

THE RELATIONSHIP BETWEEN TEACHER IMMEDIACY BEHAVIOURS AND DISTANT LEARNERS' SOCIAL PRESENCE PERCEPTIONS IN VIDEOCONFERENCING APPLICATIONS

Associate Professor Mujgan BOZKAYA, Ph.D.

**Open Education Faculty
Anadolu University
Eskisehir, TURKEY**

ABSTRACT

Videoconferencing systems combine face-to-face and mediated interactions in distance education. We extend the use of a Social Presence measure to on-site (face-to-face) learners and distant learners. Comparison between physically present and distant located learners did not indicate significant differences in social presence. Also results indicate that the predicted social presence score for distance instruction is slightly lower than for the on-site instruction for high nonverbal behavior while the reverse is true of low non verbal behaviors. Predicted social presence for face to face instruction is quite higher than for the distance instruction for the high verbal behaviors while the reverse is true of low verbal behaviors. It means that students' social presence is predicted to be higher in the face to face setting comparing to the videoconferencing course in both models. Additionally, when both nonverbal and verbal behaviors increase, the predicted social presence is facilitated, controlling for the grouping variable. In other words, instructors' nonverbal and verbal communication skills enhance learners' social presence in either environment.

Keywords: Teacher immediacy behaviour; social presence; videoconferencing.

INTRODUCTION

The success of globally and locally distributed organizations such as distance learning environments heavily depends on their ability for remote collaboration. Therefore, videoconferencing technology plays very important role as it provides a rich communication environment in which a wide range of remote collaboration tasks can be successfully accomplished. Also, these kinds of technologies help students, instructors and institutions to save travel expenses and time. So that, many distance education systems apply videoconference technology on a global scale for their class meetings and presentations.

However, compared with real face-to-face learning activities, communicating through conventional (two-ways audio-visual) videoconferencing tools is an artificial experience due to lack of eye-contact, lack of a shared social and physical context and a limited possibility for informal communication.

To decrease the artificial nature of remote communication, in other words, these kinds of mediated systems lack media richness and support for verbal and nonverbal communication behaviours (Burgeon, Buller, & Woodall, 1996).

Media richness is explained by some researchers (Kydd & Ferry, 1994; Trevino, Lengel et al., 1987) as the ability of a medium to carry information. Ability to carry information depends on two components.

These are the data carrying capacity and the symbol carrying capacity (Sitkin et al., 1992). Data carrying capacity based on the medium's ability to transmit information while symbol carrying capacity based on the ability of the media to, relay immediate feedback, the number of verbal and nonverbal cues, allow the message to be created or altered specifically for an intended recipient and transmit the feeling or emotions of the communicators (Daft & Lengel, 1984). Equivocality reduction is best addressed utilizing rich media such as videoconferencing applications and face-to-face learning environments where there can be the immediate exchange of information and supporting verbal and nonverbal cues. In other words, it is perceived as an important factor in determining the degree of social presence perception by ensuring the richness of the environment in which communication occurs through verbal and non-verbal cues. Social presence defined by Short and colleagues as the "the salience of the other in a mediated communication and the consequent salience of their interpersonal interactions" (Short et al., 1976, p.65).

Social presence is an important key to understanding interpersonal relationships in distance education environments. When social presence increases, the interpersonal relationships among participants will also increase. On the contrary, when social presence lower, messages are more impersonal because when fewer verbal and nonverbal cues are available the participants pay less attention to the presence of other social participants (Walter & Burgoon, 1992). On the other hand, Hackman and Walker (1990) investigated the effects of social presence, in the form of teacher immediacy behaviour on perceived student learning and satisfaction in the televised classroom, concluding that teacher immediacy behaviour strongly impact student learning and satisfaction.

Therefore, the teacher must create a sense of social presence, thus, impacting the participant's or learner's satisfaction of the medium used in the classroom. Recent studies have found that the degree of social presence impact learning, interpersonal relationship and learner satisfaction.

