Reducing foreign language communication apprehension with computer-mediated communication: A preliminary study

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Abstract

nous CMC \((n = 23)\). Data from pretest and posttest questionnaires show no significant difference in reduction of communication apprehension between the control and experimental groups.

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1. **Introduction**

Foreign language (FL) learners often experience problems with spontaneous oral communication. Difficulties understanding others and making oneself understood in a FL can result in or be signs of communication apprehension, which is defined as a “type of shyness characterized by a fear of or anxiety about communicating with people” (Horwitz et al., 1986, p. 127).

In recent years, studies (Beauvois, 1998; Freiermuth, 1998; Kelm, 1992; Kern, 1995; Warschauer, 1996) have indicated that computer-mediated communication (CMC) might reduce FL communication apprehension because it provides an unusual social and communicative space, where many FL learners feel less inhibited. The present article reports the findings of a study designed to examine long-term effects of CMC on FL learners’ communication apprehension, a research issue that to date has not been addressed directly.

2. **Review of the literature**

2.1. **Communication apprehension and foreign language anxiety**

In the field of communication, communication apprehension is conceptualized in terms of oral communication in a person’s native language as the fear or anxiety triggered by real or anticipated communication with other people (Beatty and Andriate, 1985; Daly, 1991; Jung and McCroskey, 2004). But the concept of communication apprehension has also been applied specifically to FL learning – a context believed to have the potential to create or amplify communication apprehension (Jung and McCroskey, 2004; Lucas, 1984).

In the field of applied linguistics, the concept of communication apprehension is closely related to that of language anxiety. In fact, communication apprehension and language anxiety are sometimes considered conceptually similar or even synonymous (MacIntyre et al., 2002; MacIntyre and Charos, 1996). This study, however, follows a different conceptualization, one which is based on Horwitz et al.’s work (1986), where communication apprehension is viewed as one component of FL anxiety.

Horwitz et al. (1986) propose to discriminate the anxiety associated with FL learning from general trait anxiety as a phenomenon unique to this learning context: it is “a distinct complex of self-perceptions, beliefs, feelings and behaviors related to classroom language learning arising from the uniqueness of the language learning process” (p. 128). According to their definition, which has been used in many studies (e.g., Frantzen and Magnan, 2005; Gregersen and Horwitz, 2002; Matsuda and Gobel, 2004; Phillips, 1992; Saito et al., 1999), FL anxiety is a form of situation-specific anxiety: it is stable over time but limited to only this particular situation. Horwitz et al. identified three components of FL anxiety: (1) test
anxiety, (2) fear of negative evaluation, and (3) communication apprehension. Within this framework, communication apprehension refers only to oral communication and manifests itself in difficulties speaking and listening to the FL. Horwitz et al. (1986) mention the following examples for communication apprehension: difficulties speaking with a partner or in groups, stage fright and receiver anxiety (i.e., difficulties comprehending an oral message). Communication apprehension has been shown to be an important component of FL anxiety (Aida, 1994) because speaking in particular makes learners anxious (Horwitz et al., 1986; Levine, 2003; Young, 1990). In fact, speaking seems to be “the single most important source of language anxiety” (MacIntyre, 1999, p. 33).

FL anxiety and communication apprehension play an important role in FL learning because of their potentially debilitating effects. Many studies have reported disruptive effects of FL anxiety on achievement and performance (Aida, 1994; Ehrman and Oxford, 1995; Onwuegbuzie et al., 2000a; Phillips, 1992; Saito, 1996), which can be attributed to its impact on the learning process itself. Interfering with cognitive performance at the input, processing and output stages, FL anxiety can prevent information from reaching the processing system, slow down or even hinder processing and disrupt the retrieval of information (MacIntyre, 1999; Onwuegbuzie et al., 2000b).

Avoidance behavior is typical of anxious students and FL learners suffering from communication apprehension usually have a lower willingness to communicate in the FL (MacIntyre and Charos, 1996). This represents quite a dilemma as output has been recognized to play an important role in the FL learning process (Swain, 1985). Anxious students often create little output, which might in turn negatively affect their progress in FL learning (Cheng et al., 1999). Therefore, helping students reduce or overcome FL anxiety has been an important concern for language teachers and educators have proposed different approaches to creating a low anxiety classroom atmosphere (e.g., Krashen and Terrell, 1983; Lozanov and Gateva, 1988; Young, 1990, 1999). While these approaches are designed to make learners more comfortable when speaking the FL, CMC has also shown promise in reducing FL anxiety and communication apprehension by providing an entirely different modality of interaction that seems to lower inhibition.

