

# *Integrating cross-cultural interaction through video-communication and virtual worlds in foreign language teaching programs: is there an added value?*

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## Abstract

Organizing and implementing telecollaboration projects in foreign language curricula is not an easy endeavour (Belz & Thorne, 2006; Guth & Helm, 2010), as pedagogical, organizational and technical issues have to be addressed before cross-cultural interaction sessions can be carried out (O'Dowd & Ritter, 2006; O'Dowd, 2011). These issues make many teaching practitioners reluctant to try to integrate telecollaboration in their teaching, as they are more aware of the burden such initiatives might impose than of the benefits they might have for language learners.

Within the European project NIFLAR<sup>1</sup> we have tried to study the added value that integrating synchronous collaboration projects through video-web communication or *Second Life* might have in language learning. The study presented in this paper measures the oral communicative growth of language students, who were allocated at random to one of three research conditions: (1) the VC experimental group carried out interactions with native peers through video-web communication; (2) the SL experimental group carried out the same tasks with native peers in *Second Life* and (3) the control group performed the tasks face to face with classroom peers and had no opportunity to interact with native experts. Communicative growth was measured by comparing oral pre- and post-tests across conditions. Results show significant differences, the experimental groups outperforming the control group.

Keywords: NIFLAR, video-web communication, virtual worlds, *Second Life*, added value, computer mediated communication.

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## 1. Introduction

The NIFLAR project aims at enriching and innovating foreign language teaching and learning processes, by creating opportunities for enhancing authentic social interaction between students of foreign languages and native student teachers.

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<sup>1</sup> NIFLAR, Networked Interaction in Foreign Language Acquisition and Research, a two year project (2009–2011), received a grant from the European Commission within the Lifelong Learning Programme (www.niflar.eu).

For this purpose, interaction tasks were developed for the project languages (Dutch, Portuguese, Russian and Spanish) with a focus on intercultural awareness.

The interaction sessions took place in two digital environments: video-web communication and voice-enabled 3D virtual worlds. The first one facilitates distant spoken and written interaction among dyads or groups of students. They work collaboratively, by sharing files while communicating and seeing each other through the webcam. The interaction sessions were conducted in *Adobe-Connect*.

In the second environment, voice-enabled 3D virtual worlds, students participate as avatars, can engage in textual and voiced interactions with other avatars while carrying out actions together (walking, dancing, taking and giving objects, even building); avatars can be teleported to different countries, cities or public and private spaces (a house, shops, restaurants, hospitals, hotels, courtroom, parliament, theatre, museum), just by a simple mouse click. These different scenarios, and the possibilities of undertaking action while communicating with others, make 3D virtual worlds a potentially interesting environment for foreign language teaching and learning. In NIFLAR experiences were provided in *Second Life* (tertiary education) and *Open Sim* (teenagers).

One of the main objectives of NIFLAR is to find out whether there is an added value in incorporating these new technologies and the possibilities they offer for intensifying interaction in language learning processes, an issue we will be addressing in this paper.

## 2. Studies on computer mediated communication

Computer mediated communication (CMC) is being increasingly embraced by language teachers, as students can communicate in the target language (a) synchronously through a computer with their teacher, classmates, foreign language learners elsewhere or even with native speakers. Educational practices with different virtual environments have been described pointing at positive (students like it and feel sessions contribute to the learning process) and negative aspects (technical problems, organizational burden and pragmatic misunderstandings leading to irritations) (see Belz & Thorne, 2006; Guth & Helm, 2010; O'Dowd, 2007; 2011).

Researchers have tried to show the relevance of CMC in promoting second language acquisition. The initial studies showed that written (mostly asynchronous) CMC contributes to: (1) breaking down barriers and inhibitions when using the target language, helping the L2 learner to become more confident about his/her language use (Kern, 1996); (2) stimulating foreign language learners to experiment with and produce more target language (Kelm, 1992; Kern, 1996); and (3) enabling a more coherent (Felix & Lawson, 1996) and lexically and syntactically more complex production of language (Warschauer, 1996). In recent years the study of intercultural competence in CMC has been a major focus of attention (Belz, 2003; Belz & Thorne, 2006; Liauw, 2006; Müller-Hartmann, 2000; O'Dowd, 2003, 2006, 2007; Ware & Kramsch, 2005).

As for synchronous CMC, most research has been carried out on chat sessions. Chat sessions are said to be effective communicative tools to enhance language learning at syntactic (Sotillo, 2000), discourse (Warschauer, 1996), grammatical

(Pellettieri, 2000), lexical (Smith, 2004), and intercultural levels (Belz & Thorne, 2006; Toyoda & Harrison, 2002; Tudini, 2007), although Ortega (2009) has reported that a closer look at text-based SCMC research reveals mixed findings and insufficient evidence (see also Sauro, 2011, for a recent overview).

As far as audio (visual) synchronous environments are concerned, experiences have been reported making use of (1) audiographic conferencing (Lamy, 2004; Ciekanski & Chanier, 2008; Hampel & Hauck, 2004; Hampel, Felix, Hauck & Coleman, 2005); (2) videoconferencing (O'Dowd, 2000, 2006); (3) voiced chats like MSN, Skype, Netmeeting (Develotte, Guichon & Vincent, 2010, Guth & Maio, 2010, and Wang, 2004, 2006, 2007); and more sophisticated audiovisual web communication platforms like Adobe-Connect, Elluminate or Visu (Guichon, 2010; Jauregi & Bañados, 2008, 2010). Most of these research studies, although they provide interesting information, are explorative and describe experiences as being motivating and contributing to communicative or intercultural development, but do not offer strong empirical evidence for it.

