Twelve years of telecollaboration: what we have learnt

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This article describes the evolution, over a 12-year period, of a telecollaborative project between two universities. The project focused on two teacher training courses that integrate in-class dialogic learning and flipped classroom materials. The authors begin by outlining the first years of the project, including an overview of the initial results concerning the student-teachers' progress towards professional teacher knowledge. Then, following the KARDS model for teacher education, the authors discuss the most recent year in which the use of telecollaboration with flipped class materials has been the foundation of the shared course, with the framework of the interaction based on the accumulated experience and knowledge gained over this long-term collaboration. The evolution of this telecollaboration reflects both a notable change in the mindset of the teachers as well as a deeper sense of responsibility from the students for their own learning.

Introduction

Perhaps one of the greatest challenges for teacher-educators is enabling novice teachers to develop 'quality' teaching skills and the knowledge that is necessary for them to become 'effective' at supporting their students' learning process (Avalos 2011; Kumaravadivelu 2012; Wiseman 2012). Another difficulty is ensuring they have the teaching skills to fully integrate the use of technology into their pedagogical framework (Hubbard 2008; Koehler and Mishra 2009; Dooly and Sadler 2013). Due to recent technological, social, political, economic, and cultural changes (at both global and local scales), teachers must rethink the content of what they are teaching, beginning at the core of what comprises 'knowledge' in today's interconnected world. Similarly, theorists have begun to conceptualize learning in ways that closely represent newer means of interaction. Siemens (2008) talks of learning in networks, Sternberg (2010) focuses on society's capacity to think together, and Bruns (2008) uses the term 'produsage' to express the notion of people working together to solve problems from ground up, i.e. engaging in small tasks and individual contributions to complete larger-scale activities and, eventually, bringing about a final outcome that is shared for mutual benefits.

None the less, current education systems do not easily adapt to collective 'produsage'. Knowing how to create optimal language learning conditions for 'distributive knowledge' can be a real challenge for teachers, especially

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creating conditions for multiple experiences of sharing and participating for their students in embedded, meaningful activities with others, both locally (for example their classmates) and globally (for example online peers). As Sternberg (ibid.: xv) states, 'Traditional pedagogy reigns even as emerging social and networked pedagogies grow in prominence'. Thorne (2008) proposes that social media holds great potential for applying socio-constructivist-oriented teaching due to its very nature of extended participatory social interaction, especially as teachers and learners become more familiar with what the author calls 'conventional Internet-mediated tools' (Thorne 2012: 19).

One technology-enhanced learning configuration that has drawn considerable attention in the past two decades is telecollaboration. Several definitions of telecollaboration have been proposed (see Belz 2003; Bickley and Carleton 2009). However, in this article, we frame telecollaborative learning as an embedded, dialogic process that supports geographically distanced collaborative work through social interaction, involving a/synchronous communication technology so that participants co-produce mutual objective(s) and share knowledge-building.

With the above premises in mind, this article describes two teacher education courses, located at two different universities in different countries.[1] A telecollaborative exchange that took place during one semester was set up in 2004, and it has been iterated, with modifications that will be discussed later, over a continuous 12-year period (with a total of 583 students participating over that time period). It is not possible to adequately describe the development of the course over the entire time span, so the beginning of the collaboration will be discussed, followed by an examination of the middle years, and concluding with the most recent year of cooperation in order to illustrate the evolution of the programme. Following Kumaravadivelu's (op.cit.) suggestions of required teacher knowledge for a global society, the authors look at the levels of attainment of three referential types of knowledge during the 12-year period: professional knowledge (intellectual content of a discipline); procedural knowledge (instructional management strategies); and personal knowledge ('the individual teacher's sense of plausibility, a sense of what works and what doesn't' (Kumaravadivelu op.cit.: 34)). Kumaravadivelu's model (known as KARDS) has five central components, outlined below.

- '**K**nowing' focuses more on 'ways of knowing than on the body of knowledge' (Kumaravadivelu op.cit.: 20). It is based on three referential types of knowledge: professional, procedural, and personal.
- '**A**nalysing' implies understanding learner needs, motivations, and autonomy, and the complications of 'a combination of individual, institutional, governmental, and social demands' (Kumaravadivelu op.cit.: 37).
- '**R**ecognizing' involves critical reflection of one's own and other discourses.
- '**D**oing' aims to maximize and ensure opportunities for meaningful interaction in socially and culturally relevant situations.
- '**S**eeing' contains the ability to observe 'events and activities in the classroom from multiple perspectives' (Kumaravadivelu op.cit.: 96) and critically apply knowledge to those observations.

