Social Presence of Engineering Undergraduates with Limited Language Proficiency in an Asynchronous Computer-Mediated Context

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Abstract: Today's era of pervasive technology and immersive computing environments require language instructors to take a leap from traditional classroom practices to new instructional approaches that embrace computer mediated communication. The integration of computer mediated communication in teaching and learning necessitates studies on the social presence of learners as it is a critical attribute that determines the way learners interact and communicate. This study, thus, aims to investigate how the engineering undergraduates of limited language proficiency mediate oral communication in the group Facebook activities as well as to identify the indicators of social presence that are most frequently used by them in their Facebook postings. The model and template for assessment of social presence by Rourke was used in this study to identify the indicators of social presence that were frequently employed by the participants in the Facebook postings. Thematic analysis was used to analyse and categorize the emerging themes. Findings indicate that the limited language learners were able to mediate oral communication in a relaxed and non-threatening atmosphere by expressing their opinions, expressing agreement, discussing with elaborations and making a standpoint in their discussions. It was also evident that indicators of the interactive category were more frequently employed in comparison to the affective and cohesive category. Thus, the findings implicate on the significance and positive contributions of Facebook towards the self-esteem of the limited language learners besides developing a sense of community among the learners.

Key words: Social presence, asynchronous, computer-mediated communication, engineering undergraduates, limited language proficiency

INTRODUCTION

The proliferation of networked communication technologies and ubiquitous connectivity as well as the great move from the dominance of the book to the dominance of the screen (Kress, 2003) has necessitated education providers to create learning environments that are relevant to the digital learners of today. This has spawned various empirical studies that advocate on the implementation of online learning activities within the computer-mediated communication paradigm.

Thus, educational institutions and instructors play an important role in providing learners an environment that enables them to construct knowledge through social interaction with other participants in a learning community (Palloff and Pratt, 1999). Wellman (1999) states that a strong sense of community in an online program enhances the group commitment, collaboration as well as the satisfaction amongst the learners. In this sense, social presence is acknowledged as an important factor related to the sense of community (Rovai, 2002) and it has been found to have a great impact on online interaction behaviours (Tu and McIssac, 2002).

As for engineering education, the undergraduates need to be prepared according to the Accreditation Board for Engineering and Technology (ABET) standards. The adoption of the new set of outcomes-based program evaluation criteria in 1997 and the best-known of this criteria which is ABET Engineering Criteria demonstrates that graduates of accredited engineering programs should possess 11 attributes in which one of it is the ability to communicate effectively. In reality, the development of language and communication abilities have often been abandoned in engineering schools due to the emphasis on mechanical skills (Ayokambi, 2011; Raina and Pande, 2012).

Objective of the study: This study embarks on the following objectives:

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- To investigate how the engineering undergraduates mediate oral communication in the Facebook activities
- To identify the indicator of social presence that is frequently used by the participants in the group Facebook postings

Problem statement: Jobstreet.com.my as quoted in Kuncharin and Abdul Rashid Mohamad conducted a survey to identify the critical problems faced by employers in hiring new graduates. The results of their survey indicate that poor communication skill is a hindering factor as 52% of the graduates had poor communication skills. Thus, Kuncharin and Abdul Rashid Mohamad highlight on the National Graduate Employability Blueprint 2012-2017, Malaysia, Ministry of Higher Education that stresses on the prominent role played by Malaysian IHLs in taking the necessary measures to overcome the problem.

As evoked by Devi and Hussin (2015) a worrying fact is that a majority of undergraduates seem to be less-than adequate in speaking in the second language despite numerous exposures to presentations and other activities throughout their language courses in the university. It has also been pointed out in their research that this problem is intense among Malay bilingual undergraduate engineers who form the dominant group in public higher learning institutions and specifically in technical universities.

Mostafa and Malim (2002) has also alluded on the perceived weakness in English as a second language as contributing to the overall performance of Malay students in comparison to other ethnic groups. As such, Devi and Hussin (2011) contend on the urgent mandatory need to investigate the matter from the root so as to reduce the skills gap among this group of students. The above-mentioned issues based on the researcher's experience as a language instructor has been the drive and impetus for the current study which aims to develop undergraduate engineer's oral communication.

