

Foreign Language Teachers' Education: Challenges and Implications in Integrating Technologies of Information and Communication

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Introduction

The process of globalization and the rapid development of science and technology have brought up challenges to education systems at all levels. The Society of the 21st century demands creative, critical citizens who have the capacity of adapting to working and social circumstances which are continuously evolving. Accordingly, the formation of the agents who directly drive the educational process - the teachers - is a vital issue for education systems, and modern societies (White, 2003). Subsequently, this entails that the processes of teacher training and development are rearranged to integrate new technologies with two fundamental purposes: first, to streamline and make educational processes more efficient and relevant; and second, to empower teachers and learners in the pedagogical use of new technologies. These two aspects are of paramount importance for any teacher of the 21st century. Nonetheless, integrating new technologies with formative processes encompasses re-creating the curriculum, the syllabus, and the transformation of current instructional and learning practices; this, in turn, entails thinking of the aforementioned elements from a holistic, systemic, and complex perspective in line with the current socio-cultural dynamics. Therefore, educational institutions and agents are permanently devising strategies and mechanisms that promote the use of information and communication technologies (ICT) to enhance formative processes and empower educators in the methodological and pedagogical use these tools.

In this scenario, this paper presents the results and conclusions of a pedagogical experience about integrating ICT with the formation process of foreign language teachers, in a B.A in foreign languages in Bogotá, Colombia. The purpose of this pedagogical experience was to identify the challenges and implications in integrating information and communication technologies (ICT) with the formative process of foreign language teachers. To do so, researchers used several technological tools and activities in one of the subjects during three semesters, 2015-1 to 2016-1. This pedagogical experience emerged in response to two needs; on the one hand, enriching and improving the formative processes, and on the other, finding strategies that empower future foreign language teachers in the pedagogical and methodological use of ICT to boost their professional practice and professional development.

Data were collected by means of surveys and students comments related to their experience using ICT in the selected class. The theoretical tenets that framed the study are: the role of the language teacher and learner when using Information and Communication Technologies (ICT), and the theoretical framework TPACK (technological and pedagogical content knowledge). These tenets allowed the interpretation and discussion of the results which led the researchers to conclude that ICT -mediated language learning experiences boost interaction, the development of critical thinking skills, afford access to a range of learning activities and resources, and empower the teacher with the capacity of creating learning scenarios and activities that go beyond the face to face experiences. These results also indicate some challenges and implications when integrating ICT with the formative process of pre-service foreign language teachers: First, effective teachers' development and training in integrating new technologies is ensured by the development of TPACK (Mishra & Koehler, 2006), which ultimately makes possible a comprehensive integration of new technologies in foreign language learning and the development of new attitudes and skills on the part of the teacher and the learner. Second, ICT integration entails the reconstruction of the current status quo of curricular and administrative dynamics that give way to the new possibilities and affordances that come along with the use of ICT.

It is expected that the insights presented in this article shed some light on areas that have to do with the integration of new technologies with the formation of foreign language teachers, professional development leveraged by a comprehensive use of ICT, and understanding of the role of ICT in curriculum design and management.

Literature review

The theoretical tenets that underpinned the study are: the role of the language teacher and learner in ICT-mediated learning experiences, and the theoretical framework TPACK.

The role of teachers and students in the information era

Prensky (2001) mentioned that the dissemination of digital technology from the last decades of 20th Century has caused a “singularity”, which in his words is “an event which changes things so fundamentally that there is absolutely no going back” (p. 1). This “singularity” has caused changes on students, who “live surrounded by and use computers, videogames, digital music players, video cams, cell phones, and all the other toys and tools of the digital age”. Prensky (2001) coined the term “digital natives” to describe those generations that have been in that singularity surrounded with new technologies since they were born. Consequently, this fact has made young people able to understand and use technological devices better than most of the teachers, who, according to the author and the year they were born, are considered as digital immigrants (Dudeney & Hockley, 2007; González, 2008).

Dudeney and Hockly (2007) mentioned that the effects of living surrounded by technologies have affected the way students think and process the information, which demands transformation on the way of teaching and using materials and resources.

The use of new technologies in teaching have led the teachers to rethink their own practices, causing a change of their beliefs, conceptions, and assumptions about teaching and learning, and in doing so, they have given way to more effective technology-mediated teaching practices. The former has caused a redefinition of the whole conception of the language teacher; the notions of the teacher as the leader, the mentor, the guide, the facilitator, the organizer and even the manager of the learning process are notions that are becoming part of the repertoire of ideas that drive the teaching practices of those who are successfully integrating new technologies in language educational processes.

