

Language students designing a learning project for children: a matter of managing multiple attention spaces

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Developments in technology are enabling new configurations of social relationships, work and study providing new contexts for language learning. For example, virtual games and interest groups draw together people from diverse backgrounds to engage in common interests online. Social media and online tools make it easier to work on shared projects, but they also generate and even require new kinds of multimodal practices of interaction and joint activities (Jones & Hafner 2012; Norris 2004). Being able to share attention between competing activities is an important skill in the digital age (Jones & Hafner 2012: 83). For language students, potential language teachers of the future, it is important to become familiar with complex contexts of language learning and teaching during their studies. They need to understand how the presence and use of technology can transform the language learning situation and what this requires from the teacher. This is therefore also the case in language teacher education.

This study is situated in the context of language teacher education in Finland. It focuses on a group of Master's-level university students of English taking part in an elective course on language education and new technologies. The aim of the course was to invite the students to explore and develop their understandings of language learning and teaching in the technology-rich world. As a tool in this work the students designed and put into practice an online English learning project for 11–12-year-old school pupils. Of particular interest to this chapter is how the university students were making sense of what was being done and how their work was supported. Diverse types of data were gathered during the course such as observation notes, discussion entries, documents and reflection papers. On the one hand, the analysis focuses on the various attention spaces – fields for sense-making – that the students needed to move between while creating the project for the pupils. On the other hand, the study sheds light on the interactional and technological attention structures which guided the students in their work (Jones 2005).

Language teaching and language teacher education in the technology-rich world

Even though new technologies have been highlighted as important affordances in education since the 90s, they have not yet been broadly integrated into pedagogy as an everyday means and environment for learning and teaching (see OECD 2015; European Commission 2013; Thomas, Reinders & Warschauer 2013). In recent years, there has been a rapid increase in the use of digital technologies in language pedagogy

but related research and teaching approaches are still in the process of emergence (Thomas, Reinders & Warschauer 2013). It seems that not only language students training to become language teachers, but also more experienced teachers, are facing challenges in striking a balance between traditional and new practices (Niemi, Kynäslahti & Vahtivuori-Hänninen 2013; Nyman & Kaikkonen 2013).

Language teachers' perception and conceptualisation of their environment has been seen to affect their professional development. Ruohotie-Lyhty's (2011) study among newly qualified language teachers showed, for example, how the teachers who had seen their environment simply in terms of limitations and restrictions, also constructed their teaching by starting from external norms and environmental pressures. Thus, they were assimilating to the existing culture. However, those teachers who did not see their work environment as restrictive were able to develop more learner-centred teaching approaches and overall assumed a more holistic view of teaching languages (see also Nyman & Kaikkonen 2013).

The prevalent practices in the field of language teaching and language teacher education together with people's personal experiences of a particular kind of language learning and teaching in their own past also provide ground for the traditional to endure. People have their 'historical bodies' that guide them in new situations (Scollon & Scollon 2004). In order to trigger change in the conceptions and practices of language teaching with respect to the requirements of technology-rich environments, focus needs to be turned to language students many of whom will become language teachers. It is important to support them in making sense of the nature of language learning and teaching in the modern world, and in taking charge of their work as change agents in the field.

Considering learning situations in technology-rich contexts, teachers and learners may need to regulate their attention in new ways to accomplish their goals (e.g., Meskill & Anthony 2014). Technological tools allow multitasking, performing multiple simultaneous interactions in the classroom, but also with a range of participants at a distance (Jones 2005; Jones & Hafner 2012: 82). For someone who has experience of such contexts, moving from an activity to another by a mouse-click or swipe is not necessarily chaotic. Digitally skilled learners are able to share their attention between multiple foci (i.e., polyfocally) while performing numerous simultaneous activities through technology (cf. Jones 2005; Jones & Hafner 2012). In a communicative situation, various attention structures, patterns of orientation to time and space, provide us with guidance in distributing our attention in a particular way (Jones & Hafner 2012: 87). Attention structures may be triggered by our environment. For example, classroom architecture or the availability of technology may either set constraints or offer affordances for particular kinds of interactions between students and teachers (Scollon & Scollon 2004: 51-54). Similarly, applications with different degrees of user-friendliness may either facilitate or complicate work at the computer. Attention structures may also be supported through instructions, directives or tacit rules embedded in practices more broadly (cf. Jones 2005; Jones & Hafner 2012). Jones and Hafner (2012) explain the emergence of attention structures in terms of Scollon and Scollon's (2004) notion of mediated action: attention structures arise from the interplay between the physical environment (discourses in place) as well as the participants' mutual social relationships (interaction orders), and their memories, skills, goals and plans (historical bodies) (Jones & Hafner 2012: 86-88).