SOCIAL PRESENCE AND ITS RELATIONSHIP TO IMMEDIACY

One of the indicators of the social presence of the individual is the 'immediacy' perception s/he formed in the communication environment. Derived from Mehrabian's (1967) work, immediacy is conceptualized as those nonverbal behaviors that reduce physical and/or psychological distance in interpersonal communication. Similarly, Thweatt and McCroskey (1996) defined immediacy as communicative behaviors that reduce perceived distance by individuals. In this context, it can be said that teacher immediacy behaviors express the verbal and non-verbal communication behaviors which reduce both physiological and psychological distance between the teacher and the learners. Especially the verbal and non-verbal immediacy behaviors teachers form with their learners can be pointed out as important determining factors which enhance learners' social presence perceptions in distance education environments where teachers and learners meet in different environments and at different periods.

Immediacy is the verbal and non-verbal behaviors which reduce the psychological distance between the individuals who are communicating and these behaviors point at reciprocal sensory effects.

The physical and psychological separateness of the teacher and the learners may affect the learning/teaching process in a negative way. Moreover, the feeling of psychological distance emerging with the presence of a physical distance between the teacher and the learners may impede learning. Immediacy-which is regarded as a part of social presence, may affect social presence levels of learners positively and provide more reciprocal, sensory simulations by reducing the psychological distance between the teacher and the learners mentioned (Argyle & Dean, 1965). Immediacy provides the formation not only between the teacher and the learners but also among the learners themselves. It helps the positive formation of a relationship which will lead to social presence of the learners in their learning environments. While this s may affect the learners' cognitive, sensory and behavioral learning positively, it may also accelerate the learning process.

When the literature is analyzed, it can be seen that teacher immediacy behaviors are examined under two headings, which are verbal and nonverbal immediacy behaviors. Nonverbal immediacy behaviors include behaviors such as maintaining eye contact, using gestures and facial expressions, touching, forming physical immediacy. Likewise, nodding in a positive manner, smiling and using postures and intonation in a meaningful way are viewed as nonverbal immediacy behaviors (Andersen, Andersen & Jensen, 1979; Newliep, 1997).

As nonverbal immediacy behaviors emerge as a result of physical communication behaviors, they can be said to ensure the psychological immediacy feeling in the student towards the instructor. In the study in which Mehrbrian examined the immediacy behaviors (1967), he found that some nonverbal behaviors increased the sensory simulations and as a result of this, there emerged more intense, sensory and close interactions between individuals who communicated. Mehrbrian suggests that some nonverbal behaviors such as turning towards a person, sitting close to him/her, using facial expressions are behaviors which create immediacy between individuals.

Teacher immediacy is viewed as a meaningful indicator in predicting both the learner behaviors and feelings and their participation in the learning process and their learning attitudes. When Booth and his colleagues (1992) studied the effect of teacher immediacy on the learners' participation and their learning attitudes in an environment of videotapes, it was found that the teacher had a positive effect on learners' attitudes when s/he ensured continuous eye contact and similar physical immediacy while transmitting the content.

Another type of behavior which forms teacher immediacy behaviors is the use of verbal immediacy behaviors. Depending on the words chosen, verbal immediacy behaviors create a sense of psychological immediacy between the individuals who are communicating. For example, use of 'we' in a sentence enhances the relational immediacy and creates a more intimate meaning compared to 'you and me'. Use of humor, rewarding the learner for his/her studies, encouragement for participation, providing feedback and directing the learner to feedback can be regarded as important verbal cues. Studies conducted have revealed that verbal immediacy behaviors also help learners' effective learning and satisfaction and that they facilitate their social presence (Gorham, 1988; Christophel, 1990; Hackman & Walker, 1990; Rubin et al., 1994).

They indicate that calling students by their names, communicating with them before and after the lessons, encouraging them to participate in the discussions and ask questions are also among verbal immediacy behaviors (Mehrabian, 1967; Gorham,

1988). It is expected that learner attitudes will be positive and thus there will be more interaction in the classes of an instructor who performs these behaviors.