In consequence, this transformation leads to new attitudes in teachers and the development of new skills and competences. Teachers must be willing to innovate, take risks in pedagogical and didactic decisions, and being conscious that they do not have the control of the whole learning process;

they should share that responsibility with learners. These changes promote language learners' empowerment, and it also indicates that teachers see learners as agents rather than objects of the learning process (Salinas, 2004).

These transformations, and the development of these attitudes and skills, do not take place overnight and just because information and communication technologies are handy, even more, in most of the cases not even after teacher development courses in using these technologies. In this regard, Mishra, P., & Koehler, M. J. (2006) stated that the relationship between technology and teaching can transform the conceptualization and the practice of teacher education, teacher training, and teachers' professional development (p. 3). Teacher development in using new technologies is a primary concern in educational institutions because the integration of new information and communication technologies affords teachers and learners effective means to ameliorating learning (Salinas, 2004; Sigales, 2004).

According to Gisbert (cited in González, 2008), teachers who assume the challenge of using new technologies in their classes have to adopt the following roles:

- Look for information.
- Collaborator in group.
- Lonely worker.
- Facilitator.
- Resources provider.
- Academic supervisor.

These roles show that a teacher who integrates ICT needs to get constantly updated; checking students' performance, even more than in the classroom; leading and assessing learning activities that allow students to understand and to be autonomous in their learning journey.

According to González (2008), educational institutions are trying to incorporate new technologies to improve the effectiveness of learning processes without having a clear understanding of their needs and the administrative, pedagogical and didactical implications of this endeavor. These educational institutions are constantly making efforts to give way to

the use of new ICT tools: educational software, devices to present content, devices to share information such as mobile phones, virtual learning platforms, web resources, etc. Nonetheless, far from being an advantage, such amount of information and ICT tools availability can be overwhelming, especially, in the educational field. Despite educational institutions efforts, some of the attempts to integrate new technologies produce negative effects; for example, some degree of frustration, anxiety and outcomes that do not match the initial intended purposes, the amount of invested work, and the used resources.

Salinas (2004) stated that if institutions want to successfully include technology in their regular courses, they have to become more flexible in regard to the procedures and administrative structure. Hence, it is necessary for institutions to evaluate the educational and administrative policies and adapt them to include alternatives in formation modalities that suit better the new society requirements, challenging the traditional role of teachers and learners, their practices, conceptions, and methodologies.

Apart from the curricular and organizational implications of integrating ICT mentioned thus far, it is relevant to turn the view to the role of the learner in formation processes mediated by ICT. Overall, the foreign language learner is viewed as someone who has the capacity of taking over the control of the learning process (White, 2003). This implies the development of particular skills and attitudes; the capacity of renovating and adapting to changing circumstances and conditions; the ability to read, analyze and interpret diverse contexts and their connection with educational processes, the ability to create and participate in virtual learning scenarios; devise experiences and mechanisms oriented towards the achievement of learning outcomes, and creativity in using diverse tools and resources in pursue of given learning purposes.

Retaking Prensky's (2001) idea of "digital natives" as young people who are experts in using technologies just because they were born in a technological era, we can say that this condition of expertise is not a guarantee of being able to use ICT to make learning processes more effective and efficient, this due to factors such as socio economical background, the social environment where they live in, the features of the school they study at, etc. In this sense, White (2003) stated that students need to be aware of the use of technology in their educational process since it is not just a matter of looking for information and having access to many sources of information; it is of paramount importance to look into how information is obtained, processed, analyzed

and used; teachers and students ought to understand the importance of these processes and their role in the learning process. Now, the development of these skills and attitudes does not merely depend on students; educational institutions and teachers have a relevant role in creating the scenarios and experiences that encourage the development of competencies that lead the learner to use ICT efficiently and effectively in learning processes. Hence, it is fundamental to acknowledge that the inclusion of information and communication technologies in the curriculum demands a more active and informed role on the part of educational intuitions and agents (education communities); they need to prepare to face the challenges implied in the process of integrating ICT into educational processes (Salinas, 2004). This encompasses the understanding of a broader theoretical framework that provides the rationale that articulates all the elements, agents and actions; such rationale is provided by the conceptual framework TPACK (Technological Pedagogical and Content Knowledge), which is presented in the next section.