In this study, the interest is on how a group of language students, studying to become language teachers, were designing an English language project for school pupils, making sense of a range of issues and topics that emerged as relevant for accomplishing this task and completing the course. The work involved polyfocal attention while multitasking at different activities. The design work was challenging for the language students at the university in many ways as their experiences from their own language learning as well as pedagogic studies at the university were primarily from classrooms with textbook-focused practices in the foreground and little technology available (Jalkanen, Pitkänen-Huhta & Taalas 2012; Härmälä & Hildén 2014). Thus, they were not very familiar with project work based on teams, involving participants' shared responsibility for activities in progress, and use of various digital tools and resources – a pedagogic approach called for by the previous and new curricula (NCBE 2004, 2016). The foci for attention emerging throughout the course will here be called attention spaces. This is a working metaphor to refer to an aspect of the work that requires sense-making by the language students. As Murray, Fujishima and Uzuka (2014: 81) point out, when people imagine, perceive and define spaces in a particular light articulating their understandings spaces, they also tend to enact them in that light as well. For example, understandings of language and language learning may thus be consequential for the design of the learning project.

The context of the study

English is an important language in Finnish society, in both international and domestic settings. It is also learnt through various leisure activities such as internet use and game-playing – not only in the English classroom (Leppänen et al. 2011). National curricula have for a long time reflected socio-culturally informed perspectives on language pedagogy, highlighting the learner's engagement in meaningful activities and interaction (e.g., Council of Europe 2011; van Lier 2000; NCBE 2004, 2016). Moreover, the country started investing in educational technology and networking two decades ago (e.g., Ministry of Education 1999). Considering this background one would expect today's pedagogic designs, curricula and language teacher education already to be drawing on these affordances systematically. However, there seems to be considerable variation between schools in relation to the use of technologies in a pedagogically meaningful way (Häkkinen & Hämmäläinen 2012).

The context of the study was a university course on new technologies and language education that aimed to support language students' growth into language teachers in the technology-rich world (LLT, referring to language learning and technology). This involved the students assuming a view of language education that would put emphasis on interaction as well as collaboration on activities that the learners would experience as meaningful. It was important that the students take charge of their own learning, but also that they learn to foster the autonomy of their learners (Benson 2008).

LLT was part of the regular curriculum of a Master's programme in the English department of a Finnish university. Its basic focus was established in the curriculum description: students design and put into practice an online English language project for school pupils. In the schools, the project activities were integrated into English classes, the school teachers guiding their pupils to take part in the activities online.

As the approach was project-based, with all the participants having a say in what was done and how, the trajectory of LLT emerged step by step. In this way, the lecturer in charge was co-designing the course and the language project with the students. The rationale behind LLT was to prepare the students to handle the pressures of a changing society with regard to (language) education, considering new kinds of language pedagogies and roles for language teachers. LLT aimed at encouraging the students' personal perspective-taking, experimentation, reflection and autonomy, with the support of the co-designing lecturer (cf. Cotterall & Murray 2009; Murray 2013). In practice, LLT involved both face-to-face sessions and online work. The face-to-face meetings functioned as design and content-production workshops for the language students. Team work continued online between the meetings.

Table 1 illustrates the main phases of LLT and its outcome, namely the school project that its participants designed and implemented.