The increasing interaction between students affects the levels of how students perceive themselves as real individuals, that is, their feelings of social presence, in a positive way (Hackman & Walker, 1990).

In distance education applications in which educational processes are carried out in environments where learners and the teacher are separate from one another, what the elements which will decrease the sense of physical distance in the learner can be has become one of the fundamental research topics. Therefore, studies on teacher behaviors that will enhance the learner's social presence perception have gained importance. Some of these studies are as follows. Findings of some studies on immediacy in educational environments (e.g. Gorham, 1988; Hackman & Walker, 1990) indicate that learners like teachers that use verbal and nonverbal immediacy behaviors more. Also, similar studies have indicated that the immediacy behaviors generated by teachers who call students by their names, appreciate what they have done, smile and maintain eye contact while talking to them are contributing factors to learners' learning outputs, satisfaction levels and social presence levels (Gorham, 1988; Christophel, 1990; Sanders & Wiseman, 1990; Walker & Hackman, 1990; Neuliep, 1997). Moreover, it is known that use of some strategies like teacher's encouraging learners to participate in the lesson, his/her providing feedback and his/her efforts to communicate with them outside of the campus and directing them to communicate is preferred for ensuring immediacy (Walker & Hackman, 1990, p.203).

Andersen (1979) stated that teacher's all verbal and nonverbal immediacy behaviors reduce the physical and psychological distance between the teacher and the learners and that it is an important determining factor in the effectiveness of the teacher. In the study conducted, the effectiveness of the teacher was evaluated as the ability to create cognitive and behavioral learning behaviors in learners and researchers emphasize that this is an important variable influencing the learners' learning processes.

In addition, Andersen (1979) says that supporting the communication process between the learner and the teacher with nonverbal communication components affects the relationship between the teacher and the learner in a positive way and increases the quality of the learning output of the learner.

Furthermore, Titsworth (2001, p.170) mentioned that depending on this psychological effect, learners are more enthusiastic about the content taught and the teacher when a high level of immediacy behaviors is displayed. On the other hand, it is known that verbal and nonverbal communication behaviors are important determining factors in creating a supportive learning environment (Sanders and Wiseman, 1990) and that they have positive effects on students' participation in the lessons (Booth-Butterfield et al., 1992).

When it is thought that videoconferencing applications are viewed as one of the environments that can ensure the immediacy between individuals in distance education have the capacity of transmitting information concerning both verbal and nonverbal communication elements, it can be thought that it is an effective environment for creating social presence perception in learners. Gunawardena and McIsaac (1996) stated that videoconferencing systems can create a level of social presence that is quite close to face-to-face interaction as they have the ability to show images to people.

Murphy and Farr (1993) mentioned that it is necessary for teachers to use immediacy strategies in increasing both the levels of social presence and the satisfaction of learners in videoconferencing applications.

Cristophel's study (1990) reported that instructors with higher social presence were viewed by learners as more positive and effective, which led to an increase in affect toward the instructor and the course. Therefore, lack of immediacy resulting in a lack of social presence leads to intense frustration, a more critical attitude of instructors and lower affective learning (Rifkind, 1992). In addition teacher must know how to generate a proper degree of immediacy while teaching.

In this context, finding out whether or not teacher immediacy behaviors are influential in determining the social presence perceptions of the learners who participate in videoconferencing applications is the general purpose of the research. Also, depending on this general purpose, whether there is a difference between the levels of social presence perceptions of students who participate in the videoconferencing lessons from geographically distant places and those who follow the lesson in the same environment with the teacher or not is assessed.

METHODOLOGY

Participants

The participants for the study were comprised of two groups of students, who were registered at Anadolu University, differentiated by the data collection scheme and the course location as on-site (the paper-and-pencil-based questionnaire) and videoconferencing settings (the synchronous mode) of courses. A total of 66 students, 32 distance and 34 face-to-face, were sampled in the study. Those students were registered for a course entitled "Introduction to Economy" and were taught by the same teacher in the two semesters in a year. On-site course was located in Turkey and the distance one was in North Cyprus Turkish Republic. At the end of the course program, a questionnaire, including three measures, was administered to the students in both locations.