An interesting study analysing the benefits and drawbacks of engaging students in voiced chats is that by Bueno Alastuey (2011). She worked with two condition groups: a control group that interacted face to face with classmates in English on task performance, and the experimental group who carried out the tasks in the target language (English) through Skype with students in Turkey. After triangulating and analyzing different sources of data (general proficiency pre- and post-test scores, oral Powerpoint presentation grades, questionnaires and diaries) she found significantly better achievements for the SCMC group as opposed to the control group and a clear increase of positive factors to language learning in the experimental group: satisfaction, feelings of improvement and decreased speaking anxiety.

In the last few years virtual worlds, such as *Second Life*, are becoming increasingly popular among language teachers (see Molka-Danielsen & Deutschmann, 2009 and Deutschmann, Panichi & Molka-Danielsen, 2009 for an overview), particularly as a space where foreign language learners can engage in interaction (Deutschmann *et al.*, 2009; Peterson, 2010), meet native speakers of the target language (Kuriscak & Luke, 2009) for engaging in meaningful communicative and social interaction (Jauregi, Canto, Graaff, Koenraad & Moonen, 2011) while undertaking joint action. Interactional virtual spaces in virtual worlds have been assessed as beneficial for learning and achieving communicative and intercultural competence (Bryant, 2006; Thorne, 2008) as users can experiment and interact with a variety of norms of social interaction (Steinkuehler, 2006). In these 3-D environments learners can have the opportunity to experience life-like social interaction while at the same time engaging in meaningful learning activities (Cooke-Plagwitz, 2008). The realistic nature of the environment provides authentic learning conditions that are otherwise difficult to recreate in traditional classroom settings (Dieterle & Clarke, 2008). However, as Peterson reports (2011), research on virtual worlds remains largely exploratory in nature and is subject to significant limitations. Clearly more research is necessary that analyses whether and how interactions through audiovisual platforms and/or virtual worlds can contribute to foster (intercultural) communicative competence.

### 3. Research context

Organising telecollaboration projects can be a complicated endeavour as O'Dowd and Ritter (2006) have shown. Problems can arise at individual, classroom and/or socio-institutional levels (see Figure 1). This organizational burden increases when *synchronous* tools are being used in telecollaboration projects.

There is a clear need to come to know whether including telecollaboration sessions in language curricula has an added value in language learning processes; and this is the main research question (RQ) we address in this paper: Is there any indication suggesting that learners learn more if they have the opportunity to engage in networked interaction with expert peers according to relevant tasks through video-web communication or *Second Life* than when they have not? In other words,

RQ1: Is there a significant difference comparing oral communicative growth of experimental groups (those engaged in networked interactions with expert peers though video-web communication and virtual worlds) and a control group (those carrying out the tasks face to face with classmates in the classroom setting) according to pre- and post-oral tests?

RQ2: What are participants' learning experiences?

- (i) Do foreign language learners have the impression they learn in the interaction sessions?
- (ii) Do pre-service teachers feel that their foreign language learners' oral communicative competence increases comparing the first and the last interaction sessions?

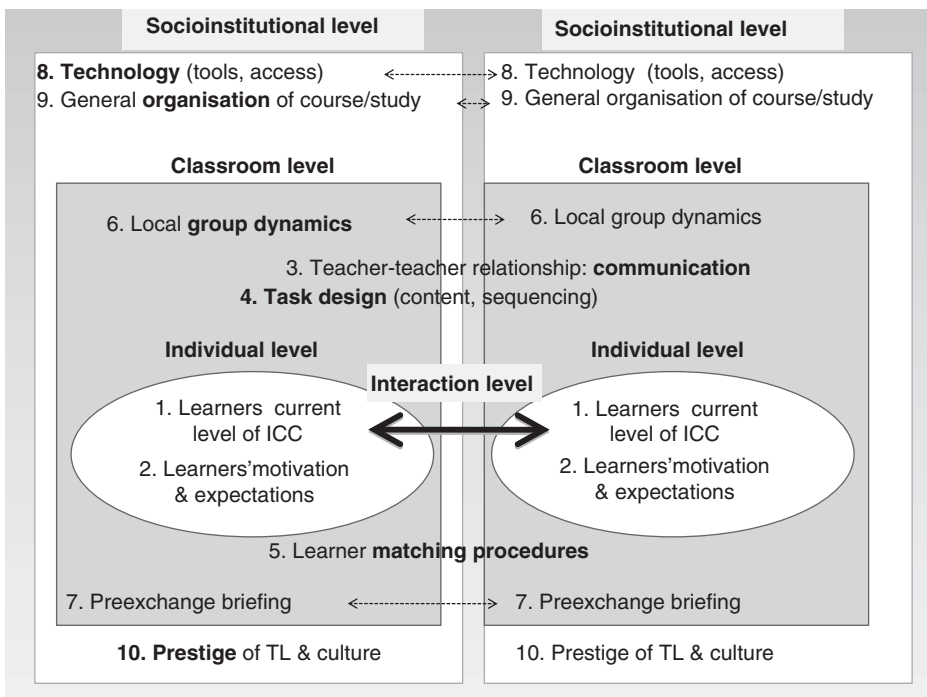


Fig. 1. Difficulties when trying to organise telecollaborative projects, based on O'Dowd and Ritter (2006).

