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## **The pedagogical implications of using computer-mediated communication in language learning and teaching**

### **Дидактические аспекты применения средств компьютерно-опосредованной коммуникации в обучении иностранным языкам**

**Key words:** foreign language instruction, technology integration, synchronous and asynchronous computer-mediated communication, second language acquisition

**Ключевые слова:** обучение иностранным языкам, процессы овладения вторым языком, интеграция информационных технологий, компьютерно-опосредованная коммуникация в реальном времени и асинхронном режиме

#### **Abstract**

Although foreign language instruction has seen a big surge in the integration of technology-enhanced forms of delivery of knowledge and interaction, research focusing on the value of computer-mediated communication (CMC) in the language classroom has not been extensive and has not received wide coverage. This article examines and outlines general findings regarding the educational capacity, benefits and limitations of three major CMC tools (text-based chats, discussion boards and wikis) for enhancing foreign and second language acquisition processes. Some insights are offered into the importance of specific CMC tools for supporting the collaborative nature of learning and learner autonomy, fostering students' reflection and critical thinking skills and affording higher motivational gains and engagement in the language learning process.

## Аннотация

Несмотря на активное привлечение педагогами информационных технологий для оптимизации форм передачи знаний и обеспечения коммуникативной направленности обучения иностранному языку (ИЯ), на настоящий момент объем опубликованных трудов о специфике компьютерно-опосредованной коммуникации в учебном процессе по ИЯ представляется незначительным и мало освещенным. Данная работа предлагает общий обзор основных тенденций, дидактических возможностей, результатов и проблем интеграции средств КОК (чатов, дискуссионных форумов и вики) в процессы обучения иностранному и второму языкам. Результаты анализа исследований по вопросам применения КОК подчеркивают роль отдельных средств КОК в усилении элементов обучения в сотрудничестве и вовлеченности учащихся в учебный процесс, повышении уровня автономности учащихся и формировании у них более высокой мотивации в овладении изучаемым языком.

## Introduction

Computers and the Internet have opened up multiple communication channels for interpersonal communication, group discussion, information sharing and transfer giving rise to a new form of communication in the digital environment – *computer-mediated communication* (CMC). CMC has largely been viewed as a way to trigger interactional processes that extend language learners' exposure to the target language (L2) and involve both oral and written-based communication with peers, teacher(s) and native speakers both asynchronously and in real time.

A large proportion of research into foreign and second language acquisition (SLA) has exhibited an increased emphasis on the use of technology, specifically, computer networking, to achieve greater learning gains. The term “CMC” has often been used interchangeably with CMCL – *computer-mediated collaborative learning* as a type of learning which views knowledge construction and skills acquisition as a social process (Warschauer, 1997). As numerous studies suggest (Chun, 1994; Dutt-Doner et al, 2000; Gabriel, 2004; Kahmi-Stein, 2000; Nicholson & Bond, 2003; Stepp-Greany, 2002; Paran et al, 2004; Son, 2006; Fleming, 2008; Ducate et al, 2011) CMC represents a separate aspect of computer-assisted language learning known as *CALL*. Thanks to its capacity for providing language learners with interaction opportunities regardless of the time and place constraints, CMC has received increased attention in the recent years and has held special promise as a means of extending the learning experience well beyond the classroom space.

When the first CMC tools (e.g. email, discussion forums, listservs, electronic bulletins) emerged, the new form of interaction showed its potential for addressing several needs at once: it could be used as a means “through which teaching occurred” (Lamy & Hampel, 2007), as a means of engaging learners,

and as a means of providing space for the formation of active learning communities and communities of practice.

To date, a variety of CMC tools facilitating communication via the Internet regardless of the interlocutors' location have come into wide use. Depending on the time of response, common CMC tools can be generally classified into *asynchronous ones* (or delayed in time), and synchronous – taking place in real time. Some of the examples of asynchronous CMC tools may include: email, listservs, news bulletins, discussion boards, also known as computer conferencing or forums, wikis, blogs, microblogs, social networking sites, etc. The examples of the CMC tools that allow for real-time interaction include internet relay chats or simply chats, audio and videoconferencing applications, as well as 3D worlds.

