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Exploring Social Presence in Virtual Learning Environment

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Abstract: This study aims to investigate the extent to which social presence (as an element of Community of Inquiry (CoI) framework exists in virtual learning environments of the present study. The population of the study consisted of 107 virtual students at B.S. level at the Iran University of Science and Technology and Khajeh Nasir Toosi University of Technology. A questionnaire was developed by the researcher based on information obtained from reviewing social element of Community of Inquiry framework. Appropriate statistical procedures for description (frequencies, percentages and means and variances) of each indicator were determined. In addition, descriptive statistics of the categories of social presence were also calculated. The results of the study indicated that (1) considering the categories of social presence, Open communication category appeared more frequently than others in virtual centers of the present study. Regarding indicators of CoI framework, Asking questions, Quoting from others' messages, Phatics, Expressing agreement indicators were the most frequent ones respectively.

Key words: Community of Inquiry · Cognitive presence · Social presence · Teaching presence

INTRODUCTION

"The future of education is e-learning and a vision based on a deep understanding of its potential" (p. 118) [1]. E-learning is transforming teaching and learning in higher education and in times of fundamental change, successful transformation depends not only on strategic development, but also on the sound theoretical and conceptual bases. Some universities and virtual centers in Iran are making substantial investments in e-learning and there is a continuing growth in enrolment of e-learning courses in those institutions but, because of the lack of a strategic direction and a coherent approach, there is little benefit or fundamental change. The present study is a descriptive research on the framework suggested by [2] and it aims to investigate the extent to which indicators, categories of social presence as one the elements of CoI framework exist in distance environment of two Iranian universities from virtual students' perspective. It is important to note that the present study is the first to investigate this element of CoI model regarding Iranian virtual students' perspectives and it tries to help answer calls for developing a conceptually grounded basis for examining distance learning processes.

Background: The literature of the present study mainly consists of Community of Inquiry (CoI) framework and the social presence (i.e., one of the elements of this framework) and the categories of social presence which are discusses below.

Community of Inquiry Framework: Reference [2] developed a model of a community of inquiry which combines three elements: cognitive presence, teaching presence and social presence. The Community of Inquiry (CoI) framework reflects the dynamic nature of higher-order learning and has shown to be useful in guiding research and practice in online higher education [3]. It is also grounded in a broad base of research in teaching and learning in higher education [1]. The premise of this framework is that higher-order learning is best supported in a community of learners engaged in critical reflection and discourse. The philosophical foundation of the CoI framework is collaborative constructivism and, theoretically, it is grounded in the research on deep and meaningful approaches to learning [4].

Since its initial formulation, the CoI framework has been adopted and adapted by educators worldwide. It has been used in a variety of ways to inform both research and practice in online and blended learning. The CoI

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model has been the most frequently cited theoretical model used to explain online educational experiences, with extensive research having been undertaken around both each of the individual presences [5.3] and the CoI framework as a whole [6]. For instance, the results of the study conducted by [6] suggest that the instrument that attempts to operationalize Community of Inquiry (CoI) framework is a valid, reliable and efficient measure of the dimensions of social presence and cognitive presence, thereby providing additional support for the validity of the CoI as a framework for constructing effective online learning environments. Also, [7] provides empirical evidence to support the validity of the Community of Inquiry (CoI) model survey.

Social Presence: Reference [1] argued that because e-learning can be accompanied by a sense of aloneness, one of the first and most important challenges for the teacher is to establish social presence. It is crucial that each student feels welcomed and is given the reassurance that s/he is part of a community of learners. This sense of belonging provides group cohesion and the resulting security facilitates open communication, including the acceptability of expressing emotions. Reference [8] defines social presence as "the ability of participants to identify with the community (e.g., course of study), communicate purposefully in a trusting environment and develop inter-personal relationships by way of projecting their individual personalities". According to the CoI framework (modified by [9], social presence can be classified through a series of indicators that fit into these categories: Affective, Open communication and Group cohesion. The participants engage in a variety of behaviors in order to strengthen the social aspect of their community: Expressing emotions, Use of humor and Self-disclosure (Affective), Risk-free expression, Continuing a threat, Quoting from others' messages, Asking questions, Complimenting and Expressing appreciation and agreement (Open communication), Encouraging collaboration, Vocatives, Addresses or refers to the group, Using inclusive pronouns and Phatics and Salutation (Group cohesion).