The KARDS model serves as criteria for the 'goal' of our teacher education programme, as well as a means of evaluating the programme itself. To do so, results from student-teacher output in the first, middle, and last years are compared to see whether the programme design that integrated flipped classroom materials and telecollaboration as principle elements of the learning process supported student-teachers' ability to draw efficiently from personal, procedural, and professional knowledge.

Telecollaboration: the beginning

We, the two authors, one from the University of Illinois at Urbana-Champaign (UIUC) and the other from Universitat Autònoma de Barcelona (UAB), first met 'online' in the summer of 2003. We spent the summer planning the first collaboration, which began with a small component of both our courses consisting principally of email exchanges, message board discussion, and text and audio chats in the autumn semester of 2004 (see Sadler 2007). In the second year, 2005, a second class joined from Turkey for one iteration. The participants were all taking teacher education courses, studying to become language teachers (albeit of different languages), with a strong majority focusing on teaching ESL/EFL.

Much of the social media and telecollaboration software that we now take for granted was either in its infancy in 2003, or had not yet been created. For instance, Google, Blogger, and Wikipedia were already available but were not widely known, especially in the case of the Spanish students. Facebook, Second Life, LinkedIn, PBwiki, and Skype all began the same year as the first exchange (2004); Ning and YouTube were launched in 2005, with Twitter following in 2006. Technology access conditions have also changed greatly over the time of the collaboration described here. The 2004 course at Illinois was taught in a computer classroom each day, but there was no internet access in the regular classrooms at UAB, so special reservations had to be made to enable those students access to a computer laboratory.

In the first two years of the exchange, we wanted to have the students control the telecollaboration process as much as possible since the exploration of the telecollaboration tools was a large part of the learning process. Accordingly, students were asked to brainstorm topics concerning computer-mediated communication and language teaching. They brainstormed their ideas on a Simple Machines Message Board owned by one of us, also posting feedback in the form of replies. After approximately one week of message board discussion, the students formed interest groups with their in-country classmates based on those topics. These topics were then shared between the classes, with cross-country discussion groups set up, based on shared interests. These ten groups focused on a range of topics, with some very much focused on technology and others on more traditional teaching topics (for example grammar teaching techniques in the EFL classroom).

The mode of communication (email, text chat, audio chat, etc.) and the exact objectives of the meetings were largely left up to the groups to negotiate. Following their online discussions, the participants gave presentations about one topic (a mini-research project) to their local class and then handed in an individual final report (paper-based) discussing their experiences and

what they learnt during the project. In their final reports, the students were asked to include the following sections: an explanation of the chosen topic discussed with their group, followed by a section on difficulties during the collaboration and intercultural communication problems. The final section was a personal reflection on their feelings during the exchange, including any discoveries, pedagogical implications, and teaching recommendations that emerged. No further collaboration or exchanges were involved in the elaboration of the mini-research projects.

Perhaps due to our 'hands-off' philosophy, the feedback from in-class presentations and final reports about the actual telecollaboration included a good deal of superficial complaints regarding online peers (see Table 1).

The superficial focus of these criticisms related primarily to two issues: tardiness and the use of inappropriate or overly direct language. Instead of *analysing* and *recognizing* these issues as being linguistic and pragmatic differences, the participants were only able to see these as one-dimensional artefacts: rudeness.

However, there was also recognition of the usefulness of this type of exchange for language learning and intercultural experience. For instance, Figure 1 shows a student-teacher's (Maria) reflection on the advantages that this type of exchange can bring to the language learning process (developing skills in the target language through online communication as well as providing a strong motivational factor), although she does not give any theoretical support or practical examples of how to carry this out in her own teaching.