TABLE 1. The university course and the school project

	UNIVERSITY COURSE	SCHOOL
WEEK 1	ORIENTATION BRAINSTORMING BACKGROUND WORK	Contact with the school teachers Establishing the participants
WEEK 2	RESULTS FROM BACKGROUND WORK PLANNING, TEAM FORMATION TESTING TOOLS	Contact with the school teachers Sorting out practical issues
WEEK 3	PROJECT ENVIRONMENT FOR CHILDREN HANDS-ON DESIGN AND PRODUCTION	Contact with the school teachers Sharing information
WEEK 4	FINALISING THE FIRST STEPS FOR CHILDREN GETTING READY FOR ACTION	Contact with the school teachers Sharing information
WEEK 5	MONITORING ACTIVITIES ONGOING RE-DESIGN AND PRODUCTION TUTORING, FACILITATING	SCHOOL PROJECT LAUNCH
WEEK 6	MONITORING ACTIVITIES ONGOING RE-DESIGN AND PRODUCTION TUTORING, FACILITATING	SCHOOL PROJECT
WEEK 7	MONITORING ACTIVITIES ONGOING RE-DESIGN AND PRODUCTION TUTORING, FACILITATING	SCHOOL PROJECT
WEEK 8	EVALUATION, REFLECTION	SCHOOL PROJECT END

The length of LLT was eight weeks. A further four weeks were added after the course for the students to complete their final assignment. Firstly, the language students explored a number of issues relevant to the project design (weeks 1 and 2): the range of social media and language technology applications suitable for language learning; various approaches to enhancing the learners' active participation and personal engagement in learning activities; the everyday interests and concerns of the age

group to be involved; and possible designs for the school project. Sociocultural and ecological perspectives on language and language learning were also discussed as an important basis for the national curriculum for basic education (NCBE 2004), placing an emphasis on providing affordances for learners' engagement in meaningful language activities instead of mere cognitive 'input' (van Lier 2000). In this vein, the students were encouraged to pay special attention to the affordances of technology for giving space to pupils' creativity and spontaneous interaction, in contrast to teacher-led and teacher-constrained activities based on textbook themes.

In the next phase (week 3), the students started to consider how to apply the information generated during their background work into the design of the school project for 11–12-year-old fifth-graders in five schools. The decision was made to build the project around the narrative of a school trip around Europe, led by a canine airline pilot. LLT participants then continued to address the shared goal through collaborative work (week 4). In other words, they were pooling and sharing knowledge within and between teams, and using different media for content production and interaction (Gee 2004).

There were various affordances available for communication and collaboration in the virtual learning environment (VLE) platform used during the work, e.g., chat, discussion list, facility to upload objects such as pictures, video and documents as well as editing tools for creating documents. The language students had their own VLE for the LLT course activities and the pupils at the schools were sharing another (created by the students for the project).

When the school pupils entered the stage (week 5), the students monitored their work and acted as online tutors during the four school project weeks. The students fine-tuned the project activities and workspace on the basis of their interpretations of what was happening among the participants. This continued until the end of the venture (week 8).

The study

The study is qualitative in nature and it focuses on the working process on the LLT course for 12 university students of English studying to become language teachers. Participant observation provided ground for identifying and examining the attention spaces and attention structures that seemed central for the students in accomplishing course activities and designing the learning project (Cresswell 2014; Jones 2005; Jones & Hafner 2012). Notions of interaction order, historical body and discourses in place from mediated discourse theory (Scollon & Scollon 2004) are referred to when attention structures and spaces are discussed as emerging from the interplay between the language students' memories, experiences and familiar practices; the participants' (students and the lecturer) mutual relations; and the physical environment (Scollon & Scollon 2004). The focus of the analysis is on what kinds of attention spaces emerged for sense-making and learning during the work, and what kinds of attention structures were provided.

The main focus of analysis is on the 12 language students and their course lecturer. Their actions must, however, be seen in the wider context of the learning project

involving 69 pupils (11–12-year-old fifth-graders) with their teachers from five schools from different parts of Finland (north, south, east and mid-west).