Instruments

As mentioned earlier, a combined instrument, including three different scales, was used to evaluate students' views about the instructors' nonverbal and verbal communication behaviors and also their own social presence levels. The first measure entitled "Nonverbal Behavior Scale" was developed by Richmond, V.P., and others (2003) originally contain 26 items and asks participants to indicate their feelings about how frequently their instructor perform certain nonverbal behaviors during class times. Considering the nature of study and class settings in this research, Nonverbal Behavior Scale was adapted and 7 items were removed from the scale. Therefore, 19 items were retained for the final nonverbal behavior scale. The second scale called as "Verbal Behavior Scale" was developed by Hackman and Walker (1990) originally contain 13 items and asks participants to indicate their feelings about how frequently their instructor perform certain verbal behaviors during class times. Similarly, Verbal Behavior Scale was adapted: 20 items were retained in the final scale. Both nonverbal and verbal behavior scales were a 5-point Likert-type frequency scale and their responses ranged from Never (1) to Always (5). Higher scores reflect more frequent use of nonverbal or verbal behavior referring to instructor's class routines in videoconferencing or on-site environments while lower scores indicate lower frequency of use of nonverbal or verbal behaviors in statements.

The third scale specifically was designed and developed to measure the levels of students' Social Presence perception about learning environment and instructor. The total of 19 items were developed and then applied to a focus group of students for pilot testing.

In the pilot testing process, all items were examined considering certain criteria in scale development such as content relevancy, wording clarity (e.g., reading difficulty, item length, avoid jargon, avoid double barrel statements, avoid ambiguous pronoun references), wording redundancy, number of items, and response format (DeVellis, 2003; Netemeyer, Bearden, & Sharma, 2003).

Members of the focus group reviewed each item critically and then judged against all the criteria being specified. At the end, previously constructed 19 items met the criteria and were retained in the final scale. Responses on Social Presence Scale were also on the 5-point Likert-type scale and ranged from "Strongly Disagree" (1) to "Strongly Agree" (5).

Higher scores indicated students' greater agreement with statements while lower scores indicated students' less agreement with statements. In other words, higher scores indicated a more positive social presence perception about learning environment and instructor presented in statements. In addition, two open-ended questions were directed to distance education students in the scale. These are about whether they learn effectively from videoconferencing lesson content and whether they want to learn this content in a face-to-face learning environment.

Variables

Variables and their operational definitions are listed in Table 1. Students' social presence scores were used as the outcome of the present study (dependent variable). Variables related to student scores on the nonverbal and verbal behavior scales and also type of learning environments (as distance and on-site course) were used as predictors (independent variables).

Table: 1
Description of the study variables used for the analysis

Dependent Variable	
Social Presence	Composite variable including mean scores on 19 items, indicating the degree of students' social presence perceptions.
Independent Variables	
Nonverbal Behavior	Composite variable including mean scores on 19 items, indicating the degree of nonverbal behaviors rated for instructor' actions in videoconferencing class.
Verbal Behavior	Composite variable including mean scores on 20 items, indicating the degree of verbal behaviors rated for instructor's actions in on-site class.
Group	Groups of course locations: Dichotomously scored (distance=1, On-site=-1)

DATA ANALYSES

Reliability Analysis

The reliability of scores for all three scales was estimated. Reliability refers to the degree to which measurement instrument produces consistent results when the characteristic being measured has not changed. The method preferred for this study was Cronbach's Alpha coefficient, which ranges from 0 to 1 (Griffiths, Stirling, & Weldon, 1998).

A score for scales that is greater than 0.5 is considered an adequate level and a score greater than 0.9 is considered excellent (George & Mallery, 1995). Cronbach's Coefficient Alpha was computed using Reliability Analysis in the SPSS Software.

Analysis of Covariance

For this study, the analysis of covariance (ANCOVA) was applied to data to examine whether the relationship between instructor's nonverbal and verbal behaviors and students' social presence depend on the level of class setting. ANCOVA with multiple covariates concerned with comparison of the outcome (social presence scores) means across different treatment (level of class settings) populations. For the current study, it was hypothesized that an interaction between class settings and instructor's nonverbal or verbal behaviors could affect students' social presence perceptions about learning environment and instructor.