Social presence may facilitate cognitive objectives by creating "the conditions for inquiry and quality interaction" in online learning contexts (p. 64) [10] where learners feel secure to openly communicate with each other and develop a sense of community (10.11]. Of the three types of presence in the CoI framework, the role of social presence in educational settings has been the most extensively studied, both in online and face-to-face course settings [12.13.14.15]. Studies have consistently demonstrated that social presence has a strong influence on students' satisfaction with online courses and their perception of learning (e.g., 16.17.18]. Reference [13] for example, found high correlations between social presence, learning and course satisfaction when assessing these three variables across 17 undergraduate online courses.

Categories of Social Presence: Reference [1] believed that affective responses are not only a defining characteristic of social presence but of participation in a community of inquiry. There are three major indicators of an affective communicative response. First, when physical cues and vocal intonations are not present, expressions of emotions are made possible through other means such as punctuation, capitalization and emoticons. Second, beyond these more unconventional means of expressing feelings, language itself is a very powerful communicator of emotion. Third, another very human way of establishing an emotional relationship or bond is through self-disclosure. Basically, the more we know about other members of the community, the more trustful and responsive we become [1].

Open communication is reciprocal and respectful, which is core to deep and meaningful learning outcomes. It has an affective quality that reflects a climate of trust and acceptance and is built through a process of recognizing, complimenting and responding to the contributions of others, thereby encouraging reflective participation and interaction. Open communication is also about relevant and constructive responses to the questions and contributions of others.

Group cohesion is essential to sustain the commitment and purpose of a community of inquiry, particularly in an e-learning group separated by time and space. More specifically, constructing meaning and confirming understanding can only be sustained in a cohesive community. When students perceive themselves as part of a community of inquiry, the discourse, the sharing of meaning and the quality of learning outcomes will be optimized [1].

Method: This study was conducted with 107 female and male Iranian virtual undergraduate students at Iran University of Science and Technology (IUST) and Khajeh Nasir Toosi University of Technology in three different fields titled "Computer Engineering" (17 participants), "Information Technology" (44 participants) and "Industrial Engineering" (46 participants). In order to carry out this descriptive study, students filled out

web-based closed-ended questions. The questionnaire was designed by the researchers based on the information obtained from reviewing social element of [2] Community of Inquiry Model (see Appendix A). It was conducted to find out to what extent the social element, categories and indicators of this element exist in virtual centers of this study. The English version of the designed questionnaire was translated into Persian using a back translation method to assure its validity (see Appendix B). Before administration of the questionnaire to the research participants, it was tried out. The aim of the try-out (or pilot run) was to assess its quality before it was used with the actual participants in the research. An assistant professor holding a Doctoral degree in the field of TEFL, three virtual English language instructors and 23 virtual students assessed the content of the translated version of the questionnaire. They were asked to check the questionnaire for possible problems and ambiguities. The researcher collected information about the instrument, its items and this provided the basis for improving the instrument. The final questionnaire consisted of 13 items with Yes/No responses. Two follow-ups, a letter, a copy of the Persian version of the questionnaire were sent by email to 107 virtual students between March 19th and April 4th 2010. The researcher clearly explained the purpose of the research to the students and informed them that in order to answer the questions, they need to consider their English language classes in virtual environment. Items in this questionnaire were related to the indicators of the social element of Community of Inquiry model. The questionnaire was classified based on the elements and the indicators of social element (see Appendix A). The questionnaire could also be classified based on the different categories of this element. These classifications are done to establish content validity of the questionnaire. The Table 1 below demonstrates the classification of the survey based on different categories of social element.

