

## THE DETERMINATION OF THE SENSE OF COMMUNITY LEVELS OF UNIVERSITY STUDENTS IN ONLINE DISTANCE EDUCATION ENVIRONMENTS IN TERMS OF DIFFERENT VARIABLES

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**Received:** 15/02/2023 **Accepted:** 05/07/2023

### ABSTRACT

Online education has been implemented in Turkiye as well as in many countries of the world in recent years and is becoming more widespread day by day. Being able to take place anytime and anywhere, eliminating the limitations of time and space, and providing lifelong learning can be described as the most basic factors in the spread of online education. In addition, due to the rapid increase in the number of learners who have to take online education due to the Covid-19 global epidemic, which has affected the whole world recently, it has become an important issue for learners to acquire knowledge and skills in online distance learning environments. Also, it is necessary to determine the level of developing a sense of community in order to ensure the learners' self-expression in the relevant environments, their active participation and the continuity of the learning action. In this study, it was aimed to determine the level of sense of community of learners studying at Turkish-German University in the 2021-2022 academic year in online distance education environments in terms of different variables like gender, level of education, and their ability to use computer programs and applications. The research was carried out in the cross-sectional scanning model. The obtained data are analyzed with the help of SPSS package program. The findings are evaluated at the 95% confidence interval and at the 5% significance level. Sub-factor averages, factor correlations are examined and diagnostic statistics related to the study group are included. In addition, t-test is used for variables with two sublevels and one-way Anova is used for variables with more than two sublevels. If there is a difference in the Anova test, Post-Hoc tests are used to determine the pairwise differences. As a result, in order to make education more efficient in online learning environments, it is concluded that in order to strengthen the sense of community, learners can be given tasks that they can discuss and negotiate, learners can be made to work in groups in related environments, etc. In addition, considering the stress, anxiety and uncertainty that learners and educators face with the global epidemic, it is thought that social presence should take priority for learning to take place. It is recommended that the study be developed by applying it to larger regions and samples.

**Keywords:** Online distance education, sense of community, online learning, parametric tests.

## INTRODUCTION

With the technological developments experienced today, we often see that innovations gain momentum in many areas of our lives, and this acceleration affects many areas as well as its reflections in the field of education. In the light of these developments, there is an increase in virtual learning environments, and many virtual education environments with different infrastructures are offered to users. In this context, the number of institutions providing online distance education has been increasing, especially with the covid-19 pandemic period, and in parallel, there has been a serious increase in the number of teachers and learners in online education environments (Dhawan, 2020). This increase in online distance education environments raises the issue of belonging to the relevant environments. It is thought that the sense of community has become an important issue in online distance education and online learning environments within all developments.

Learning in these environments takes place by distributing the course material with tools such as text, sound, video, graphics and animation through the use of communication technologies based on the Internet (Gumus, 2007). Online environments have carried educational practices beyond the physical boundaries of the classroom and made the online interaction between student-student and student-teacher a part of education. Thus, students; they started to interact with teachers/instructors and classmates using both synchronous and asynchronous online communication tools (Wang, 2008). These environments have been accepted by many educational institutions due to reasons such as low cost, the opportunity of the faculty member to provide education services independent of time and place, and the convenience they provide in transmission (Varol and Turel, 2003). This situation has affected the spread of online environments in educational institutions (Cited by Yildiz, 2020).

In non-face-to-face learning environments, a sense of reality and a strong sense of classroom community can create a sense of connectedness and belonging among learners and help them fulfill their responsibilities towards each other and the institution they are studying at. In the literature on open and distance learning (ODL), there are studies that emphasize the importance of a sense of community in these educational environments. For example, in his seminal work on ODL, Rovai (2002) mentions that by adopting a set of course design principles in ODL courses, dialog can be increased and thus a sense of community can be fostered. Similarly, Liu et al. (2007) state that a sense of community is “critical” to the online learning experience. In a more recent study, Ilgaz and Askar (2013) found a high positive relationship between sense of community and satisfaction with online learning. In this respect, it is thought that a scientific study on this subject will contribute to the literature.