Another important criterion for classifying CMC tools is the medium through which online interaction occurs. Based on this criterion CMC tools can be grouped into text-based and audio- or voice-based ones. Some of the text-based tools (email, listservs, discussion forums, chats) have been around for more than a decade, and there is ongoing debate about their effect on second language acquisition processes. Some other widely known text-based tools (collaborative editing tools, such as wikis; regular blogs and micro-blogs like Twitter; social networking sites) may be regarded as newer generation tools as they build on new architectural decisions to facilitate interaction processes. Yet, there are also CMC tools that integrate multimedia technologies relying on both the visual and the auditory channels: voice-based forums and chats, audio- and video-conferencing, voice blogs, podcast channels, gaming environments that incorporate an umbrella of online collaboration tools (e.g. Second Life). The emergence of all these tools has raised new issues and concerns about their potential for enhancing both written and oral proficiency of foreign and second language learners.

Various studies (Chun, 1994; Stepp-Greany, 2002; Gonzalez, 2003; Lamy & Hampel, 2007; Meskill & Anthony, 2007; Fleming, 2008; Lee, 2008; Blake, 2009; Lee, 2009; Priyanto, 2009; Ducate et al, 2011) have reported on the numerous benefits that can be derived from employing different forms of CMC to engage language learners both in and outside the classroom. The findings suggest that the use of CMC in the foreign language classroom:

- provides a safer and a less threatening environment for self-expression in the target language;
- contributes to the development of students' technology skills that are crucial today;
- enhances more active participation and personal engagement among students;
- results in a more decentralized role of the teacher;
- opens up possibilities for new interpersonal contacts;
- if text-based, directs students' attention to linguistic form;

- helps track and analyse target language errors based on transcripts of online communication activities and produce improved target language output;
- provides opportunities for reflection on one's language acquisition processes;
- empowers the learners and makes them accountable for their own progress.

Yet, as suggested by literature on the integration of CMC into foreign language instruction (Kahmi-Stein, 2000; Stepp-Greany, 2002; Biesenbach-Lucas, 2003; Lamy & Hampel, 2000) and our personal observations, there still remain a lot of language educators who are rather skeptical about the value and efficiency of CMC tools for language development (compared to traditional face-to-face forms of communication) due to a variety of factors including administrative barriers in implementing CMC-based instruction, increased time demands on both teachers and learners and students' perception of this type of interaction as being contrived (Biesenbach-Lucas, 2003). Those instructors who have had some experience employing one or a number of CMC tools appear to have been left with a positive feeling regarding the potential of these for providing additional language practice opportunities and affording learners strong motivation gains for using L2 in a variety of settings.

To date, whether text-based or audio-based CMC tools are concerned and whether online communication is taking place in real time or asynchronously, the following issues have been explored to some degree although with no conclusive evidence:

- what specific language skills can be fostered as a supplement to classroom instruction with the help of those tools;
- how CMC tools facilitate meaningful production and focus on form in the target language;
- what is the role of the instructor in implementing CMC-enhanced language instruction and determining the quality of the final learning outcomes;
- what instructional strategies and activities can be used when applying CMC tools;
- what further issues emerge with the integration of CMC tools into language teaching practices.

This paper will attempt to give a concise overview of major research findings regarding the key affordances, practical considerations, and the pedagogical implications of employing selected CMC tools (text-based chats, discussion boards, and wikis) in general educational settings and language learning and teaching, in particular.