Another issue of concern that needs to be highlighted is the MUET which seeks to consolidate the English language ability of pre-university students upon entrance to and before exit from the university. A report from the Malaysian Examination Council as quoted by Kothandabhany (2011) indicates that 63.75% of 81,013 candidates who sat for the speaking paper in 2009 scored bands 1 and 2 which identifies them as 'Extremely Limited User's and 'Limited User's. Thus, beginning from 2015, the Ministry of Education has implemented a new ruling whereby students planning to gain entry into and exit from local public universities need to obtain certain minimum MUET requirements.

As for Science, Technology, Engineering and Mathematics (STEM) courses, the students need to achieve a band 3 upon entrance and a band 4 before they graduate. This increasing demand and tall order on these undergraduates requires them to adequately equip themselves with the English language competency and this has become an important agenda in IHLs today as failure to obtain the required band will be an obstacle for the students to graduate. Therefore, this study attempts to investigate whether the deployment of an asynchronous computer mediated context is beneficial in promoting the mediation of oral communication among undergraduate engineers with limited language proficiency in a technical university.

Research question: The research questions that have been examined in this research are as follows:

- R_1: how do the engineering undergraduates mediate oral communication in the group Facebook activities?
- R_2: what are the indicators of social presence that are frequently used by the engineering undergraduates in the group Facebook postings?

Literature review
Computer-Mediated Communication (CMC): With the great move from the dominance of the book to the dominance of the medium of the screen (Kress, 2003), more actions should be taken by language instructors to foster learner's knowledge and use of language concerning the visual, gestural, audio and spatial dimensions of communications including computer-mediated communication (Heberle, 2010). Computer-Mediated Communication (CMC) which has been defined as 'communication that takes place between human beings via the instrumentality of computer's (Herring, 1996) and also as 'the exchange of information between individuals by way of computer network's (Rovai, 2007) occurs in two modes that are Asynchronous (ACMC) and Synchronous (SCMC) computer-mediated communication.

Synchronous communication which is also known as real time requires participants to communicate at the same time such as in video conferencing and in instant messaging chats. On the other hand, asynchronous CMC refers to communication at a delayed time that is convenient to them (Jude *et al.*, 2007) such as in Facebook (Masputeriah, 2006).

Various empirical studies have revealed on the numerous benefits of asynchronous CMC in language classes. These include learner's motivational and oral proficiency gains (Zhao, 2003; Hubbard, 2004) increased participation among students (Masputeriah Hamzah, 2006), expansion of learner's Zone of Proximal

Development (Supyan, 2009), improved quality of language output (Warschauer, 1995, 1997), learner autonomy (Toyado, 2001; Lee, 2011; Ranjit, 2008) provides ample time for learners to reflect, think and search for extra information before participating in the discussion (Balaji and Chakrabarti, 2010).

Facebook as an asynchronous CMC tool: Participation in asynchronous CMC such as in online discussions via. Facebook and online forums have been revealed to be very beneficial to shy and introvert learners as they need not fear of making mistakes and thus are anxiety-free and are able to communicate in a less threatening or intimidating environment (Warschauer, 1995, 1997; Supyan, 2009; Sun, 2009; Krish *et al.*, 2010; Omar *et al.*, 2012; Bakar *et al.*, 2013).

Evidences from literature have presented significant benefits of using Facebook in language learning. Mazman and Usluel (2010) assert that as an educational tool it provides active participation and collaboration; provides a meaningful learning environment that motivates and builds user's confidence (Kabilan *et al.*, 2010) and results in a unique learning environment that reduces stress (Shih, 2011). Affirming on the benefits of Facebook, Blattner and Lomicka (2012) state that learners generally respond positively when it is used in the classroom.