In order to answer these questions, this study assessed a group ( $n = 36$ ) of university students on measures of communicative language competence based on descriptors that were inspired by the scales proposed by the Common European Framework of Reference for languages (CEFR). It then investigated whether there was any relationship between the effectiveness of the three different interaction conditions (1. virtual worlds with native student teachers; 2. video-webcommunication with native student teacher; 3. non native – non native interaction in the classroom) and communicative competence. Finally, information elicited from the post-questionnaire was used in order to answer subquestions 2(i) and 2(ii) and triangulate results.

#### **4. Research method**

The study was conducted at the University of Utrecht in The Netherlands, where the first year language learners of this study were enrolled, in collaboration with the University of Valencia in Spain where the fourteen participants followed a pre-service teacher education programme. Language students ( $n = 36$ ) were randomly assigned to one of three research conditions: video-web communication (VC), *Second Life* (SL) or Control (C) group and pre-service teachers were assigned to one of the conditions according to their personal preferences. During the period of observation (February–April 2010) the participants carried out five tasks at intervals of once a week. All five tasks were tested in a pilot study beforehand. Previous to the task sessions, language learners and pre-service teachers participated in VC and SL tutorials to become familiarized with the tools.

The data collection sources for this study were pre- and post-oral tests, which assessed learners on measures of (a) range of language, (b) grammatical accuracy, (c) fluency, (d) thematic development and (e) coherence in order to measure communicative growth; and post- questionnaires.

##### **4.1 Instructional treatments**

Language participants at Utrecht University were enrolled in a Spanish language course estimated at B1 (CEFR). The course for both VC and SL groups was considered blended learning, which meant that each group would meet twice a week face to face with their teacher (the same one for all three groups) whereas the third meeting was computer-mediated with the native speaker to perform an interaction task. Participants in the experimental groups communicated in triads: two language students carried out tasks with one native speaker of Spanish during five task sessions. In the case of the control group, the third weekly session was the performance of the the same interaction tasks as the experimental groups, in groups of four language learners in the language classroom. The type of instruction that the control group followed (without telecollaboration with native speakers) is the one that most closely approximated to the model that the majority of students experience in language courses where they carry out tasks with each other in the classroom setting.

The tasks were designed and aligned with the course content and objectives, as they were linked to units from the task-based syllabus used in the course. Tasks were

the same for all three groups; they were only adapted in order to take advantage of the specific affordances of the VC or SL medium. Where participants from the SL group could virtually visit the Spanish city their interlocutor was from, go together on a skiing holiday or play a cultural game, the VC group was able to do the same with a native speaker too through the affordances of the medium via images, video and sharing of information. The control group, on the other hand, had the aid of images and video to contextualize tasks but had no native interlocutors playing the expert role. All task sessions were part of the course syllabus.

The five tasks developed<sup>2</sup> were the following: In the first task, “Gente genial” (Cool People) participants, as exchange students in an Erasmus program, were asked to (1) visit an apartment they were meant to share, (2) talk about themselves and exchange cultural information triggered by pictures and (3) choose an outing option (go to the cinema, to a museum or to walk in the city). The second task, “Gente y Aventura” (People and Adventure) consisted of planning a holiday and reflecting on past holiday experiences. The third task, “Gente de cine” (Movie Celebrity People), was a selection of different short scenes in which participants had to play different roles given the indications of a brief script. The fourth task, “Gente con corazón” (People with Heart), allowed students to impersonate different characters and experience the reactions of others. Finally the fifth task, “Gente y culturas” (People and Cultures), was designed as a cultural television-game-style contest between a Dutch and a Spanish team.

All tasks had a preparatory phase followed by a performance phase with support materials in the form of documents to guide them through the tasks.

## 4.2 Instruments

In order to answer the main research question oral pre- and post-tests were taken prior to and after the interaction sessions which would allow us to measure communicative growth. Participants’ experiences were evaluated at the end of the course in a survey and additional interviews were recorded.

*4.2.1 Oral tests.* The pre- and post-test were the same for the three research conditions. Language learners were assessed on measures of communicative language competence based on descriptors that were inspired by the scales proposed by the Common European Framework of Reference for languages (CEFR). A 10-point scale was used to assess each of the following five measures: (a) range of language, (b) grammatical accuracy, (c) fluency, (d) thematic development and (e) coherence (see Appendix).

The test consisted of 11 open questions that ranged from personal information and studies (3 items), previous experiences in Spanish-speaking countries (1 item), student life (3 items), weather and gastronomy (2 items), economy (1 item) and recommendations for foreigners visiting their country (1 item). The questions were video recorded by a native student teacher.

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<sup>2</sup> The project tasks can be downloaded from <http://cms.hum.uu.nl/niflar/index.php?mact=DLM,m6579e,default,1&m6579eitem=182&m6579ereturnid=84&page=84>

The oral tests were administered via a computer in a language lab. Every student sat in front of a computer, activated the video and answered orally the 11 questions. The recording was done automatically. Students could spend as long as they wanted on each answer since they had access to a panel control to pause after each question. All recorded answers were given a code so that when assessing them the researchers would not know beforehand if it was a pre- or a post-test they were assessing.