Throughout the LLT course and the school project, data accumulated in the VLEs, e.g. discussion list entries; objects of different kinds, such as pictures, web pages, slideshows, video and audio files; and text documents. Activity statistics were also available in the web environment. Furthermore, the students wrote their reflection papers on their experiences as their final assignment. In this study, data extracts were primarily drawn from the discussion list entries (63) in the LLT VLE and the reflection papers (12) that the students wrote at the end of the course. The rest of the accumulated data from the LLT course provided an archive for reference, documenting the overall process of the course and the learning project as a whole.

Language students designing a learning project for children

During the university course, the language students had to assume different roles when designing and implementing the language project for pupils at the participating schools. The students were acting at times in the roles of students, tutors, user interface designers, content producers, and project workers, to mention a few. Thus, the work involved distributing attention and sense-making in different ways as the tasks and problems evolved throughout the working process (see Jones 2005; Jones & Hafner 2012).

As the interactions took place in English, a foreign language to the participants, the quotes from the data, given in their original format, include lapses and mistakes. Pseudonyms are used to maintain anonymity and extracts from different types of data have been given their own labels (D for discussions and R for reflection papers).

The attention space of being a student on the LLT course

One goal for the language students was of course to complete the LLT course they were attending. Its scope was five credit units involving 135 hours of work during the eight weeks of the course and the following four weeks, in which they wrote their reflective papers as the final assignment. This attention space for meaning-negotiation and learning entailed the language students figuring out what “being a student” on this particular university course involved. The course followed project-based pedagogy in which all the participants, including the lecturer, were seen as co-designers or team-workers without definite knowledge about where collaboration would take them (see Benson 2008; Cotterall & Murray 2009; Murray 2013). This was not a typical pedagogic approach at the university, as a quote from a student’s reflection paper illustrates:

Admittedly, students usually become accustomed to courses that not only have a clear structure but also have a timetable that carefully lists the aims of every session. [Tomi-R]

As Tomi’s reflection on LLT suggests, the pedagogic approach that university students are familiar with is typically teacher-led – the succession of events and contents being defined in advance by the teacher. In other words, the students needed

to adapt to the new approach, which was potentially challenging due to their earlier histories as language students and student teachers at the university (Kuure, Molin-Juustila, Keisanen, Riekkilä, Iivari & Kinnula 2016).

Attention structures (Jones 2005) were available as mediational means (Wertsch 1991) to enable the students to see what the nature of the university course was and what was expected from them. One such means of support, directing the students' attention to the LLT course "spirit", was provided through the initial design of the VLE that the language students were using while planning the language project. The list below describes the structure of the VLE. Explanations for the elements are given in square brackets:

- Discussions [discussion list]
- Chat [chat tool]
- To do [editable document]
- 1. Basic materials [folder]
- 2. Internet resources for LL/LT [folder]
- 3. Social media/ language technology [folder]
- 4. The world of 11/12-year-olds [folder]
- 5. Possible designs for school project [folder]
- 6. Activities for participation [folder]
- School project [folder]
- Reflection papers [folder]

The discussion list and the chat tools as well as the initially empty 'to do' document suggested that exchanging ideas would be part of the course and some tasks would be defined later. From the numbered folders, only the first one included a file with basic information on the course (course description, aims, possible working methods, and examples of school projects designed by earlier courses). The rest of the folders were empty waiting for the course participants' contribution to background work. The school project folder for planning was also empty as was the folder for reflection papers to be written by the students at the end of the course.

In other words, the VLE design highlighted the project-based approach of the LLT course and the students' strong role in working towards the shared goal, designing and implementing a school project for learners of English. The examples of previous school projects that had been introduced in the orientation session also indicated how collaboration, the students' active engagement in team work, was an essential aspect of the course. This implied the kinds of relationships that the students had little experience of the power balance between the lecturer and the students being particularly equal (Scollon & Scollon 2004). The examples of past learning projects that the lecturer gave in the meetings further suggested that an important aim was to foster the participants' autonomy, not only as learners on the course, but also as language professionals of the future (see Benson 2008; Cotterall & Murray 2009; Murray, Gao & Lamb 2011).