2.2. Computer-mediated communication (CMC)

In recent years, the fields of FL pedagogy and applied linguistics have seen a wealth of research studies documenting a wide variety of uses and benefits of text-based CMC. Teachers have implemented asynchronous CMC such as email exchanges and online discussion boards in a variety of ways to promote cultural learning (e.g., Dubreil, 2006; Itakura, 2004; Lomicka, 2006; O’Dowd, 2003), increase language productivity (e.g., Pérez, 2003; González-Bueno and Pérez, 2000) and to improve students’ written expression (e.g., Murray and Hourigan, 2006; Sullivan and Pratt, 1996; Van Handle and Corl, 1998; Warschauer, 2002; Wright, 2003).

Different formats of text-based synchronous CMC have been used for the same language development goals as asynchronous CMC (e.g., Abrams, 2006; Kern, 1995; Smith, 1990). Moreover, its applications include the promotion of communicative abilities (e.g., Lee, 2002; Smith, 2003) and reading skills (e.g., Smith, 1990) and to encourage learners to produce linguistically more complex output (e.g., Chun, 1994; Coniam and Wong, 2004; Kern, 1995; Warschauer, 1996). In fact, the increased quality and quantity of synchronous
CMC output can transfer to other forms of communication such as writing (Coniam and Wong, 2004) and speaking (Abrams, 2003; Payne and Whitney, 2002).

Researchers have speculated about possible psychological explanations for the linguistic benefits of CMC described above. They believe that asynchronous as well as synchronous CMC create a low stress, low anxiety setting, which enables all learners to be a part of the discussion (Bump, 1990; Roed, 2003; Warschauer, 1996) – a notion strongly supported by student feedback (Beauvois, 1998; Freiemuth, 1998; González-Bueno and Pérez, 2000; Kern, 1995; Lee, 2002; Pérez, 2003). In her comprehensive study on personality and motivational factors in CMC, for example, Meunier (1998) found that 87% of students experienced only low levels of language-related anxiety during online discussions. Beauvois (1998) and Warschauer (1996) also reported that CMC sessions caused little to no stress and anxiety. As a result, even reticent students who tend not to participate in oral classroom discourse often become active contributors in the electronic setting (Kelm, 1992; Kern, 1995; Warschauer, 1996).

This raises an important question: What makes CMC a low anxiety environment? First, CMC creates a rather anonymous environment (Roed, 2003), where the computer serves “as a shield from being on-stage” (Bradley and Lomicka, 2000, p. 362). This is due partly to the reduction or elimination of paralinguistic (e.g., frowning, raised eyebrows) and social clues (e.g., age, gender, race) in CMC (Warschauer et al., 1996). Therefore, learners might feel less conspicuous, which can ease anxiety (Daly, 1991). Second, CMC allows students to participate at their own pace, especially asynchronous CMC. As a result, participants have more time to plan and monitor their own messages as well as process input, thereby compensating for the cognitive interference of anxiety at the input, processing and output stages described above. For synchronous CMC, however, this is less the case as it provides only a slight time lag and is often perceived as creating some sense of urgency (Smith, 2003). Therefore, CMC – especially synchronous CMC – can function as “scaffolding” (Roed, 2003, p. 170) or as a “conversation simulator” (Payne and Whitney, 2002, p. 25).

Although several researchers (Kern, 1995; Meunier, 1998; Warschauer, 1996) have investigated acute anxiety levels during synchronous CMC, no study has specifically investigated if it has any permanent effects on students’ communication apprehension. Instead, these studies have focused on students’ temporary feelings during synchronous CMC sessions without investigating any effects on their general predisposition to get anxious in communicative situations (i.e., communication apprehension). So far, it has been established that learners feel less anxiety with CMC but it remains unclear if there is a carry-over effect that would cause them to become less anxious about communicating in the FL in general. Moreover, to date no study has investigated if there are any differences between asynchronous CMC, synchronous CMC and face-to-face interactions in terms of their effect on learners’ FL communication apprehension levels.

3. Methodology

3.1. Research questions and design

To address the gap in CMC research described above, the present study was designed to investigate if CMC reduces FL communication apprehension. More specifically, the following research questions were formulated for this study:
(1) Do regular oral, asynchronous CMC and synchronous CMC discussions lower students' FL communication apprehension?