In short, the student-teacher displays personal knowledge ('the individual teacher's sense of plausibility, a sense of what works and what doesn't' (Kumaravadivelu op.cit.: 34)), but the exchange has not supported a rich development of professional knowledge (intellectual content of a discipline) or procedural knowledge (instructional management strategies). The student-teacher does show some capacity for analysing the learner's needs (she notes that this type of exchange can be motivation for use of the target language); however, she does not delve further into the complexity of student reaction when faced with the challenges of this type of virtual communication (although she does note her own initial reluctance to try out unfamiliar technology). The exchange does not seem to have helped the student-teacher move beyond the 'ventriloquations of authoritative discourses' (Kumaravadivelu op.cit.: 70). Despite the focus of the exchange on a final mini-research project, the telecollaborative activity

Spanish students' feedback	American students' feedback
American students were too work-oriented	Spanish students were late to online meetings
They felt 'pushed' to try new ICT tools they were not comfortable with	Spanish students simply did not show up for scheduled online meetings
Turkish students used rude words	No apologies afterwards
Turkish students had chats in Turkish while online with others	Turkish students were rude

TABLE 1
Peer criticism

Has your opinion regarding the last two questions changed due to your experience with this collaborative project?

Yes [✓]

No [ ]

First name: Maria

Whether you answered 'yes' or 'no' please explain why in the space below.

It was the first time that I was doing a kind of collaborative project like it so I have learnt that it has lots of advantages for language classroom and other cross curricular subjects because while I was talking about interlinguistica's topic, I was developing my English skills because I must use it to communicate with my partners.

I had to talk about other things like culture or tradition, so I think that with this project we as learners can learn lots of things and we, as teachers can teach different things in a different and funny way.

FIGURE 1
Student reflection on advantages of exchange

did not support the student-teachers' personal theorizing in order for them to be able to critically apply knowledge to observations made about the exchange.

An analysis of student final reports and follow-up evaluations based on the KARDS model, including subcomponents for some features (Figure 2), shows that the above sample from Maria was not an isolated case. The figure offers a numerical representation of comments made in student final reports that represent elements from KARDS:

- knowing includes reference to personal knowledge (K1), procedural knowledge (K2), and professional knowledge (K3);
- analysing is reference to learners' needs, motivations, and autonomy (A1) and analysing (A2) is recognition of complexity of individual, institutional factors, etc.);
- recognizing is reference to mimicry of authoritative voices (R1) or refers to critical reflection on different discourses (R2);
- doing (D) refers to theorizing of learning opportunities; and
- seeing (S) includes observations and mention of transferral to own context.

In students' final reports from the first year, no examples of professional or procedural knowledge were displayed and no students made any connection between their telecollaborative experience and language teaching theory. Nor was there any transferral of insight from their own experience to the professional domain of language teaching. There was some discussion of how this interaction can be motivational or help with intercultural development but mostly this was superficial (A1). Seven students mentioned observing new aspects of language teaching following the online interaction (S).

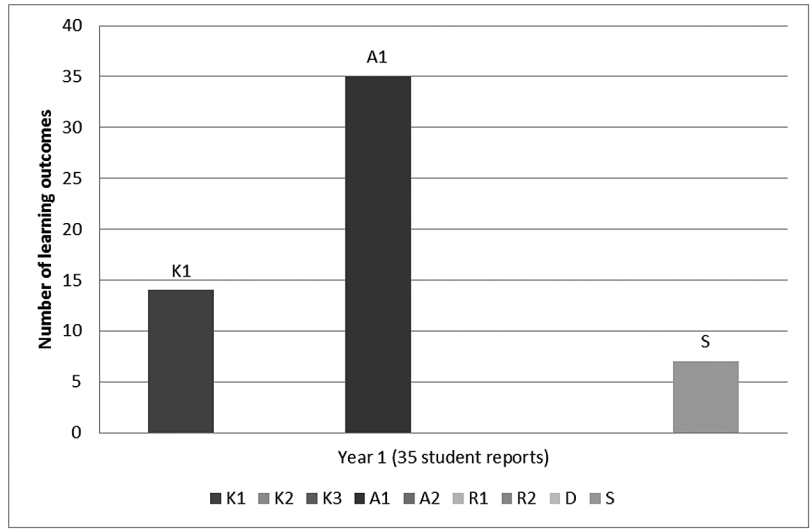

FIGURE 2
Learning outcomes from first year (KARDS)

Reflection on the first two years of exchange indicates that, as 'newbies' in the domain of telecollaborative exchange, several mistakes had been made in the design and development of the activities. Immediate learning outcomes for ourselves as teacher-educators after the first year were the following six points. The need to:

1. revise the interpretation of the notion of instructors as 'the guide on the side' versus 'sage on the stage' (an exaggerated 'hands-off' approach was not conducive to deeper understanding);
2. activate and integrate prior ICT knowledge (at the time, technology was NOT prevalent in the student-teachers' lives, but they did have knowledge that was not exploited, for example the use of cellphone texting was widespread at the time among the Spanish students as it was cheaper than calls, but texting was rare amongst US participants because text messages were typically charged for);
3. give motivating and engaging tasks (information gaps can be a good thing);
4. provide clear task instructions and in various formats (and repeat them often);
5. discuss (and appreciate) cultural aspects of communication; and
6. spend a LOT more time planning!

The middle years: increased knowledge of telecollaboration

Over the course of each year's collaboration, we engaged in a process of continuous reflection and discussion. Based on the student-teachers' input and feedback, as well as our own analysis throughout the exchange, planning and implementation gradually shifted to include:

- thorough preparation of the students concerning tasks, expectations, and cultural development;
- underlining of the need to collaborate;
- prior negotiation of appropriate online behaviour;
- time and activities for 'getting to know each other';
- prior arrangement of online groups based on compatible timetables for weekly meeting;

- progression from simple to more elaborate collaborative tasks;
- monitoring of work by having students track their own progress (discussion boards, blogs, reflective diaries); and
- self- and peer evaluation.

From 2009 onwards, following continual analysis of the results, the teacher-educators shifted the pedagogical focus of the telecollaborative exchange from brief exposure to the use of technology for language use to more integrated practice of collaborative learning, facilitated through technology. Furthermore, the collaborative work engaged the students in both theoretical discussion and practical activities related to language teacher pedagogy (for instance elaborating and piloting teaching materials together). The change in focus was enabled by several professional and institutional factors: (1) an educational reform at the UAB (Barcelona) meant rewriting the course programmes so that the UAB teacher-educator could create a programme that more closely paralleled the UIUC (Illinois) course; (2) the teacher-educators had become aware over the preceding years that complete integration of telecollaboration as core component was key to better outcomes; and (3) end of year feedback from students indicated that such integration was something they wanted.

Current collaboration: year 12

Between 2009–2010 and 2013–2014, the teacher-educators gradually increased the amount of work that was done telecollaboratively for the courses so that by year 12, the students in both classes shared a common curriculum and over 75 per cent of collaborative work took place between distanced peers online (as opposed to between peers in their own classroom). The focus on telecollaboration had shifted from being peripheral to becoming the central nexus for the learning process. In this way, future language teachers were expected to actively engage in communicative online situations that promoted learning (content and language) so that they could then reflect on how they could transfer this knowledge to similar contexts for their pupils. Unlike the more hands-off approach taken in the early years, we found that having a very clear set of expectations for telecollaborative activities was crucial for success. Accordingly, students now read and signed a telecollaborative activities contract detailing their expected attitudes and behaviours for full participation in telecollaborative events. The details outlined in this contract also formed the basis for both peer (discussed below) and instructor evaluation over the course of the project.

Starting in the last iteration (year 12), the teacher-educators now use 'flipped classrooms'; thus online group activities are fundamental to the development of in-class activities for both groups (not complementary). In a flipped classroom, much of the instruction that might normally take place during class time is instead accomplished by the students outside of the regular meeting time. This releases time during class for more hands-on activities and discussion. As seen below, the flipped materials for this collaboration included readings, audio recordings, and custom-made short video clips. The flipped materials formed a basis for both the in-class and telecollaborative discussions, so they were key to student success. Another learning contract was signed by students to emphasize this.

The descriptors of expected behaviour and attitudes from these contracts were then used as a basis for self and peer questions throughout the exchange, ensuring that participation in telecollaboration had an identifiable role in final assessment of both programmes. Moreover, the intensive preparatory work done by the student-teachers through the flipped class materials not only introduced them to conceptually demanding language teaching ideas; their hands-on engagement with the materials (introduced through many different online formats) gave them empirical knowledge about social media tools they may not have been exposed to otherwise. Thus, technology performed a key role in (1) individual study through flipped classroom material engagement; (2) telecollaboration with online peers in which both reflection and active participation in output preparation came into play; and (3) being an object of study for teaching and learning languages.