In the context of all these statements; it is an important issue for learners to acquire knowledge and skills in online distance education environments. In addition, it is thought that the level of development of the sense of community should be determined in order for learners to express themselves in the relevant environments, to ensure their active participation and the continuity of the learning action.

## Purpose and Importance of the Study

In this study, it was aimed to determine the level of community feeling of learners studying at Turkish-German University in the 2021-2022 academic year in online distance education environments in terms of affective and operational dimensions, to determine the change status of the learners in terms of their demographic characteristics, their ability to use computer programs and applications, and to obtain information about the level of community feeling of learners in online environments.

It is thought that the related study will provide important findings in terms of providing information about the current program and practices of the institution according to the data from the learners in the online environments, which have become more widespread with the covid-19 pandemic, and providing the opportunity to review the course designs and current practices and evaluations. In this context, it is thought that the study can contribute to the literature in determining the current state of the online distance education process from the learner’s point of view and making suggestions to make it more effective. It is also important in terms of setting an example for researchers who want to work in the field.

## Limitations of the Study

This study is limited to the learners who take online courses with distance education methods in the academic year of 2021-2022, specific to the Turkish-German University.

## RELATED LITERATURE

In general, the sense of community can be defined as belonging, the sense of recognizability that the members create towards each other and the group, and the belief that the needs of the members will be met thanks to their togetherness. McMillan and Chavis (1986) defined the sense of community under four components. These are membership, influence, support, and shared emotional connection.

When the relevant literature is examined, it is possible to come across various studies. Based on these four components created by McMillan and Chavis, Rovai (2001a) defined the components of sense of class community. These components are spirit, trust, influence and learning.

In their study, Ilgaz and Askar (2009) developed a sense of community scale to examine the online community feeling of students enrolled in a distance education program structured on the blended learning model. Based on the scale developed by Rovai, Wighting and Lucking in 2004, a measurement tool was developed and validity-reliability studies were conducted. The prepared scale was developed with the data obtained from 571 first year students of Ankara University Theology Undergraduate Distance Education Program. As a result of the analyzes made, the scale took its final form with 6 items and 2 factors. As a result, a scale with validity and reliability studies has been developed to be used to determine the sense of community of students studying in online environments in distance education.

Yildiz (2018) aimed to adapt the Scale of the Sense of Community in Online Environments into Turkish and to examine it in terms of reliability and validity. After the relevant validity and reliability studies, it was determined that the adapted scale has reliability and validity in measuring the sense of community in online environments.

In his study, Enfiyeci ve Butukalan-Filiz (2019) examined the relationship between the sense of community, motivation and academic achievement of postgraduate distance education students in online environments. The study, which was carried out with the descriptive relational research model, was carried out with Ahmet Yesevi University Distance Education Master's programs students. The research was carried out with 453 students who were studying in 16 different graduate programs at Ahmet Yesevi University in the 2017-2018 academic year and responded to the scales sent via e-mail through the system. In order to collect data from students, "Personal Information Form", "The Scale of the Sense Online Learning Community" and "Motivation Scale" prepared by the researcher were used. Obtained data were statistically analyzed with descriptive statistical analysis, correlation analysis and regression analysis. As a result of the research, there was no relationship between sense of community and motivation, while a negative, non-significant relationship was found between sense of community and academic achievement. It has been observed that there is a positive and significant relationship between the collected data and academic achievement and motivation. In addition, it was observed that the sense of community variable did not have an effect on the motivation variable, while motivation was a significant predictor of academic achievement.