(2) Are there any significant differences in communication apprehension changes based on the three communicative formats?

Based on a repeated-measures pretest posttest design, this study sought to compare the communication apprehension scores of students engaging in face-to-face conversations (control group), synchronous CMC and asynchronous CMC (experimental groups) as well as any permanent affective benefits of these communicative environments.

3.2. Participants

The present study was conducted with 56 students enrolled in five sections of third semester German courses at a US university – they had either completed first and second semester German at this or another university or were placed into this level based on their high school coursework in German. Thirty-nine percent of them were female students and 61% were males. As is typical of most third semester language courses, the vast majority of participants (80%) was between 18 and 20 years old. Almost half of them (46%) had previously learned another foreign language besides German and 21% had any significant contact with native speakers of German.

Questions on a pre-study questionnaire pertaining to computer use indicated that almost all students (95%) felt comfortable using computers for various purposes. Moreover, all participants had the skills required for this study: using a keyboard to type as well as logging into and navigating websites.

All German classes at the university where this study was conducted are based on a communicative curriculum, which reserves most class time for oral activities such as role plays and partner interviews. The curriculum does not prescribe a specific role for computer technology but instructors are free to integrate it into their teaching, which several of them had done in the past (especially synchronous and asynchronous CMC).

3.3. Procedure

At the beginning of the semester, each section was assigned to one of three modes of communication: face-to-face, synchronous CMC or asynchronous CMC. Due to limited availability of the computer lab, random assignment to the different treatment options was not possible. However, a repeated-measures ANOVA revealed that initial communication apprehension levels of the face-to-face ($M = 42.54$), synchronous CMC ($M = 55.14$) and asynchronous CMC ($M = 47.04$) groups did not differ significantly: $f(2, 53) = 2.178, p = .123$. This indicates that the control and treatments groups displayed comparable degrees of communication apprehension.

Over the course of the semester, students participated in six group discussions, for which they discussed open-ended personal topics (see Appendix A for an example).

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1 While all students completed the treatment discussions, data were collected only from those who agreed to participate in the study.

2 Percentages have been rounded to the nearest number and might not add up to 100%.
For all six discussions, students worked in the same groups of three to four students. To ensure comparability among the control and experimental groups, the same format and guidelines were followed for all six discussions: (1) all groups were given the same topic at the same time, (2) there were no pre-discussion activities that might prepare students for the discussion, (3) the instructors and their assistants did not monitor their students' performance or participate in the discussions, and (4) students did not receive any help with the language.

The face-to-face discussions lasted about 20 min, in the synchronous CMC setting 25 min were allotted for each discussion and the asynchronous CMC discussions lasted around 30 min. Since chats and e-mail exchanges require typing and reading (which provides a time lag compared with the oral mode), the experimental groups were given more time to control for time on task. In addition, the asynchronous CMC group was allotted more time because participants did not complete the discussion in one sitting and had to go through the logging in procedure several times during a discussion.

3.3.1. Face-to-face treatments

One section (n = 12) functioned as the control group and completed six oral discussions, the traditional format used in most FL classrooms which also dominated the curriculum of this program. During regular class time, the students were divided into their sub-groups and discussed orally the assigned topic for about 20 min.

3.3.2. Synchronous treatments

One experimental group consisted of two sections (n = 21), for which six chat discussions were scheduled over the course of the semester. They met in the computer lab during regularly scheduled class time. The course manager software Blackboard was used as a platform for the discussions because most students were familiar with it from previous German courses or other classes. After all participants had successfully logged on to Blackboard, they met their groups in specifically designed forums. The students were given about 25 min for each discussion.

3.3.3. Asynchronous treatments

Twenty-three students from two sections of third semester German were in the second experimental group and discussed the same topics using asynchronous CMC. Unlike the synchronous CMC and face-to-face groups, this group completed the six discussions outside of class. The students were given seven days to complete each discussion and were required to spend ca. 30 min on this assignment. For this group, six class meetings were partially or completely replaced with the six out-of-class treatments. Working from a

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3 The instructors assigned students to their groups based on a variety of factors (i.e., age, gender, nationality, personality and proficiency level) to form heterogeneous groups. This was supposed to make discussions more balanced and interesting. Instructors used their impressions of students from class as a basis for the group assignments.