That is, it is assumed that outcome differences are affected by nonverbal/verbal behaviors of the instructor in different learning environments.

RESULTS

Descriptive Statistics

The demographic characteristics of the participants in the study are presented in Table 2. 65% of the entire sample were female (n=43) and 35% of the combined sample were male (n=23). In the distance group, 66% of the sample were female (n=21) and similarly, 65% of the on-site campus group were female.

Table: 2
Demographic characteristics of the participants

Group		Distance		
		Distance	Face to Face	Total
Gender	Female	21	22	43
	Male	11	12	23
Total		32	34	66

Table 3 presents the means, standard deviations, and available number of participants for the study variables in the data. Because of the significantly missing values for one student; a total of 65 students were used in the following analysis. The average students' social presence score is found to be 3.9 (SD=.61)². Students' average nonverbal score related to the instructor's behavior is 3.78 (SD=.41), indicating an above intermediate (frequent use) level of nonverbal behavior referring to instructor's actions in a class. The mean of verbal scores is relatively lower (M= 3.20, SD=.72) than nonverbal ones and most of the students participated in the on-site course (M= -.03, SD=1, N=34).

Table: 3
Descriptive Statistics for Outcome and Predictors in ANCOVA Model

Variable	M	SD	N
Social Presence	3.92	.61	65
Non Verbal	3.78	.41	65
Verbal	3.20	.72	65
Group	-.03	1.00	66

Note. M=Mean; SD= Standard Deviation; N=Sample Size

Reliability Analyses

The scale reliabilities, as measured by Cronbach’s alpha were reported for each scale in the study (see Table: 4). As mentioned in the methodology section, the verbal and nonverbal scales were modified and adapted to the current study’s condition from previously validated and tested questionnaires. Reliability analyses were, therefore, repeated for each revised scale of interest to display overall degree of consistency among items. Reliability analyses in the present study with 66 students produced high ratings for the internal consistency of the items on three scales. Reliability of the verbal and social presence measures including 19 items of each yielded .65 and .94 Cronbach’s alpha values, respectively. Reliability analysis of the nonverbal measure, on the other hand, including a total of 20 items revealed an alpha value of .89.

Table: 4
Scale Alpha, Mean, and Standard Deviation Scores
for the three scales of the study (n=66)

Scales	# of Items	α	M	SD
Verbal	19	.65	3.83	.76
NonVerbal	20	.89	3.17	.50
Social Presence	19	.94	3.95	.17

Note. α = Subscale Cronbach’s Alpha estimate; M=Mean; SD= Standard Deviation.

Even though the alpha value related to verbal scale seemed to be lower than the expected value, all reliability estimates for the scales were promising. Removing items from the original verbal scale could be the reason for the lower alpha value. Fortunately, the omission of any of the indicators from each related scale did not significantly raise the alpha score of the scale.

Covariance Analyses

Two separate regression models were examined throughout the study. These models consisted of one independent variable (X_1) indicating nonverbal scores in the first and verbal scores in the second model, for the covariate, one coded independent variable (X_2), named as group herein, representing a dichotomous variable with two levels (on-site and distance class settings), and one interaction term (X_1X_2) defined as the products of the nonverbal scores for the first model and verbal scores for the second model. Thus, the general resulting model for each estimation can be shown as;

$$\mu_{SP} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2$$

As previously stated, for both constructed models, it was examined whether outcome (social presence scores) differences among the (group) class settings varied across levels of nonverbal and/or verbal behaviors of their instructors.