Two native speakers of Spanish rated the tests separately on five aspects: (a) range of language, (b) grammatical accuracy, (c) fluency, (d) thematic development and (e) coherence. However, since there was a high correlation between all five indicators ( $0.89 \leq r \leq 0.98$ ), they were collapsed into one measure of oral skill. An estimate of inter-rater agreement between both raters was calculated and proved to be high ( $\alpha = 0.91$ ).

### **4.3 Surveys**

After the conclusion of the project a final survey was digitally distributed to all three groups of language learners and native student teachers in order to evaluate participants' experiences and triangulate results. The survey for VC and SL groups had 29 items with open and closed questions about the virtual environment (10 items), the tasks (2 items), the speech partner (4 items), the learning potential of the project (4 items), organization (1 item) and global project evaluation (5 items). The control group survey consisted of eight items referring to personal data (2 items), native speaker interactions (2 items), the language course (1 item), learning outcomes from interactions with native speakers (1 item) and preference of interaction styles (2 items). In all three surveys for the closed items a five point Likert scale was used.

### **4.4 Data analysis**

The effect of the virtually mediated interaction with native speakers on communicative growth was analysed in two different ways. First, the mean differences between pre- and post-test scores and conditions were tested by means of analysis of variance for repeated measurements. In this analysis we were primarily interested in the interaction effect between moment of measurement and condition, as this states that the average progress differs between conditions.

In the second analysis, so-called aptitude-treatment (Cronbach, 1957), interactions were explicitly tested to see whether the regression from post-test on pre-test scores varied between conditions, as one condition might be more effective for lower achieving students, whereas another condition might be better suited for high achievers. These aptitude-treatment interactions are tested by means of multiple regression analysis in which both the intercept and the regression from post- on pre-test scores are allowed to vary between conditions.

Comparing mean scores in pre- and post-tests across conditions allows us to (1) determine if students achieved more on the post-test than on the pre-test, and (2) establish in which of the three groups students' progress is largest. Comparing pre- and post-test scores of individual students (in a multiple regression) allows for more nuanced conclusions as the effect of a pedagogical treatment might depend on students' communicative competence level when beginning the course.

## 5. Results

The results with respect to the added value of implementing synchronous networked interaction with native speakers are presented here.

### 5.1 Indicators of learning growth

Figure 2 shows that there was a difference between the average score in the pre-test and average score in the post-test in all groups, that is, there was communicative learning growth in both experimental (VC and SL) and control groups.

As can be seen in Figure 2 the averages on oral language proficiency increase from pre- to post-test ( $F(1, 34) = 147.7; p < 0.001$ ). Hence, on average students' scores on the post-test are higher than the scores on the pre-test. Also the interaction between condition and moment of measurement proved significant ( $F(2, 34) = 5.01; p = 0.12$ ). This means that the increase in oral skills differs between the three conditions. In the control condition the increase in students' oral skills is significantly less than in either the VC, or SL condition. So on average both VC and SL are more effective than traditional education in the control condition.

In a second analysis, the increase in scores appears to be dependent on students' pre-test scores as well (see Figure 3); low achievers in the pre-test are likely to be low achievers on the post-test and high achievers on the pre-test are likely to be high achievers on the post-test as well ( $t = 12.52; p < 0.001$ ). However, the relation between pre- and post-test scores differs between conditions. In both the VC and SL condition the relation between pre- and post-test scores is less strong as compared to the control condition ( $t = -4.46; p < 0.001$  respectively  $t = -3.16; p = 0.004$ ). In Figure 3 these effects are graphically illustrated.

From Figure 3 it appears that students with poor oral skills at the start of the experiment learn more in both the VC and SL conditions as compared to the control condition. The high achieving students on the pre-test seem not to profit as much from networked interactions with expert peers.

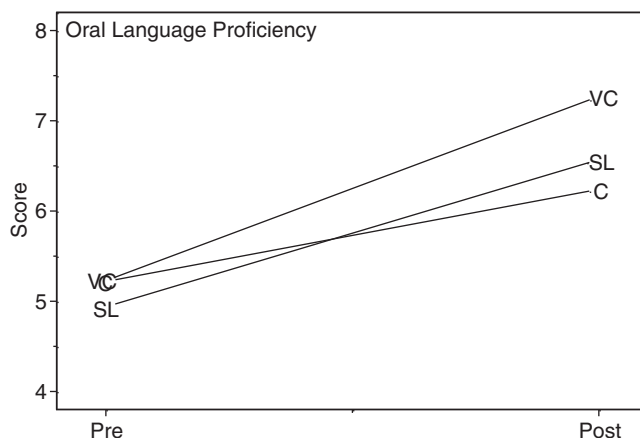


Fig. 2. Mean scores for oral pre- and post-tests of experimental and control groups (VC: video web communication; SL: virtual worlds—*Second Life*; C: control).



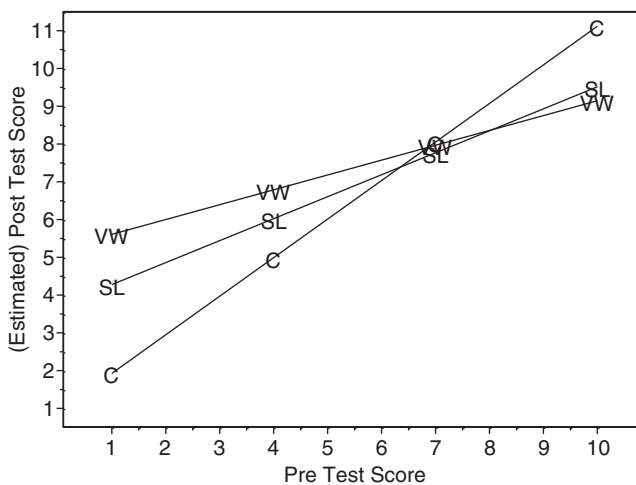


Fig. 3. Relation between pre-test (x-axis) and post-test scores for the three research conditions: VW, video-webcommunication; SL, *Second Life*; C, Control group.