In general, the text-based nature of asynchronous computer-mediated communication as in Facebook has been found to be greatly beneficial for subsequent oral communication (Abrams, 2003; Blake, 2009; Hirotani, 2009). Various researchers have proven that logs from online chats are equivalent to spoken conversation (Baron, 2000; Crystal, 2006), the underlying cognitive processes of chatting and speaking are the same and are beneficial for fluency development (Payne and Ross, 2005; Blake, 2009; Mendelson, 2010) and its oral-like features have been beneficial in language instruction (Pellettieri, 2000).

In view of these findings in the current study, the researcher has designed activities based on Facebook to enable the participants of the study to mediate oral communication.

Social presence in computer mediated activities: Social presence which explains the social nature of CMC in online educational environments (Lowenthal, 2010) has been widely studied and has been found to have a great impact on online interaction behaviors (Tu and McIssac, 2002). Short *et al.* (1987) who are the foundational researchers of social presence explain that it is greatly related to the attributes of communication media and that it affects learner's communication behaviors. Researchers found that CMC is very social

Table 1: Categories and indicators of social presence by Rourke *et al.* (2007)

Categories	Indicators
Affective	Expression of emotions
	Use of humour
	Self-disclosure
Interactive	Continuing a thread
	Quoting from other messages
	Referring explicitly to other messages
	Asking questions
	Complimenting, expressing appreciation, expressing agreement
Cohesive	Vocatives
	Addresses or refers to the group using inclusive pronouns
	Phatics/salutations

(Gunawardena, 1995) and as such they began investigating the sociability of online education and questioning how people interact socially (Richardson and Swan, 2003).

Garrison *et al.* (1999) argued that learners who participated in online asynchronous discussions were able to portray their personality and create social presence by the use of texts alone. Rourke *et al.* (2007) mentioned that online learners are able to present themselves as being 'real' and are able to connect themselves with others by using emoticons, telling stories or using humor while they communicate in online learning environments and thus they developed specific indicators to identify the observable nature of social presence in CMC besides testing the validity of the categories and indicators of social presence.

Rourke *et al.* (2007)'s conceptualization of social presence includes the affective, cohesive and interactive categories. Affective categories include the use of emotions and humor and the cohesive category encompasses the use of vocatives, inclusive pronouns and phatics or salutations. As for the interactive category, it includes continuing a thread, quoting from other messages, referring explicitly to other messages, asking questions, complimenting and expressing appreciation.

In the current study, the researcher used Rourke *et al.* (2007) model and template for assessment of social presence which consists of affective, interactive and cohesive categories as well as the indicators as a guideline to analyze the participant's Facebook postings thematically. This is deemed significant to identify the social presence or how the mediation of oral communication takes shape in the discussions on the group Facebook.

As maintained by Swan and Shih (2005), research on social presence indicates that students perceive themselves as interacting socially in online activities and their perception on the social presence of others in online discussions influences their own presentations in those discussions. Following is Table 1 that indicates the categories and indicators of social presence by Rourke *et al.* (2001).

MATERIALS AND METHODS

Research design: Taking a qualitative approach, this case study had analysed the participant's postings in the group Facebook activities. Case study methodology was used in the study as in its true essence a case study captures some of the richness and 'flavor' of a case (Widdowson, 2011). Besides, it also explores and investigates contemporary real-life phenomenon through detailed contextual analysis of a very limited number of individuals as subject of the study (Zainal, 2007).

The selection of respondents: Purposive sampling was used in the selection of the 15 participants who are third year engineering undergraduates from the Faculty of Manufacturing Engineering in a Technical University in Malaysia. The participants were selected based on the following criteria:

- Obtained band 1 or band 2 in the Malaysian Universiti English Test (MUET)
- In the third year
- Had completed 2 levels of English courses in the previous semesters
- Had enrolled in a course on English for professional communication

Out of the 15 participants, two of them had obtained a band 1 and the remaining 13 with a band 2 in the MUET examination. According to the MUET band description, a candidate with band 1 is identified as extremely limited user with a poor command of the language. A candidate with band 2 is identified as a limited user with a limited command of the language. The 15 of them are Malay bilinguals with an age range of 21-25 and Bahasa Melayu is their first language.