### **The affordances of chat integration into the foreign language classroom**

Text-based chats have been applied both in and outside the language classroom and have increasingly been seen as a viable communication tool in blended and distance language courses. According to a large body of research (Mynard, 2002; Lam, 2004; Lai & Zhao, 2006; Shin 2006; Lee, 2008; Blake, 2009), thanks to the oral-like nature and immediacy that interaction via chats affords, the use of chats in language teaching has opened up new opportunities for language learners to be actively involved in communication processes with their instructors, peers, and more competent language users (including native speakers). While reading linguistic input from their stronger/ more advanced chat interlocutors, learners have gained wider opportunities to process and improve on their own linguistic output (Lai & Zhao, 2006) and engage in meaning-oriented communication in the written form (Shekari & Tahririan, 2006). It has also been suggested that the additional time to plan and think through one's message before posting it, as well as the non-threatening environment of chats, have allowed for more uninhibited communication and the boost in learners' confidence using L2. Students' participation has been reported to become more "balanced", as there is less domination of the flow of discussion by more advanced students or the teacher (Martin, 2002). Moreover, chat logs or transcripts have been increasingly called on as important linguistic material to help learners analyse and reflect on their own performance together as a class or individually. This has been reported to foster students' ability to identify their language mistakes (related to grammar, spelling, usage, etc.) and grow to be more conscious of linguistic forms (Lai & Zhao, 2006; Lee 2008) alongside the intended meaning of their written output. Shekari and Tahririan have also pointed out that chat logs can be used to demonstrate learners' interlanguage and provide recorded examples of learners' "developmental errors" (Shekari and Tahririan, 2006: 570).

Important findings on the effects of integrating chats into the foreign language classroom highlight the benefits of chats for organizing scaffolding activities when a more advanced language user (native speaker, teacher, or more advanced peer) facilitates learners' language development by providing them with guidance and corrective feedback on lexical, syntactic and/or grammar issues (e.g. in the form of grammar and usage explanations in the native or the target language) drawing their attention to not only meaningful production, but also form. Scaffolding (a term introduced by L. Vygotsky) (Vygotsky, 1978) is known as a kind of support that helps learners outperform their current level of competence. In the context of chat-integration scaffolding has been viewed (Lai & Zhao, 2006; Shekari and Tahririan, 2006; Lee 2008) as conducive to the successful implementation of the "focus-on-form instruction" (Spada & Lightbown, 2008), which promotes learners' "noticing" of linguistic forms. The authors have made claims that scaffolding learners to recognize their language errors via chat

discourse can result in their ability to make self-repair moves (corrections made by learners themselves) and start using correct forms at later stages of the language learning process.

The example below presents a chat discourse that illustrates the use of scaffolding by a more competent language user (Melissa – M.) in a Spanish class (based on Lee, 2008). Melissa helps the learner (Hannah – H.) understand the difference between the two temporal aspects of the preterit and the imperfect tense forms in the Spanish language. It should be noted that the native language – L1 – is used to explain complex grammatical structures.

### ***Episode 3***

1. H: **Fueron** las diez cuando Luisa **llegaba** a la casa. (It was ten o'clock when Luisa was arriving at the house.)

2. M: Hmm... algo no está bien en su oración. (Hmm... something is not right in your sentence.) [*Use of indirect hint*]

3. H: Pienso que no uso los verbos bien. (I think I don't use the verbs well.) [*Noticing of problem but needs more help*]

4. M: Si, ¿puede corregirlos? (Yes, can you correct them?) [*To encourage self-repair*]

5. H: Should I use "llegó" instead of "llegaba"? It should be "she arrived" not "she was arriving" [*L1 to re-orient herself*]

6. M: Correcto. ¿Qué tal el primer verbo? (Correct. How about the first verb?) [*To draw attention to a specific form*]

7. H: Creo que está bien pero no se. (I think it is right but I don't know.) [*Need for more help*]

8. M: Remember that the imperfect is used to describe a scene including the use of time in the past. [*Use of L1 to explain L2 grammar rule*]

9. H: But it is a specific time; ten o'clock.

10. M: In Spanish the imperfect is used to describe the time in the past.

(excerpt from Lee, 2008: 61)