Technological pedagogical and content knowledge

This concept builds on Shulman's construct of Pedagogical Content Knowledge (PCK), which was defined as the blending of content and pedagogy into an understanding of how particular aspects of the subject matter are organized, adapted, and represented for instruction. (Mishra, P. & Koehler, M. J., 2006, p. 5). Based on this concept, Schmidt *et al.*, (2009, p. 3) defined technological pedagogical content knowledge (TPACK), as the knowledge required by teachers for integrating technology into their teaching in any content area. This means, teachers understanding of the complex interplay between three basic components of knowledge: content knowledge (CK), pedagogical knowledge (PK), and Technological knowledge (TK). This concept was introduced to the educational research field as a theoretical framework for understanding teacher knowledge required for effective technology integration (Mishra & Koehler, 2006, p. 1). The relationships between the three primary areas mentioned before producing six relevant subareas whose connections and relations determine the core of the conceptual framework (TPACK). The authors describe these subareas as follows:

1. Technology knowledge (TK): Technology knowledge refers to the knowledge of various technologies, ranging from low-tech technologies such as pencil and paper to digital technologies such as the Internet, digital video, interactive whiteboards, and software.

2. Content knowledge (CK): Content knowledge is the “knowledge about the actual subject matter that is to be learned or taught” (Mishra & Koehler, 2006, p. 1026). Teachers must know about the content they are going to teach and how the nature of knowledge is different for various content areas.
3. Pedagogical knowledge (PK): Pedagogical knowledge refers to the methods and processes of teaching and includes knowledge in classroom management, assessment, lesson plan development, and student learning.
4. Pedagogical content knowledge (PCK): Pedagogical content knowledge refers to the content knowledge that deals with the teaching process (Shulman, 1986). Pedagogical content knowledge is different for various content areas, as it blends both content and pedagogy with the goal being to develop better teaching practices in the content areas.
5. Technological content knowledge (TCK): Technological content knowledge refers to the knowledge of how technology can create new representations for specific content. It suggests that teachers understand that, by using a specific technology, they can change the way learners practice and understand concepts in a specific content area.
6. Technological pedagogical knowledge (TPK): Technological pedagogical knowledge refers to the knowledge of how various technologies can be used in teaching, and to understanding that using technology may change the way teachers teach.
7. Technological pedagogical content knowledge (TPACK): Technological pedagogical content knowledge refers to the knowledge required by teachers for integrating technology into their teaching in any content area. Teachers have an intuitive understanding of the complex interplay between the three basic components of knowledge (CK, PK, TK) by teaching content using appropriate pedagogical methods and technologies. (p. 3)

This framework unveils a diverse and complex interplay of elements whose relations and connections have multiple implications in different areas. In this sense, Mishra, P., & Koehler, M. J. (2006) stated that:

The traditional view of the relationship between the three aspects argues that content drives most decisions; the pedagogical goals and technologies

to be used follow from a choice of what to teach. However, things are rarely that clear cut, particularly when newer technologies are considered (p. 6).

Pedagogical Experience and Research Design

Among the several interests and preoccupations that as language teachers we shared in the B.A. in foreign languages, the use of new technologies to facilitate foreign language learning was an issue that intrigued us very often. Separately, each of us attempted to use diverse technological tools, platforms, social networks, blogs, wikis and other available resources with the common purpose of enriching language learning process and making teaching more effective and suitable to students' needs and interests, as well as, meeting the programs formative objectives. Many concerns, questions and issues arose from these empirical attempts to integrate new technologies with our teaching practices. It was evident that there were issues that we needed to elucidate. The first common concern had to do with understanding why, despite the careful planning and well intention implementation of technology-mediated learning activities, sometimes went wrong, or had unexpected outcomes. Another issue was the effectiveness of ICT-mediated learning activities. Moreover, didactic, methodological, curricular and planning issues puzzled us when trying to integrate ICT-mediated learning activities. The discussion of the aforementioned worries led us to the need of looking into our concerns in a systematic rigorous way which allowed us to collect, to systematize and to analyze information in order to gain empirically grounded insights. To do so, we structured a virtual classroom using the LMS MOODLE (learning management system MOODLE) for one of the academic spaces in the sixth semester. The implementation of this virtual classroom started in 2015, first semester and went on until 2016, first semester. Different kind of activities were designed and carried out in this environment (forums, workshops, wikis, quizzes, blogs), a part of this kind of activities, the virtual classroom was also used to organize and facilitate access to different kinds of resources and materials (links to web pages, printable materials, videos and online lectures).