The following equations reflect social presence estimates obtained through these two regression models using nonverbal (1) and verbal (2) behavior scores, respectively, depending on level of class setting.

$$\mu_{SP} = 2.870 + 0.279 X_1 + 0.067 X_2 + 0.051 X_1 X_2 \quad (1)$$

$$\mu_{SP} = 3.095 + 0.262 X_1 - 0.035 X_2 - 0.048 X_1 X_2 \quad (2)$$

Results revealed that interaction terms in both models (X_1X_2) (group X nonverbal and group X verbal) were not significant, that neither the relationships between nonverbal and social presence scores nor the relationship between verbal and social presence scores depended on level of group. Graphical representation of the models, in which effects of class setting are represented by the vertical separations of the Y on X lines and the covariate effects is represented by the common slope of the lines, are given in the following figures.

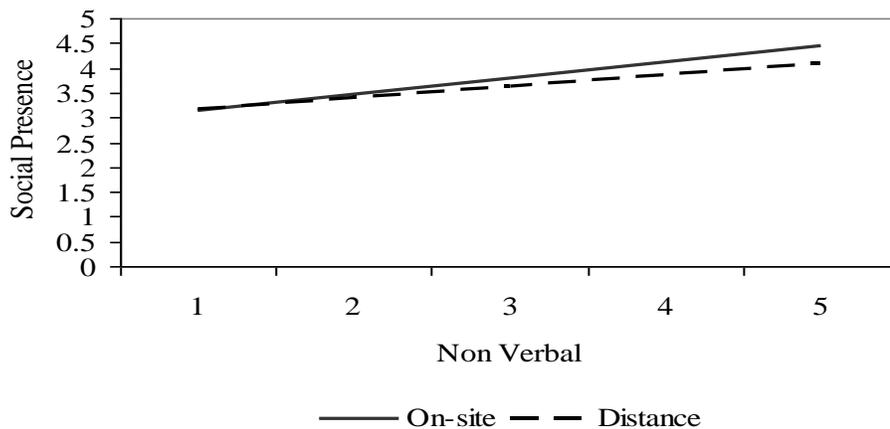


Figure: 1

Graphical representation of the ANCOVA interaction model between social presence scores and nonverbal behaviors classified by the level of class setting

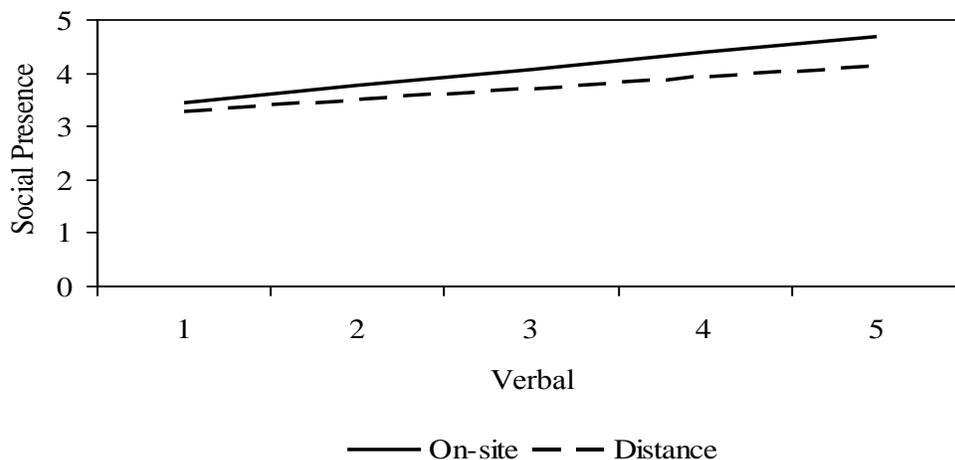


Figure: 2

Graphical representation of the ANCOVA interaction model between social presence scores and verbal behaviors classified by the level of class setting

Even though the relationship between neither nonverbal nor verbal behaviors and social presence did not depend on the level of group, providing such graphical illustrations and also interpretation could be useful to better understand the relationships among all variables.

Explicitly, predicted social presence score for distance instruction is slightly lower than for the on-site instruction for high nonverbal behavior while the reverse is true of low non verbal behaviors. Predicted social presence for face to face instruction is quite higher than for the distance instruction for the high verbal behaviors while the reverse is true of low verbal behaviors.