### 5.2 Language learners' experiences

The experiences were very positively evaluated. Tasks were felt to be motivating and useful; interactions with pre-service native teachers contributed considerably to the enhancement of learning processes and motivation, and the environments, in spite of technical problems, were described as being effective in enabling distant native/non-native-speaker interaction. Not only did language learners of all three groups find the tasks useful and motivating, but the pre-service teacher interlocutors in the VC and SL experimental groups also noticed this phenomenon.

Language learners who had had the opportunity to collaborate with native speakers (VC and SL groups) also reported that the telecollaboration sessions had made them more aware of cultural contrasts and similarities, that they had become more confident, were able to talk more fluently, and took more initiative (Table 1). From a statistical test it appeared that only the question on motivation to talk does not, on average, differ from neutral answer 3 (in all other cases  $t \geq 1,71$ ;  $df = 26$ ;  $p \leq 0.049$ ).

When participants in the control group were asked if they thought that, given the opportunity to interact with a native speaker they would improve their confidence, fluency and knowledge about the target culture; would learn to speak better, would learn more vocabulary and understand more, answers pointed towards an affirmative score. (see Table 2).

Students' learning improvements in VC and SL groups were not only perceived by the students themselves, they were also noticed by pre-service teachers when asked to compare the first and last interaction sessions (Table 3).

## 6. Discussion

Experimental second language acquisition research typically investigates the effectiveness of instruction in terms of overall group gains. That is, the average

Table 1 *VC and SL language learners' evaluation responses about learning experiences on a 5-point Likert scale (1: disagree; 5: agree; N = 27).*

What have you learned during the sessions?	Mean	Sd
To be aware of cultural contrasts and similarities	3.85	0.82
To talk more fluently	3.89	0.70
To become confident talking in the target language	3.85	0.72
To talk more	3.48	0.85
To take more initiative in the conversation	3.33	1.00
To be more motivated to talk	3.26	0.98
To use new words	4.26	0.71
To use idioms/expressions	3.93	0.68
To use grammar more accurately/correctly	3.96	0.65

Table 2 *Control group language learners' evaluation responses on a 5-point Likert scale about possible learning experiences when interacting with a native speaker (N = 14).*

Do you think that having the opportunity to conduct interaction tasks with native speakers	Mean	Sd
you learn to understand better the target language	4.14	0.770
you learn to speak better	3.93	0.730
you learn to speak more fluently	3.93	0.917
you learn more vocabulary	3.86	0.663
you learn to become more confident talking to native speakers	4.21	0.802

Table 3 *pre-service teachers' evaluation responses about language learners' improvement on a 5-point Likert scale (N = 14).*

Comparing the first and the last session:	Mean	Sd
I noticed an overall improvement in the communicative competence of my foreign language learner comparing session 1 to the last session.	4.57	0.65
They talked more in the last session	4.14	0.95
They were able to talk more fluently in the last session	4.36	0.84
They took more initiative during the last session	4.07	1.07
They asked more questions during the last session	3.64	1.01
They became more confident talking in the target language	4.50	0.94
They became more aware of cultural contrasts and similarities	4.64	0.50
They enlarged their lexicon and used more adequate words	4.43	0.65
They have learned to talk more accurately in terms of grammatical constructions.	4.00	0.55
They were more motivated to talk in the last session	4.21	1.19

effectiveness of particular learning conditions is compared. The results of this study suggest that on average participants in VC and SL groups show more improvement in their oral proficiency than students who did not participate in this type of interaction.

However, the improvement appears to be dependent on the initial proficiency of language learners. Students with lower oral language skills seem to profit more from VC and SL conditions than the more proficient learners.

For the VC and SL groups task completion took between 60 and 90 minutes but there was no real time limit to the task; we observed that the majority of interactions took 90 minutes or longer. The control group carried out the task during classroom time and spent 30 minutes to perform it. The fact that the control group's interaction sessions were shorter might have influenced the results. On the other hand, the added value of integrating networked interactions is that it intensifies authentic learning, creating more opportunities for spontaneous exchanges, which in turn will increase learning possibilities.

According to Robinson (2005) the effects of learning contexts, pedagogic interventions and cognitive processes in interaction come together with the patterns of abilities that learners bring to those contexts; that is, some learners may be suited to learn under one condition or from one technique rather than others. Individual differences such as motivation, language aptitude, learning styles and learning strategies may also interact with the characteristics of L2 tasks to systematically affect speech production and learning, so that one type of learner may be systematically more fluent or accurate on one type of task rather than another (Robinson, 2005). Other research (Dörnyei, 2009) also indicates that the interaction between the language learner and the environment matters.