In his work in Yildiz (2020); determined the factors that affect students' sense of community in online learning environments. The participants of the study consisted of 15 associate degree students from 5 different departments in a distance education and research center. Research data were obtained by semi-structured interview, one of the qualitative data collection tools. As a result, it has been suggested that while organizing online environments, attention should be paid to informing the instructors about the process, designing the interfaces where interaction takes place, making orientations about the system, and determining appropriate methods and strategies.

Chatterjee and Correia (2020) investigated the relationship between learners' sense of community and their attitudes towards online cooperative learning. As a result of the study, it was determined that there is a moderate positive relationship between cooperation and sense of community. In addition, it was noticed that the degree of relationship between sense of community and cooperative learning was higher among graduate students than undergraduate students. In addition, a higher degree of correlation was found between a

positive attitude towards cooperative learning and the dimensions of sense of community compared to the relationship between a negative attitude towards cooperative learning and a sense of community.

Kilinc and Altinpulluk (2021) conducted a study to examine the community perceptions of learners who produce content in online learning environments in terms of variables such as gender, age, access to information technologies and experience of using information technologies. The results obtained within the scope of the research, in which 117 content-producing learners participated, show that the sense of community of content-producing learners does not differ significantly according to their gender, technology access and technology usage experience. In addition, it was concluded that the learners who produce content in the context of the operational dimension, which is a sub-dimension of the sense of community scale, differ significantly depending on age.

Ozen and Duzenli (2023), in their study at Anadolu University School of Foreign Languages, aimed to determine the differentiation status of the level of the sense of community development in online distance learning environments in terms of affective and operational dimensions, according to the variables related to the demographics of the learners, the language levels they study and their technology use skills. As a result of the research, it was found that gender and language levels are not important factors in developing a sense of community, it is important to create a supportive and inclusive learning environments for all learners regardless of their demographic characteristics, and they concluded that it is necessary to provide effective and efficient online environments where learners with higher technology proficiency, who can use various tools and technologies in online learning, are more comfortable and competent in using these technologies and expressing themselves comfortably.

When the relevant literature is examined, there are several studies on the determination of the level of the sense of community of learners in online distance education environments. However, in the institutional context, there is no study that covers all learners in an institution. In this context, it is predicted that the results of this study will be beneficial in terms of increasing the quality of online courses.

## METHODOLOGY

This study is designed in the cross-sectional survey model of quantitative research method (Buyukozturk, Kilic Cakmak, Akgun, Karadeniz, & Demirel, 2012). The cross-sectional survey model first aims to take a photo of the situation by collecting data at once to illuminate a situation, variable, phenomenon and then to reveal the situation, variables and the relationship between the variables by examining this photo.

The dependent variable of the study is the Level of the Sense of Community of the learners studying at Turkish-German University in Online Distance Education Environments. In this study, the independent variables are:

- Gender
- The level of basic computer skills
- Faculty/Institute
- The level of education

In this context, the sub-problems of the research are shaped around the following questions:

1. Does the Level of the Sense of Community of learners studying at Turkish-German University in Online Distance Education Environments differ according to gender?
2. Does the Level of the Sense of Community of the learners studying at Turkish-German University in Online Distance Education Environments differ according to the faculty/institute they study?
3. Does the Level of the Sense of Community of the learners studying at the Turkish-German University in Online Distance Education Environments differ according to their level of education?
4. Does the Level of Community Feeling of the learners studying at Turkish-German University in Online Distance Education Environments differ according to the skill level of using the program and application?

## Participants

The learners of Turkish-German University taking lessons according to the blended learning model constitute the universe of this study. Within the scope of the study, the link of the data collection tool was sent to the learners from the automation system.

The population of the study consists of university students taking courses in online learning environments. While determining the study group, criterion sampling and convenience sampling methods are used as sampling methods. The reason for choosing these sampling methods is that the convenience sampling method makes it easy to reach the research sample in terms of time, labor and finances and to collect data quickly, while the reason for choosing the criterion sampling method is that it should consist of students who are in online learning environments or taking courses (Buyukozturk et al., 2012). In this context, the sample of the study consisted of the learners of Turkish-German University, where ethics committee permission was obtained for the study. Within the scope of the study, data were collected from 368 (n=368) learners. Cresswell (2008) states that the data collected from 360 or more individuals in survey studies represent the universe.