Furthermore, Chun (Chun, 1994) reports on the role of chats in promoting students' interactive competencies and negotiation strategies in L2 including turn-taking, asking and responding to questions, making and clarifying requests, etc., which helps learners construct meaning through written discourse. Interestingly, some findings on the effects of chats on the second language acquisition have also emphasized the positive effects of text-based chats on developing not only students written competence, but also their oral fluency in the L2 (Blake, 2009) as students orally discussed a variety of themes in conventional classroom settings. This is especially true of low proficiency level students and students with low working memory capacity who have shown a need for more time to process information, focus on what they want to say and produce a structured answer.

### **Chat-based activities**

A review of studies on the practical uses of chats for developing students' production skills seems to suggest that the most common chat-based activities for the language classrooms have been aimed at fostering learners' spontaneous production in the written form and tend to differ in terms of the structure they provide. Some tasks can be described as closed tasks – a type of tasks that elicit a structured response, while other tasks are more open-ended, which means they allow for freer, unanticipated use of language. Open-ended tasks have been reported to result in the highest rate of learners' self-repairs as they attend to error correction (Lee, 2008). It has been suggested that both types of tasks should be carefully planned to accommodate for different language proficiency levels.

The literature on the use of chats for promoting language development indicates that there are some common types of tasks that can be offered via chat (Martin 2002; Mynard, 2002; Gonzalez, 2003; Meskill & Anthony, 2007; Blake 2009):

<b>Task type</b>	<b>Description and examples</b>
jigsaw tasks (=information gap activities)	identifying differences between drawings or texts (in pairs or groups) – the information each participant has contains some missing pieces that should be “restored” through negotiation (e.g. spot the differences tasks)
brainstorming tasks	brainstorming lexical items and ideas on a topic (e.g. association games, asking for names of objects related to a topic)
word games	eliciting synonyms and opposites to given words and expressions
ask and answer tasks	interviewing each other around a topic; checking comprehension of a text; negotiating meanings of lexical items in a variety of contexts; eliciting short descriptions; introducing a new word and asking the learner to clarify its meaning
open-ended questions	opinion exchange on a topic

### **Pedagogical implications of chat integration into foreign language instruction**

Research on chat integration, while not extensive, offers windows into a number of practical considerations and concerns that should be taken into account when using text-based chats:

- language learners may be more interested in conveying meaning rather than focusing and reflecting on linguistic forms during a chat activity (Lee, 2008) which should be taken into account when planning chat activities;
- even if chat activities are offered outside the classroom as a home assignment (e.g. students have to meet in chat and have a discussion on their own, without the instructor's guidance), these should be highly structured and focused on achieving learning aims;
- because chat users type their messages simultaneously, communication breakdowns may occur if more than four people interact via the same channel; to overcome this barrier, a protocol or a set of rules establishing the order of turn-taking via chat can be offered as a solution;
- if experts' assistance is involved to scaffold learners, it should be kept in mind that some learners may not enjoy other users' intervention into a communicatively oriented activity and may not find such feedback scaffolding effective;
- language learners from traditional learning environments tend to be rather skeptical about the use of CMC activities for improving their language proficiency (especially oral fluency), which means that instructors have to be able to provide learners with explanations and supportive evidence regarding possible gains from chat-based interaction compared to more conventional forms of interaction.

Finally, it should be noted the integration of chats cannot be enforced without careful preparation on part of the teacher and should be carried out based on effective instructional design. Martin (Martin, 2002) provides a number of practical guidelines for chat integration for such learning experience to be successful. These are outlined below:

- the chatroom must be private – not open to all users but a particular group of students;
- ideally, students participating in a chat activity must be the same age so that similar interests can be dealt with;
- chat participants in multicultural classrooms can/should be selected from different nationalities, or they can be habitual penpals from different countries;
- a debate directed to a specific topic should draw better results than pure random undirected conversation;
- the debate is favoured when participants have access to previous similar background information, which allows them to shape a personal opinion or position regarding the subject and thus facilitate their participation in chat-based discussions (Martin, 2002).