Instrument used: Qualitative data that includes their postings in the group Facebook were analysed using the model and template for assessment of social presence (Rourke *et al.*, 2007). This template was used due to the fact that it is important to identify the 'social presence' or the ability of a learner to interact with other learners and the instructor in the absence of physical contact and especially in the context of computer mediated communication as in the Facebook activity.

Procedure with ethical considerations: The participants were involved in two out of class activities. The first activity which was conducted for a period of 16 weeks include a discussion on eight topics related to social issues for example, 'what's your opinion about child marriages'? The planning of the topics took into consideration the affective socio-cultural needs and identities of the learners. This was followed by a topic-based discussion cycle activity for a period of four weeks whereby each of the participant had to lead a discussion on a specific topic given and the other participants were required to provide their opinions. The topics for this activity include for example, 'Road accident's, 'Malaysian culture', 'Child abuse', 'Smoking', etc.

Thematic analysis as advocated by Braun and Clarke (2006) was utilised as a method to identify the themes that emerged in the participant's group Facebook postings. Facebook postings. The patterns of meaning across the Facebook postings were identified through data familiarisation and data coding until themes were developed. The identities of the participants in the Facebook entries were concealed via the use of pseudonyms instead of their actual names.

RESULTS AND DISCUSSION

Themes that emerged in the participant's group Facebook postings: Following are several examples of the participant's Facebook postings that exemplify the themes that have emerged.

Expressing opinions: In response to the first topic on the discussion of social issues in the immersion phase, 'what is your opinion about using Facebook for social networking'? the following responses were echoed.

In Fig. 1, Lina expressed her opinion that although Facebook provides various benefits it can also bring disadvantages to the user. Fiz expressed his opinion on the usefulness of Facebook in reviving lost friendship or relationship.

The following opinions were expressed in relation to the questions on the topic-based discussion cycle activity. In discussing the topic on 'Environmental pollution' as stated below, Zu expressed her opinion on how it happens. Next, in discussing about road accidents Lina expressed her opinion that it is mainly due to the attitude of the road users (Fig. 2).

Expressing agreement: In relation to the topics on 'Internet', 'Crime' and 'Environmental Pollution' which were provided by the instructor in the topic-based discussion cycle activity, Zu, Ana and Lina expressed their agreement as well as provided measures that can be taken to overcome the problems (Fig. 3).

Discussing with elaborations: In response to the question 'What is your opinion about the Malaysian education system? Does it need a reform'? N if discussed on its relevance and elaborated by using
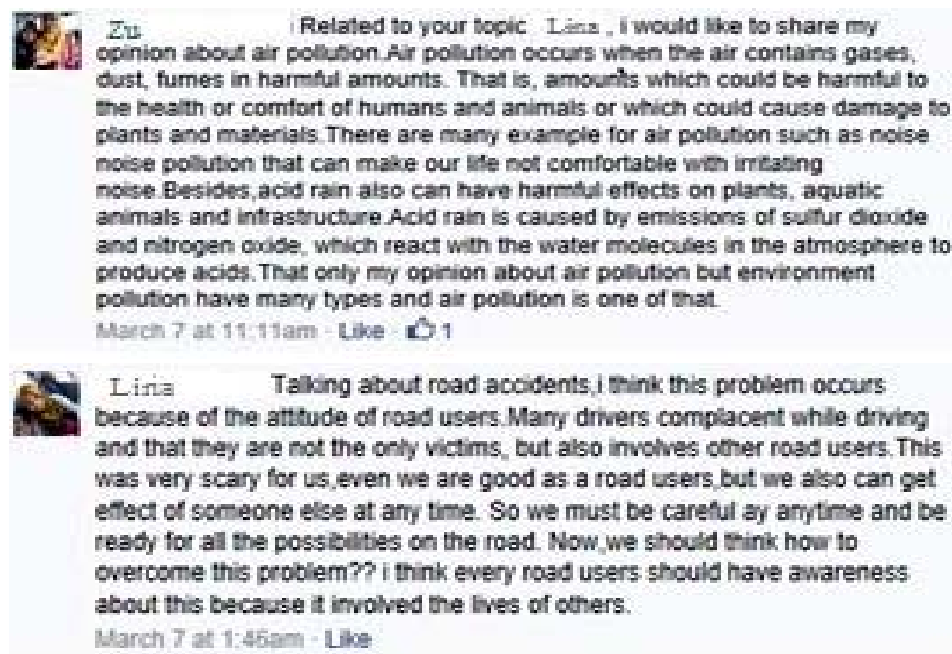
Fig. 1: Expression opinion