Data were collected by means of a student's survey at the end of the semester, teacher's journal (one entry every other week), student's products and comments about their experience in the virtual classroom (one unstructured interview in mid-semester and another one at the end). The survey consisted of 24 questions about six different aspects: relevance, critical thinking,

interactivity, tutor support, peer support and interaction; four questions for each aspect.

- 2016-1 45 surveys.
- 2015-2 32 surveys.
- 2015-1 30 surveys.

At the end of each semester, we looked into the collected data. This helped us to design strategies and ideas as to how to structure ICT-mediated language learning activities for the next semester.

Findings

In the field of language learning, the use of ICT is steadily increasing. Language teachers are permanently exploring new ways of enhancing literacy processes in which ICT are used somehow; blogs, webpages, platforms, diverse online resources are frequently included in activities or tasks aiming at promoting language development. Nonetheless, most of these attempts in using these technologies are exploratory and sometimes not well informed. As a result, the real value and effectiveness of ICT in language learning is blurred (Salmon, 2003).

Having in mind the main purpose of this experience, the data collected helped us to understand some key points about the integration of TIC in the learning processes of B.A. Language students from their perspective. Thus, the information gathered through the survey and the questionnaire contributed to understanding students' perception in four different categories. The pre-established categories analyzed were: the relevance of the activities designed for the virtual on their learning; how they perceived the role of the teacher in the process; the role of those activities on promoting the development of reflective thinking; and how they perceived the role of their peers in such a process.

The relevance of ICT-mediated learning activities

This category describes the view of the students in relation to the importance of the activities for the future professional practice as well as their current interests.

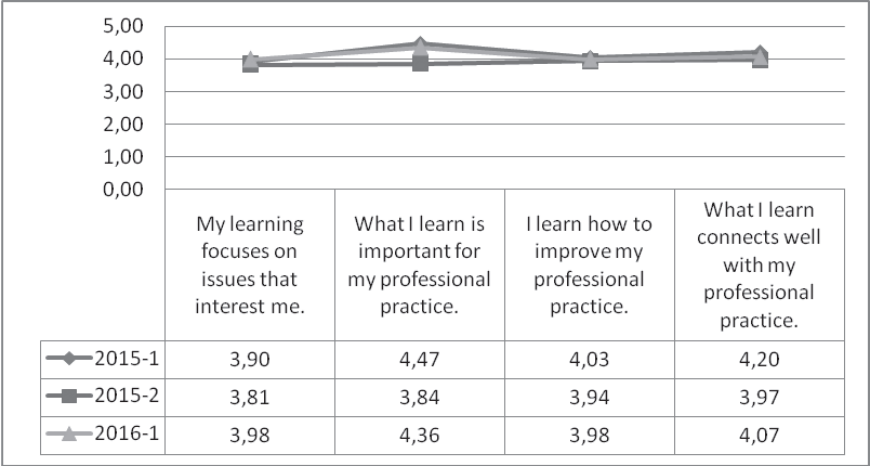


Figure 1. Relevance of the learning activities in the learning process.

In the first aspect, “my learning focuses on issues that interest me”, students perceived that the topics of the activities in the virtual classroom were moderately meaningful for them. Having in mind that the equivalence of the figures (5: almost always; 4: often; 3: sometimes; 2: seldom; and 1: almost never), the mean for each semester was 2015 -1: 3.9, 2015-2: 3.8, and 2016-1: 3.98, this indicates a tendency towards “often”. These results imply that there are some topics that are not that interesting for the everyone; one of the reasons that might explain this perception is that students do not have the possibility of selecting the topics they are interested in. In this sense, one of the comments of students asserted that “It is important to take into account the students’ context” (Student 2, Questionnaire 2, 2016-1).

However, for those students who found something related to their interests, the activities became meaningful, as it is evident it this quote “...the topics were relevant for my personal and professional growth” (Student 6, Questionnaire 2, 2015-1).

These results indicate that it is necessary to look for strategies that improve the relevance of the topics and issues that are addressed in the activities in the virtual classroom. These strategies can be divided into three kinds: first, strategies that promote an active role of the learners in selecting and proposing meaningful topics; second, strategies that afford variety of topics availability to students; third, strategies that allow an early identification of meaningful topics for students so that they can be included in the syllabus from the outset.