### **Discussion boards and foreign language acquisition**

Discussion boards or forums have been viewed as a way to enhance active learning and a viable educational tool for the mutual construction of knowledge in the context of the constructivist theory and

collaborative learning (Weasenforth et al, 2002; Nicholson & Bond, 2003; Gabriel, 2004; Fleming, 2008). Its use has been congruent with the pedagogical principles that promote reinforcement of the learnt material through the use of research activities and problem-based tasks and test students' knowledge of class material instead of having the teacher pass on ready-made information without engaging the learners. The integration of discussion boards has especially been useful with large-size, lecture-type classes which have called for more effective communication channels to stimulate whole class community's reflection on course content (Chong, 1998). In this respect, some authors (Pena-Shaff & Nicols, 2003) have made a claim that discussion boards have the potential to increase the level of participation and interaction among students and the capacity to provide a meaningful supplement to regular class discussions.

Discussion boards have also been viewed (Kahmi-Stein, 2000; Biesenbach-Lucas, 2003; Nicholson & Bond, 2003; Biesenbach-Lucas, 2004; Gabriel, 2004; Son, 2006; Lee, 2009) as effective platforms for building strong communities of learners which contribute to students' engagement and participation in the course, help process new ideas and draw connections between theory and practice at learners' own pace, as well as promote students' cognitive growth and complex reasoning skills (Biesenbach-Lucas, 2003). This in part has been attributed to the capacity of forums to trigger more interactional exchanges between students as some of them feel more comfortable expressing their views in the virtual domain (in the comfort of their homes/ study halls/ offices, etc.) rather in the presence of other students and the instructor.

Even more so than with chats, the extra time for reflecting on a question/ issue and thinking out a well-argued response has been brought forth as an added value afforded by discussion boards for increasing the quality of online interactions and placing students in a more active role (Weasenforth et al, 2002). It has been suggested that discussion boards have allowed for a greater sense of race and gender-based equality as compared to face-to-face discussions since students mainly assess and respond to the content of their peers' messages instead of to who the producer of the message is. This can be explained by the fact that there are no visual cues in the online text-based environment to rely on as forum participants read into one another's posts, which for this very same reason should be self-sufficient and coherent. Kahmi-Stein has also informed this discussion by sharing a finding that online discussions can "[reduce] the cultural and linguistic barriers" (Kahmi-Stein, 2000: 448) and a feeling of anxiety that may inhibit smooth interaction and collaboration in multicultural classrooms with both native and non-native speakers of the target language.

With regard to language learning, the effects of discussion boards on students' language skills have been a fertile area of research. Text-based forums have been viewed as a unique writing environment and a safer collaboration venue for students to share their experiences and knowledge from different fields and foster language-related and critical thinking skills (Weasenworth et al, 2002; Lee,

2009; Priyanto, 2009; Mendelson, 2010). Remarkably, some studies (Mendelson, 2010) have reported that while being asynchronous by nature, discussion forums may serve as a temporary support tool that can enhance students' oral production when engaging in face-to-face classroom discussions of previously discussed themes – a finding which has challenged earlier claims that only synchronous CMC can serve this purpose. According to Mendelson, the work that language learners do thinking through and posting about a topic in the forum prior to oral discussions seems to give the participants a sense of achievement and a confidence to speak up on related issues as the ideas and the language they had used is still “fresh” in their mind as if rehearsed. The students also feel secure knowing they can build off the messages they have made in the forum (regardless of the fact that the forum is a written medium). This especially concerns shier students who feel apprehensive speaking out in the classroom. Moreover, Mendelson's study is instructive in revealing that the answers given by students in the forum may also provide the instructor with valuable information that can be used to further shape in-class discussions of the subject matter and productively scaffold student participation. The author suggests that with regard to lower proficiency level students the instructor can select and ask students particular questions that they have raised in their forum posts and that directly relate to their personal experiences and interests, “bringing out” less outspoken students and giving them an additional confidence to speak up in the “real” classroom. The students may also feel motivated to prepare for oral activities based on their forum discussions, which may increase their engagement with forum tasks.