As indicated in Figure 3, telecollaboration formed the core of the semester for the students from UIUC and UAB, supported by the flipped materials, and reinforced by in-class discussion and activities. Over a ten-week period, groups of mixed UAB/UIUC students met telecollaboratively nine times. These meetings also led the students through the creation and revision of a group final project. Topics for these meetings included:

- getting to know each other and telecollaborative tools;
- considering the role of Technology-Enhanced Project Based Language Learning (TEPBLL) in the classroom;
- brainstorming final group projects;
- initial outlining of final projects;
- consideration of ages, learning styles, and language levels in project design;
- detailing activities for projects;
- peer review;
- linking in assessment; and
- final revisions of projects.

The flipped materials for each week provided the students with the knowledge necessary for success in each telecollaborative session, and, after key sessions, each group member used TEAMMATES (an online peer evaluation system) to evaluate their peers' performance in the group

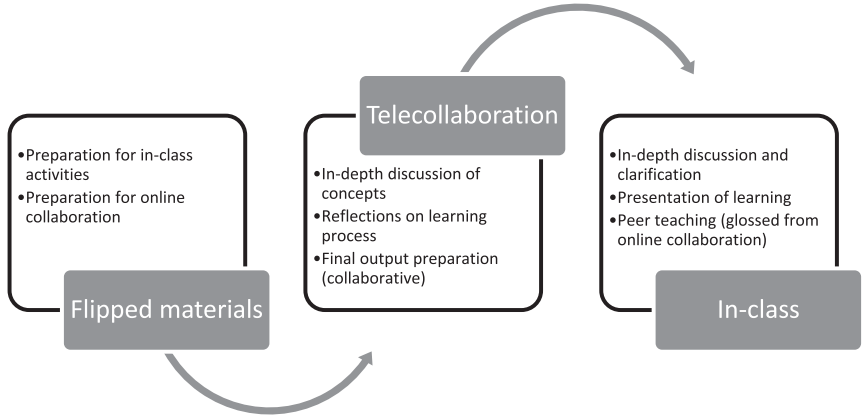

FIGURE 3
Telecollaborative process

Item	Quantity
Average group size (number of students)	6
Number of groups	8
Number of feedback sessions	6
Feedback questions per session (average)	4
Feedback responses given per student per session (5 peers × 4 questions)	20
Feedback responses per student during semester (20 × 6 sessions)	120
Total number of peer feedback responses (120 × 51 UAB and UIUC students)	6,120

TABLE 2
TEAMMATES peer feedback

meeting. These peer evaluations were later used to determine a portion of each student's final grade. Review questions varied depending on the activity, but centred around two key notions:

- How prepared was this person?
- How well did this person participate? (i.e. did they take part in discussion? Were they a leader when necessary?).

Later questions asked how much the peer contributed to the final projects, their overall evaluation of the peer for the entire semester, and their overall contribution to the group final project. This TEAMMATES system was designed so that we could publish the results of the peer evaluation after each evaluation deadline. Each team member then automatically received an anonymized summary of the peer evaluations. Unlike in the first year, where students complained to the instructors about their peers at the end of the semester, this system provided each student with instant safe feedback from each of their group members and also let the instructors know if any group members needed a nudge to participate more fully. Table 2 illustrates the amount of individualized feedback that each student received over the course of the collaboration.

Based on an online survey, the students indicated that they were aware of the importance of peer feedback and 96 per cent agreed that the system used in the telecollaboration was beneficial. At the same time, they were cognizant of the challenges this type of evaluation can have, as shown in the sample responses in Table 3.

Sample student responses
'You realize that the teacher should not be the only one to evaluate about what you know of the content and how you are working. The teacher is not always there (for the meetings, for the group discussions) so the teacher cannot give an opinion.'
'It makes you feel like your opinion is valued.'
'This is the only way to do *real* continuous assessment (through rubrics, learner's reflection, peer and self-assessment, etc.) or else you don't see the whole process of learning—only what they can 'repeat' at the end in an exam.'
'It was hard at first because the first few times I got really bad reviews. I was angry with my peers. Then I realized that part of it was true. I was not preparing for the meetings and classes as well as I should have.'