4 This was done to ensure that this group did not receive more instruction and therefore a potential benefit over the other two groups. Class was only canceled for the asynchronous group if the whole class period had been reserved for the discussion. The last two times, pre-reading activities for upcoming reading assignments were planned in addition to the discussion. In those cases, class met only to complete those activities and finished early.
computer with Internet access, students logged on to Blackboard at their convenience to join their groups in specific forums.

3.4. Instruments and data collection

In putting together the pretest and posttest questionnaires, the researcher relied on Horowitz et al.’s Foreign Language Classroom Anxiety Scale (FLCAS) (1986) for the following reasons: (1) communication apprehension has been defined as one component of FL anxiety, which this instrument was designed to measure, (2) several studies (Aida, 1994; Horowitz et al., 1986) support the reliability of this instrument, (3) this survey has become the most frequently used instrument to measure FL anxiety (MacIntyre, 1999), and (4) the FLCAS reliably measures a learner’s anxiety levels at different times instead of tapping only temporary states of anxiety (Aida, 1994). McCroskey’s Personal Report of Communication Apprehension (1982), an established instrument in the field of communication research (Daly, 1991), was deemed inappropriate for this research study as several of its items do not pertain to common practices in FL classrooms (e.g., giving a speech). In addition, it does not include any questions about listening, a common source of anxiety in the context of FL learning (Vogely, 1999), which is included in the definition of communication apprehension used for this study.

Due to the nature of the research questions of this study, it was not necessary to administer the FLCAS in its entirety. Since this study was designed to investigate only the effect of electronic and oral discussions on a specific component of FL anxiety, namely communication apprehension, items not relating to the research questions (e.g., test anxiety) were not included.5 Items relevant to communication apprehension, the anxiety associated with listening and speaking a FL, were used in their original 5-point Likert-scale format (refer to Appendix B for the questionnaire items used to measure FL communication apprehension).

To investigate any changes in communication apprehension, the first section of the posttest questionnaire included the same items from the FLCAS as the pretest. Two items pertaining to the group discussions were added to the posttest to evaluate participants’ responses to the treatments, which were also based on a 5-point Likert-scale: (1) the regular discussions lowered my feelings of nervousness about speaking German, and (2) the regular discussions did not improve my self-confidence about speaking German. To gain a better understanding of participants’ attitudes and reactions, the posttreatment questionnaire also included an open-ended question about students’ experience and any affective changes to collect qualitative data (see Appendix C for these three additional items on the posttest questionnaire).

3.5. Analysis

The Likert-scale questions on the pretest and posttest questionnaires were used to calculate an overall communication apprehension score. First, each possible answer on the 5-point Likert-scale was assigned a numeric value for the degree of communication apprehension it represents and the answers of all 19 items were then added up. Possible

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5 For this study, the following items from the FLCAS were used for the pretest questionnaire: 2, 3, 4, 9, 13, 14, 16, 18, 20, 23, 24, 26, 27, 29 and 31.
communication apprehension scores ranged from 19 (indicating no communication apprehension) to a maximum of 95 (representing extremely high levels of communication apprehension). To classify participants according to their initial communication apprehension levels, the range of possible communication apprehension scores was divided into three categories of roughly the same range: scores between 19 and 48: low levels; scores ranging from 49 to 65: medium levels; and scores from 66 to 95: high levels.

The communication apprehension scores from both the pretest and posttest questionnaires were then used to calculate gain scores to measure if a participant’s communication apprehension had increased or decreased over the course of the study and by how much.

For the quantitative analysis, a repeated-measures ANOVA was used for within and between group comparisons of FL communication apprehension scores to investigate any effects for time or group. The qualitative data from the open-ended question was analyzed inductively to allow themes to emerge from the data (Hatch, 2002).

4. Findings and discussion

Research Question 1: Do regular oral, asynchronous CMC and synchronous CMC discussions lower students’ foreign language communication apprehension?

Multiple data sources were used to investigate any changes in participants’ communication apprehension: (1) two Likert-scale items on the posttest questionnaire asking students if they felt their nervousness and self-confidence about oral communication in the FL had changed, and (2) the FLCAS items to calculate communication apprehension scores. Findings from data source 1 will be discussed first.

Overall, many students felt that the affective benefits of regular group discussions transferred to oral communication. Forty-five percent reported an increase in self-confidence in speaking German as a result of the discussions and 55% experienced less nervousness about oral communication in the foreign language (see Tables 1 and 2).

