
Training Teachers for a New Era

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Abstract

This paper analyses a case study in which a university practicum tutor embarks on the adventure of setting their trainee teachers the task of designing a common technology-enhanced language project as a strategy to help them acquire the so-called Four Cs of 21st century learning. Thanks to the work of the US-based partnership for 21st century, many educational policies today advocate for including critical thinking, communication, collaboration and creativity at the core of modern curricula for primary and secondary education. It is therefore essential that pre-service teacher training programmes include proposals to guarantee that all future educators master these essential skills through a process of “learning by doing”. Here we will present a hands-on experience in which, during their practicum seminars, a team of four pre-service English teachers worked collaboratively on the design of a project they would implement during their internship at four different schools. As the educational contexts varied and different age-group were involved, trainees had to be creative to find a way to meet the course requirements in each host classrooms. Gamifying their lessons and incorporating digital tools seemed the best solution to structure a dynamic project. During the planning stage they became critical thinkers who had to solve problems, good communicators as they had to understand and communicate ideas, collaborators as they learnt to work together to reach consensus and creators since they managed to design an innovative teaching project that provided their target primary pupils meaningful opportunities to use English with a real purpose.

Keywords: collaborative tutoring of student-teachers, four Cs of 21st century learning, pre-service teacher education, technology-enhanced project-based language learning.

1. Introduction

Teacher education programmes are expected to train professionals prepared to meet the challenges of the 21st century classrooms. Student-teachers should be given the possibility of acquiring theoretical knowledge on how learning takes places but also opportunities to establish crucial sound connections between theory and practice (Yost, Sentner & Forlenza-Bailey, 2000). This is, in part, why most educational programmes addressed to future teachers include a practicum component. The value of the experience is well accepted (see, for, example, Guyton & McIntyre, 1990; Haigh et al., 2006), but also questioned (Dobbins, 1996; Haigh and Ward, 2004). Aspects such as the length of the placements and their timing through the school year, the kind of support systems student teachers and school mentors should receive, the purpose and effectivity of practicum seminars with university tutors are, among others, challenged by the participants themselves (trainee teachers, schools mentors and university tutors).

To improve the effectiveness of school placements, student-teachers should be given opportunities to adopt an active role both as learners and as potential teachers. Involving them in the process of designing, implementing and evaluating classroom projects together with their school mentors and university teachers brings innovation to schools (Masats et al, 2007; González et al, 2008) and has a positive impact for all those involved. Real practice, for pre-service teachers experiencing this teacher training method, starts not only when they enter the teaching profession and have their own classes, but also during their internships. School mentors benefit from this practice because they have the opportunity of reflecting about teaching action and teaching practices with academics. University teachers have the possibility of observing (and helping fulfil the needs of) real teachers in real classrooms, which ensures teacher education programmes are updated and prepare future teachers to face the challenges of educating children in the 21st century.

Innovation at school is unlikely to occur if new teachers have not experimented innovation during their training. Teachers can only help learners develop 21st century skills if they have developed 21st century skills and are aware of how they managed to do so. Practicum experiences must be something else more than the mere provision of a practice setting in which student-teachers observe teachers in action and are given the opportunity to plan and implement a few lessons. It is important to get student-teachers to participate in course events designed to get them experience the kind of methodological approach one expects them to adopt as teachers (Dooly & Masats, 2011). In practicum seminars trainees have plenty of opportunities to reflect upon their own performance as teachers and about the practices of other trainees, but it is also necessary to involve them, as learners, in some sort of pedagogical action that may have an impact on them as teachers. Engaging future teachers in the project of designing a project to be developed during their school internships seems a good strategy to get them experience the ins and outs of project-based learning (Masats & Dooly, 2011) and gain know-how knowledge through the process, which, in turn, favours the development of 21st century skills. This paper shows an example of this type of practice.