The significant correlations between gain scores for the experimental VC and SL groups, where students with lower pre-test scores did better at the post-test, suggest that they were the ones who benefited more from the instruction method where virtual interactions were included. Previous studies within the NIFLAR project (Jauregi, Graaff, van den Bergh & Kriz, 2012) analysed whether implementing networked interaction sessions with native speakers had an impact on the motivation of foreign language learners. The results were positive, indicating that that was the case for learners with a lower proficiency level. The results from this current study seem to be in line with those found by Jauregi *et al.* (2011).

Positive outcomes such as this study showing the benefits of integrating online exchanges into the foreign language classroom should encourage other language practitioners to integrate this type of collaboration into their foreign language learning programmes. Not only did it show a positive effect on learners' oral proficiency, these telecollaborations also underlined the important role of culture in learning a foreign language and helped understand what intercultural skills and attitudes are required by speakers of foreign languages (Thorne, 2006). Another contribution, as noted also by O'Dowd (2011), is the way in which it increases the level of authenticity in classroom practices and content: learners are able to engage in authentic interaction with speakers of the target culture while still benefiting from the guidance and support of their tutors and classmates.

Studies carried out by Warschauer and Ware (2008) and O'Dowd (2011), where foreign language instructors were interviewed, suggest that telecollaboration is unfortunately seen as an 'add-on' activity and is not considered an integrated part of study programmes. In our research we have found indicators showing that these online exchanges make a positive contribution to foreign language learning processes, and

we suggest that they should need to be an integral part of language programmes. As our study shows, we are convinced of the benefits of telecollaboration and think that its potential can be exploited by all teachers and not only be the preserve of a few instructors, as seems to be the case according to O'Dowd's findings (2011).

## 7. Conclusions

The added value of networked interactions points towards cultural, linguistic, interpersonal and motivational benefits. Within NIFLAR telecollaboration, in spite of the organizational burdens, was experienced as challenging, motivating and innovative. The synchronous learning environments used in conjunction with effective interaction tasks and the opportunities to engage in meaningful interaction with expert peers (native student teachers) contributed to enrich intercultural learning experiences.

There are several factors that need to be taken into consideration when interpreting the results of this study. There is a need for additional research that investigates the relationship between the effectiveness of integrating these virtual interactions and individual differences. The effects measured in this study were short term; further research would need to look into what would happen in the long term. Another aspect that needs further research is to find out how the scores of the high scoring pre-test participants would be affected were they to have more telecollaboration sessions, as learning evolves quickly in the first stages of language acquisition but not at advanced levels. In addition, future research should analyse and compare the effect that interacting with native speakers has on learners' communicative competence according to the affordances of the specific environment being used: video web communication or *Second Life*.

Our results show that there is a significant difference in oral communicative growth between experimental groups (engaged in networked interactions with expert peers though video-web communication and virtual worlds) and a control group (carrying out the tasks face to face with classmates in the classroom setting), with those participating in networked interactions outperforming those who did not (RQ1). This type of telecollaboration has a positive impact on language learners' learning experiences, since they have the impression that they learn from them (RQ2.i) and this is also perceived by pre-service teachers (RQ2.ii). We consider these positive results in answer to our research questions very encouraging.

## References

- Belz, J. A. (2003) Linguistic perspectives on the development of intercultural competence in telecollaboration. *Language Learning and Technology*, 7(2): 68–117.
- Belz, J. A. and Thorne, S. L. (eds.) (2006) *Internet-mediated intercultural foreign language education*. Boston: Heinle & Heinle.
- Bueno Alastuey, M. C. (2011) Perceived benefits and drawbacks of synchronous voice-based computer mediated communication in the foreign language classroom. *CALL Journal*, 24(5): 419–432.
- Bryant, T. (2006) Using World of Warcraft and Other MMORPGs to Foster a Targeted, Social, and Cooperative Approach Toward Language Learning. *Academic Commons. The Library*. <http://www.academiccommons.org/commons/essay/bryant-MMORPGs-for-SLA>.