Fig. 2: Expression opinion acording to attitude

discourse markers such as 'for example' to highlight some of the pitfalls in education at the degree level (Fig. 4). The following responses by Zu and Hirah are in relation to the topic on child abuse in the 'Topic-based Discussion Cycle' activity. Zu discussed by elaborating on the possible reasons that cause parents to abuse children. The use of sentence connectors like 'Firstly' signify her

attempts to elaborate. Hirah continued her discussion by elaborating on various other reasons that result in child abuse (Fig. 5).

Making a standpoint: The ability to make a standpoint is another theme that emerged in the participant's responses as evident below. For example Mal in his discussion on
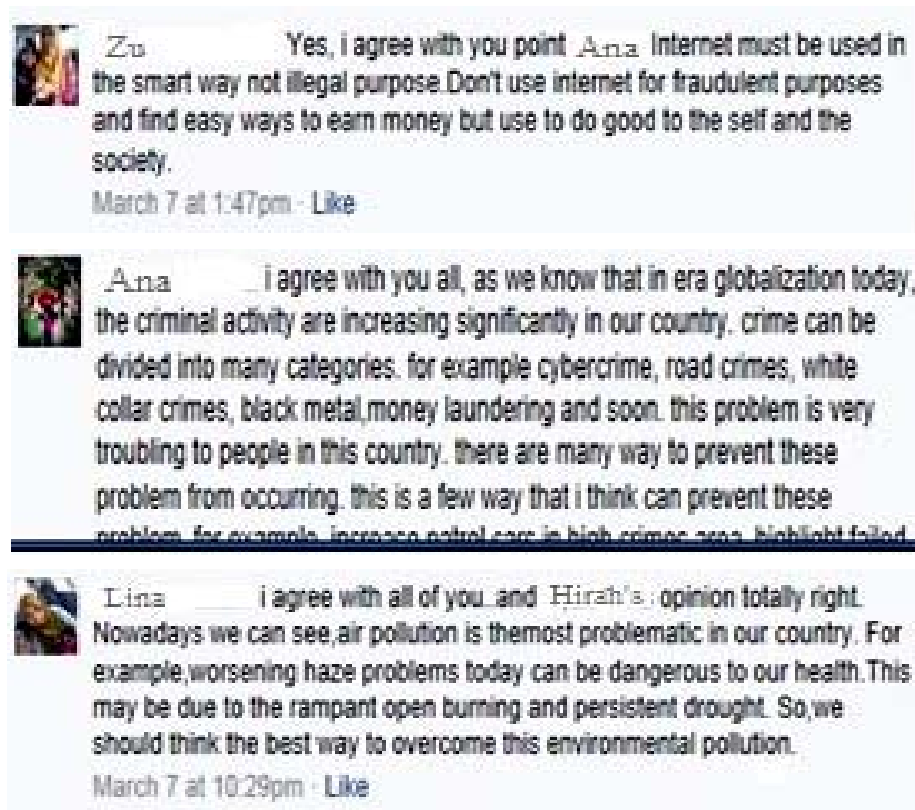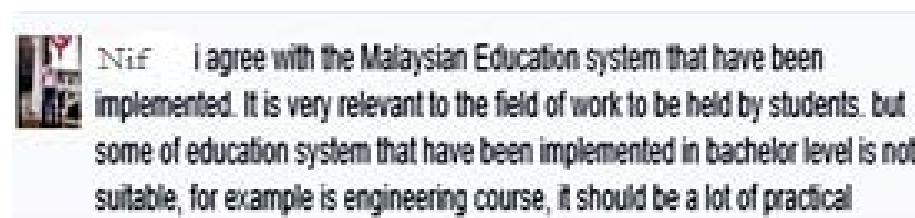
Fig. 3: Expression agreement

Fig. 4: Discuss with the ellaboration

why Facebook is used more in comparison to other social network provided examples and derived at his standpoint that the various factors had resulted in the abundant use of Facebook by youngsters. Wani too made a standpoint by stressing that the various examples that she had provided will enable the Malaysian tradition to flourish. This was followed by Zu who made a standpoint that the disadvantages of Facebook can be minimized by careful usage (Fig. 6).