We want to present a case study in which a university tutor sets the conditions to support four student-teachers while they are learning to work together and to take risks to plan a language project at their respective host schools. First, we will review the principles of project-based learning and how proposals sustained in this approach favour the development of the so-called 21st century skills (World Economic Forum, 2015). Then we will briefly present and analyse our training proposal through the voices of the participating student-teachers. We will focus on how the experience particularly contributes to the development of the Four Cs of 21st century learning (partnership for 21st century learning, 2006).

2. Project based learning as a methodological proposal to support the development of the Four Cs of 21st century learning

Curricular reforms in many countries around the globe reject teacher-centred content-based input practices and promote student-centred competence-based output approaches to learning (Mont & Masats, 2018). Competences can be described as sets of abilities, skills and knowledge individuals need possess to engage in the everyday situations one comes across in a global and wired society (Dooly & Masats, 2019). The World Economic Forum (2015) coined the term “21st century skills” to refer to them and to grouped them into three categories. Their first category, foundational literacies, includes all competences and skills related to the acquisition and use of field knowledge needed to conduct everyday tasks (literacy, numeracy, scientific literacy, ICT literacy, financial literacy and cultural and civic literacy). Their second category, which they refer to as competencies, embraces the competences and skills one needs to develop to carry out those everyday tasks successfully and to overcome potential challenges. The partnership for 21st century learning (2006), refers to the competences in this group as the Four Cs of 21st century learning, as they all start with C: communication, collaboration, critical thinking and creativity. Finally, their third category embraces abilities related to character qualities such as curiosity, initiative, persistence, adaptability, leadership and social and cultural awareness.

Teachers need to be willing to innovate to include 21st century skills in their regular practices. Applying innovation at schools, though, is a slow process. In many foreign language classrooms today, teaching practices tend to be set on the principles of approaches developed during the 1980s (e.g. communicative language teaching, task-based learning), yet there are also teachers anchored in the use of techniques and procedures rooted in more traditional and outdated methods (e.g. grammar translation method). Project-based learning (PBL) is not a new approach to learning, as it derives from Dewey's notion of ‘learning by doing’ (Dewey, 1938), from the premise that children at schools should be engaged in solving tasks like those they would encounter when they are not at school. Yet, PBL is a still powerful teaching approach today because it structures learning through goal-oriented tasks (Beckett and Slater (2005), Fried-Booth (2002), and Stoller (2006), among others). That is, PBL “engages students in learning knowledge and skills through an extended inquired process, structured around complex, authentic questions and carefully designed products and tasks” (BIE, 2003:4). The need to address the challenge of designing, planning, and carrying out an extended project that produces a publicly exhibited output or final product (Patton, 2012) is what distinguishes PBL from other teaching approaches (Dooly, 2016) and why it offers learners great opportunities to develop 21st century skills (Masats, Dooly & Costa, 2009). As Mont & Masats (2018:94) suggest, “projects that are structured through goal oriented tasks offer a great opportunity to integrate learning as a social practice (collaborating, co-constructing knowledge, communicating, developing critical and creative thinking, etc.) and as a means to favour the development of life skills (leadership, social skills, initiative and flexibility), while learners develop linguistic competences, audio-visual competences, digital competences and the competences linked to the acquisition of knowledge related to specific areas of study.”

The development of 21st century skills is only possible if technologies are meaningfully used in the classrooms on a regular basis (Lambert & Cuper, 2008). PBL fulfils well the premises of the communicative language teaching approach (Dooly, 2013) and the principles of learning by doing (Dewey, 1938), but also the need to integrate technology into classroom practices naturally. This is why current trends in TEFL advocate for the adoption of the principles of the so-called 'technology-enhanced project-based language learning' (Dooly & Sadler, 2016). Within this perspective, learners become active users of technology not mere recipients of technology. Children today, thanks to being technology users, are good at "multitasking and parallel processing, taking in information and making decisions quickly (at "twitch-speed"), understanding (i.e., "reading") multimedia, and collaborating over networks" (Prensky, 2003:2). Learners, then, need to use technology to search, transform and transmit information, to understand and create all sort of multimodal texts and to play to learn. Digital game-based learning (Prensky, 2001), the use of real digital games in the classroom, and specially gamification, using game-related elements in a nongame situation (Deterding et al., 2011), are slowly getting into classroom practices as strategies to promote students' engagement and motivation. The inclusion of digital game-based learning and gamification in technology-enhanced project-based language learning proposals also serve the purpose to help learners' develop their 21st century skills because, as Dicheva et al. (2015:75) suggest, "the use of educational games as learning tools is a promising approach due to the games' abilities to teach and the fact that they reinforce not only knowledge but also important skills such as problem-solving, collaboration, and communication".

