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## Enhancing Learning within the 3-D Virtual Learning Environment

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*Today's using of virtual learning environments becomes more remarkable in education. The potential of virtual learning environments has frequently been related to the expansion of sense of social presence which is obtained from students and educators. This study investigated the effectiveness of social presence within virtual learning environments and analysed the impact of social presence on increasing learning satisfaction within virtual learning environments. Second Life, as an example of virtual learning environments considered as a learning medium to examine the feeling of social presence in students' learning activities which adopted for this study. First objective is to identify the importance of social presence to increase learning satisfaction, and second is to examine students' perception of social presence in virtual learning environments. The descriptive study was conducted among 40 students participated to the virtual course in Second Life. The result indicated social presence is an essential part of learning in virtual learning environments in meeting students' learning satisfaction. It was also discovered that perceiving high feeling of social presence is affected by different specifications of virtual learning environments. In conclusion this study presents the finding and discusses some implication for lecturers, online course designers, and researchers are increasingly investigating the use of virtual environments for online learning.*

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**Keywords:** *Online Learning, Virtual Learning Environment, Social Presence, Second Life*

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## **Introduction**

Recently, investigation on virtual learning environments has been extensively discussed. Virtual worlds offer a stimulating and new environment to improve learning for students to generate further interactive learning experience. Virtual learning environments have been provided as an adaptable and independently learning environment for students (Richardson & Swan, 2003; Smith et al, 2009). Using of virtual learning environments is not limited to well-structured knowledge spaces, but people need the specification to become more remarkable as effective learning environment in virtual learning environments. The investigations express that feeling of social presence through learning within virtual environments is the most essential factor in learning satisfaction outcomes (Richardson & Swan, 2003).

Social presence is specified as realized psychological intimacy which is formed in part by verbal and non-verbal cues (Bailenson et al., 2005). Biocca (2001) defined social presence as the awareness of the existence of others that is attained through a sense of participation with them. In other words, social presence is the significant factor that shapes the quality of learning in learners, and also it can control the opportunities of collaborative learning. However, the majority of investigations in this field cannot satisfy the above conditions and cannot support instructors and designers in achieving the desired goals.

More study is required to recognize how virtual learning environments facilitate learning and show specifications by considering the ways in which virtual attributes affect learning satisfaction in students. For this reason this study is doing more investigation on the relation between social presence and students' satisfaction in learning outcomes that are currently engaged in virtual learning environment, and consequently it will achieve more accurate findings on the above goal. There are two research

objectives in this study; the first objective is to identify the importance of social presence to increase learning satisfaction within virtual learning environments and the second objective is to examine students' perception of social presence in virtual learning environments. Second Life, as an example of virtual learning environments produced by Linden Lab Company in 2003 and permits participants to interact with other members synchronously online (Second Life, 2010). In this study Second Life considered as a learning medium to examine the feeling of social presence in students' learning activities which adopted for this study.

This study is planned as follows. Firstly, it discusses the relevant literature on perception of social presence in virtual learning environments. Subsequent a descriptive study was conducted to examine two objectives presented in this study. The following analyzing the data derived from case study. In conclusion this study presents the finding and discusses some implication for lecturers, online course designers, and researchers are increasingly investigating the use of virtual environments for online learning.

## **Literature Review**

This study has reported that 3-D virtual learning environments can be successfully used for learning tasks if they are conducted by pedagogy (Dalgarno & Lee, 2010). The literature review highlighted characteristics of virtual learning environments including social interaction and social presence in virtual learning environments. This chapter also confirmed the main theoretical structure that supports this study.

## **Virtual Learning Environments**

All findings from the examinations of the effects of virtual learning environments on education are significant to the latest emerging virtual learning environments and they can provide a useful direction as well as instructions for education on virtual learning environments. According to Samah, Carolyn and Leslie (2009); virtual learning environments have appeared as an innovative communication medium and characterized as a

computer generated in 3-D (three dimensional) and multiuser interfaces that students have feeling on other members as being there and experience a sense of social presence in that environment.

McLellan (2004) represented that virtual learning environments can be considered as a simulation of an educational class with computer-controlled and multisensory communication technologies. Zhang (2009) stated that virtual learning environments are combined systems of networked online devices and sources which facilitate, and make achievable different courses by on-campus or distance education for students and it is similar to the real environments by interactions between avatars and virtual tools.

