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eTwinning Collaborative Learning Environment in Initial Teacher Education

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ABSTRACT: This paper aims to describe the eTwinning Teacher Training Institutes Pilot (TTI)¹experiment during academic year 2014/15 with 550 undergraduate students from first and second year of Educational Technologies degree courses.

The research was given start with the purpose of preparing tomorrow's teachers for a future where the use of ICT and is in everyday teaching, to promote their digital skills and communication skills, and their use of English as a foreign language within a cross-cultural context.

The teaching presence was proved through proper supervision and the emergence of mutual support from 36 tutors and 550 students. The results of the research contributed to our understanding of how an online learning community can offer a significant pedagogical experience in support of teacher training and how it can foster their linguistic and digital skills.

eTwinning's reported impact on teachers' foreign language skills thanks to its international dimension, as well as teachers' collaborative skills in working with teachers of other subjects. All four of these skills which teachers most highly rated eTwinning to have impacted (particularly the ability to teach cross-curricular skills and collaborate with teachers of other subjects), can be said to be areas which are particularly well catered for within eTwinning and which teachers otherwise may have difficulty or less opportunity to develop.

eTwinning has great potential to improve teachers' initial training and continuous professional development, fostering lifelong learning at the European level and as national and local level. It is as a professional development network where plenty of opportunities arise for its members to participate in informal dialogue to improve teaching.

Establishing and acknowledging eTwinning as a teachers' professional development network that gives opportunities for a variety of professional development activities could enhance eTwinning's status among the other professional development activities on offer in all the participating countries.

eTwinning help teachers develop individual's skills, knowledge, expertise and other characteristics as a teacher; is also seen as something that allows up-skilling in areas such as the use of ICT to support teaching, language learning, project management skills and other areas of personal development.

KEY WORDS: Initial teacher education, ICT, online learning communities, eTwinning

I.INTRODUCTION

There is a reciprocal relation between innovation and education. It is without no doubt that appropriate education and training can foster innovation, developing and transforming student creative potential into adult innovation (Shavinina,

¹Since 2012 eTwinning started European pilot projects to bring together training institutions from several European countries and their national eTwinning offices to include eTwinning in initial teacher training (<u>www.etwinning.indire.it</u>). The contribution of eTwinning in initial teacher training provides discovery and implementation of project teaching, multidisciplinary work, development of ICT skills and language skills and reflection on professional practice such as exchanges with teachers from other education systems (Student to Student).



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2013). On the other hand, innovations are also needed to improve education and training in order to effectively meet the needs of 21st century learners (OECD, 2010; Cachia et al., 2010).

Innovative pedagogical practices require a huge investment of individual and collective effort by all the practitioners involved, as well as adequate support and recognition such as teachers' professional development in the pedagogical use of ICT (Cachia&Bacigalupo, 2011; Ferrari et al., 2009). In order to develop innovative teaching practices and creative learning approaches, it is crucial that teacher training prepares new teachers to become reflective practitioners able to discern how a teaching method or activity can stifle or trigger creativity in their students (Ferrari et al., 2009). According to Cachia and Punie (2012), teachers' networks for professional development have a very significant role. By enabling teachers to effectively connect, online networks and ICT-enabled communities of practices offer unprecedented opportunities for them to share experiences and to collaborate with other schools and areas and even across national frontiers. Online networking tools provide platforms where both practices and educational contents can be shared, and hence provide teachers with an adequate space for their professional development (Kampylis et al., 2013).

Among several online learning environments, a good example of innovative ICT integration for schools is eTwinning², the European Commission-funded networking platform for schools in Europe. Launched in 2005 as the main action of the European Commission e-Learning Programme³, eTwinning has been integrated into Erasmus+, the European Programme for Education, Training, Youth and Sport, since 2014. The idea for this experiment derives from the fact that teachers of tomorrow will be called upon the use of ICT in everyday teaching and only an efficient training program and practice could support and encourage them during this long and challenging journey (La Marca& Gulbay, 2015). This research focuses on the use of online learning communities for teachers' training and the importance of ICT on teachers' professional development in eTwinning projects (Stanley, 2013; Crawley et al., 2008).