The other three elements looked into the de importance of the activities for the professional practice in relation to three aspects: what is learnt, how to improve, and the direct relation with the professional practice. The mean of the results of each semester shows that the ICT-mediated activities in the virtual classroom are OFTEN (4) relevant for the future professional practice. In this sense, one of the students commented that “the class helped me to improve as an English teacher” (Student 4, Questionnaire 1, 2015-1); likewise, other student remarked that “... this class helped me to improve some of my professional and personal development” (Student 5, Questionnaire 1, 2015-1). The former comments indicate that the activities in the virtual classroom contribute to the formation of the future language teacher; even more, students perceive that activities enriched their personal growth. These quotes also show that students perceived that the activities were linked with their professional practice and that they contributed to “enrich (their) knowledge about teaching” (Student 5, Questionnaire 2, 2015-2).

The previous results indicate that the use of the virtual-classroom, and the ICT-mediated learning activities implemented are relevant and effective for the initial formation of the future foreign language teacher because of the relation between the topics, the interests of students and their future professional practice.

The results also shed light on the kind of material to be included in the virtual classroom, which should be varied in the sense that it shall cover different topics and use different strategies oriented to understand English language and language teaching processes. Additionally, these materials ought to be constantly updated so that the information is pertinent to the professional practice of the future teacher.

The role of the teacher in integrating ICT-mediated learning activities

This category describes the perception of the learners in relation to four specific roles of the teacher: 1. Promoting thinking, 2. Encouraging participation, 3. Modeling discourse, and 4. modeling critical self-reflection. Figure 2 shows the perceptions of students in this regard.

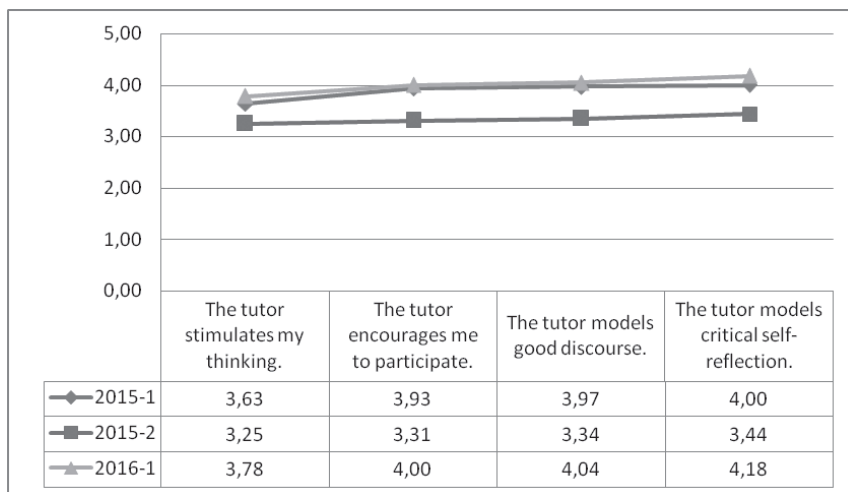


Figure 2. The role of the teacher in integrating ICT.

According to the results, the first aspect, the role of the teacher in promoting thinking through the ICT-mediated activities in the virtual classroom, we can see that the mean of 2015-1(3,63), and 2016-1 (3,78) indicates a tendency towards OFTEN (4), but the mean of 2015-2 (3,25) is closer to SOMETIMES (3), all in all, the mean in the three semesters is in the band between SOMETIMES (3) and “OFTEN (4). This shows that the perception of learners in regard to the role of the teacher in promoting thinking by means of the ICT- mediated activities is acceptable (activities have some positive impact in this aspect). Nonetheless, there are two relevant aspects to take into account: The first one barely varies during the three semesters, and second, the mean of this element is the lowest of all the four in this category. Consequently, it is evident that it is necessary to rethink the strategies so that they are more relevant in engaging students in thinking. One of the learners stated that “It is important to have more help of the teacher” (Student 3, Questionnaire 2, 2015-2). This indicates that the assistance that the teacher provides in ICT- mediated learning activities is valuable and necessary for learners.