This self-report data was supported by the second data source, which was used for a pretest posttest comparison of students’ communication apprehension scores before and after the treatment discussions. Before the treatments, participants’ communication apprehension scores lay between 20 and 88 with an average score of \( M = 49.12 \), which indicates moderate levels of FL communication apprehension. While the majority of students (52%) experienced only low levels of communication apprehension (=scores between 19 and 48), 29% were classified as medium (=scores 49–65) and 19% fell into the category high communication apprehension (=scores 66–95). These numbers indicate that a considerable number of students was affected by high communication apprehension, almost one in five students.

After completion of the six treatment discussions, communication apprehension scores displayed a larger range of 22–90 with a lower mean score of \( M = 46.71 \). On the posttest, more participants displayed low levels of communication apprehension: low = 59%, medium = 29%, high = 12%.

A comparison of pretest and posttest scores for communication apprehension revealed a wide range of gain scores. Overall, gain scores ranged from −26 to +20, with a mean
gain score of $M = -2.40$. While 53% of all participants had a lower communication apprehension score on the posttest, 45% scored higher. For a within-group comparison, a repeated-measures ANOVA based on the pretest and posttest scores was used to investigate if the changes in communication apprehension scores were significant. For all three groups, results show a significant difference between pretest and posttest communication apprehension scores ($f(1) = 4.998, p < .05$), indicating that participants’ communication apprehension did change significantly over the course of the study.

It is interesting that a considerable group of students experienced increased communication apprehension levels after the study. On the one hand, the treatments might have shown some students that their anxiety feelings are unfounded while intensifying such feelings in other students by making them aware of how anxiety producing communicative situations can be. Beatty and Andriate (1985) also found that positive communication experiences can reduce communication apprehension while anxiety laden experiences can have a reinforcing or even strengthening effect on communication apprehension.

The case of one student in particular illustrates possible reasons for an increase in communication apprehension. His extreme gain score (+20) merited further investigation and the student’s instructor was contacted for some background information. Considering the fact that 83% of students in his treatment group (face-to-face) experienced a reduction in communication apprehension and only one other student showed a minimal gain (+1), he was considered an outlier. The instructor attributed his extreme reaction to two factors: (1) said student missed several discussions and his group had developed its group dynamic

Table 1
Student responses to the posttest item “The regular discussions improved my self-confidence about speaking German”

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree (%)</th>
<th>Agree somewhat (%)</th>
<th>Neutral (%)</th>
<th>Disagree somewhat (%)</th>
<th>Strongly disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>18</td>
<td>27</td>
<td>30</td>
<td>18</td>
<td>7</td>
</tr>
<tr>
<td>Face-to-face</td>
<td>25</td>
<td>25</td>
<td>42</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Synchronous CMC</td>
<td>19</td>
<td>33</td>
<td>33</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Asynchronous CMC</td>
<td>13</td>
<td>22</td>
<td>22</td>
<td>26</td>
<td>17</td>
</tr>
</tbody>
</table>

* Percentages have been rounded to the nearest number and might not add up to 100%.

Table 2
Student responses to the posttest item “The regular discussions lowered my feelings of nervousness about speaking German”

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree (%)</th>
<th>Agree somewhat (%)</th>
<th>Neutral (%)</th>
<th>Disagree somewhat (%)</th>
<th>Strongly disagree (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>9</td>
<td>46</td>
<td>25</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Face-to-face</td>
<td>8</td>
<td>58</td>
<td>25</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Synchronous CMC</td>
<td>14</td>
<td>33</td>
<td>33</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Asynchronous CMC</td>
<td>4</td>
<td>52</td>
<td>17</td>
<td>26</td>
<td>0</td>
</tr>
</tbody>
</table>

* Percentages have been rounded to the nearest number and might not add up to 100%.
without him, and (2) one of the other students in his group had taken on a very dominant role. These factors probably created an atmosphere, where that particular student became less confident about his oral proficiency and more afraid of making mistakes, which raised his FL communication apprehension. This example also underscores the important role social dynamics can play for communication apprehension.

Research Question 2: Are there any significant differences in communication apprehension changes based on the three communicative formats?