The attention space of working as a project team member

Another central attention space for the university students on the LLT course was related to accomplishing the project for school children. The students had to be self-confident and take initiative, i.e. take charge of their learning and decision-making, as

the final format of the school project was initially open-ended. In addition to the attention structures provided through the VLE and the initial documents, the course lecturer tried to nurture a fruitful atmosphere for creativity and collaboration, highlighting the students' important role in carrying out the task, e.g., by arranging brainstorming sessions, facilitating the division of labour and adopting the role of a team member rather than the traditional teacher having primary decision power in class.

An extract from the lecturer's discussion list posting to a student on the course reflects the goal of creating an environment for collaboration:

Hi Sanna! Welcome on the course, you, too! It is great to have a team of students on this course who have such a wide variety of experience in their pockets. This will all be of use when we are putting the school project together :D Marketta [Lecturer-D]

In her discussion entry, the lecturer emphasised the participants as a resource for the coming project work. The entry also shows that in the university context in question the relationship between the lecturer and the students was quite informal. The use of 'we' further suggests that the lecturer was positioning herself as a co-participant rather than a traditional teacher in charge of the work. This type of teacher-student relationship (equal interaction order) was at the time of the course becoming more common (Scollon & Scollon 2004).

On the basis of the data, the interactions between all the university students working on the school project in their teams were similar in tone – inclusive pronouns were used, and comments highlighted collaboration and commitment to the shared goal.

As for attention structures, the lecturer expected it to be difficult for the students at first to assume an active and independent grip of the course and project. This expectation was based on awareness of the students' previous experiences of university studies with relatively predefined contents and process. Yet, the students seemed to be ready to try an unfamiliar approach as their discussion entries suggest:

I am excited about this course as I like hands-on courses better and, on the other hand, I do not really know what to expect from this course. [Tomi-D]

I'm looking forward to seeing what this course is like. I think the previous projects looked very interesting and I hope we all as a group can come up with something as 'cool', inspiring and exciting as they did for example last year. [Marja-D]

Uncertainty about what was coming did not seem to cause anxiety as the students seemed to be self-confident learners already. Thus, they appeared to be on strong ground in taking charge of their learning even if there was a need to negotiate the work throughout the course (Gao 2013; Lamb 2011; Murray, Gao & Lamb 2011; Nakata 2011). Concrete details were agreed upon with the participants iteratively, i.e. through continuous evaluation and reshaping of the process. The division of labour was established in the class meetings and fine-tuned according to the emerging needs. The following extract from a student's reflection paper illustrates how the project-

driven approach gradually became clearer and how the roles of teachers and learners came to be understood in a new light:

At the beginning of the course I felt like a pile of puzzle pieces had been poured out on the table and I had a hard time putting the pieces together. But as the course progressed the image started to come together little by little.

[Marianne-R]

In the same way as Marianne, all the students seemed to cope well with uncertainty about what was coming. Such a stance could be seen to stem from Finnish students' familiarity with digital environments and practices in connection with social media and Internet games in their free time, but also from emerging changes in the pedagogic culture (Jalkanen, Pitkänen-Huhta & Taalas 2012).

Nevertheless, the lecturer's active contribution was needed in order to provide attention structures for the students when they started to plan the coming learning project more concretely. If the students' decision-making had not been pushed towards the direction of the course aims, content production would have started to lean more towards the traditional language teaching materials associated with textbooks. In other words, the students were encouraged to avoid replicating exercises that they knew well already. Instead, they were guided to building a school project environment that would engender meaningfulness from the pupils' perspective, and promote interaction between the participants.