The second aspect, the role of the teacher in encouraging students ‘participation by means of ICT-mediated activities, shows that in 2015-1 the mean was 3,93, in 2016-2 was 3,31 and in 2016-2 was 4,0. In general, the perception of the learners is half the way between SOMETIMES (3) and OFTEN (4); this indicates that the learners perceived the role of the teacher in promoting participation through ICT-mediated activities as being moderately effective (there was some positive impact).

The two last aspects of the category look into the role of the teacher as a model of discourse and self-reflection. In this regard, the data show that the level of effectiveness of the teacher in modeling discourse and self-reflection is between SOMETIMES (3) and OFTEN (4). This shows that the discourse and the self-reflection models that the teacher conveyed by means of ICT-mediated activities are perceived as having some positive impact and value for students. Data also unveils the need of looking for strategies that improve these two aspects. Data also indicate that there are communication flaws between students and teachers when implementing ICT-mediated learning activities. In this sense, students informed that:

“ICT’s [...] requires clear and precise instructions to set goals, schedule, and basically rules to develop the course, however, sometimes teachers forget to establish that kind of things, generating in students’ attitudes and wrong issues in face the subjects and transversal educational tools” (Student 7, Questionnaire 3, 2016-1).

Additionally, some students demanded more support from the teacher, “It is important to have more help of the teacher” (Student 4, Questionnaire 1, 2015-1); consequently, the instructions, directions, comments and questions that the teacher uses in ICT-mediated language learning activities convey models and promote attitudes. Thus, it is of paramount importance to develop effective communication strategies when integrating ICT-based language learning activities.

Development of critical thinking and ICT-mediated foreign learning activities

This category explores the perception of students in relation the role of the ICT-mediated activities in developing four critical thinking aspects. The first two elements have to do with the role of the learner in reflecting about how he learns, and the second, reflection about his own ideas. The other two sub-categories lay out the perception of learners in relation to the extent to which the activities promote critical thinking about other learners’ ideas and the ones presented in the readings. Figure 3 illustrates the learners’ opinions in each one of the aspects mentioned earlier.

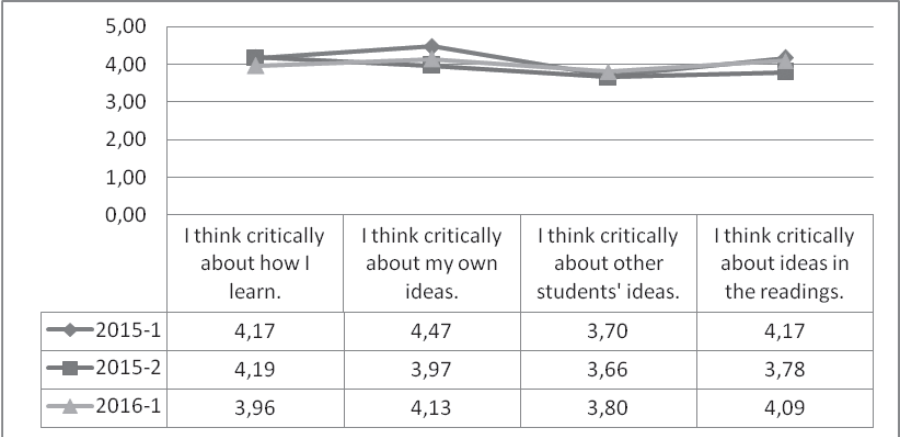


Figure 3. ICT-mediated language learning activities and critical thinking development.

The data in the graph indicate that the ICT-mediated activities, in the first the first two subcategories (thinking critically about how I learn and thinking critically about my own ideas) OFTEN (4) promoted critical thinking in these two aspects. In this regard, one student stated that “[the] Virtual classroom is a good tool to encourage student’s knowledge and stimulate reflection and autonomy...” (Student 2, Questionnaire 1, 2015-1).

In the case of the last two subcategories (critical thinking about other students’ ideas and critical thinking about ideas in the readings), the mean of the results during the three semesters ranges between below OFTEN (4) and slightly above. In the particular case of the third subcategory (I think critically about other students’ ideas) the mean in the three semesters is below the band of OFTEN (4) during the three semesters (2015-1: 3, 7; 2015-2: 3, 6; 2016-1: 3, 8). One of the reasons that might explain why the results are not better is the lack engagement in collaborative work of learners. In this regard, one student commented that “...collaborative writing could be a good proposal, but most of the times it was really difficult to work together because everyone was not involved and committed.” (Student 2, Questionnaire 1, 2015-1). These results indicate that promoting engagement and ownership are essential for activities that implied critical thinking development.