As illustrated in Tables 1 and 2, responses to the two items on the posttest questionnaire indicate that synchronous CMC, asynchronous CMC and face-to-face interactions affected students differently in terms of communication apprehension. In the synchronous CMC and face-to-face groups, the majority of participants (52% and 50%, respectively) believed that the group discussions raised their self-confidence (14% and 8%, respectively disagreed). The distribution was opposite for the asynchronous CMC group, where more students (43%) did not experience this benefit, while only 35% did.

Participants’ comments on the posttest questionnaire provided some important insights into why the discussions did or did not boost students’ self-confidence. Below are representative student quotations:

*It gave me more confidence and it made me feel it was okay to make mistakes.* [student in face-to-face group]

*At first, they were a little difficult because I never knew how to say what I wanted to, but then I got used to rephrasing and finding different ways to say what I wanted to.* [student in synchronous CMC group]

*I think they helped me with reading, writing and thinking on the fly but that delicate connection between brain and mouth didn’t get any exercise at all so I don’t think the chats helped with my oral proficiency.* [student in synchronous CMC group]

*I feel more confident in my ability to speak German now than at the beginning of the semester because I have had more practice.* [student in asynchronous CMC group]

*I can speak better ‘off the top of my head’ in German.* [student in asynchronous CMC group]

These comments illustrate, that irrespective of the mode of communication, the discussions might have promoted a focus on communication and the exchange of information, easing students’ preoccupation with accuracy. In addition, some students developed communication strategies such as rephrasing, as articulated in the second student quotation, which can facilitate communication. In all three treatment groups, the discussions also provided a lot of student-centered practice, which allowed learners to improve their processing speed in the FL to “think on the fly” and “speak off the top of their head”. All these factors can result in a positive attitude and raise confidence about speaking. But in the synchronous and asynchronous CMC settings, the skill transfer from the written to the oral mode might have prevented such an affective benefit, as mentioned in the third comment.

The finding that synchronous CMC can enhance personal confidence corresponds with statements by other researchers (Beauvois, 1998; Kern, 1995; Skinner and Austin, 1999) who have described their participants as being more confident of their performance in this setting. The present study adds to this that such benefits can permanently affect learners
and that face-to-face discussions have a similar effect. Asynchronous CMC, however, did not have as strong an effect on learners’ confidence levels as synchronous CMC and face-to-face exchanges.

The different effects of asynchronous and synchronous CMC on learners’ self-confidence levels might be due to their different degrees of similarity with the oral mode. While both are conducted in a different mode than oral communication, only synchronous CMC shares its sense of urgency. Therefore, synchronous CMC and face-to-face communication can be considered more similar than asynchronous CMC and face-to-face, which might facilitate the transfer of affective benefits from synchronous CMC to the oral mode.

But as the following student comments illustrate, the time lag of asynchronous CMC was also viewed as a negative feature. While it can provide a more relaxed environment than face-to-face communication (which is similar in synchronous CMC), the lag time can, on the other hand, also act as a barrier.

I thought the time lag took the edge off. [student in asynchronous CMC group]

The lag, sometimes days, makes the chats seem boring, fake and un-involved. [student in asynchronous CMC group]

They are too far removed from class activity . . . I think discussions of any sort should be more personal and involved. [student in asynchronous CMC group]

This is not to say that the time lag, which was sometimes made worse by technical problems, did not create any problems in the synchronous CMC group. Students often commented that it interfered with the flow of the conversation.

I liked the lag sometimes when you had to form complex sentences/ideas but I didn’t like it sometimes when I really knew what I wanted to say and have the conversation flow. [student in synchronous CMC group]

The lag time was sometimes inconvenient because [by] the time you wrote something, the subject would have changed. [student in synchronous CMC group]

However, this obviously did not create the same emotional distance for the learners as asynchronous CMC did.

Surprisingly, these group differences did not appear in the responses to the item “The regular discussions lowered my feelings of nervousness about speaking German”. In all settings, most participants (synchronous CMC: 47%; asynchronous CMC: 56%; face-to-face: 66%) believed that the discussions helped them be more relaxed about speaking German. But more students in the control group experienced such an affective benefit than in the CMC groups. This belief expressed by the participants of the present study corresponds with the findings of previous research, which either relied on student perceptions or informal observations to report that synchronous CMC can reduce anxiety (Beauvois, 1998; Kern, 1995; Meunier, 1998; Warschauer, 1996). However, the possibility of anxiety reduction was often assumed to be unique to synchronous CMC.