Finally, the use of technology-enhanced project-based learning in teacher education is necessary because, as Howards (2002:343) suggests, it fulfils "the dual goals inherent in teacher education". That is, instructional proposals in teacher education should enable student-teachers to transfer what they learn in methodology courses to their teaching practices through the design and implementation of classroom projects that help learners transfer what they learn at school to their everyday activities. This means, in the first place, that for student-teachers to learn how incorporate the principles of technology-enhanced project-based language learning in their teaching practices during internships, university teachers should create a context in which they first can learn by doing or, as Dooly and Masats (2011) propose, they should participate in a project about project designing. Here we present one example.

3. The study

Teacher education programmes should be designed to foster the development of student-teachers professional competences and to prepare them to teach effectively at schools. This is easily achieved during school internship as trainees need to make sound decisions, take risks, be creative to transfer theory into practice, learn to communicate with children and to adapt to a new environment. The case study we present here aims to corroborate our hypothesis that the accomplishment of these actions sets the perfect scenario where future teachers can develop 21st century skills, especially if their university teachers and school mentors challenge them to work in joint collaboration with their peers to design their intervention at schools following the principles of technology-enhanced project-based language learning and including gamification in it.

Participants in our case study are a team of 4 pre-service English primary teachers and their university tutor who met once a week to prepare their school internships. One of the main objective of this seminars is to guide the student-teachers through the process of creating, planning, implementing and evaluating a teaching unit. The innovation in this case study came with the tutor's idea of joining forces and working together in the creation of a common shared teaching unit they would all implement in each of their practicum schools during their internship. Trainees accepted the proposal which, from the very beginning, was a major challenge for them. Not only were they doing their internships at different schools and had different school mentors with diverse teaching styles, but they were also expected to cater for the needs of various age-groups, since they were not placed in the same years and, thus, the teaching objectives they had to attain with regards to language contents varied from one school to another.

During the face-to-face practicum seminars at university and on several online meetings student-teachers and their university tutor found a very creative way to meet all the challenges. They decided to gamify their joint class project and created a plot in which a fictional very rich Australian woman, Rose Mary Connor, impersonated by the university tutor, needed the help of the primary students in the four schools to find out a robbery in her house in Sydney while she was on vacation in Holland. She wanted to know who the thief was, what was stolen, at what time the robbery took place and where were her belongings hidden. Each school was in charged to discover one of those mysteries and cooperate to solve Rose Mary's case.

The corpus will use to validate our hypothesis is composed of data from various sources. We transcribed our practicum seminars and the session student-teachers conducted to present their projects to other teams of student-teachers. We have the project rationale the pre-service teachers' websites, the emails exchanged among all the participants and feedback from the primary students who solved Rose Mary's case.

4. Findings

Schools internships offer pre-service teachers supervised teaching experiences that help them understand the complexity of being a teacher. Yet, the experience needs to be complemented with supervision proposals in which teacher educators foster the development of student-teachers' professional competences to guarantee that pre-service teachers would become efficient professionals in due time. In the case study we present here, student-teachers valued the weekly practicum seminars at university positively because their university tutor presented them varied tools and resources, encouraged them to share what they were learning at schools and created a space in which they were given the opportunity to learn about planning a project, a teaching unit, together. This is how one of the teacher trainees, Txell, describes them:

Extract 1. Txell's personal reflections in her online portfolio on the role of seminars

In this learning process, the UAB seminars had an important role. Seminars provide a great amount of useful tools and resources that can be used in the lessons in different ways. So, not only we had the tools but also a wide range of different possibilities of use. But, all this knowledge would not have been possible without our teacher, who was essential during the whole process. I have learnt a lot from her, not only from her resources and strategies, but also from her engagement and enthusiasm towards teaching, and her involvement in our teaching unit. UAB seminars were a space for sharing, and therefore, learning from each other. They were essential in order to solve questions about our teaching unit and change things to improve it.