Similar ideas are expressed by Weasenforth and colleagues (Weasenforth et al, 2002) who investigated the effects of using forum-based discussions in an ESL course during three semesters. The authors found that learning possibilities afforded by discussion boards may not be achievable in a face-to-face classroom alone considering that “this medium provides both the interactive features and the reflective qualities that oral face-to-face interaction cannot provide” (Weasenforth et al, 2002: 76).

Furthermore, just as in the case of chats, forum-based discussions have been increasingly recognized as a venue for providing scaffolding as the instructor or stronger peers model certain uses of the target language and help explain the linguistic and pragmatic features of selected linguistic material. Some scholars have suggested that this kind of support on part of the teacher or other peers can enable language learners to focus on both meaning and form to improve on their performance (Weasenforth et al, 2002), which can make a case for using forums to support both written and oral language use outside the classroom.

### **Forum-based activities and pedagogical implications of forum integration into foreign language instruction**

The task design for forum-based activities has converged around the use of pre-class or post-class discussions on topic-based issues or selected readings, research and project-based tasks the results of which should be reported via a forum post, etc. These activities have been seen as valuable for

extending learners' exposure to the target language, providing connections with and a reinforcement of class activities/ materials, bridging theory with practice, encouraging more intensive and, yet, less intimidating collaboration with peers and giving students more practice applying argumentation and discussion skills. More planning time for task completion has been found beneficial for learners' ability to produce more lexically and syntactically complex language (Warschauer, 1997) building on previously studied linguistic input.

To ensure students' success with discourse-related activities offered via discussion boards and in class, providing model postings illustrating the conventions of the written discourse and the instructor's expectations regarding students' output has been highlighted as an important instructional strategy in blended and distance learning environments (Weasenforth et al, 2002). Suggestions have been made that instructors additionally select students' model postings to draw attention to them and make their expectations about the content, linguistic aspects, and the overall quality of posts even more explicit.

It has also been implied that the integration of discussion-based activities via a forum without the instructor's direct intervention can help students develop important skills for moderating their online work and managing the flow of interaction with their peers. This, in turn, can result in an increase in their learner autonomy and a feeling of belonging to a community of learners.

### **Wikis in the foreign language classroom**

Wikis have been known as an asynchronous communication tool that allows Internet users to work with the same document (or a series of documents) and add necessary changes to it in a collaborative effort. The word "wiki" (pronounced as *weekee*) comes from a Hawaiian word for "quick", which means that the information in the wiki can be accessed and responded to very fast.

A wiki resource typically looks like a typical web page that each member of a team can edit (like the wiki pages in this course), or a whole website set up by the instructor or a group of students (e.g. [www.wikispaces.com](http://www.wikispaces.com)) for collaborative editing by invited group members. Wikis can vary in complexity and access levels. The creator of a wiki can set up a wiki document in such a way that anyone can see it and make changes to it, or other users can edit the wiki document, but only a moderator can accept those changes.

Wikis have extensively been used as an integral part of distance learning platforms such as Moodle, or as part of autonomous wiki-hosting platforms including Wikispaces, EditMe, PBWiki, SeedWiki. Most wiki pages allow for the integration of links to multimedia resources (text documents, audio and video materials, tests, etc.) that can be displayed within the pages. Some wiki services, for example, those integrated into a distance learning platform, may have the Comment section that allows wiki users to hold discussions about the changes that they make to a particular wiki page.