The participants were found to mediate oral communication in a relaxed atmosphere while they participated in out-of-class activities as in the Facebook where they discussed on social issues and in the topic-based discussion cycle activity. It was evident that indicators of the interactive category were more frequently employed in comparison to the affective and cohesive category. They mainly mediated oral communication by expressing opinions, expressing agreement, discussing with elaborations and also by making a standpoint.

Qualitative data based on the participant's Facebook postings had revealed that these learners with limited language proficiency were involved in meaningful and authentic interactions as they responded freely and confidently. They were even involved in off-task discussions, thus implying that they were free from
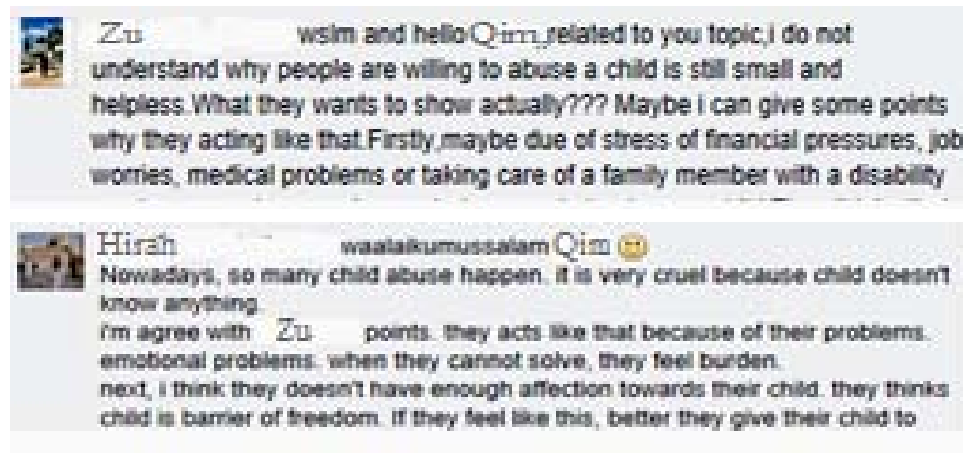
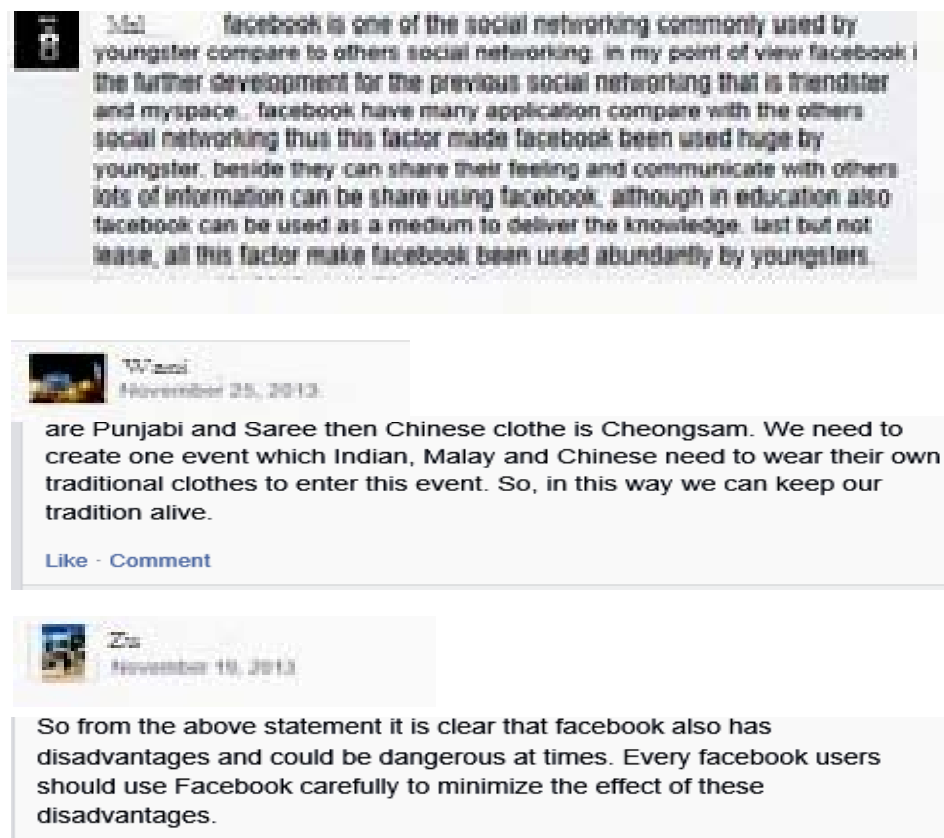Fig. 5: Responses in relation to child abuse topic