The attention space of designing a project suitable for school pupils

The following attention space visible among the university students during the LLT course was related to the emergence of the learning project itself as a concrete site for the students and "real" school pupils to meet. Although many of the students had felt confident that they already knew about children and school, the pupils offered new insights into the task at hand as Marja's reflection quote implies:

What I found most challenging was to be able to understand the world of fifth and sixth graders. It seems so long ago since I was that age – it was a half of my life ago. I read my old diaries and looked at some photos of me and my friends as 12-year-olds, but still it was hard to recall what made me happy, excited or interested at those times. [Marja-R]

This example gives a glimpse of Marja's perspective-switch, moving from personal experiences to the position of the tutor or teacher contemplating what to take into account when planning activities for the project when time is limited (the context of the extract). The fact that the students have personal memories as language learners is not directly transferable to their understanding of children's interests. To bridge the gap, the students conducted small-scale surveys through interviews as the following quote illustrates:

I interviewed my 12-year-old cousin, and she said that she likes to play games and participate in activities which differ from the 'ordinary' ways of learning: "first we listen to the chapter, then we repeat after the cd and then we can open the exercise books." I have no idea what it is like in the primary schools

nowadays but I definitely think that we should make the environment as versatile as possible. The only problem is how to achieve that goal (: [Marja-R]

The quote above highlights the double challenge that the students were facing: they needed to take charge of their own learning but also to advance the pupils' autonomy, in circumstances where traditional conceptions and methods of language learning were still prevalent. This involved a switch in perspective-taking from the learner to the teacher – looking at things as a professional rather than as a learner (Lamb 2011; Murray, Gao & Lamb 2011).

Gradually, in the course of the background work, the school project began to take shape as the language students and their lecturer negotiated the diverse aspects of the pedagogic approach and activities suitable for the pupils. The students agreed on a school trip as the overall concept for the learning project. A student sketched a map to be used in the VLE interface for the pupils, which was also considered a good starting point for the narrative, as Liisa's message exemplifies:

I think the map and the dog are great! I would be interested if I were a 5th grader! :D The links and photos are interesting, too. Could it be so that the children click the pilot and then the voice message would advise them to introduce themselves in their folders etc? [Liisa-D]

After a joint decision to continue the design process through this concept, the participants took an active role in working out how the work could best be accomplished. In the course VLE, a folder area was opened for planning and subfolders were created according to the needs of the working process.

As mentioned above, the students designed the school trip to follow the concept of a real school trip with the destination and the route being revealed step by step. Instead of creating an exercise package in advance, detached from the context in which it might be used, the students designed activities that, throughout the trip, would take into account the pupils' reactions to the activities completed. In this way, the pupils would be involved in more authentic problem solving and interaction instead of traditional exercises (van Lier 2000). Playfulness was an important element in the overall narrative and the individual activities, which was seen to strengthen the pupils' personal commitment to the work done.

The attention space of becoming a language teacher

The final attention space that emerged from the data was related to the language students' perspective-switch from students to teachers. The project-based approach of the LLT course seemed to offer the students an opportunity to explore their understandings of language learning and collaboration in relation to roles and responsibilities in pedagogic situations:

This was one of the greatest lessons of the course for myself. In the role of a teacher we might take on too much of the responsibility and try to make all the decisions for ourselves, and this course showed me that a project/course can be

a working entity even though it is put together by different people with different ideas and visions. [Marianne-R]

Marianne's reflections above show how she gradually started to see the teacher's role in a new light and, with that, the value of collaboration. This following extract from Noora's reflection paper further illustrates the language students' experiences of the work done:

Everyone had something to do with the project, so all participants had some responsibility concerning the flow of the project, and this was a really good thing, in my opinion. I learned a lot about organizing an online learning environment during the course, and I am sure I can use the knowledge gained from the course in the future. [Noora-R]

In fact, the students commented to the lecturer that they had never had a similar opportunity to design and put into practice a web-based learning project with schools during their pedagogic studies, as the teaching practice part of teacher education tended to be focused on the classroom. Thus, the LLT course seemed to have given the students an opportunity to experiment with new kinds of learning approaches with the support of the lecturer and the other course participants.

Managing multiple attention spaces

The data analysis of this study foregrounded four major attention spaces that the language students moved between. Firstly, the language students were constructing their understandings of the LLT course drawing on project-based pedagogy. Secondly, they were adopting new practices in team work, advancing their goal through a project-based working procedure. Thirdly, they were working to gain a stronger grasp of their understanding concerning socioculturally-rooted language education, which was reflected in their view of what the pupils needed to do in the learning project. Fourthly, the students were contemplating their growth as future language teachers in a technology-rich world.