## Data Collection

In the collection of data, the 'survey on the internet' method, which is a faster, effective and economical method, which is seen to be increasing in popularity in the literature (Shonlau et al., 2002 as cited in Avcioglu, 2014), was used (Arikan, 2018). The surveys were uploaded to the online survey platform called Google Forms, and the link to access the form was shared with the students. The necessary ethics committee permission was obtained from the Scientific Research and Publication Ethics Committee of the Turkish-German University on 08.11.2021.

## Data Collection Tools

### Participant Information Form

In this study, in the Participant Information Form prepared in accordance with the purpose of the research, there are questions about *gender, education level, ability to use computer programs and applications, faculty types, and grade levels*.

### The Scale of the Sense of Community in an Online Distance Education Environment

In this study "The Scale of the Sense of Community in an Online Distance Education Environment" developed by Ilgaz and Askar (2009) is used. The Scale of the Sense of Community in an Online Distance Education Environment, which was originally developed in Turkish and whose validity and reliability studies were conducted on university students participating in distance education by Ilgaz and Askar (2009), is a 7-point Likert-type scale consisting of 6 items. The scale consists of two sub-dimensions, affective (4 items) and operational (2 items). The CFA performed revealed that the scale showed a good fit [ $\chi^2(7, N=571) = 24.76, p < .000, RMSEA = 0.067, S-RMR = 0.034, GFI = 0.99, AGFI = 0.96, CFI = 0.99, NNFI = 0.98, IFI = 0.99$ ]. The Cronbach alpha coefficient calculated for the reliability analysis was found to be 0.79 and 0.73 for the sub-dimensions, respectively, and 0.80 for the total scale (Ilgaz & Askar, 2009). The validity and reliability results of the scale show that the scale can be applied to students participating in online distance education programs.

## Data Analysis

The skewness and kurtosis coefficients of the scores obtained from The Scale of the Sense of Community in an Online Distance Education Environment were found to be between +1.5 and -1.5. According to the obtained values, it can be said that the data provides the assumption of normality (De Carlo, 1997). Descriptive statistics of scale scores are presented in Table 1.

**Table 1.** Descriptive statistics of scores

	<b>N</b>	<b>Min.</b>	<b>Max.</b>	<b>Average</b>	<b>SD</b>	<b>Skewness</b>	<b>Kurtosis</b>
Affective	368	1.00	7.00	4.15	1.43	.127	.254
Operational	368	1.00	7.00	3.66	1.55	.290	.497

The obtained data are analyzed with the help of SPSS package program. The findings are evaluated at the 95% confidence interval and at the 5% significance level. In the comparison of the quantitative data, t-test is used for variables with two sublevels and one-way Anova is used for variables with more than two sublevels. If there is a difference in the ANOVA test, Post-Hoc tests are used to determine the pairwise differences.

Cronbach's Alpha value was examined to determine the reliability level of the scale used in the research. It is seen that the Cronbach's Alpha internal reliability coefficient is ,873, and the scale has high reliability.

## FINDINGS

### Findings Concerning the Working Group

In this section, the frequency and percentage distributions of the data collected through the participant information form are shown in tables.

**Table 2.** Distribution Table by Gender of the Learners

<b>Variables</b>	<b>Groups</b>	<b>Frequency</b>	<b>Percentage</b>
Gender	Woman	176	47.8
	Male	192	52.2
	Total	368	one hundred

It is seen that 47.8% of the study group consists of female and 52.2% male participants.

