Validity Scores from Factor Analysis

	DI	*DO*	*F*	*SOC*	*SP*
DI	**0.815**				
DO	0.688	**0.869**			
F	0.810	0.800	**0.840**		
SOC	0.368	0.343	0.442	**0.725**	
SP	0.518	0.364	0.472	0.530	**0.784**

4.4   Path Analysis

In order to evaluate the importance of the relationships between latent constructs, the PLS bootstrapping technique was employed to investigate the structural model. Using bootstrapping, a nonparametric technique, the relevance of the PLS-SEM model was statistically assessed, taking into account route coefficients, Cronbach's alpha, and R^2 values. From the original dataset, subsamples were created by replacing some of the observations at random. Path analysis and process coefficients might be estimated thanks to this iterative procedure.

In this investigation, bootstrapping was carried out using SmartPLS 4.0's default parameters for 5000 subsamples and a maximum of 3000 iterations. Figure 4.1 presents the structural model that was obtained, along with path coefficients, R2 values for latent constructs, and outer item component loadings.
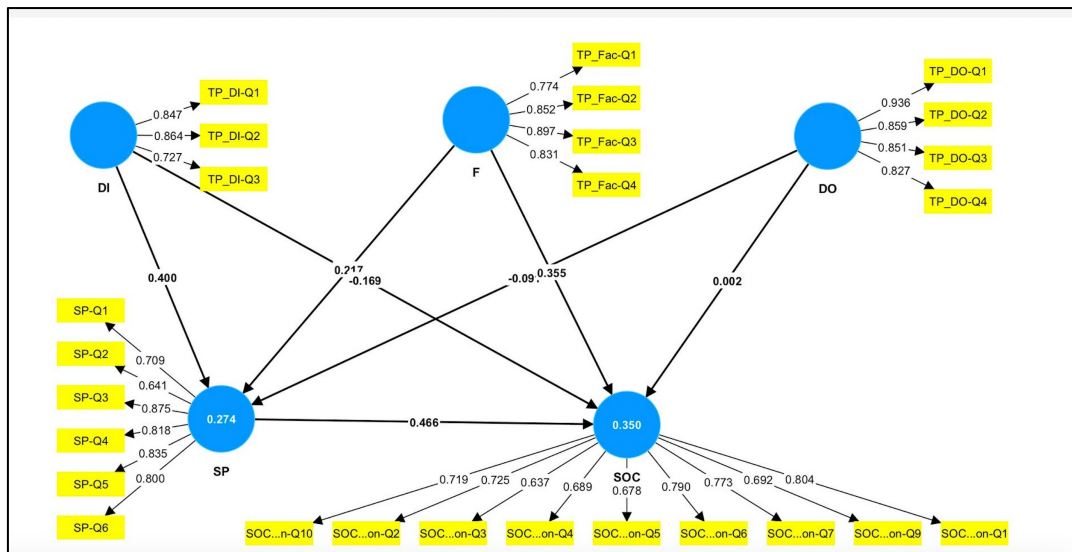

Figure 4.1 Path Coefficient

Bootstrapping is employed to ascertain the meaningfulness of the obtained Path coefficients. The examination involves a comprehensive review of the path coefficient, mean, standard deviation, T values, and p values presented in Table 4.5. The results of the bootstrap analysis reveal that, among the seven structural paths

connecting latent constructs, two paths are statistically significant. Specifically, Direct Instruction (p = .048) and Social Presence (p = .001) exhibit a noteworthy impact on the relationship between Social Presence and Sense of Community, establishing a statistically significant interaction within the sample. Conversely, the remaining factors demonstrate no significant effects.

Table 4.5 Path Coefficients, Mean, STDEV, T values, P values

	Sample	*Sample Mean*	*STDEV*	*T Value*	*P value*	*Significance*
DI>SOC	-.143	-.111	.174	.823	.411	Not Significant
DI>SP	.404	.384	.204	1.978	**.048**	**Significant**
DO>SOC	.003	-.016	.211	.015	.988	Not Significant
DO>SP	-.082	-.055	.184	.447	.655	Not Significant
F>SOC	.349	.353	.232	1.504	.133	Not Significant
F>SP	.211	.221	.192	1.100	.272	Not Significant
SP>SOC	.438	.450	.130	3.371	**.001**	**Significant**

CHAPTER 5

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

In education, students' Sense of Community is regarded as a critical component of learning (Caskurlu, Maeda, Richardson, 2020). The Sense of Community highlights the beneficial effects that the social connections formed by students when they come together have on their learning processes and overall educational experience (McMillan, 1996; Vieno, Lenzi, Santinello, and Scacchi, 2013). McMillan (1996) asserts that a strong Sense of Community is an essential component that reduces the distance between students and fortifies group ties.