TABLE 3
Students' learning from peer evaluation

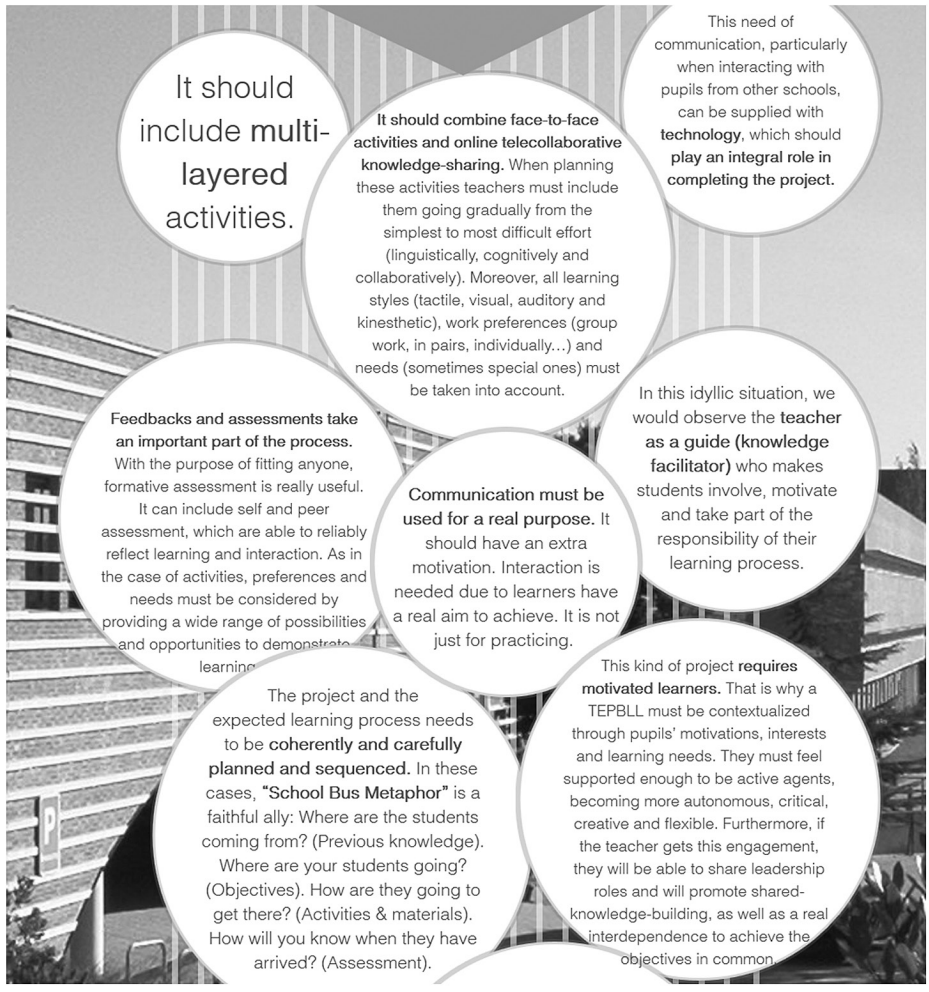

FIGURE 4
A student's final reflections

It should be noted that the samples chosen represent the more 'negative responses'; on the whole, the entire group underscored the positive role continuous peer evaluation had on their overall performance.

The heightened focus on critical thinking that was supported by peer evaluation was also evident in the individual reflection (online journal) kept by students over the semester. In his reflections, Eric (pseudonym) explains his trajectory from a 'naïve' (slightly technophobic) and 'extremely stressed' student-teacher to an accomplished language teacher with the conceptual knowledge to design and implement a technology-enhanced language learning project. Figure 4 illustrates Eric's concluding journal entry for the course, displaying his personal, procedural, and professional knowledge.