This study looks at how the online communities and inter cultural e-Learning projects could foster the improvement of both teachers and trainee teachers' competence in the use of ICT(Dillenbourg, 2008), especially on how they influence critical thinking and metacognition which are indispensable for meaningful understanding and the improvement of professional development(Garrison et al., 2001). The institutional environment provides a setting where orientation to learning, experiences, and interactions with others influence the learning from life process, and the development of wisdom. As learning from life is influenced, there is subsequent impact on one or more of the six dimensions of wisdom (self-knowledge, understanding of others, judgement, life knowledge, life skills, and a willingness to learn), which in turn changes a student's orientation to learning for a future experience or interaction with others (La Marca, 2015).

Based on all the advantages stated, eTwinning Projects have aimed from the very first beginning to support also today's trainees- tomorrow's teachers- during their training process so that they would be familiar with eTwinning when they will be in service in near future (Vuorikari, 2010).

eTwinning platform has been well presented to totally 36 supervisors of Pre-Primary and Primary Education Course with the explanation of the main sections which are explore, socialize, collaborate, innovate. This phase has been characterized by the inclusion of *eTwinning* in the initial training of students from Pre-Primary and Primary Education Course. Under the supervision of their tutors, students have performed a supervised record in eTwinning events, normally offered only to the teachers employed by the school.

At the beginning of the academic, an initial training course was given on the use of the platform. It involved 550 students practicing their second year of the degree course. The trainees had totally 80 class hours of lab course during which they explored the eTwinning platform and got to know all the possibilities that the community offered to them (La Marca& Gulbay, 2015). Trainee participants learnt how to manage the *Twinspace* and stayed in contact through the forum and they explored various web tools with the intention of using them to share information with foreign partners and cooperate with them in the process of joint projects. In addition, they acquired new competences on technology use.

II. MATERIAL AND METHODS

The data for this research was gathered through a focus group conducted with supervisors and future teachers who participated in eTwinning TTI experiment; through an observation of a group of students who took part in pilot projects with other universities in Europe and through a brief survey conducted with some eTwinner teachers in Palermo district.

²www.eTwinning.net

³http://ec.europa.eu/education/lifelong-learning-programme/doc78 en.htm



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A) "Student to Student" pilot projects

Eight volunteered students from the first year of the degree course participated in "student to student" pilot projects with undergraduate students from Faculty of Education, University of Osijek, Osijek Croatia and PedagogickáFakultaPrešovskejUnerzity, Prešov Slovakia.

• Project I: "Learning with Spreadsheet Application"

The project aimed be focused on different activities using spreadsheet application. The activities dealt with topics covered within different faculty courses (subject) or student's life. The aims of project were extending students' knowledge and enhancing their self-confidence in mastering spreadsheet application, enhancing students collaboration by using pair or group work, encouraging and supporting students in solving problems, promoting the use of spreadsheet application and the possibilities of its wide use in education by providing students with problems/assignments from different subjects (biology, ecology, etc.). This pilot project started at April and lasted until June. Students activities included building spreadsheets for given problems, working with formulas, visualizing and analysing the data, presenting the obtained results.

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GO TO TWINSPACE	About the project This project will be focused on different activities using spreadsheet application. The activities will deal with topics covered within different faculty coverse (bubject) or	Languages English, hivatski, Italiano, slovenčina Age range From 18 to 20 ICT tools prepare manual for you	We will try to use an innovative education model - Flipped Learning - during the inglementation period of the project. We will be to present automatic ulture - during the constraints of the strength flipped transmission of the strength of the project and the constraints of the strength of the strength of the strength of the CT tools prepare rankaul for your students. Students will be learn with manual. Students can watch the manual as range with students. Students will be learn with manual. Students used and and its "teacher". During the online meeting, chat all of partners will be to discuss and commenting a. key words: flipped teaching model, country, culture, dance, food, song	
Age range	eximites million dupos over or wall an even of the solution of	Art, Foreign Languages, Informatics / ICT, discuss and commenting it. Language and Literature, Music		

Figure 1. eTwinning Live – Projects.