For the concept of collaborative learning in virtual learning environments; Hedberg and Brudvik (2008) stated that collaborative virtual learning environment is the most important kinds of virtual learning environments which enable learners to perform tasks jointly rather than just communicate. Collaborative learning plans engage tasks and activities that involve helpful interdependence between learners; this means that, in effective virtual learning environments it is necessary that all participants attempt to be invaluable for the achievement of the goals and each member have a positive contribution in his or her task responsibilities.

Second Life as a significant virtual learning environment is a 3-D and full immersive program based on internet and entirely built and owned by its residents in virtual world (Second Life, 2010). Learning in this style of education is new and it is an uncharted territory for many instructors and students. Samah, Carolyn, and Leslie (2009) defined Second Life as a 3-D internet-based and multi-user virtual environment which can be considered as an effective collaborative virtual learning environment. Many education centers and institutions have created a combined learning plan in Second Life with large achievements in learning. Warburton (2009) represented the learning capability of Second Life and indicated that virtual worlds have strong visual effects, they are well interactive, offer students a sense of presence, and social presence, and provide a possibility for immersion in simulation. Young (2009) specified the possibilities of expanding learning schemes in 3-D mediums such as Second Life to improve socializing and

social presence between members. Findings described Second Life facilitated learners' socialization and collaboration.

### **Social Presence**

Social presence is the perception of others in the same environment. Short et al. (1976) highlighted that a high amount of perceived social presence can facilitate learners engage in interaction. Short argued that "the ability to support transfer information about facial expressions, attitude, looking direction, clothing and non-verbal oral indicates, all give to the social presence of communication element in a medium" (p. 65). Garrison et al. (2003), and Hall, Herrington (2010) believed that structure of learning environment requires a feeling of social presence between the learners, on the other hand learning in medium depends to social presence. They defined social presence as a key factor of effective virtual learning environment which can be considered as a grade of quality of the virtual learning environment in which the person is perceived as a real person. Richardson and Swan (2003) explained that those learners who have high overall sense of social presence in virtual learning environments also scored high in sense of learning and sense of satisfaction with the instructor. Tu and McIsaac (2002) examined social presence and interaction inside online learning environments. This issue focused on the relation between social presence and participants' interaction and they used a combination techniques approach. Their study identified social presence confidently affected online interaction.

The interaction between instructor and students also has a significant role in perceiving social presence in virtual learning environments. Whiteman (2002) and Wood (2009) expressed that social presence has been displayed to create a sense of community by enhancing interaction between instructors and students, and students, whereas providing group togetherness. Social presence in virtual learning environments is connected with sense of insertion, warmth, and management. Instructor presence behaviors such as feedback and response to student's actions enhance the sense of social presence since they help to reduce the psychological blanks in medium environments (Liu, Gomez &

Yen, 2009; Hall & Herrington, 2010). Findings by Witt et al. (2004) represented there is an important relationship between instructor presence and students' learning satisfaction, they identified instructor presence is a unique construct in combined verbal and nonverbal behaviors in positive learning outcomes.

## **Social Presence Theory**

There are few theories in learning process and how learning happens which seek to answer the challenges in learning. The important theory which plays a significant role in creating sense of social presence in medium environment is Social Presence Theory. Social presence theory is defined by Short et al., Williams, and Christie in 1976. They defined this theory as "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships" (p. 64). This theory specified social presence as a serious aspect of mediums; it played an important role in generating a sense of community and creating educational efficiency in mediums (Richardson & Swan, 2003). Short, Williams, and Christie also expressed that social presence refers to the quality of the medium which determines the quality of interaction and communication in medium (Hall & Herrington, 2010). According to Short et al. theory, the key factor of social presence that causes a high feeling in social presence and identifies the structure of successful learning in an effective medium environment is immediacy (Short, Williams & Christie 1976; Swan, 2002; Hall & Herrington, 2010). This theory specifies that a fundamental section of any given communication medium is its rank of social presence.