- Ciekanski, M. and Chanier, T. (2008) Developing online multimodal verbal communication to enhance the writing process in an audio-graphic conferencing environment. *ReCALL*, **20**(2): 162–182.
- Cooke-Plagwitz, J. (2008) New Directions in CALL: An Objective Introduction to *Second Life*. *CALICO Journal*, **25**(3): 547–557.
- Cronbach, L. J. (1957) The two disciplines of scientific psychology. *American Psychologist*, **12**: 671–684.
- Deutschmann, M. and Panichi, L. (2009) Instructional design, teacher practice and learner autonomy. In: Molka-Danielsen, J. and Deutschmann, M. (eds.), *Learning and teaching in the virtual world of Second Life*. Trondheim: Tapir Academic Press.
- Deutschmann, M., Panichi, L. and Molka Danielsen, J. (2009) Designing oral participation in *Second Life* – A comparative study of two language proficiency courses. *ReCALL*, **21**(2): 206–226.
- Develotte, C., Guichon, N. and Vincent, C. (2010) The use of the webcam for teaching a foreign language in a desktop videoconferencing environment. *ReCALL*, **23**(3): 293–312.
- Dieterle, E. and Clarke, J. (2008) Multi-user virtual environments for teaching and learning. In: Pagani, M. (ed.), *Encyclopedia of multimedia technology and networking*. Hershey, PA: Idea Group, Inc., 1033–1041.
- Felix, U. and Lawson, M. (1996) Developing German Writing Skills by Way of Timbuktu: A pilot Study Comparing Computer-based and Conventional Teaching. *ReCALL*, **8**(1): 12–19.
- Guichon, N. (2010) Preparatory study for the design of a desktop videoconferencing platform for synchronous language teaching. *Computer Assisted Language Learning*, **23**(2): 169–182.
- Guth, S. and Helm, F. (eds.) (2010) *Telecollaboration 2.0*. Bern: Peter Lang AG.
- Guth, S. and Maio, M. (2010) Close encounters of a new kind: The use of Skype and Wiki in Telecollaboration. In: Guth, S. and Helm, F. (eds.), *Telecollaboration 2.0*. Bern: Peter Lang AG, 413–427.
- Hampel, R. and Hauck, M. (2004) Towards an effective use of audio conferencing in distance language courses. *Language Learning and Technology*, **8**(1): 66–82.
- Hampel, R., Felix, U., Hauck, M. and Coleman, J. A. (2005) Complexities of learning and teaching languages in a real-time audiographic environment. In: Dvorak and James F. Lee (eds.), *German as a Foreign Language Journal*. New York: Newbury House, 146–157.
- Jauregi, K. and Bañados, E. (2008) Virtual interaction through video-web communication: A step towards enriching and internationalizing learning programs. *ReCALL*, **20**(2): 183–207.
- Jauregi, K. and Bañados, E. (2010) An intercontinental video-web communication project between Chile and The Netherlands. In: Guth, S. and Helm, F. (eds.), *Telecollaboration 2.0*. Bern: Peter Lang AG, 427–436.
- Jauregi, K., Canto, S., Graaff, deR., Koenraad, A. and Moonen, M. (2011) Verbal interaction in *Second Life*: towards a pedagogic framework for task design. *Computer Assisted Language Learning Journal*, **24**(1): 77–101.
- Jauregi, K., de Graaff, R., van den Bergh, H. and Kriz, M. (2012) Native/non-native speaker interactions through video-web communication; a clue for enhancing motivation? *CALL Journal*, **25**(1): 1–19.
- Kelm, O. R. (1992) The use of synchronous computer networks in second language instruction: A preliminary report. *Foreign Language Annals*, **25**: 441–545.
- Kern, R. (1996) Computer-Mediated Communication: Using E-mail Exchanges to Explore Personal Histories in Two Cultures. In: Warschauer, M. (ed.), *Telecollaboration in Foreign Language Learning*. Hawai'i: Second Language Teaching and Curriculum Centre, 105–119.

- Kuriscak, L. M. and Luke, C. L. (2009) Language learner attitudes toward virtual worlds: An investigation of *Second Life*. In: Lord, G. and Lomicka, L. (eds.), *The next generation: Online collaboration and social networking in CALL*. San Marcos, TX: CALICO, 173–207.
- Lamy, M. N. (2004) Oral conversations on line: redefining oral competence in synchronous environments. *ReCALL*, **16**(2): 520–538.
- Liauw, M. (2006) E-learning and the development of intercultural competence. *Language Learning & Technology*, **10**(3): 49–64.
- Molka-Danielsen, J. and Deutschmann, M. (eds.) (2009) *Learning and teaching in the virtual world of Second Life*. Trondheim, Norway: Tapir Academic Press.
- Müller-Hartmann, A. (2000) The role of tasks in promoting intercultural learning in electronic learning networks. *Language Learning and Technology*, **4**: 129–147.
- O'Dowd, R. (2000) Intercultural learning via videoconferencing: a pilot exchange project. *ReCALL*, **12**: 49–63.
- O'Dowd, R. (2003) Understanding the “other side”: Intercultural learning in a Spanish-English e-mail exchange. *Language Learning & Technology*, **7**(2): 118–144.
- O'Dowd, R. (2006) The use of videoconferencing and e-mail as mediators of intercultural student ethnography. In: Belz, J. A and Thorne, S. L. (eds.), *Internet-mediated intercultural foreign language education*. Boston: Heinle & Heinle, 86–120.
- O'Dowd, R. (2007) Evaluating the outcomes of online intercultural exchange. *ELT-Journal*, **61**(2): 144–152.
- O'Dowd, R. (2011) Online Foreign Language Interaction: Moving from the Periphery to the Core of Foreign Language Education?”. *Language Teaching Journal*, **44**(3): 368–380.
- O'Dowd, R. and Ritter, M. (2006) Understanding and working with ‘failed communication’ in telecollaborative exchanges. *CALICO Journal*, **23**(3): 1–20.
- Ortega, L. (2009) Interaction and attention to form in L2 text-based computer mediated communication. In: Mackey, A. and Polio, C. (eds.), *Multiple perspectives on interaction*. New York: Routledge, 226–253.
- Pellettieri, J. (2000) Negotiation in cyberspace: The role of chatting in the development of grammatical competence. In: Warschauer, M. and Kern, R. (eds.), *Network-based language teaching: concepts and practice*. Cambridge: Cambridge University Press, 59–86.
- Peterson, M. (2010) Learner participation patterns and strategy use in *Second Life*: an exploratory case study. *ReCALL*, **22**(3): 273–292.
- Peterson, M. (2011) Towards a research agenda for the use of 3D virtual worlds in language learning. *CALICO*, **29**(1): 67–80.
- Robinson, Peter (2005) Aptitude and second language acquisition. *Annual Review of Applied Linguistics*, **25**: 45–73.
- Sauro, S. (2011) SCMC for SLA: a research synthesis. *CALICO*, **28**(2): 1–23.
- Smith, B. (2004) Computer-mediated negotiated interaction and lexical acquisition. *Studies in Second Language Acquisition*, **26**: 365–398.
- Sotillo, S. M. (2000) Discourse functions and syntactic complexity in synchronous and asynchronous communication. *Language Learning and Technology*, **4**(1): 82–119.
- Steinkuehler, C. (2006) Massively multiplayer online videogaming as participation in a discourse. *Mind, Culture & Activity*, **13**(1): 38–52.
- Thorne, S. L. (2006) Pedagogical and praxiological lessons from internet-mediated intercultural foreign language education research. In: Belz, J. A. and Thorne, S. L. (eds.), *Internet-mediated intercultural foreign language education*. Boston, MA: Heinle & Heinle, 2–30.
- Thorne, S. L. (2008) Transcultural communication in open internet environments and massively multiplayer online games. In: Magnan, S. (ed.), *Mediating Discourse Online*. Amsterdam: John Benjamins, 305–327.