Students worked alone, in pairs or in groups and they compared and discussed obtained results. We observed the significant improvements in students' spreadsheet application skills and their future use of spreadsheet application in exploring and statistical analysis of data.

• Project II: "Flipped learning model - culture of our country"

We tried to use an innovative education model - Flipped Learning - during the implementation period of the project. We presented national culture - dance, food, songs, etc. through Flipped learning model and ICT tools. Teacher students with ICT tools prepared manual for their imaginary/potential future students. Pupils were expected to view the provided manual by their teacher as many times as they need to. During the online meeting, student teachers discussed/exchanged ideas on how to prepare a manual for their pupils.

Aims of this pilot project were to stimulate learning a new way or presenting materials, to popularize the national culture among countries, to enhance student teachers' language and digital skills. This project had three main activities: folk dance, national food and folk song.

Basic activity was video for presenting themselves, the culture in general and their faculties. At the end, teacher students were expected to gain some knowledge about Flipped learning model and introduce more ICT tools to their school practice.



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B) eTwinner teachers' voice

In the same academic year (2014/2015), we conducted a brief survey with five eTwinner teachers working at schools where our future teachers carry out their traineeship.

The survey stemmed from the desire to understand the extent to which eTwinning is present in schools in the territory of Palermo, and receive feedback from eTwinner teachers who participate or have actively participated in the course of their teaching.

All this allowed us to examine how the program influences the professional practice of eTwinner teachers and whataccording to them- can eTwinning do to improve the professional development.

For the survey, an online questionnaire was used (created by Google Sheets), consisting of ten questions which refer to teaching practices, activities and the development of pedagogical skills and digital skills of teachers while working on an eTwinning project.

The questionnaire was submitted to eTwinner teachers of the following schools in Palermo and in its district regardless of the time spent in eTwinning or the level of activity in the projects or opportunities for professional development:

- DirezioneDidatticaPartannaMondello,
- Michelangelo Buonarroti,
- C. Abba Alighieri,
- I.C.S Colozza Bonfiglio,
- I.C.S Maredolce.

The participating schools involved in eTwinning projects had very different characteristics. Below is a description of the socio-cultural environment of the institutions involved in the survey:

- DirezioneDidatticaPartannaMondello shows that the buildings are located in the northernmost suburban area of Palermo, popularly called "Partanna" hosting one of the old industrial areas and belonging to the twenty-second district of Palermo, the socio-cultural context is medium-low.

- IstitutoBuonarroti operates in the district of Passo di Rigano, consisting of an old settlement of rural origin and new housing constructions added over the years to the original settlement. The habitants consist of small and middle-class families, households of unemployed or casual workers and a few families of non-EU citizens.

- IstitutoComprensivo Abba Alighieri: the offices fall into the district called Acquasanta, which extends between the sea and Monte Pellegrino, in the central-eastern area of the city. The peculiar social realities of the territory present a fairly heterogeneous socio-economic-cultural level which requires the scholastic institution to respond to different educational needs.

- IstitutoComprensivo "Colozza-Bonfiglio embraces the areas of Ingastone, Olivuzza, Papireto and Danisinni with a high unemployment rate. The deprived socio-cultural level presents characteristics of diffused cultural "suffering".

- IstitutoComprensivoMaredolce is located in a territory that embraces the Oreto - Stazione and Guadagna districts. In recent years, the social composition of the population has changed significantly, especially in relation to the gradual closure of businesses that have suffered negatively from the current economic crisis and the competition of large retail chains. In the meantime, the percentage of non-Italian speakers has progressively increased, but they are often second-generation immigrants born in Italy.

From the analysis of the territory it is possible to see how the teachers involved in the European projects are immersed in heterogeneous reality among them, and in most cases, their teaching is bound by social and cultural variables.

This participation can be an opportunity to exert a positive influence on the school and be an integral part of the threeyear Plan of the Educational Institution (PTOF) of the institution, offering in turn an innovative action in teaching practice and a clear reference to European policies.