Due to insignificant contribution of the interaction terms in both models for the present study, these variables were dropped from the initial models for further analyses. The resulting regression equations were reconstructed to more accurately predict an individual's social presence in relation to nonverbal (3) and verbal (4) communication actions and learning environments.

$$\mu_{SP} = 2.977 + 0.282 X_1 - 0.254 X_2 \quad (3)$$

$$\mu_{SP} = 3.219 + 0.279 X_1 - 0.393 X_2 \quad (4)$$

Students' social presence is predicted to be higher in the face to face setting comparing to the videoconferencing course in both models. Additionally, when both nonverbal and verbal behaviors increase, the predicted social presence is facilitated, controlling for the grouping variable. In other words, instructors' nonverbal and verbal communication skills enhance learners' social presence in either environment.

CONCLUSIONS

When studies from related literature are analyzed, it can be seen that the environments in which the teacher displays verbal and nonverbal immediacy behaviors in the most effective way are face-to-face learning environments. Due to its capacity to transmit images and voices together, videoconferencing is viewed as the closest environment to face-to-face communication in terms of forming social presence perceptions. In this study, whether or not there is a relationship between learners' social presence perceptions in the videoconferencing environment and teacher's verbal and nonverbal immediacy behaviors was investigated and the treatment was given to two groups, in which learners take the course in distant or face-to-face learning environments. As a result of this study, it was found that teacher's verbal and nonverbal immediacy behaviors and the learning environment (distance and face-to-face) do not have a significant effect on learners' social presence perceptions. When the findings of the study were analyzed, it was found that social presence perceptions of learners in distant education environments were lower than those who are in face-to-face learning environments on account of the teacher's immediacy behaviors. This finding is in parallel with the findings of other studies in literature.

When the open ended questions directed analyzed, it can be observed that only one person emphasized that s/he didn't find videoconferencing application effective in learning the content while twenty-five people mentioned that they learnt it in an effective way through this method. When the learners were asked whether or not they would like to learn this content in a face-to-face learning environment, twenty people stated that they would like to learn it in a face-to-face learning environment while ten people mentioned that in which environment they learn the content is not important.

These additional findings revealed that the way to use the learning the environment is more important factor in perceptions of learners' social presence rather than the environment itself.

In other words, teacher's displaying verbal and nonverbal immediacy behaviors may enhance social presence perceptions of learners in both environments.

The findings of this study are limited to the data gathered from 66 people and in order to obtain more generalizable results, this study must be supported with similar studies including many more people. Further, the reasons why social presence perceptions of distant learners are lower than the perceptions of those who learn in face-to-face learning environments must be tried to be explained through in-dept interviews conferences with learners chosen from both groups.

BIODATA and CONTACT ADDRESSES of AUTHOR



Dr. BOZKAYA is Assistant Professor at the Anadolu University, Turkey. She received her doctorate from Anadolu University Communication Faculty Turkey.

Her research interests are on Distance Education, Social Presence, Self-Efficacy and Educational Communications & Technology.

**Associate Professor Mujgan BOZKAYA, Ph.D.
Open Education Faculty
Anadolu University
26470, Eskisehir, TURKEY
Phone: +90 222 3350581
Email: mbozkaya@anadolu.edu.tr**

REFERENCES

Andersen, J., Andersen, P., & Jensen, A (1979). The measurement of nonverbal Immediacy. *Journal of Applied Communication*, 7, 153-180.

Andersen, J. F. (1979). Teacher immediacy as a predictor of teaching effectiveness. New Jersey: Transaction Books.

Argyle, M. & Dean, J. (1965). " Eye contact, distance and affiliation". *Sociometry*, 28,289-304.

Booth- Butterfield, S., Mosher, N., & Mollish, D. (1992). Teacher Immediacy and student involment: Adual process analysis. *Communication Research reports*,9, 13-22.

Burgeon, J., Buller, D., & Woodall, W. (1996). Nonverbal Communication: The unspoken Dialogue (2.nd): McGraw-Hill.