Wikis have been viewed as a unique CMC tool that brings learners within the same space, but, unlike forums, chats or other synchronous and asynchronous CMC, also empowers them to equally oversee and contribute to the creation of a joint project. Some scholars have argued that wikis (Priyanto, 2009) are “intensely collaborative” and have increasingly been employed to engage students in small- and large-scale research work based on team collaboration (including cross-institutional and international projects). In this sense it is no surprise that wikis have been closely tied to the concept of learner autonomy as their use implies learners’ ability to explore a given research theme on their own while being accountable for the content they create and assess together as a group. Miyazoe and Anderson (Miyazoe & Anderson, 2009) investigated the use of several CMC tools (a forum, a blog and a wiki) in a blended English language course aimed at developing students’ writing skills. The results of their study point to students’ positive attitudes to the blended course design incorporating CMC tools, with wikis being identified as the most favorable CMC tool.

### **Pedagogical implications of using wikis in language learning**

On the other hand, some issues related to the use of wikis in educational settings have been identified (Kessler, 2009; Priyanto, 2009; Ducate et al, 2011). First, while being easy to access and modify by different users, wikis have shown their vulnerability to unwanted corrections, which has called for a higher responsibility on the part of individual team members for the changes they make to wiki pages. For this reason, due to some students’ low internet literacy skills, it has been suggested that learners should be allowed plenty of time to learn to access and use a wiki having explicit instructions and tutorials at hand. Since the students themselves may initially feel intimidated by the idea of erasing their peers’ shared content such support materials can help reduce students’ anxiety and level of frustration when editing wiki pages.

Secondly, it has been found that some students may have a problem embracing the idea of “collective ownership” (Ducate et al, 2011) and being assessed on their collaborative rather than individual efforts. This has called for specific preparatory measures on part of the instructor that would help students recognize the value of teamwork for developing a variety of learning skills. Thirdly, it has been revealed (Priyanto, 2009) that there may often arise the problem of students posting misleading information that can spread over to the whole group or of students copying and pasting entire chunks of information from existing sources onto their wiki pages. To avoid this problem, the instructor should provide clear guidelines as to how information should be critically assessed, paraphrased and properly cited to avoid plagiarism and the distortion of facts. Students should also be taught to be critical of the content of their peers’ contributions and be ready to post questions if the information displayed in wiki pages seems to be confusing.

Another issue which has received attention in the literature is that of students not trusting the information they obtain from their peers and expecting the instructor to re-check its validity (Priyanto,

2009). This dependency on the teacher as the only trustful source of knowledge can become a serious impediment to the smooth integration of wiki-based activities in language learning as students would tend to feel suspicious of the worth of their peers' contributions. Although not trivial, this issue may be resolved once the instructor suggests some forms of teacher support along the way while encouraging the students to discuss and negotiate their decisions and learn to assess and check their own posts for consistency with the criteria known to the students.

One more issue which has raised concerns on part of the instructors applying wikis and other CMC in the language classroom is that of students' and teachers' prior experience with technology and e-literacy skills for successful learning to occur based on technology-enhanced activities and projects. As suggested in literature, it becomes imperative that sufficient training and explicit guidelines on how to operate selected CMC tools be provided and further measures be taken to avoid possible system breakdowns and loss of student information rendered in the electronic form. Priyanto (Priyanto, 2009) points out that "teachers should keep the records of the usernames and passwords just in case some students fail to log in only because they lose them".

### **Conclusion**

The findings on the possibilities and implications of integrating CMC into language learning and teaching outlined in this paper stress the growing recognition of learning frameworks that build on technology-enriched forms of communication and engage students in constructive and reflective learning regardless of their physical location. They also illuminate trends regarding the use of specific CMC tools to promote the further development of the communicative competence and a variety of technology skills that in the era of today become key to succeeding both as learner and instructor. Although the data presented in this paper is limited to certain settings and CMC tools and calls for more extensive research examining other aspects of CMC use across different language learning and professional development contexts, it appears that to create a richer and more diverse learning environment and expand their knowledge of CALL both language instructors and learners should see it fit to capitalize on what CMC-enhanced interaction has to offer.

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