- Toyoda, E. and Harrison, R. (2002) Categorization of text chat communication between learners and native speakers of Japanese. *Language Learning and Technology*, **6**: 82–99.
- Tudini, V. (2007) Negotiation and intercultural learning in Italian native speaker chat rooms. *Modern Language Journal*, **91**(iv): 577–601.
- Wang, Y. (2004) Supporting synchronous distance language learning with desktop videoconferencing. *Language Learning & Technology*, **8**(3): 90–121.
- Wang, Y. (2006) Negotiation of meaning in desktop videoconferencing-supported distance language learning. *ReCALL*, **18**(1): 122–145.
- Wang, Y. (2007) Task design in videoconferencing-supported distance language learning. *CALICO Journal*, **24**(3): 562–590.
- Ware, P. D. and Kramsch, C. (2005) Toward an intercultural stance: Teaching German and English through telecollaboration. *Modern Language Journal*, **89**: 190–205.
- Warschauer, M. (1996) Comparing Face-to-Face and Electronic Communication in the Second Language Classroom. *CALICO*, **13**(2): 7–26.
- Warschauer, M. and Ware, M. (2008) Learning, change, and power: Competing discourses of technology and literacy. In: Coiro, J., Knobel, M., Lankshear, C. and Leu, D. J. (eds.), *Handbook of research on new literacies*. New York: Lawrence Erlbaum, 215–240.

*Appendix: Assessment grid for pre- and post-tests*

	RANGE	ACCURACY	FLUENCY	THEMATIC development	COHERENCE
1	Has a very basic repertoire of words and simple phrases related to personal details and particular concrete situations.	Shows only limited control of a few simple grammatical structures and sentence patterns in a memorised repertoire.	Can manage very short, isolated, mainly pre-packaged utterances, with much pausing to search for expressions, to articulate less familiar words, and to repair communication.		Can link words or groups of words with very basic linear connectors like “and” or “then”.
3	Uses basic sentence patterns with memorised phrases, groups of a few words and formulae in order to communicate limited information in simple everyday situations.	Uses some simple structures correctly, but still systematically makes basic mistakes.	Can make him/herself understood in very short utterances, even though pauses, false starts and reformulation are very evident.	Can tell a story or describe something in a simple list of points.	Can link groups of words with simple connectors like “and”, “but” and “because”. Can use the most frequently occurring connectors to link simple sentences in order to tell a story or describe something as a simple list of points.
5	Has enough language to get by, with sufficient vocabulary to express him/herself with some hesitation and circumlocutions on topics such as family, hobbies and interests, work, travel, and current events.	Uses reasonably accurately a repertoire of frequently used “routines” and patterns associated with more predictable situations.	Can keep going comprehensibly, even though pausing for grammatical and lexical planning and repair is very evident, especially in longer stretches of free production.	Can reasonably fluently relate a straightforward narrative or description as a linear sequence of points.	Can link a series of shorter, discrete simple elements into a connected, linear sequence of points.



Appendix: *Continued*

7	Has a sufficient range of language to be able to give clear descriptions, express viewpoints on most general topics, without much conspicuous searching for words, using some complex sentence forms to do so.	Shows a relatively high degree of grammatical control. Does not make errors which cause misunderstanding, and can correct most of his/her mistakes.	Can produce stretches of language with a fairly even tempo; although he/she can be hesitant as he or she searches for patterns and expressions, there are few noticeably long pauses.	Can develop a clear description or narrative, expanding and supporting his/her main points with relevant supporting detail and examples.	Can use a limited number of cohesive devices to link his/her utterances into clear, coherent discourse, though there may be some “jumpiness” in a long contribution. Can use a variety of linking words efficiently to mark clearly the relationships between ideas.
10	Has a good command of a broad range of language allowing him/her to select a formulation to express him/herself clearly in an appropriate style on a wide range of general, academic, professional or leisure topics without having to restrict what he/she wants to say.	Consistently maintains a high degree of grammatical accuracy; errors are rare, difficult to spot and generally corrected when they do occur.	Can express him/herself fluently and spontaneously, almost effortlessly. Only a conceptually difficult subject can hinder a natural, smooth flow of language.	Can give elaborate descriptions and narratives, integrating sub-themes, developing particular points and rounding off with an appropriate conclusion.	Can produce clear, smoothly-flowing, well-structured speech, showing controlled use of organisational patterns, connectors and cohesive devices.