In the first section of the online questionnaire, in addition to the question asked to indicate the school where the teacher is in service, the question was asked to understand "with which class the teacher participated in the eTwinning platform". The answers show that the classes involved in eTwinning work with a higher percentage, of 33%, are the fifth and fourth classes, while the first, second and third classes are 16.7%. Moreover, only in one case it is possible to focus on the teacher's involvement at the same time on different classes, specifically, in the first and fifth classes.

In the second section, eTwinners were asked to "evaluate the impact that their eTwinning activities had on a series of professional skills indicated in Ministerial Decree 249/2010".

The competences developed unanimously according to the interviewed eTwinners are the technological skills for teaching the discipline / and in fact, the use of the digital platform for participation in the exchange of European projects is essential and at the base.

The 66.7% show the acquisition of the methodological-didactic skills in the choice of strategies to be adopted in the



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different situations and of the design skills of the teaching activities. In fact, one of the advantages for participating in the European Community is the adoption of innovative teaching practices.

The 50% of those interviewed improved their communication-relational skills among colleagues and only the 16.7% gained disciplinary skills. In this environment it is very encouraging, observing from the data, how eTwinning gives teachers the opportunity to increase their communicative-relational skills with peers, in fact, teacher networks, in presence or virtual, can support 'learning among colleagues and stimulate innovation.

The next question posed to eTwinner refers to "the most frequently used practices in the eTwinning project work". It is interesting to note that the most used practice was the proposal of Cooperative Learning to achieve a common goal and to 83.3% the teacher's practice, to teach the students to "learn to learn", thus developing awareness of their learning process.

In addition, the 66.7% were used, respectively, a teaching that aims both on the development of skills and on the acquisition of knowledge and the practice of asking questions to students to promote reflection and metacognition. In fact, many teachers are still anchored to a teaching of knowledge thus ignoring the importance of the ability to transfer skills and knowledge, from one context to another, offered by the acquisition of skills. Furthermore, only 33.3% observed the pupil during the activity and provided immediate feedback.

We also asked eTwinner teachers "which teaching and learning practices, favoured by technology, did you improve thanks to eTwinning?". The 66.7% of eTwinners interviewed highlighted the progress in the creation of new materials and resources in collaboration with the students, favored by technology. At the same time, 50% believe that there has been an improvement in the use of digital teaching resources during lessons, the preparation and use of digital presentations during lessons and the use of ICT to give feedback and / or evaluate learning of the students. Only 33.3% highlighted an optimization of the use of social networks with students as a tool for teaching and learning.

The response to the survey confirms the intrinsic potential and effectiveness in the use of technology in teaching, within the scholastic reality.

Afterwards, the question was asked to eTwinner teachers, focusing on "the impact of eTwinning on students". Most eTwinning teachers, as shown in the graph above, say that the most positive impact at the student level is given by the promotion of the collaboration among the students at 83%, immediately followed by the increase of the motivation to 66.7 %. In addition, the influence has been passed on to pupils according to eTwinners at 50% both for developing learning skills and for developing students' autonomy in their learning. The unanimous negative response from teachers for the item is significant, the pupil is diverted from the learning objectives, which demonstrates the value attributed by teachers to eTwinning to improve the teaching-learning process.

According to the teachers who responded to the survey, the greatest impact eTwinning had on students was to work in small groups to achieve a common goal. It is possible to identify how the promotion of group work emerged, in particular, both as an impact of twinning on students and as a learning practice enhanced by the use of eTwinning technology.

Moreover, according to the teachers, the learning practices improved by the students are the motivation found by the students for the activities proposed by the teacher to 66.7%, while at 33.3% there is the evaluation of their own work and that of others.

The metacognitive reflection is important because it puts the pupil to reflect, self-assess the learning process and identify possible mechanisms that prevent its effectiveness. Teachers do not have a positive impact on practices in which the pupil collects work data through portfolios and works individually on a project.