Once again, Eric's case is an example of a pattern that can be detected in the learning outcomes of year 12 of the project, as shown in Figure 5 (which draws upon the KARDS elements described above in Figure 2). The majority of the journal entries in year 12 discussed how they were acutely aware of gaps in their own knowledge concerning TEPBLL, which

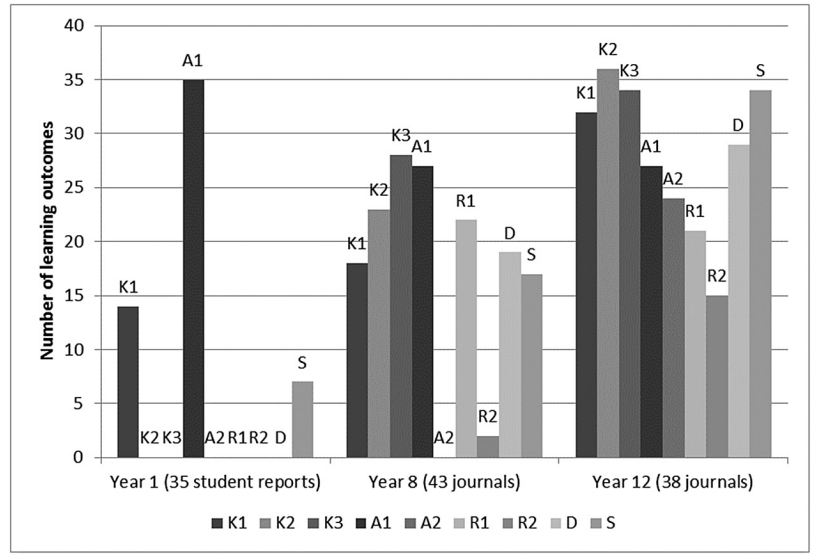

FIGURE 5
Learning outcomes from three separate years (KARDS)

they were able to clarify and comprehend, subsequently coming up with strategies to apply in their own teaching.

It is important to note that the representation shown in Figure 5 illustrates only the data from student journals. If the KARDS data from the peer review sessions were added, the contrast between year 12 and earlier years would be even more notable.

As noted earlier, the first-year participants included no examples of professional or procedural knowledge, nor were there any connections made between the telecollaborative experience and language teaching theory. In year 5, however, there are copious displays of knowing, analysing, recognizing, doing, and seeing.

Final words

The brief overview of the complex process we underwent (as we developed our understandings of telecollaboration and distance learning as an integral part of language teacher education) demonstrates that the experience has had a significant impact on both us and our students, in particular it has changed the mindset and roles of us both.

The experience has brought about changes in pedagogical focus so that telecollaboration is not an 'add-on' for language practice; instead, telecollaboration is core to the programme (both empirically and theoretically: student-teachers use telecollaboration to learn about technology and its affordances for communicative language teaching). The experience has resulted in increased student-teacher responsibility, for instance students are expected to:

- set up and organize meetings outside of class time (this type of learning autonomy is promoted within the European Higher Education Area (EHEA) reform);[2]
- undertake continuous self- and peer evaluation as a percentage of the final mark;

- explore a variety of tools that are not introduced in class;
- focus on critical thinking and dialogic interaction;
- reflect and discuss materials BEFORE class (flipped);
- take on the continuous role of evaluator; and
- collaborate with peers who are not teaching the same area and levels.

This, in turn, has led to a lower profile of the teacher as protagonist, moving towards a truly learner-centred pedagogy as the telecollaborative activities and student-led classes have become more significant. It is important to note that despite the physical distance involved, the classes are characterized by the mutual responsibilities of the teachers. The planning of the calendar, activities, interaction, output, assessment, and implementation is fully shared, thereby giving the students two referents in each class (a local and an international teacher). This means that the student-teachers are able to perceive the cooperation between both and, most importantly, they see the use of telecollaboration in their teachers' actions. Thus, along with carrying out telecollaboration themselves, they come to understand technology as the basis for knowledge transformation. Indeed, there has been evidence of the transformative nature of this type of exchange since year 1: the student whose reflection was shown from year 1 (Maria) now works in regular collaboration with us in designing and implementing telecollaborative projects with her students from primary education, including students as young as five or six.

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Notes

1 Students enrolled in the MATESL programme at the University of Illinois at Urbana-Champaign (UIUC) in the USA and students enrolled in the BA English Language Teacher Education programme at Universitat Autònoma de Barcelona (UAB) in Spain.

2 See http://ec.europa.eu/education/ects/ects_en.htm. Although there are no top-down percentages mandated by the EHEA protocol, this system promotes the recognition of out-of-class work. In the Spanish class, two-thirds of all the hours associated with the credits earned took place outside of regular class meetings. Only one-third of the student hours were contact hours. This is in line with the idea of working towards lifelong learning.

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