Table 1: The questionnaire based on different categories of social element

Categories	Item No.
Affective Category	1, 2, 3, 4
Open communication Category	5, 6, 7, 8
Group cohesion Category	9, 10, 11, 12, 13

Table 2: Reliability statistics of the survey

Cronbach' s Alpha	No. of Items
.742	13

Table 3: Reliability statistics of item-total

Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Expressing emotions
Self-disclosure	7.037	6.621	0.315	0.732
Use of humor	7.243	7.223	0.240	0.740
Use of sarcasm	6.907	6.369	0.367	0.727
Asking questions	6.607	6.222	0.451	0.716
Quoting from others' messages	6.393	6.844	0.338	0.730
Complimenting	6.467	6.685	0.329	0.730
Expressing agreement	6.654	6.040	0.515	0.707
Vocatives	6.523	6.874	0.197	0.745
Salutation	7.093	7.010	0.165	0.747
Phatics	6.561	6.079	0.550	0.703
Inclusive pronouns	6.523	6.139	0.553	0.704
Encouraging collaboration	6.579	6.586	0.300	0.735
	6.776	6.232	0.407	0.721

Table 4: Descriptive Statistics of Indicators of Social Element

Indicator	Order	Sum	Mean	Variance
Expressing emotions	35	26	.243	.186
Self-disclosure	37	4	.037	.036
Use of humor	30	40	.374	.236
Use of sarcasm	12	72	.673	.222
Asking questions	1	95	.888	.101
Quoting from others' messages	3	87	.813	.153
Complimenting	19	67	.626	.236
Expressing agreement	5	81	.757	.153
Vocatives	36	20	.187	.204
Salutation	7	77	.720	.186
Phatics	4	81	.757	.212
Inclusive pronouns	9	75	.701	.252
Encouraging collaboration	22	54	.505	.239

Cronbach's Alpha test was used to establish the reliability of the designed questionnaire. The reliability coefficient is 0.742 which indicates a rather high reliability of the questions of the survey to investigate the social element of Community of Inquiry framework. The following Tables demonstrate the reliability of the questionnaire.

The Table below demonstrates how the reliability will differ if each question is omitted from the survey. The highest Alpha Cronbach (0.747) is for Vocatives indicator. It means that if this item is deleted, the reliability of the survey will increase (0.005) which is not a significant amount. As a result, no question was deleted from the survey.

Finally, in order to answer the research question, the responses obtained from the participants' replies to the questionnaire were tabulated and analyzed to discover the participants' opinions about the social element of CoI framework.

Results

In this section, a detailed description of the statistical analyses of the data obtained in the main phase of the present study is illustrated. In other words, descriptive statistics and bar graphs of the indicators, categories of social presence are illustrated.

Indicators of Social Presence: As noted previously, the questionnaire consisted of 13 questions which measured social presence component of Community of Inquiry (CoI) model. The descriptive statistics of Indicators of social presence is as follows:

The above Table illustrates the order, the sum, the mean and the variance of paricipants' replies to each indicator. Asking question indicator has received the highest mean (0.888) while the lowest sum and mean score belong to Self-disclosure indicator (0.037).

The Means distribution of the indicators of social presence is also illustrated in the following figure:

To determine which indicator has been more significant (has had more positive replies), we refer to the Means distribution figure which indicates the average reply to each item. The closer the average to 1 is, the more positive the replies have been and the closer the average to 0, the more negative the replies have been. Figure 1 indicates that Asking questions, Quoting from others' messages, Phatics, Expressing agreement indicators have received the most positive replies respectively and Self-disclosure, Vocatives, Expressing emotions and Use of humor indicators, respectively, have received the least positive replies.

Categories of Social Element: The descriptive statistics of the categories of social presence is as follows:

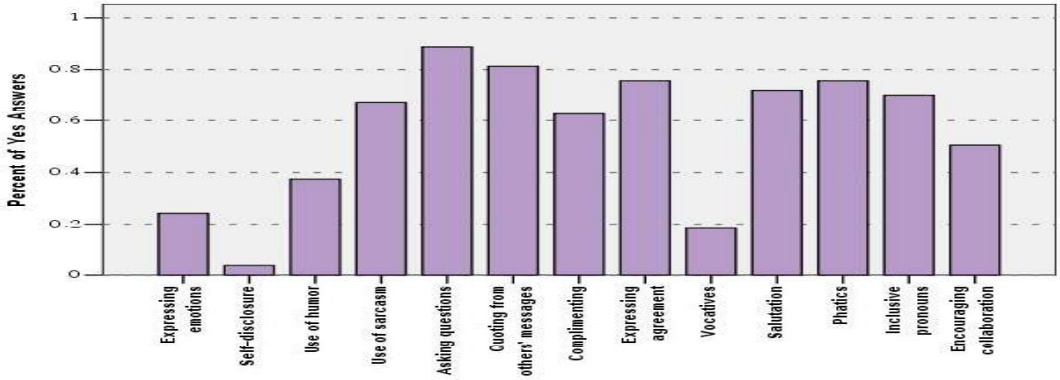

Fig. 1: Means distribution of indicators of social presence

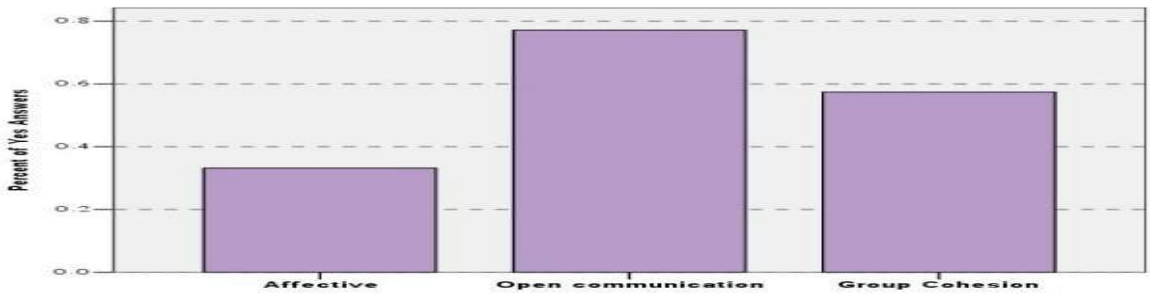

Fig. 2: Means comparison between categories of social presence

Table 5: Descriptive Statistics of the Categories of Social Presence

Categories	Order	Sum	Mean	Standard deviation
Affective	10	35.50	.3318	0.25415
Open communication	1	82.50	.7710	0.26414
Group cohesion	5	61.40	.5738	0.27346

Table 6: Descriptive Statistics of social element

		95% Cl for Mean								
	Mean	Lower Bound	Upper Bound	Median	Variance	Std. Deviation	Minimum	Maximum	Skewness	Kurtosis
Social presence	0.560	0.520	0.600	0.538	0.044	0.211	0	1	-0.356	-0.308

The above Table demonstrates a description of three categories of social presence which includes: Average of replies to each category (mean), the order of each category and standard deviation of each one.

A certain number of questions in a questionnaire are used for determining each category. So, the average of the replies to the questions of each category determined the mean score of that category. For instance, to determine "Affective" category, the replies to questions no. 1 to 4 have been taken into account. The quantity of this indicator is thus being evaluated through "Affective = (Item1+Item2+Item3+Item4)/4" and is then analyzed. The mean quantity of categories introduced is between 0 and 1. The more it is close to 1, the more effective has been the category (positive replies have been more than the negative replies) and the more it is close to 0, the negative replies have been more.

Here, the average of the Open communication category is M= 0.7710; this implies that the importance of this category in the viewpoint of participants has been 77.18% and it demonstrates that a large group of participants have considered this category as important. The Means distribution of the categories of social presence is illustrated in the following Figure 2.

As the above figure demonstrates, Open communication category appeared more frequently than others and received mean scores more than 70% while Affective category accounted for small proportion of the overall positive replies of the students to social presence items and received mean scores less than 50%.

Social Element of Coi Framework: The descriptive statistics of social element of CoI framework is as follows:

This Table shows that the average of the participants' replies to social presence has been 0.56 which implies 56% of the participants have considered this element as important (positive reply). The minimum and maximum quantity of social presence is 0 and 1 and it indicates that there have been individuals that considered all indicators of this element as effective (+replies) and some have considered it as ineffective (negative replies). Since the mean scores of the social element in the present study is just around 50%, it can be concluded that this presence is not as prominent as it should be.