Many researchers have used immediacy factor to evaluate social presence. The meaning of immediacy refers to the sense of closeness to people proofed by communication behaviors (Weiner & Mehrabian, 1968; Cheryl C. J., 2009). Pelowski et al. (2005) and Cheryl (2009) proposed that instructor and students' interaction increase immediacy behaviors which are significant in social presence through mediums. Immediacy behaviors control social presence in virtual learning environments, Whitten and Larose (2000) represented that learner immediacy behaviors make a sense of connectedness to people in learning environment. Schwartzman (2007)

reported that the need of face to face communication in the non-synchronous mediums such as text-based online environments limits communication immediacy (Cheryl, 2009). In face to face communication, immediacy behaviors is related to physical distance between two communicators and it gives them the feeling of being physically close, whereas intimacy behaviors are verbal behaviors of self-disclosure to maintain a sense of equilibrium (Rettie, 2003; Hall & Herrington, 2010). Swan (2002) showed that in virtual learning environments the feeling of “being with others” has an effective outcome on the conversation and increases immediacy and subsequently increases social presence. Hall and Herrington (2010) reported that by increasing immediacy and intimacy behaviors in virtual learning environments, the quality of learning will increase. They argued in different mediums students may possibly perceive different volumes of immediacy and intimacy; but in effective virtual learning environments students must perceive the sufficient volume of immediacy and intimacy to make warmness and create a sense of belonging to that environment.

Anderson and Garrison (2003), and Nicholas et al. (2010) represented that for having a secure and supportive learning environment, immediacy plays an essential role since it decreases individual risk and enhances adoption in learners. Anderson and Garrison break up the structure of social presence into three important groups which are expressive of social presence inside online collaborative learning environments: Open communication, affective responses and consistent responses.

## **Methodology**

Although using of online learning environments becomes more remarkable in education but there is little empirical finding to support learning in online learning environment. The potential of virtual learning environments has frequently been related to the expansion of sense of social presence which is obtained from students and instructors. The purpose of this study was to investigate the development of student perception of learning and to

analyze the impact of social presence on increasing learning satisfaction within virtual learning environments.

The following research propositions were examined:

P1: Overall perceived social presence is related to overall students' social comfort in expressing feelings with other participants within virtual course.

P2: Overall perceived social presence is related to overall assistance in group work activities with other participants within virtual course.

P3: Overall student perceptions of satisfaction with instructor are related to student's perceived social presence within virtual course.

P4: The high level of student's perceived learning is related to highest level of perceived social presence in virtual course activities.

In this study; a course selected from English learning course launched by Language-lab in Second Life which conducted among students (n=40) from KLMU College in Malaysia and attempted to analyze the level of social presence perceived by students who participated in this course activity. The course was intended for pre-advanced level students and took place twice a week on Wednesdays and Saturdays from 12.00 am – 1.30 pm (7.00 pm GMT) for 80 minutes each for a total of three credit-hours in advanced level of English course.

Doing a survey through online questionnaire was the main data collection instrument in this study to gather responses from respondents and it was supported by five-point Likert scale with ranging from 1 (strongly disagree) to 5 (strongly agree). The questions asked in the questionnaire gave the specificity and scope which were necessary in quantitative research.

The questionnaire structured on five sections:

- Section (1) is demography part and it was considered as supporting data.
- Section (2) is background and general experiences of participants in using Second Life as a suitable and effective tool in education.
- Section (3) is about social comfort and sensing affect during virtual course.
- Section (4) is about assistance in group work activities with other participants in virtual course.



- Section (5) is about instructor presence related to social presence in virtual course.

## **Research Design**

In this study, a correlation design was employed. The variables addressed in this study were; student' social comfort, student' assistance in group work activities, student' satisfaction with the instructor and student' feeling of learning satisfaction. This study classified as a quantitative study. The descriptive study was used to present a general consideration of significance of social presence on students' perception of learning within virtual learning environment. The quantitative data collected through a survey by used an online questionnaire.

## **Data Collection and Analysis**

Doing a survey through online questionnaire was main data collection instrument in this study. The questionnaire constructed based on social presence scale distributed from March 10 to March 25 of 2012. The survey was delivered to the respondents by offering it to the students at the end of the course and also through invitation email having a hyperlink to the questionnaire. A reminder e-mail also sent to the respondents after one week time. Meanwhile, this study involved 40 students participated in virtual course but only 30 (18 male and 12 female) respondents went through until week 2 of the survey. The quantitative data was gained from the survey was analyzed using descriptive statistics. Using statistical software's SPSS, results was analyzed and tables and graphs was produced.