Finally, the fourth aspect (I think critically about ideas in the readings) students perceived that the IC-mediated activities OFTEN (4) promoted a critical stance. It is, however, also evident that there are some difficulties

that need to be addressed. One of them is to ensure the variety of topics and activities, another is to find strategies that allow students to express ideas and acknowledge them; in this sense, one student stated “it is [...] important to work on different types of texts, videos and take into account students’ point of view and productions too.” (Student 2, Questionnaire 1, 2015-1).

Additionally, the comments of students indicate that it is necessary to think of activities that give them the opportunity to develop critical stances towards the topics and ideas of the readings in the face-to-face class. In this regard, one of the students commented that “The material worked in class was interesting in many ideas but that in some points it was not possible to discuss them in the classroom. So, I would say that the activities can be related more in the development of the main ideas.” (Student 4, Questionnaire 1, 2015-1). Another issue that emerged in this sense is the lack of synergy between the regular in-class activities and the ICT-mediated activities in the virtual classroom. In this sense, one of the students commented that “(It) is important to take into account the students’ context, and the virtual class cannot turn into a place to do and post lots of activities without really developing critical thinking.” (Student 5, Questionnaire 3, 2016-1).

Accordingly, it is evident that the synergy between the ICT-mediated activities in the virtual classroom and the face to face in class activities need to be better articulated. These results also reveal the need for strategies that assure closure and completion of the activities and topics that are covered by means of ICT-mediated activities.

Promoting interaction by means of ICT-mediated activities

This category lays out the perception of the students around the extent to which ICT-mediated activities promoted interaction among foreign language learners.

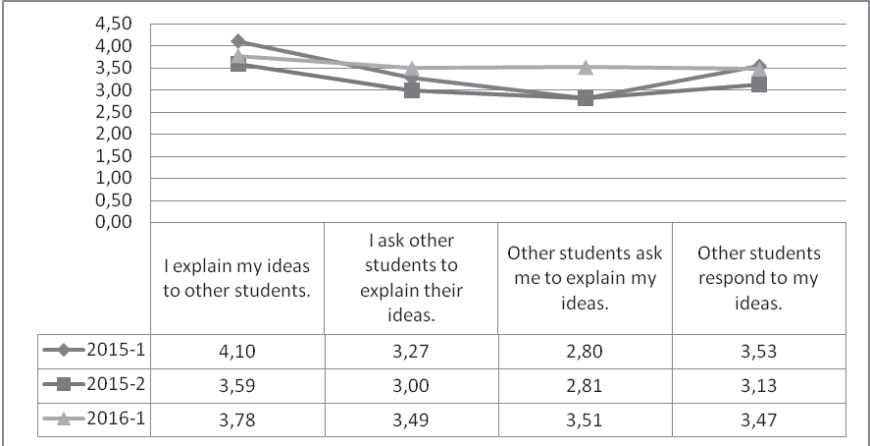


Figure 4. Promoting interaction by means of ICT-mediated activities.

The mean of the results in the first sub- category (I explain my ideas to other students) shows that the perception of learners about the extent to which ICT-mediated activities allow them to explain their ideas is half the way between SOMETIMES (3) and OFTEN (4).

In the second subcategory (I ask other students to explain their ideas) the mean of the results show that the perception of students is that the ICT-mediated activities were SOMETIMES (3) effective in promoting interaction.

The data in the third sub-category (other students ask me to explain my ideas) show that ICT-mediated activities SOMETIMES (3) promoted this aspect during 2015-1: 2, 8, and 2015-2: 2, 8 and that there was an improvement in 2016-1: 3, 5. The data show that this is the aspect with the lowest level of effectiveness.

Finally, in the last subcategory, the mean of the results during the three semesters (2015-1: 3, 5; 2015-2: 3, 1 and 2016-1: 3 4) show that the perception of the students is half the way between SOMETIMES (3) and OFTEN (4).

In short, it is evident that it is necessary to find strategies that promote peer support an interaction so that learners feel comfortable asking questions and responding their peer’s inquiries. Issues like fear to harsh criticism and lack of effective communication strategies on the part of learners might result in poor peers’ feedback and diminishing comments that hinder positive and effective interaction among participants in ICT-mediated learning activities.