DISCUSSION

Based on the results of the present study, categories and indicators of social presence are discussed in this section. Furthermore, the findings of the present study are compared with those of others regarding this presence.

Affective Category: Self-disclosure was the least frequent indicator as reported by participants of the virtual centers of this study. It could be due to the fact that the instructors do not like to comment on their emotions and on disclosing things about themselves or their life or present details of their life and experiences out of class in their virtual communities.

Although the affective aspects are considered important, the participants did not report to rely heavily on using capitalization for emphasis, emoticons and repetitious punctuations in order to express their feelings. It could be to their ignorance of the importance and usability of these tools of expressing emotions in virtual environment.

Open Communication Category: "Asking question" was the most frequent indicator among virtual participants of this research. It could be due to the fact that the students could easily ask their questions of the members of virtual community and the questions are typically communicated in an online forum via text and not via audio. The instructors try to provide the answers orally and due to the lack of time, it is not possible for them to separately answer all the questions in written form.

Quoting from others' messages indicator received a high mean score. It might be due to the fact that the instructors refer to their students' posts and in quoting from their students' messages; they make use of these examples: "Mr. Ahmadi believes ….." or "Ms. Karimi agrees with this idea……"

In regard to Complimenting indicator, when students do their homework or when their replies to grammar and reading exercises are correct, the instructors try to praise their students with expressions such as "Great job! Keep up the good work!", "Well done". They can also make use of compliments to acknowledge that they are aware of their students' presence or when the students send their homework on time or when they answer grammar or reading exercises correctly.

Group Cohesion: Phatics and salutations received a large proportion of the overall positive replies. The researchers believe that the virtual instructors were aware of the functions of Phatics utterances in strengthening the community that the students are developing in that at the beginning of their classes, TEFL Instructors directly refer to their previous ideas and they recognize students by welcoming them into the class and acknowledging their first post. They also make use of statements like "Hi, how are you?" and "what's up? Do you have voice? Do you have image?" at the beginning of their class and expressions like, "Have a great weekend" and "If you do not have any question, cheer up and take care" at the end of their classes.

Although Vocatives or the use of names by members of the group and especially by the instructor served to strengthen ties within their partnership, it is a technique that was considerably less frequent as reported by students in virtual centers of the present study. It could be due to the fact that many people in different ages and with different occupations attend the class and since the instructors do not see their students face to face, they are not familiar with their age, personality traits. Thus they do not know whether or not they like to be referred by their names; they do not make use of this indicator in their classes.

The Using inclusive pronoun indicator is, of course, applicable to virtual communities in the present study since they do make use of 'we' pronoun or inclusive phrases such as "our classroom, our virtual community, our book, our group" to strengthen their relations in the virtual environment.

Altogether, the finding of the present study regarding social presence was in contrast with [19] research findings. In their study, which was carried out at three universities, the participants established high levels of social presence as a result of their online interactions and discussions.

CONCLUSIONS

Using the results from the present study, it can be argued that although the mean scores of some indicators are high, there are some indicators mostly specific to e-learning community (Expressing emotions, Self-disclosure, Use of humor, Vocatives) which received less positive replies from the participants of the study. Moreover, Affective category received the least mean score, even less than M=0.5. Accordingly, we can conclude that Social Presence, i.e., one of the elements of the framework suggested by [2] does not completely exist in the virtual centers of the present study.

There are some limitations to this research that should be noted. Of course, to be able to more accurately generalize the results, it would be necessary to increase the sample size and test the framework more extensively. Additionally, it is worth mentioning that all the data were gathered from two virtual centers. Other researchers could try to test the research inquiry at various virtual centers and institutions, especially in diverse cultural contexts.