We also investigated the teacher's attendance in sharing the activities of the eTwinning project with the rest of the school staff, the 50% of teachers sometimes share their work with the rest of the staff, 33.3% almost always, while the remaining 16.7% often.

The eTwinner teacher, who involves the school staff, acquires a value in their teaching in the eTwinning project work, a support in the participation and diffusion of the innovation.

Later attention was focused on the impact that eTwinning has for the innovation at schools. The interviewed eTwinners refer to the promotion and cooperation between teachers and pupils of different cultures, as a positive impact on the innovative school. At the same time, 66.7% believe that the influence of eTwinning makes it possible to build a sense of European citizenship within the school, while 50% say it can increase the availability of school staff to start further innovation projects.

Only the 16.7% consider that the impact of the eTwinning platform can improve the relationships between teachers and students and can attract the interests of other colleagues towards eTwinning.

Later, the question was asked about the motivation of the eTwinner teacher to participate in the eTwinning experience. From the teachers' answers it is clear that the substantial motivation for participation is the collaboration with



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colleagues of different nationalities and cultures, in a mutual exchange. Following is the reason to use innovative and technological teaching methods, in a school that welcomes innovation.

The 33% acquire new knowledge and deepen the discipline taught, facilitate and convey interdisciplinary learning of pupils for professional development. Intrinsically motivated teachers are able to arouse the same kind of motivation in their students, leading to a class management based more on mutual respect than on pupil control. After identifying the motivation for choosing to actively participate in projects in the European exchange, it was asked if the level of satisfaction achieved corresponded to the initial expectation.

The 66.7% of respondents are very satisfied and will participate in another project next year, while 33.3% of teachers are satisfied and will suggest to their colleagues the use of eTwinning.

From the question exposed, gratification and complacency for the eTwinning experience for teachers emerge in their participation and active collaboration with European colleagues. There are no teachers with negative experiences and dissatisfaction for joining the European exchange.

Finally, in the last open-ended question, eTwinners were asked to indicate notes, suggestions and comments for the improvement of the eTwinning program. Some of the interviewees abstained from answering the question, the reasons may be different, one among many, because they believe that the platform should not be changed as a whole.

At the same time, the remaining eTwinners involved suggested expanding eTwinning information and facilitating the inclusion of files, videos and images on the digital platform.

III. RESULTS

The results of the study showed that the involvement of the trainee students in eTwinning project had a positive effect on the cognitive behavior and offered a significant pedagogical experience in support of teacher training. The trainee students' comments in the interviews revealed that those who had been able to apply what they had learned in their teaching practice had benefited from the experience. The findings also showed that the trainee students learnt how to manage the Twinspace and stayed in contact through the forum while improving their speaking skills in English. In addition, they acquired new competences on the use of technology for educational purpose.

A large majority of respondents believe that the top skill most impacted by eTwinning is their ability to teach crosscurricular skills (such as team work, creativity, problem-solving, and decision taking), and that this is the practice they implement the most, now more than before, as a direct result of their involvement in the programme. This is very encouraging, as while teachers often have access to resources and professional development opportunities related to the teaching of their specific subject area, recent research reveals there are fewer resources and training opportunities available to them to develop their skills in teaching and assessing transversal competences and themes, and this is partly why teachers find this particularly difficult. eTwinning therefore has a clear role to play in continuing to fill this gap. The survey results also illustrate that according to teachers, eTwinning has had a particularly positive impact on their project-based teaching skills, foreign language skills and collaborative skills in working with teachers of other subjects. Skill development in these areas can be said to be particularly well catered for within eTwinning, and are also skills which teachers otherwise may have difficulty or less opportunity to develop. Most trainee students stated that they felt more self confident and competent about the use of Web 2.0 tools in their teaching practice and for online collaboration with pupils.

In the final phase of the training, it was asked to the trainee students to give an example of what they had done and what recommendations they would pass to their colleagues. This proved to be useful for critical thinking, self-awareness and meta cognition for life long learning. Supervisor and student teacher feedback was one of the most crucial parts of the training. Considered efforts were made to maintain mutual understanding, self-confidence in using platform and its interactive tools and communication in second language.