Students' social interactions with one another can enhance their education and foster better communication, teamwork, and problem-solving abilities (Ghavifekr, 2020). Furthermore, students who have a sense of belonging to a group feel more secure, which might improve their interest in what they are learning (Pham, 2017). Students that have a strong Sense of Community are also more able to overcome obstacles and share knowledge with one another.

This study's findings demonstrate the complicated nature of Emergency Remote Education's online learning environments and the interactions between students during the learning process. Results indicate that Social Presence benefits Sense of Community in particular. This shows that a strong feeling of community among students may foster greater relationships and boost online participation in the Emergency Remote Teaching environment. Moreover, this study shows that the Direct Instruction component of Teaching Presence is positively correlated with Social Presence. In other words, certain instructional techniques and direct

instruction methods can improve student-to-student contact and raise their degree of Social Presence, which in turn enhances students' Sense of Community.

Developing a strong feeling of community and social bonds among students is the goal of raising community awareness in order to improve the learning environment in Emergency Remote Teaching. Social Presence appears to be a key feature in this process as indicated by the research findings of this thesis work. In summary, a feeling of community plays a critical role in facilitating academic success for both individuals and communities. In this regard, building strong social bonds amongst students is an essential first step in developing productive learning environments. Thus, educators may improve students' learning and success by working to foster a feeling of community.

According to the analysis results, Facilitation and Design and Organization constructs did not provide a statistically significant relationship with Sense of Community and Social Presence. Direct Instruction, on the other hand, sticks out as a component that enhances Social Presence. This demonstrates how providing students with direct information boosts their Social Presence by fostering greater engagement.

It might be underlined in this regard that building a strong Social Presence among students is the most effective strategy to raise community awareness. Students may connect more intimately with one another when they are more socially present, which enhances the feeling of community. Since students receive clear instructions and interaction-enhancing teaching techniques can be used, direct instruction stands out as an efficient way for achieving this goal.

Given the effective role of Direct Instruction in augmenting Social Presence, it is pertinent to emphasize that educators who aim to fortify community awareness particularly like this tactic. By fostering a strong feeling of community among students, instructional practices that promote engagement and social relationships can help create a more successful learning environment.

The study by Antonaci and team (2019) found that "Higher levels of Social Presence, expected to be the Social Presence effect on Sense of Community, are associated with higher levels of SoC: accepted and supported" (p. 172). These findings suggest that Social Presence can increase levels of Sense of Community (SoC) by supporting a stronger Sense of Community among students.

In conclusion, this study reveals the impact of Social Presence on Sense of Community, guiding educators to design learning environments more effectively and creating a strong Sense of Community among students and supporting other studies. These findings are an important step towards developing strategies to increase Social Presence to encourage students to interact more and make their learning experiences more meaningful.

5.2   Conclusion

This study aimed to understand how student attitudes are shaped during the pandemic period by examining the relationships between certain constructs in multiple undergraduate-level courses. In this context, an attitude survey measuring various dimensions such as Sense of Community, Social Presence and Teaching Presence was used to evaluate student attitudes, which then was analyzed using the PLS-SEM (Structural Equation Model and Partial Least Squares) statistical method.

This research examines in depth the attitudes of students regarding the Sense of Community, Social Presence and Teaching Presence constructs during COVID-19 Emergency Remote Teaching environment. According to the results obtained, it has been observed that a significant factor affecting Sense of Community is Social Presence. Additionally, Social Presence was found to be significantly related only to Direct Instruction.

These findings highlight the importance of a Sense of Community and Social Presence among students in the educational environment of the pandemic period. In

particular, the strong connection of Social Presence with Direct Instruction reveals the role of interaction and direct instruction in shaping these constructs.

An important contribution of this study is to analyze the results obtained by comparing them with previous studies. Comparison with previous studies provides greater understanding of how student attitudes have changed during the pandemic. Evaluating whether our findings are in line with or different from previous research may provide an important contribution to the literature in this field.

Hypotheses 1 and 2, which are among the 7 hypotheses of this study, support that there is a significant relationship between certain constructs in the distance education process during the pandemic period, and these hypotheses are accepted. However, the p values obtained for the remaining five hypotheses are not significant, indicating that these hypotheses are rejected.