**Table 3.** The Level of Basic Computer Skills of the Participant

<b>Variables</b>	<b>Groups</b>	<b>Frequency</b>	<b>Percentage</b>
The level of basic computer skills	Low	37	10.1
	Middle	220	69.8
	High	111	30.2
	Total	368	one hundred

According to the answers given by the learners in the study group regarding the skill levels of using computer programs and applications; low 10.1% medium level 69.8% high level skills 30.2%. In this context, the excess of those who say they have medium level skills is striking.



**Table 4.** The Level of Education

Variables	Groups	Frequency	Percentage
Level of Education	Language Preparatory Classes	106	28.8
	1st Class	107	29.1
	2. Class	61	16.6
	3rd grade	35	9.5
	4th Grade	43	11.7
	Graduate	16	4.3
	Total	368	one hundred

When the participation status of the learners in the study group is examined according to their level of education, it is observed that the highest participation in the research is the 1st grade with 29.1% and the language preparatory classes with 28.8%. It is seen that those who participate the least are graduate students with 4.3%.

**Table 5.** Types of Faculties, Institutes, and Colleges Where Learners Study

Variables	Groups	Frequency	Percentage
Faculty/Institute	School of Foreign Languages	60	16.3
	Faculty of Administration	73	19.8
	Faculty of Science	46	12.5
	Faculty of Law	33	9.0
	Faculty of Engineering	133	36.1
	Faculty of Culture and Social Sciences	8	2.2
	Graduate School of Social Sciences		
	Graduate School of Science	13	3,5
		2	,5
	Total	368	one hundred

When the participation status of the study group according to the faculties is examined, it is seen that the highest participation is seen in the engineering faculty with 36.1%, the second highest participation is seen in the Faculty of Management with 19.8%, and the least participation is in the institute of science.

### Findings Related to Problem Situations

#### Do the Levels of Community Sense Development of the Working Group in Online Distance Learning Environments Change by Gender?

It is said that the affective sub-dimension of the scale includes questions about caring, trust, welcoming and giving opportunities, and the operational sub-dimension includes questions about creating a community in online education environments such as sharing speech.

**Table 6.** T-test Table of Learners Participating in the Study by Gender

Variables	Groups	Cover	T	P	Cohen's
Affective	Woman	4,176	,300	,309	
	Male	4,128			
Operational	Woman	3.59	,90	,018*	,41
	Male	3.34			

While there was no significant difference in the affective sub-dimension of the levels of developing a sense of community in online distance education environments between groups of different genders, there was a statistically significant difference in the operational sub-dimension ( $P < .05$ ). Cohen's d values of the found difference are examined. It is seen that the relevant value for the sub-dimensions with significant differences between them is 0.41 and has a medium effect size. It is seen that the mean score of women in the operational sub-dimension is higher than the mean score of men.

### Do the Levels of Community Sense Development of the Working Group in Online Distance Education Environments Change According to the Level of Use of Computer Programs and Applications?

**Table 7.** One-way Anova Table According to the Skills of Using Computer Programs and Applications of the Learners Participating in the Study

Variables	Groups	Cover	F	P
Affective	Low	2,603	,374	,688
	Middle			
	High			
Operational	Low	2,399	1,737	,177
	Middle			
	High			

According to the one-way Anova analysis results indicated in the table, the learners; In online distance education environments, there is no significant difference between the skills of computer programs and applications at the levels of community feeling in both affective and operational sub-dimensions of the scale.

### Do the Levels of Community Sense Development of the Working Group in Online Distance Education Environments Change According to the Faculties Where They Study?

In the scale, there are factors such as the affective sub-dimension of caring, trust, welcoming and giving opportunities, and the operational sub-dimension, the factors of creating a community in online education environments such as sharing speech. According to the Anova results, it was observed that there was a difference between the groups in the affective sub-dimension ( $\text{Sig.} = .002 < .05$ ). Since the variances were homogeneously distributed ( $\text{Sig.} = .160 > .05$ ) and the distribution in the sample groups was not equal, Hochberg's GT2 Post Hoc test was performed.