The different effects of the three discussion modes on self-confidence on the one hand and nervousness on the other is somewhat surprising and seem to indicate that the two are not related. While student reports show that asynchronous CMC had the weakest effect on learners’ self-confidence, it seems to have had a stronger influence on their nervousness. Just because a learner has become more confident in using a FL does not
necessarily mean that his/her nervousness decreased at the same time. The following comment illustrates this: “I am much more confident about speaking, especially with my partners. I still get nervous about speaking but it’s enjoyable.” [student in synchronous CMC group]

In addition to the two items on the posttest questionnaire, whose results were discussed above, a comparison of participants’ pretest and posttest communication apprehension levels was used to further investigate if one communicative environment is more effective in reducing communication apprehension. While the majority of students in the face-to-face group (83%) experienced a reduction in communication apprehension (see Fig. 1), there was not such a clear trend towards a reduction in the two experimental groups. In the asynchronous CMC group, the communication apprehension of 39% of participants decreased while 56% showed an increase (see Fig. 2). A similar ambiguous trend was observed for the synchronous CMC group, where 53% of participants experienced a decrease in communication apprehension and 48% an increase (see Fig. 3).

This informal comparison of the communication apprehension gain scores seems to suggest that the students in the face-to-face group experienced more affective benefits than their counterparts in the CMC groups. As shown in Fig. 4, the biggest mean reduction occurred in the face-to-face group ($M = -5.12$). The synchronous CMC group showed a similar reduction ($M = -4.18$) but the asynchronous CMC group had a noticeably lower mean gain score ($M = -2.62$). However, a between-group comparison using a repeated-
measures ANOVA revealed that there was no main effect for modality \((f(2,53) = 2.70, p = 0.07)\). In other words, the changes in communication apprehension of the control and experimental groups were not significantly different from each other.

Furthermore, an ANOVA was used to compare the mean gain scores of students with low \((M = .00)\), medium \((M = -2.59)\) and high initial levels \((M = -8.45)\) of communication apprehension, which showed that they differed significantly: \(f(2) = 4.251, p < .05\). Unfortunately, the face-to-face group did not include any students with high levels of initial communication apprehension, which experienced the strongest affective benefits. Since this might have affected the results of the ANOVA reported above, a second analysis was run. To create more comparable groups, 12 cases were selected each from the asynchronous and synchronous CMC groups who had the same or similar pretest communication apprehension scores as the 12 students in the face-to-face group. As a result, this limited analysis included only the data from 36 students (12 each from the control and two experimental groups) who scored in the low to medium range on the communication apprehension pretest. However, this second repeated-measures ANOVA did not yield any significant results either: \(f(2,33) = 0.157, p = 0.855\).

Fig. 3. Gain scores for synchronous CMC group (each bar represents one case).

Fig. 4. Communication apprehension pretest and posttest scores.
This indicates that the treatment type did not have any effects on students with moderate or low levels of communication apprehension, which made up the vast majority (81%) in this study. Instead, the reduction for students with low or moderate initial communication apprehension levels can probably be attributed to the practice that the group discussions provided. Koch and Terrell (1991) also observed that regular exposure to certain activities can lower the anxiety students associate with them. However, this study was unable to provide insights into any potentially different effects the mode of discussion might have on students who suffer from severe communication apprehension.

5. Conclusion

This study has provided some preliminary direction in addressing the affective carryover effect of asynchronous and synchronous CMC and face-to-face discussion on FL communication apprehension. The three different sources of data used in this study provided multiple perspectives on students’ feelings regarding oral communication in the foreign language. Both, student self-reports as well as pretest and posttest communication apprehension scores, suggest that regular student-centered discussions can trigger a permanent reduction in communication apprehension. It appears that the CMC and oral discussions alike provided enough practice and positive communication experiences for many students to become generally more comfortable in FL speaking situations. Just as the linguistic benefits of CMC have been shown to transfer to other modes of communication (Abrams, 2003; Coniam and Wong, 2004; Payne and Whitney, 2002), CMC can have lasting positive effects on communication apprehension associated with oral interaction in the FL. Findings of the present study suggest that CMC can function as a practice mode for oral communication not only in terms of linguistic abilities (Payne and Whitney, 2002; Roed, 2003) but also with regard to learners’ affect. Investigating learners’ transient emotional state during CMC, previous research reported that many learners temporarily experience low levels of anxiety during CMC sessions. In contrast, this study has taken a broader perspective and shown that CMC can also have a carryover effect by influencing students’ general predisposition to anxiety in oral communication situations.