The researchers believe that there is abundant potential for research in the Community of Inquiry framework. It is their hope that this study serves to further the research investigating the Community of Inquiry model in online TEFL education. This study investigated the virtual students' perceptions of the social element of CoI model in Iran. There is a need to carry out the same study with taking into account the virtual instructors' attitudes towards this element. This study took into account the social presence of the CoI framework. Other studies can be carried out to investigate teaching and cognitive presence specifically. Finally, this study made use of social element for studying English language courses of virtual students. It could be of value that another study examines this element in other courses in online education systems.

Pedagogical Implications and Applications: Such research may contribute to an important and necessary transformation in the theoretical and empirical foundations of virtual learning in the educational system of Iran. Generally speaking, this study has implications for syllabus designers, material developers, virtual instructors, online learning researchers and virtual centers and institutions.

In virtual classrooms, the materials presented are of great importance. The materials should be selected and presented in such a way that the students' improvement is fully achieved. Syllabus designers and materials developers should develop specific materials and textbooks for virtual students. The present study may be helpful in suggesting a conceptually grounded and empirically sound basis for developing appropriate materials for virtual students.

All virtual educators, especially TEFL virtual educators most certainly will benefit from the results of this effort. They could try to incorporate the indicators of social element in the method of their teaching.

Virtual centers and institutions can also benefit from the results of this study. They should try to incorporate social element into their educational system.

Appendix A Social Presence Survey:

Expressing emotions

1. Are conspicuous capitalization, emoticons and repetitious punctuations used in your class in order to express the emotions?

Self-disclosure

2 Does your professor present details of his/her life and his/her experiences out of class?

Use of humor

3 Do participants in the class make use of humor?

Use of sarcasm

4. Do participants in the class make use of sarcasm?

Asking question

5 Do you feel free to ask your questions in the virtual class?

Quoting from others' messages

6 Does your instructor refer to the contents of students' messages while teaching?

Complimenting

7 Does complimenting contents of your messages occur in the class?

Expressing agreement

8 Could you express agreement with others or content of others' messages?

Vocatives

9 Does your instructor refer to students by name?

Salutation

10 Are you content with the method of starting your lesson?

Phatics

11 Is the method of the closure of the class with your instructor acceptable?

Inclusive pronouns

12 Does your instructor make use of 'we' pronoun and phrases like, our classroom, students of our class, our book and our group?

Encouraging collaboration

13 Does the knowledge created in this course encourage collaboration and group work?

Appendix B. The Persian Version of the Questionnaire:

1- آیا در کلاس شما برای بیان احساسات حروف بزرگ ، شکلک های احساسی و علامت گذاری های تکراری استفاده می شود؟

بله ☐ خیر ☐

2- آیا استاد شما جزئیات زندگی خود را در کلاس مطرح می کند؟

بله ☐ خیر ☐

3- آیا طنز در کلاس شما به کاربرده می شود؟

بله ☐ خیر ☐

4- آیا انتقاد کردن در کلاس شما امکان پذیر است؟

بله ☐ خیر ☐

5- آیا شما می توانید در کلاس سوالات خود را بپرسید؟

بله ☐ خیر ☐

6- آیا استاد در حین تدریس پیام های ارسالی شما را مطرح می کند؟

بله ☐ خیر ☐

7- آیا پیام های ارسالی شما در کلاس مورد تحسین قرار می گیرد؟

بله ☐ خیر ☐

8- آیا می توانید در کلاس موافقت خود را با دیگران و محتوای پیام های آنها ابراز کنید؟
بله ☐ خیر ☐

9- آیا استاد شما دانشجویان را با اسم کوچک مورد خطاب قرار می دهد؟
بله ☐ خیر ☐

10- آیا از نحوه آغاز کلاس توسط استادتان راضی هستید؟
بله ☐ خیر ☐

11- آیا از نحوه اتمام کلاس توسط استادتان راضی هستید؟
بله ☐ خیر ☐

12- آیا استاد شما از ضمیر ما و عباراتی چون کلاس ما ، دانشجویان کلاس ما ، کتاب ما و گروه ما استفاده می کند؟
بله ☐ خیر ☐

13- آیا مطالب مطرح شده در کلاس حس همکاری و فعالیت گروهی را در شما ایجاد می کند؟
بله ☐ خیر ☐

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