Conclusions

The results indicate that the use of ICT in the formation process of pre-service foreign language teachers provides a whole new range of relevant learning experiences. However, the relevance of ICT-mediated learning activities requires a variety of topics, activities, materials, and the active participation of learners throughout the process.

In addition, ICT provide a whole new range of information access, subject matter representations and possibilities which defy the existing balance among the agents and elements of the curriculum. An effective process of integration of ICT with learning and teaching leads to the transformation of language teachers' practices, conceptions and assumptions about teaching and learning. This in turn, empowers teachers with new tools and strategies that allow them to devise ICT-mediated language learning experiences that power up and enrich learning attainments. This implies a deep understanding of the intersections and relations of three areas; content (language system), pedagogical (views about teaching and learning) and technological knowledge. Koehler & Mishra (2009) stated that "TPACK is the basis of effective teaching with technology, requiring an understanding of the representation of concepts using technologies; pedagogical techniques that use technologies in constructive ways to teach content". This leads to another element that is part of this transformation: the developing of sensitivity to the subtle synergy among these components of knowledge which are situated in unique contexts. The first one is addressed by Mishra, P., & Koehler, M. J. (2006) who affirmed that technologies have constrained and afforded a range of representations, analogies, examples, explanations, and demonstrations that can help make subject matter more accessible to the learner. (p. 7). This entails a reconceptualization of the teachers' assumptions and role as an information and knowledge source. The students' responses show that they recognize and value other sources of information and language models different from the teacher. This aspect contributed as well to enhance students' critical self-reflection; since students had to reflect, not only upon what the teacher said, but also on other participants, and write reflections that contributed to the different discussions.

Another emerging element is the capacity of the language teacher to permanently transform and redefine his practices in response to the permanent change of new technologies. According to Mishra, P., & Koehler, M. J. (2006), teachers will have to do more than simply learn to use currently available tools;

they also will have to learn new techniques and skills as current technologies become obsolete. (p. 7) This ability demands an open-minded attitude as well as critical and reflective stances, which constitute the engine that allow the teacher to permanently transform his practices in an informed and effective way. The teacher becomes an agent who avoids indoctrination or prescribed ways because “the incorporation of a new technology or new medium for teaching suddenly forces the teacher to confront basic educational issues, new technologies or medium reconstructs the dynamic equilibrium among all different elements, subjects and agents involved in the teaching and learning process (Mishra, P., & Koehler, M. J. 2006, p. 30).

Furthermore, effective integration of ICT implies that the teacher develops effective communication skills by means of the use of ICT tools. These skills are quite relevant so that the teacher can effectively assume the role of motivator and assistant throughout the process. These roles are essential to ensure effective interaction and learners’ engagement in ICT-mediated language learning experiences.

Another important aspect has to do with the development of critical thinking by means of ICT-mediated language learning activities. The results indicate that the role of the teacher is of paramount importance in structuring activities that encourage students to deeply think about the ideas and topics. Besides, permanent feedback and prompt responses are essential to the ongoing discussions and the high motivation of students. Reading posts, asking guiding questions, and giving feedback demand time from the teacher, which is a challenge indeed, even more if the time provided by institutions is not enough for doing the multiple tasks ICT and language learning integration requires.

Pedagogical implications

The results of the research indicate that the use of ICT-mediated language learning activities, in the formation process of pre-service foreign language teachers might effectively contribute to: promote the development of critical thinking, enhance interaction among language learners, afford a whole new range of activities and access to information and materials, and empower the teacher with the capacity of devising ICT-learning experiences that effectively leverage the effectiveness of his face to face practices; nonetheless, the integration of ICT in the formation process of pre-service foreign language teachers convey the following curricular and administrative challenges:

- Permanent teacher's development in integrating ICT that merges pedagogical, technological and content knowledge.
- Learning outcomes-based instructional planning that gives way to a comprehensive integration of ICT.
- Administrative and curricular adjustments that embrace ICT-enriched learning experiences.
- Strategic planning that establishes clear objectives, stages, evaluation and follow up support to orient and articulate the procedures and mechanisms that allow collaborative work and permanent reflection on issues regarding the use and integration of ICT on the part of the teachers and students.
- Promoting a culture of permanent reflection and transformation of the teaching and learning practices that give way to ICT-enriched learning experiences.
- Designing online learning environments and ICT-mediated activities which not only leverage the formation process of pre-service foreign language teachers, but also train future teacher in the pedagogical use ICT in their future professional practice.

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