However, for the majority of participants, who experienced only low to moderate levels of communication apprehension, the communicative environment did not make a difference. Thus this study did not show asynchronous CMC or synchronous CMC to be more effective—a finding, which contradicts the assumption that the unusual social space of CMC promotes a long-term reduction in communication apprehension more successfully than oral communication. While there were no statistically significant differences between the control and experimental groups in terms of communication apprehension reduction, there are indications in the gain scores distribution that oral communication might be more effective than synchronous and asynchronous CMC. However, the present study was unable to address how learners with severe FL communication apprehension react to the electronic and oral discussion modes.

There are several important implications for classroom practice based on the results of the current study. Using regular student-centered discussions, be they in an electronic or the traditional oral setting, can have multiple benefits. First, they can promote a new communicative awareness with less focus on form. Second, such discussions provide the opportunity for students to apply and practice the FL while experimenting with it and
even making adjustments. The findings of this research project also indicate that asynchronous CMC might not be a suitable environment for interactive, conversation-like exchanges. Instead, it seems to lend itself more to writing tasks.

Due to the following limitations, the findings of this classroom-based study must be considered preliminary. The small size of the face-to-face group and the fact that no students with high levels of communication apprehension were represented in this group (a group of students who experienced the biggest decrease in communication apprehension over the course of the study) might have contributed to the finding of no significant difference between the control and treatment groups.

Despite these limitations, the present study makes an important contribution to the field of applied linguistics as it brings together communication apprehension and CMC research. Its preliminary findings suggest that it might be necessary to rethink the relationship between asynchronous and synchronous CMC and communication apprehension. Hopefully, this will generate more research to establish if face-to-face interactions are more effective in reducing communication apprehension than CMC and how students with high communication apprehension react to CMC and oral discussions. Additionally, it would be interesting to know how a reduction in oral communication apprehension through synchronous CMC, asynchronous CMC and face-to-face discussions manifests itself long-term with regard to quantity and quality of oral output. Thus, future research should address the important issue of potential linguistic benefits resulting from a reduction in communication apprehension.

Appendix A. Sample discussion prompt (the original prompt was provided in the target language)

For many college freshmen, college life is drastically different. For the first time, their parents do not tell them what they should and should not do. How was that for you: Was it difficult to adjust to your new life as a college student? Why (not)? Which aspects did you find difficult/great/exciting? Do you think you handled the transition well?

Appendix B. Pretest/posttest items from the FLCAS (Horwitz et al., 1986) to measure FL communication apprehension

For each statement below, use the following scale: strongly agree, agree somewhat, neutral, disagree somewhat, strongly disagree

(1) I never feel quite sure of myself when I am speaking German in my German class.
(2) I do not worry about making mistakes in my German class.
(3) I tremble when I know that I’m going to be called on in my German class.
(4) It frightens me when I do not understand what the teacher is saying in German.
(5) I start to panic when I have to speak German without preparation in my German class.
(6) It does not embarrass me to volunteer answers in German in my German class.
(7) Even if I am well prepared for my German class, I feel anxious about it.
(8) I feel confident when I speak German in my German class.
(9) I can feel my heart beat pounding when I am going to be called on in my German class.
(10) I always feel that the other students speak German better than I do.
(11) I feel very self-conscious about speaking German in front of other students.
(12) I feel more tense and nervous in my German class than in my other classes.
(13) I get nervous and confused when I am speaking German in my German class.
(14) I get nervous when I do not understand every word the language teacher says.
(15) I am afraid that the other students will laugh at me when I speak German.
(16) I would probably feel comfortable around native speakers of German.
(17) I get nervous when the German teacher asks questions that I have not prepared for in advance.
(18) I feel that I can express myself easily when speaking German in the classroom.
(19) I feel intimidated when speaking German in the classroom.

Appendix C. Additional items on the posttreatment questionnaire

Please respond to the following statements using the following scale: strongly agree, agree somewhat, neutral, disagree somewhat, strongly disagree

– The regular discussions did not improve my self-confidence about speaking German.
– The regular discussions lowered my feelings of nervousness about speaking German.
– Please comment on your experience with the regular discussions: What aspect did you like/dislike? Do you think they helped your German and how? How do you feel about speaking German now compared to the beginning of the semester? Have your feelings about speaking German changed and how?

References