**Table 8.** One-way Anova Table by the Faculties/Institutes of Study Participants

Variables	Groups	Cover	F	P	Difference
Affective	School of Foreign Languages	4,0750	3,360	,002*	2-5
	Faculty of Administration	4.4897			
	Faculty of Science	4,2120			
	Faculty of Law	4.3333			
	Faculty of Engineering	3.8177			
	Faculty of Culture and Social Sciences	4,1250			
	Graduate School of Social Sciences	5.0962			
	Graduate School of Science	6,3750			
Operational	School of Foreign Languages	3.6583	2,218	,052	
	Faculty of Administration	3.9452			
	Faculty of Science	3.8478			
	Faculty of Law	3,5606			
	Faculty of Engineering	3.3459			
	Faculty of Culture and Social Sciences	4.0625			
	Graduate School of Social Sciences	4.6154			
	Graduate School of Science	4,7500			

According to the Post Hoc test results regarding the types of faculties, there are significant differences in affective dimension between the learners of the Faculty of Engineering and the Faculty of Administration. In the affective dimension, it is seen that the highest averages are at the Faculty of Administration (4.4897) and the lowest average is at the Faculty of Culture and Social Sciences (3.8177).

Do the Levels of Community Sense Development in Online Distance Education Environments of the Working Group Differentiate According to their Level of Education?

The affective sub-dimension of the scale is defined as a factor that includes the characteristics of creating a community in online education environments for caring, trusting, welcoming and giving opportunities. According to Anova results, it is seen that there is a significant difference between the levels of education of the learners participating in the study and their sense of community in online distance education environments, and the affective dimension, one of the sub-dimensions of the related scale ( $P < .05$ )

**Table 9.** One-way Anova Table According to the Levels of Education of the Learners Participating in the Study

Variables	Groups	Cover	F	P	Difference
Affective	Language prep. classes	4.082547	2,223	,038*	2-4
	1st Class	4.0514			
	2. Class	4.2582			
	3rd grade	3,8500			
	4th grade	4.2965			
	Graduate	5,2031			
	Graduate				
Operational	Language prep. classes	3.6462	,723	,606	
	1st Class	3,5794			
	2. Class	3.9344			
	3rd grade	3.4286			
	4th grade	3.6279			
	Graduate	3.9688			
	Graduate				

In addition, according to the anova results, it was observed that there was a difference between the groups in the affective sub-dimension ( $\text{Sig.}=.038<.05$ ). Since the variances were not homogeneously distributed ( $\text{Sig.}=.035<.05$ ), the Games-Howell Post Hoc test was performed due to the differences in the sample groups.

According to the Post Hoc test results regarding the levels of education, it is seen that the students at the graduate level have significant differences with the students at the language preparatory classes, 1st and 3rd grade levels in the affective dimension. In the affective dimension, it is seen that the highest average is at the graduate level (5.2031), and the lowest average is at the 3rd grade level (3.8500).

## CONCLUSION AND DISCUSSION

*In the context of the results of the descriptive findings obtained from this study*, the number of male learners participating in the research is higher than the women participants, the number of learners with medium level of computer program usage and application skills is higher in the current sample, and it is seen that preparatory and first-year students participate more in the research, and students at undergraduate level participate much more than learners at graduate level according to their level of education.

*Within the scope of the results of the inferential findings related to the problem statement*, as a result of the appropriate tests, no significant difference was found in the levels of developing a sense of community in online distance learning environments of learners in online distance education environments, according to their gender and level of the use of computer programs and applications. This finding is in line with the findings of Kilinc and Altinpulluk (2021). This finding supports the finding that gender is not an effective variable in developing a sense of community. Based on this finding, it can be said that in a community of online learners, it is possible for both men and women to support and encourage each other regardless of their gender and thus, if appropriate conditions are provided, a more positive and effective learning environment can be created for all members of the community. In addition, the finding that gender and computer application usage levels were not significant factors in developing a sense of community emphasizes the importance of creating a supportive and inclusive learning environment for all learners, regardless of their gender or other characteristics.