**Table 1:** Demographic Data of the Respondents

Description		Frequency	Percentage
Gender			
	Male	18	60
	Female	12	40
Education Level			
	Undergraduate	17	56.67
	postgraduate	13	43.33
Age			
	18-24	18	60.0
	25-34	12	40.0
English Proficiency			
	Basic	1	3.33
	Good	16	53.44
	Fluent	13	43.33

**Table 2:** Means, Standard Deviations, and Correlations (\*p<0.05)

Variable	Mean	Std. D	Overall Social Presence	Overall Perceived Learning
Students' social presence	4.42	1.12		0.69*
Students' social comfort in expressing feelings	4.83	1.38	0.67*	0.72*
Assistance of group activity and immediate collaboration	4.81	1.37	0.66*	0.71*
Student perceptions of satisfaction with instructor	4.42	1.25	0.64*	0.69*

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The survey included four variables:

*Students' perception of social comfort and students' perception of social presence,*

This section was used to determine the correlation between two variables: the degree of comfort in expressing feelings during immediate communication and interaction with other participants and the perception of social presence in virtual course. The result implicated those students who perceived high feeling of social comfort also perceived high feeling of social presence during the virtual course activities.

*Students' perceptions of satisfaction with their instructor, students' perception of social presence,*

This section was used to determine the correlation between the degree of students' satisfaction with their instructor presence and students' perception of social presence in virtual course. The result implicated those students who were most satisfied with their instructor presence in immediate interaction and communication also perceived high feeling of social presence during the virtual course activities.

*Student assistance in group work activities, Student perception of social presence,*

This section was used to determine the correlation between students' perception of social presence and students' assistance in group work activities within virtual course activities. The result implicated those students who perceived high level of satisfaction through collaborations and assistance in group work activities also they perceived high level of social presence in virtual course.

*Student perception of social presence, student feeling of learning satisfaction,*

This section was used to determine the correlation between two variables; students' perception of social presence and students' feeling of learning satisfaction in virtual course activities. The result implicated those students who perceived high feeling of social presence also perceived they learned more in Second Life.

## Discussion

According to the findings of this study the following propositions were discussed:

**P1:** Overall perceived social presence is related to overall students' social comfort in expressing feelings with other participants within virtual course.

The data analysis shows that students' participation in virtual course activities influenced their sense of social presence during experiencing advanced feelings of social comfort and sensing affect. The significant correlation (0.67) clearly specified a relationship between social comfort and social presence and it supports the hypothesized relationship between them, as well as it supports overall perceived learning within virtual course.

The relevant literature from Weiner and Mehrabian (1968) and Cheryl (2009) specified social comfort and sense of closeness to people proofed by communication behaviors as an immediacy plays an essential role in increasing feeling of social presence in medium. The correlation analysis (0.72) yielded between social presence and overall perceived learning confirms that high perception of social presence figure out high overall perceived learning within virtual course activities in Second Life.

**P2:** Overall perceived social presence is related to overall assistance in group work activities with other participants within virtual course.

The data analysis shows that students' assistance in group work activities with other participants influenced their sense of social presence within virtual course. The correlation finding (0.67) specified that students with high overall assistance in group work activities also had high overall

social presence scores and it proves the hypothesized relationship between them, as well as it supports overall perceived learning within virtual course. The correlation analysis (0.71) yielded between social presence and overall perceived learning confirms that high perception of social presence figure out high degree of student's perceived learning within virtual course activities in Second Life.

**P3:** Overall student perceptions of satisfaction with instructor are related to student's perceived social presence within virtual course.

The correlation analysis (0.64) specified the relationship between student perceptions of satisfaction with instructor and sense of social presence. The analysis specifies students who perceived high feeling of social presence also were extremely satisfied with course instructor. The analysis proves the hypothesized relationship between student perceptions of satisfaction with instructor and sense of social presence, as well as it supports overall perceived learning within virtual course with correlation of 0.69 obtained between social presence and overall perceived learning.