As we can see, one of the things Txell appreciates the most was the fact that she could learn with her peers and that they received support from their university tutor, who, as she states, was fully involved in the challenge she had set for them. As we said earlier, getting student-teachers acquire the principles of project-based learning by designing, planning, implementing and evaluating one true project is a nurturing experience (Masats & Dooly, 2011) and sets the grounds for ensuring student-teachers would develop the so-called 21st century knowledge, skills and competences that will enable them to act socially in an effective and reasoned manner. To examine how this is done, we would focus on how each of the 4Cs for 21st Century skills –communication, collaboration, critical thinking and creativity– (partnership for 21st century learning, 2006) were put at play.

4.1. Communication

Teacher immediacy behaviours have traditionally been referred to as those verbal (calling students by name, encouraging students' input, being humorous, etc.) and non-verbal (e.g. eye contact, nodding, smiling, etc.) indicators used by educators to foster communication. Research has shown they have a positive impact on student learning (Myers, 2002) because they increase students' motivation (Christophel, 1990) and satisfaction (Hackman & Walker, 1990). However, in learning environments in which communication is also mediated by computers, instructional immediacy needs to be redefined. Any behaviour that brings teachers and students closer together in terms of perceived distance among them is a clear indicator of immediacy. Creating an atmosphere in which student teachers feel at ease because they perceive that their university tutor shares and cares is a sign of instructional immediacy and would undoubtedly foster communication bidirectionally for multiple purposes (sharing ideas, informing, instructing, reaching consensus, making suggestions, persuading, etc.). We can observe that in extract 3.

Extract 2: E-mail from the student-teachers to their university teacher (Maria)

Hello, Maria!

Yes, we are going to work together and we are so excited about it 😊

In fact... we would like that you could participate in our Teaching Unit too, so we thought about asking you for a little favour.

Would you like to be our rich Rose Mary from Australia, who has lost her precious treasure?

We could record the video tomorrow, after talking about the Teaching Unit (we will finish before 18:30). If you want, you can bring some rich and snob complements (we will do the same).

Our proposal for the script is this:

“Dear all, my name is Rose Mary Connor and I am from Australia. Now I am visiting my family in Holland. Yesterday I received a call from my alarm insurance company explaining that someone has entered my house and has stolen something. That is why I ask for help. I need brave volunteers to uncover the thief, what he or she has stolen from me, where he or she keeps my possessions and when the robbery occurred.

If you feel brave enough to help me, I beg you to send me an email introducing yourselves to the following address: rosemaryconnor.australia@gmail.com

I appreciate your effort and I hope we can solve the case with collaboration”

Thanks so much! See you tomorrow 😊

Helena, Mar, Sônia and Txell

In the seminar before this email, the university tutor had suggested her trainees that they could work together to design a joint project as the teaching unit they had to implement at their schools. They were not very enthusiastic with the proposal at the beginning, but they talked about this after the class and they came across with an idea. The mail is interesting because we can see that trainees feel at ease when making proposals and instructing their tutor on what they would love her to do. Communication competence was first developed through interpersonal face-to-face and computer-mediated exchanges between trainees and trainees and their trainer. This procedure was also followed by student-teachers to promote real communication when they engaged their groups of English primary learners in a technology-enhanced language project. Interpersonal communication at school was also face-to-face between each trainee and her group of students, but it was also digital when the groups contacted one another or the fictional character (real to them) that had set them work together (see extract 3 in the next section). In this case, trainees used various multimedia formats to get their pupils to communicate: they received emails and videos from Rose Mary, they had a private blog to share their findings with other groups, they were creating videos, uploading images or producing texts for their blog, etc. Primary pupils learnt English while solving clues and unveiling secrets about the robbery. They developed language skills for a wide range of objectives: they were using English to inform Rose Mary about their first ideas, to instruct on how to be safer, to motivate others to help them solve the case... In short, communication was essential because it fostered collaboration.