It has been determined with the help of the related analyzes that the significant difference in the affective dimension of the development of the level of sense of community in online environments according to the faculty types is between the Faculty of Administration and the Faculty of Culture and Social Sciences. It was seen that the group with the highest sense of commitment was learners Faculty of Administration, and the group with the lowest commitment was from the Faculty of Culture and Social Sciences. It was also concluded that the level of emotional sharing in the related environments of engineering students was lower than the students of other faculties. This finding coincides with the result of Enfiyeci and Buyukalan-Filiz's (2019) study that learners studying in the department of English Language and Literature show higher engagement in terms of developing a sense of community than those studying in other fields. As a result, it is concluded that learners in social sciences show higher commitment in the affective context of sense of community than learners in science.

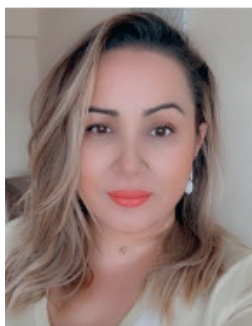
Finally, it is seen as a result of the related analyzes that the significant difference seen in the affective dimension of the levels of developing a sense of community in online environments of the levels of education of the learners is with the preparatory, 1st and 3rd grade levels of the graduate learners. It is concluded that as the class level rises, affective belonging, sharing and trust towards online environments increase. Considering the grade levels, as a result of the related analyses in the sub-factors of caring, trusting, welcoming and giving opportunities in the affective sub-dimension of the level of developing a sense of community in online environments, it is seen that learners at the 3rd grade level show higher commitment than other learners at the 1st grade level. This finding was found to be consistent with Beeson et al.'s (2019) study. Thus, it can be argued that students who spend more time in an online environment may have more opportunities to interact with and get to know other members of the community, which may foster a sense of connection and belonging.

As a result, considering the stress, anxiety and uncertainty that learners and educators face with the global epidemic, it is thought that social presence should take priority for learning to take place. In order for online distance education systems to create a successful and productive learning environment, it is important

for the participants to feel themselves as part of the group (Valentine, 2002). Undoubtly, as the reality of COVID-19 continues to be a part of life, educators and learners are likely to miss physical presence. Although social distancing has become the new norm, most of the activities required to establish relationship and create a sense of belonging to the group can be done collectively but separately in online environments. Studies have shown that as in face-to-face education, using approaches that will attract students' attention and encourage learning and giving feedback (Haar, 2018), using educational technologies as an effective tool instead of making them a subject (Shea, 2006). structuring the content and teaching techniques considering that students have different learning styles (Cayci & Unal, 2007; Valentine, 2002), showing more sensitivity to the needs of students compared to formal education (Ribbe & Bezanilla, 2013), conducting lessons with smaller groups in a way that will increase the quality of interaction instead of crowded classrooms (Rovai, 2002), increasing instructor-student interaction (Shea, 2006), giving students responsibilities for their own learning in the form of individual and group work, making them realize that they are doing something for themselves and each other (Rovai, 2002), structured communication between lecturers, students, and technical assistance personnel (Shea, 2006) and giving students tasks with which they can cooperate (Rovai, 2002) strengthen the sense of community.

In this period, when the use of online education environments is increasingly on the agenda if the epidemic continues, in order to strengthen the sense of community in order to make education more efficient, learners can be given tasks that they can discuss and negotiate on, and group work can be given by pairing students who are enthusiastic enough to teach and want to learn. Online learning systems can be developed where students can work closely but separately with each other, and systems can be structured with an emphasis on social ties. In future studies, it is thought that the research can be repeated on different samples in a more expanded way in order to confirm the findings obtained from this study, how much augmented/virtual reality technologies can simulate a real classroom experience and its effect on student motivation can be examined.

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