According to the findings and the relevant literature; those students who perceived instructor immediacy behaviors also perceived high feeling of social presence within the virtual course; Moore et al. (1996) illustrated a significant correlation between instructor immediacy behaviors and students. Perceiving more frequent immediacy behaviors in verbal and nonverbal forms were likely to provide higher score to the overall quality of learning for students and instructors. The key factor of social presence that causes a high feeling in social presence and identifies the structure of successful learning in an effective medium environment is immediacy (Short et al., 2002; Hall & Herrington, 2010). Gorham and Zakahi (1990) stated there is a significant relationship between immediacy behaviors of students and instructors and of student learning outcomes. All these findings indicated overall student's perceived satisfaction with instructor are related to students' perceived social presence within virtual course.

**P4:** The high level of student's perceived learning is related to highest level of perceived social presence in virtual course activities.

The correlation analysis with score of 0.69 clearly specified the relationship between students' social presence and student's perceived learning. This finding determines students with high feeling of social presence also had high level of satisfaction in perceived learning. In other words social presence is a significant predictor of learning satisfaction. Also according to relevant literature from Boverie et al. (1997) and Zhang (2009) examined the role of social presence as significant factor in online education. Their findings showed that, social presence were a significant predictor of satisfaction in online learning. According to Short et al. social presence causes high feeling of social presence and identifies the structure of successful learning in an effective medium environment (Short et al., 1976; Hall & Herrington, 2010).

## Conclusions

The potential of online learning environments has frequently been related to the expansion of sense of social presence which is obtained from students and instructors in the course. This study tried to examine the impact of social presence on increasing learning satisfaction in virtual learning environments. The descriptive study was conducted among students in a higher education institute through a virtual course in Second Life and by analyzing the data in this research, it was indicated that social presence is a vital element affecting students' learning satisfactions in virtual learning environment and revealed some important specifications such as feeling of social comfort, student satisfaction with the instructor and immediate interactions among participants increased immediacy behaviors which are significant factor in social presence and increased high feeling of social presence within virtual course. In conclusion this study presented some findings and discusses some implication for lecturers, online course designers, and researchers are increasingly investigating the use of virtual course in online learning.

# Appendix

## Online Survey

DEMOGRAPHIC

1. Gender: Male/Female
2. Year of study: Undergraduate/Postgraduate
3. Nationality : \_\_\_\_\_
4. Age : \_\_\_\_\_
5. Is English your native language?                      YES/NO
  - a. If it is not, how would you rate your proficiency in English?    Basic/Good/ Fluent

<b>Rate according to:</b> 1 – Strongly Disagree   2 – Disagree   3 – Neutral   4 – Agree   5 – Strongly Agree					
<b>Second Life as a Educational Tool</b>					
I find Second Life to be an effective learning tool.	1	2	3	4	5
I find it difficult to learn in Second Life.	1	2	3	4	5
I would like to use Second Life again in other courses.	1	2	3	4	5
If there are no marks given, I would still use Second Life to learn.	1	2	3	4	5
I learn much more in Second Life compared to traditional classroom.	1	2	3	4	5
I find no difference learning in Second Life as with traditional methods.	1	2	3	4	5
I would recommend Second Life as learning tool to my juniors and friends.	1	2	3	4	5
Second Life made learning more interactive.	1	2	3	4	5
<b>Social comfort of expressing and sensing affect in Second Life</b>					
I felt comfortable participating in this activity.	1	2	3	4	5
I felt comfortable expressing my feelings during the activity.	1	2	3	4	5

All of my senses completely engaged in this activity.	1	2	3	4	5
I tried to create a sense of closeness between my classmates in this activity.	1	2	3	4	5
I was willing to share personal information with my interaction classmate.	1	2	3	4	5
During the activity I never felt as if I was all alone.	1	2	3	4	5
<b>Perception of assistance in group work activities with other participants in Second Life</b>					
I perceive class participants as real persons.	1	2	3	4	5
I was influenced by my virtual classmate partner's moods, for example when the other was happy, I was happy.	1	2	3	4	5
I was able to form distinct individual impressions of some class participants.	1	2	3	4	5
I felt that my point of view was acknowledged by other participants during this activity.	1	2	3	4	5
Actions by other virtual classmates usually influenced me to do further work.	1	2	3	4	5
My virtual classmates assisted in solving the task in this activity.	1	2	3	4	5
<b>Perception of Instructor Presence in Second Life.</b>					
The instructor facilitated discussions in this activity.	1	2	3	4	5
Overall the instructor in this activity met my expectations.	1	2	3	4	5
The instructor in this activity created a feeling same as feeling in real world.	1	2	3	4	5

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