Fig. 6: Making a standpoint

intimidation and anxiety. They were able to communicate their ideas fluently despite numerous language inaccuracies in their speech. Despite, findings from several studies which contradict as pointed out by Yunus *et al.* (2012) that it results in the habit of using too many contractions and by Manan *et al.* (2012) that it results in the use of poor quality English, most of the studies in the literature comply to the positivity of Facebook use in language classrooms.

The findings of the current study are similar to the studies reviewed in the literature which indicate student's positive response in computer-mediated contexts such as

in the use of Facebook in language learning (Blattner and Lomicka, 2012), the meaningfulness of Facebook in strengthening language learning (Kabilan *et al.*, 2010) and its role as an educational tool that provides active participation and collaboration (Mazman and Usluel, 2010).

Drawing on other positive effects of computer-mediated communication as mentioned in the current study, Shih (2011) maintains that it reduces stress in language learning due to its unique environment which provides the users with fun and flexibility and as postulated by Kabilan *et al.* (2010) activities based on CMC such as Facebook motivates and builds the user's confidence.

Significance of the study towards practices: The findings of this study have resulted in several pedagogical implications that are significant to policy makers, administrators, instructional designers and practitioners. In teaching ESP-based courses that are technical as in the current study, it is important for instructors to arouse student's interest and to make abstract themes more meaningful. In such a scenario, tedious lectures and traditional teaching methods need to be replaced with computer-mediated teaching methods such as the use of Facebook which stimulates the learner's feeling organs, thus enabling them to interact with each other harmoniously.

Thus, this study implies that in designing the learning environment, the instructors should plan carefully such that the activities are blended to produce authentic and meaningful learning experiences which lead to improved learning performance, especially for low achieving learners (Chen and Fu, 2003; Moreno and Mayer, 2007). As in this study, the participants who were limited language learners felt more comfortable and performed better when they learnt in an environment catered to their interest such as the discussions in the Facebook and they had greater opportunities to make meaning and to engage with peers.

CONCLUSION

This study illuminates the fact that computer mediated communication is effective in improving the oral interactional abilities of the students and that using social media like Facebook in the language classroom is a positive idea that can be adopted. Besides, promoting the use of meaningful out-of-class activities in the online platform can be another avenue to promote learner interaction in the classroom.

This study also highlights that language instructors should pay attention to learner's affective domains

particularly their self-confidence and anxiety and this is especially critical for learners with limited language potentials. Thus, this study is in line with Minghe and Yuan (2013) who have indubitably voiced their concerns on attention to affective factors example by indulging learners in out -of- class activities like activities based on the internet that help to motivate the learners, reduce their anxiety and improve language learning.

Additionally, this study highlights the fact that although the use of technology gets the main attention in computer-mediated contexts, it is the learner's social presence that makes the learning environment productive. As in this study, the learners with limited language proficiency had been found to project their social presence in the Facebook discussions by using the interactive indicator most frequently, thus implying that they had been able to mediate oral communication in a socially meaningful way.

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