As we have seen, immediacy between the student teachers and their tutor is, in part, what made the project work. Immediacy set the ground for creating an environment in which communication made learning possible, triggered collaboration and empowered future teachers as we can see in extract 3.

Extract 3. Mar’s personal reflections in her online portfolio on their teaching unit

This teaching unit originated from the desire of creating a MEANINGFUL and ENGAGING project as the last step before becoming real teachers. Moreover, it has a special value because it has been designed and carried out by four primary education students... Together, we adapted this adventure to different ages and contents which has end up in a transdisciplinary and very powerful teaching unit!

To Mar, one of the members of the group who had the idea of planning a joint project, being able as student teachers to create a ‘meaningful and engaging project’ was the last step into the profession and what would enable them to become ‘real teachers’. Mar also acknowledges the importance of working together with others.

4.2. Collaboration

Learning as a situated social activity (Lave & Wenger, 1991) starts when trainees decide to work together, to collaborate, to fulfil the same objective. This is how Sonia, one of the trainees, reflects upon the advantages of working with others.

Extract 4. Sonia’s personal reflections in her online portfolio on their teaching unit

First of all the ones that joined this idea were Txell & Mar trying to link the topics in the school in the same teaching unit doing it in an interactive way as a game. Later Helena & I joined them because we thought it was a really

enriching experience and a unique experience because we will have time on the future to think and plan teaching units alone. So we accepted the challenge and we became a team. [...] Everybody's participation was essential in order to come up with a nice teaching unit. Our main objective was to link our topics in order to create an engaging teaching unit, that motivates children to learn English. Which was achieved, children showed lot of interest towards the teaching unit, and usually when they saw me around the school asked about Rose Mary or if she had sent us an e-mail. [...] Going back to the way we worked, I am sure that working alone this result would not have been possible, four brains have better ideas than only one. Co-teaching requires lot of time in order to make decisions about what is going to be done and how; in our case, due to time and distance, the meetings were done by phone calls and Skypes, which were really useful not only for the common parts of the teaching unit but also for the specific ones of each school. We had the support of the others, even that some sessions were different for each school, we more or less knew what the others were doing and therefore it was possible to help each other and give ideas about the specific sessions, feeling with this more secure.

Sonia clearly describes a relationship of 'positive interdependence' (Johnson et al, 1998) among the four trainees, a characteristic trait of cooperative and collaborative learning. Positive interdependence occurs, as it is the case here, when learners are all aware that one of them could not succeed if the other three failed. Consequently, they took a great effort in making sure the learning needs of all primary groups involved were going to be met, so they work for a common objective but also to help others accomplish their individual goals as teachers. Interestingly, communication and collaboration were also the gears that made the school project work. Children were motivated because they were communicating with Rose Mary (as we can read in extract 4 above) and collaborating with the groups in the other schools to solve the challenge she had set to them.

4.3. Critical thinking

Student-teachers came up with the idea of designing a joint project in one of the seminars but, in the context of our case, accepting to carry out the plan implied agreeing to be eager to face problems and find solutions to solve them. As we can see in extracts 5 and 6, the departing point was not easy.

Extract 5. Txell's personal reflections in her online portfolio on their teaching unit

This project started with a crazy idea during our Practicum meetings. What if we challenged ourselves to do the same teaching unit in our four schools? What if we did a telecollaborative project? [...] we did not have the same schedules, so the lengths of the sessions were not the same [...] we were kind of dealing with all this, but we were always following the same chronological order and the same events [...] I decided to implement it in the fourth grade. My requirements were to revise the professions that they had been previously working during the third term.

Extract 6. Helena's personal reflections in her online portfolio on their teaching unit

The students were not used to work by projects because the school follows a traditional approach and English is taught through books.