The attention spaces became discernible in the students' discussion entries and reflection papers. The interpretations were also supported by participant observation during the classroom workshops and work done through the VLE. The students were delving not only into their own experiences and accustomed practices (Scollon & Scollon 2004) as language learners and future teachers but also into the tradition and current practices of the field of language education, i.e. the broad community of practice of language educators (Lave & Wenger 1991). There were conflicting discourses circulating on the LLT course that seemed to stem from the contrast between, on the one hand, the students' experiences as competent users of technologies and social media in their personal lives, and, on the other hand, their experiences of formal language learning and teaching as text-oriented and teacher-driven practices.

Moving between attention spaces, the students were exploring their own identities as autonomous learners as well as their understandings of how new pedagogic approaches might affect their professional path in the field of language education. The

LLT course classroom functioned as an important hotspot or control room for the university students to build and manage the school project, even if much of the work took place online across a longer time span. The students were, through their reciprocal interactions with various participants, metaphorically moving across different spaces to make sense of various aspects of being students and teachers in a technology-rich world.

Implications for practice

The study provides evidence for the benefits of problem-based, collaborative approaches in language teacher education to promote the participants' (including the course lecturer's) roles as co-designers. In the following sections, some suggestions are made for applying the findings of this study to practice:

Use a project-based approach for your course

Language students need an opportunity for experimentation with new kinds of learning and teaching scenarios in order to become more autonomous as language teachers in the technology-rich world.

Consider what kind of experiences and understandings your students have of learning and communicating in foreign languages

Language students are likely to be fluent users of social media and the Internet in their free time, but their experiences of language learning and teaching are typically from classrooms with little technology and a strong orientation to text-oriented practices. The students do not usually have much experience in their studies of project-based courses requiring active engagement, or of assuming responsibility for how the course and the learning project are going to evolve.

Provide a context for exploring new approaches and practices for language education through a project with "real" participants

When designing a language project the students can draw on their creativity and digital competence but also critically reflect on and change their perceptions of language learning and teaching in a technology-rich world. The opportunity to put their plans into practice with real learners facilitates this process.

Offer attention structures for the students in negotiating and attaining the shared goal

Attention structures may be created in different ways: the pedagogic approach, the design of learning activities, the nature of the learning environment (also technology-mediated), and the use of interactional means among others. The students need support in breaking away from customary practices and finding new practices for language learning and teaching.

Support students in becoming aware of the multiple attention spaces for meaning-negotiation

When the language students become aware of the multiplicity of spaces between which they need to distribute their attention during a course and a project, it will be easier for them to explore their positions as learners and professionals. Affordances for sharing ideas, engaging in team work, discussing the goal to ensure it is a shared one, and reflecting on lessons learnt are important. For example, face-to-face meetings or synchronous technology-mediated events online are important occasions to negotiate, make decisions and create a collaborative ethos for work.

Implications for future research

For some time now, demands have been expressed concerning the need for change in the field of language education, especially in relation to the integration of technology into pedagogy. However, there is still little knowledge available on developing new practices in language education and language teacher education in technology-rich environments. It is important to gain more information from longitudinal research in particular on learning projects as illustrated in this study. For future research, video data from important phases throughout the working process would be valuable as it would make it possible to examine in more detail how distribution of attention to multiple foci and negotiation of meanings come about *in situ*.

Conclusion

Language students who aim at a career in language teaching in a technology-rich world are in a key position to contribute to the emergence of new kinds of scenarios for language learning as they enter the professional field after graduation. This study sheds light on the multiple attention spaces that language students need to distribute attention to and move between in order to make sense of their perspectives as learners, pedagogic designers, and language teachers of the future. It seems that work on attention structures is needed to help the students detach themselves from text-book driven practices in language teaching and from the narrow view of language learning so that they may develop new practices for language teaching in a technology-rich world. For language teacher educators it is important to acknowledge the variety of attention spaces that may emerge for sense-making in pedagogic multitasking, and the nature of potential attention structures that may support the students in becoming active pedagogic change agents in their future profession.

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