- Christophel, D. M. (1990). The relationship among teacher immediacy behaviors, student motivation and learning. *Communication Education*, 39, 323-340.
- Daft, R. L., & Lengel, R. H. (1984). Information richness: A new approach to managerial behaviour and organizational design. *Research in Organizational Behaviour*, 6, 191-233.
- DeVellis, R. F. (2003). *Scale development: Theory and application*, Sage Publications, California.
- George, D., & Mallery, P. (1995). *SPSS: Step by step*. Belmont CA: Wadsworth Publishing.
- Griffiths, D., Stirling, D. W., & Weldon, L. K. (1998). *Understanding Data: Principles & practice of statistics*. Queensland: John Wiley & Sons.
- Gorham, J. (1988). The relationship between verbal teacher immediacy behaviors and student learning. *Communication Education*, 37, 40-53.
- Hackman, M & Walker, K. (1990). Instructional communication in the televised classroom: the effects of system design and teacher immediacy on student learning and satisfaction. *Communication Education*, 39 (3), 196-206.
- Kydd, C.T. & Ferry, D.L. (1994). Managerial use of videoconferencing. *Information & Management*, 27 (6), 369-375.
- McIsaac, M. S., & Gunawardena, C.N. (1996). Distance Education. In Jonassen, D (ed.) *Handbook for research on educational communications and technology*, Scholastic Press, New York, pp.403-437.
- Mehribian, A. (1967). Attitudes inferred from non-immediacy of verbal communication. *Journal of Verbal Learning and Verbal Behaviour*, 6, 294-295.
- Murphy, K. L., & Farr, C.W. (1993). The critical role of the ID in interactive television: The value of immediacy. In proceedings of selected research and development presentations at the convention of the AECT sponsored by the Research and Theory Division, New Orleans, LA, January 13-17.
- Netemeyer, R. G, Bearden, W. O and Sharma, S. (2003): *Scaling Procedures: Issues and Applications*, Thousand Oaks: Sage Publications.
- Newliep, J. (1997). Communication Research a cross-cultural comparison of teacher immediacy in American and Japanese College classrooms. *Communication Education*, 24(4), 431.
- Richmond, V.P., Gorham, J.S., & McCroskey, J.C. (1987). The relationship between selected immediacy behaviours and cognitive learning. In M. McLauhhlin (Ed.), *Communication Yearbook 10* (pp. 574-590). Beverly Hills, CA: Sage.
- Richmond, V. P., McCroskey, J. C., & Johnson, A. E. (2003). Development of the Nonverbal Immediacy Scale (NIS): Measures of self- and other-perceived nonverbal immediacy. *Communication Quarterly*, 51, 502-515.

Rifkind, L. J. (1992). Immediacy is a predictor of teacher effectiveness in the instructional television classroom. *Journal of Interactive Television*, 1(1), 31-38.

Sanders, J. A., & Wiseman, R. L. (1990). The effects of verbal and nonverbal teacher immediacy on perceived cognitive, affective and behavioral learning in the multicultural classroom. *Communications Educations*, 39, 341-353.

Short, J., Williams, B., & Christie, B (1976). *The Social Psychology of telecommunications*. London: Wiley.

Siktin, S., Sutcliffe, K., & Barrios- Choplin, J. (1992). A Dual- Capacity Model of communication Media Choice in Organizations. *Human Communication Research*, 18 (4), 563-598.

Thweatt, K. S., McCroskey, J. C. (1996). Teacher nonimmediacy and misbehavior: Unintentional negative communication. *Communication Research Reports*, 13 (2), 198-204.

Titsworth, B. S. (2001). Immediate and delayed effects of interest cues and engagement cues on students' affective learning. *Communication Studies*, 52, 169-179.

Trevino, L., Lengel, R. & Daft, R. (1987). Media Symbolizm, Media Richness, and media Choice in Organization. *Communications Research*, 14(5), 553-574.

Walter, J.B. & Burgoon, J.K. (1992). Relational Communication in computer-mediated interaction, *Human Communication Research*, 19 (1), 50-88.