Several were the challenges student teachers had to meet to turn their plan into a teaching action. As regards to time management, they had to solve the problem that English was not scheduled at the same time in all the schools. Besides, as they were not assigned to the same age-groups the number of hours devoted to English would also vary from one school to another. In terms of the organisation of learning, each school mentor had a personal teaching method and a syllabus to follow, this meant that not all children were familiar with the project-based learning approach or were expected to access the same type of linguistic contents. Overcoming these barriers was possible because during the seminars (and through personal online correspondence among the four trainees), student teachers engaged in processes of anticipating problems and solving them beforehand, that is, critical thinking played a key role during the planning stage of the joint project. Halx & Reybold (2005) argue that educators who want to engage their students in critical thinking need to promote discussions in their classrooms and allow students to freely express their thoughts. We believe this was the situation in this practicum seminars, as Txell had claimed 'They were essential in order to solve questions about our teaching unit and change things to improve it' (see extract 1 above).

Critical thinking was also encouraged during the phase of evaluating the work done. Student teachers were satisfied with the results, but they could also reflect upon what they could have done differently. We can observe that in extract 7.

Extract 7. Sònia R. highlights her own opinion about the experience:

Even though I am happy with the results achieved I am aware that lots of things could have been better and have to be improved regarding to my part, such as the adaptation to the level and make the explanations clearer, because I think that sometimes some children had difficulties to follow the lesson."

Being able to recall one's actions, analyse and evaluate them to promote change is the first step into reflective teaching, a skill these learners have also put into practice and are still encouraged to do so¹.

4.4 Creativity

Communication and collaboration allowed student-teachers to engage into critical thinking together, as they had to analyse the teaching contexts in which they were going to implement their project, anticipate potential problems and reason to solve or to minimise them. However, critical thinking lead trainees into creative thinking. After having agreed upon how, as a group, they would solve the contextual and organisational challenges they had to face, each had to adapt the solutions to their own situation, which sometimes meant creating alternative plans. We can see that in extracts 8 & 9.

Extract 8. Sònia presents the project to another group of student teachers.

The school asked me to work the past simple, so what I did was to create a story that was the personal diary of the neighbour, because Rose Mary in the video said that the neighbour was going every day to her house to feed the cat and is the one that found the robbery. So, I wrote the personal diary but I didn't write the days, so they had to put this in order, but also I took off the verbs, some of the verbs in the past.

Extract 9. Txell presents the project to another group of student teachers.

Our seven session [...] is like a recap of everything we have done in our teaching unit and we have put all the videos together and also Rose Mary Connor's video thanking us for helping her, so this will be like our ending session. Also, with the reward, because I do not know if you have noticed it but here it says there is a reward. And all children were saying, reward, reward. What's a reward? She is very rich, she must give us so money or something (laughs). No, it's not that. This is mostly sweets or candies and for those who cannot give food at the school, for example Sonia, she has created this wonderful certificate for her pupils.

Creativity, though, is not a skill to be cultivated solitarily. Student teachers in this study were also creative when they decided to include gamification as the resource that would allow them to design and implement, synchronously, a single project in four distinctive learning environments. Davis et al. (2013) argue that game-based teaching approaches construct creative environments that foster pupils' attainment of learning objectives and the development of teachers' professional competences.

Conclusions

In this paper we present a case study in which a university tutor sets their student teachers the challenge to design, plan, implement and evaluate a gamed-based technology-enhanced language learning project targeted at four groups of primary learners from the schools that host them during their practicum internships. By analysing the students' reflections after the process is completed, we can understand how practicum seminars, weekly meetings between small groups of students and a university tutor to prepare future teachers to participate in school internships, can help build bridges between theory and practice. When student teachers are given the possibility to take an active role in their training proposal they can become agents of innovation and change, especially if the Four Cs of 21st century learning (communication, collaboration, critical thinking and creativity) are developed through a process of learning by doing.

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¹ The four trainees, now novice teachers, were encouraged to present their experience at APAC, a local conference targeted at English teachers in Catalonia. Their paper was accepted and will be presented in February 2019.

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