5.3   Assumptions and Limitations of the Study

This study has several limitations. Sampling limitations are one of the critical issues facing any research (Antonaci, 2019). The small sample size in the study may have a significant impact on the generalizability of the results obtained. Therefore, the study's primary limitations are the comparatively small sample size and the possible influence of the results on generalization. There needs to be more assessment data since only 65 of the 89 students initially included in the survey answered the questions. This is crucial for a study evaluating effects on Social Presence and Sense of Community. The limited sample size casts doubt on the findings' generalizability in a larger context by raising questions regarding the representativeness of different demographic characteristics, learning styles, and experience levels. Furthermore, a smaller sample size might impact the validity and dependability of statistical studies, raising doubts about how difficult it will be to determine whether the results are statistically significant. Understanding these restrictions has a direct impact on the validity of the research.

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APPENDICES

A. Survey Sheet

Add Course Experience - 2021Fall

This survey is administered as a part of research study that focus on understanding students' learning experiences and preferences in online/hybrid courses during the COVID-19 pandemic.

Participation in this survey is voluntary. You may refuse to take part in the research or exit the survey at any time without penalty. Not participating in this survey or your answers (which will be unknown to the instructor) will have **NO effect on your final grade of this course**.

By participating in this research, you also give permission to access your activity logs in OdtuClass about this course. Log data will be used to understand the connection between your learning experiences and your actual engagement in the course.

Your METU email address will be requested to connect the survey results with the activity logs obtained from OdtuClass. Before the analysis, any identifying data such as email or ID will be removed from the dataset. **The analysis will be performed on 100% anonymous data**.

By clicking on the NEXT button you agree to participate in this research study. You will be redirected to the survey.

There are 12 questions in this survey.

1

Your university email address:

This field is necessary to merge the data for the analysis. After the merge, your email address will be removed from the data.

*

Please write your answer here:

[   ]

2

Your gender:

[   ]

3

Which year are you in your department:

*

[   ]

4

Your department:

*

[   ]

5

Please rate the following items based on the degree to which you agree with them.

*

Please choose the appropriate response for each item:

	[1] Strongly disagree	[2] Disagree	[3] Agree	[4] Strongly agree
I feel that students in this course care about each other.				
I feel connected to others in this course.				
I do not feel a spirit of community.				
I feel that this course is like a family.				
I feel isolated in this course.				
I trust others in this course.				
I feel that I can rely on others in this course.				
I feel uncertain about others in this course.				
I feel confident that others will support me.				

6

Please rate the following items based on the degree to which you agree with them.

*

Please choose the appropriate response for each item:

	[1] Strongly Disagree	[2] Disagree	[3] Agree	[4] Strongly Agree
The instructor clearly communicated important course topics.				
The instructor clearly communicated important course goals.				
The instructor provided clear instructions on how to participate in course learning activities.				
The instructor clearly communicated important due dates/time frames for learning activities.				
The instructor was helpful in guiding the class towards understanding course topics in a way that helped me clarify my thinking.				
The instructor helped to keep course participants engaged and participating in productive dialogue.				

	[1] Strongly Disagree	[2] Disagree	[3] Agree	[4] Strongly Agree
The instructor helped keep the course participants on task in a way that helped me to learn.				
Instructor actions reinforced the development of a sense of community among course participants.				
The instructor helped to focus discussion on relevant issues in a way that helped me to learn.				
The instructor provided feedback that helped me understand my strengths and weaknesses relative to the course's goals and objectives.				
The instructor provided feedback in a timely fashion.				

7

Please rate the following items based on the degree to which you agree with them.

*

Please choose the appropriate response for each item:

	[1] Strongly disagree	[2] Disagree	[3] Agree	[4] Strongly agree
Getting to know other course participants gave me a sense of belonging in the course.				
Online or web-based communication is an excellent medium for social interaction.				
I felt comfortable conversing through the online medium.				
I felt comfortable participating in the course discussions.				
I felt comfortable interacting with other course participants.				
Online discussions help me to develop a sense of collaboration.				

B. Approval of Ethical Committee

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

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15 ŞUBAT 2022

Konu   : Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi   : İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Dr.Öğr.Üyesi Erkan ER

"Kovid-19 Pandemisi sırasında verilen çevrimiçi ve hibrid derslerde öğrencilerin tercihlerini ve deneyimlerini araştırmak ve anlamak" başlıklı araştırmanız İnsan Araştırmaları Etik Kurulu tarafından uygun görülmüş ve **0101-ODTUİAEK-2022** protokol numarası ile onaylanmıştır.

Saygılarımızla bilgilerinize sunarız.

Prof.Dr. Mine MISIRLISOY
İAEK Başkan