Participant trainee students were provided with the opportunity to use the supervisors' feedback at the end of the activity review and this phase helped them review and further improve their planning and organizational performance.

For an overall assessment of the research, two focus groups has been created to make a qualitative analysis of the tutors and future teachers' perception of experience, one with 4 supervisor teachers and one with 30 trainee students.

The focus group consists of 6 questions based on the research objectives.

The questions and the feedback from the teachers and trainee students of the focus group can be found below:

1) Which skills have you developed as a direct consequence of your participation in eTwinning?

The percentage of respondents who rated eTwinning activities to have had a positive impact on their skills (either a



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moderate or large impact). The skill that the highest percentage of teachers (72% in total) and future teachers (63%) considered their involvement in eTwinning to have had a moderate or large impact on, is the ability to teach cross-curricular skills such as team work, creativity, problem-solving, and decision taking.

This is closely followed by two other skills, with 87% of respondent teachers and 72% trainee students stating that their eTwinning activities had a moderate or large impact on their project-based teaching skills, and the same amount stating this to be the case in relation to their foreign language skills for teaching.

2) Which teaching practices do you report to carry out more frequently as a result of your participation in eTwinning?

Respondents were asked to firstly evaluate whether or not they carry out certain practices and to which extent. Secondly, they were asked whether they do these practices more now as a direct result of eTwinning. Out of all the teachers and future teachers who say they implement the listed practices, 5 practices in particular are mentioned by a majority of teachers to be practiced more, as a direct result of their participation in eTwinning.

These include: I teach the understanding of themes that cut across disciplines (82% of teachers and 65% of trainee students); My teaching is based on students' competence development as much as their knowledge acquisition and retention (71% of teachers and 77% of trainee students); I facilitate discussion with the whole class, with most time dedicated to students talking (83% of teachers and 63% of trainee students); I teach students the process of learning to learn by developing awareness of their learning process and needs, and the ability to overcome obstacles in order to learn successfully (69% of teachers and 82% of trainee students); and I refer to a problem from everyday life or work to demonstrate why new knowledge is useful (66% of teachers and 58% of trainee students).

These results are encouraging and perfectly in line with eTwinning's mission to encourage and support multidisciplinary teaching and learning using a competence-based approach in a contextualised setting, and with a learnercentered focus.

3) What level of impact has eTwinning had at student level?

According to teacher respondents the largest impact eTwinning has had on their students is increasing their motivation, with an overwhelming 88% of teachers and 79% of trainee students declaring eTwinning to have had a large or moderate impact on this. This is followed by fostering collaborative work among students, which 88% of teachers and 92% of trainee students believed eTwinning to have done to a large or moderate extent.

4) How do you think that eTwinning experience has had an impact on your level of meta-cognition?

According to the participants, eTwinning experience has helped them better reflect in learning processes; because they stated that while designing a project or participating in it, they think how all process of learning-teaching will take place and how pupils learn. This requires teachers and trainee students to be aware of their own learning processes through which they comprehend as well those of the pupils. Thanks to this reflection, the contents of the projects match with learning styles.

5) How do you think that eTwinning has improved your social skills?

The participants have stated that their social skills have improved thanks to eTwinning activities. In fact, it is necessary to negotiate the contents to use for eTwinning learning events, exchanging ideas and methods and personal resources through cooperative learning. An online community that provides an intercultural environment both for teachers and students can encourage a better learning and teaching context.

IV. DISCUSSIONS

From the research, we know that cooperation, compared with competitive and individualistic efforts, typically results in greater efforts to achieve and greater productivity by all students, long-term retention, intrinsic motivation, achievement motivation, time on task, higher-level reasoning, and critical thinking. It could be argued that, with indicators interpreted in the context of web 2.0 environments, it was easier to look at the online community from an idealistic point of view.

It helped both supervisors and student teachers improve their social interaction in an international perspective. Cognitive presence was supported with evidence of critical thinking in the student teachers' discourse based on their training experience.

The teaching presence was proved through proper supervision and the emergence of mutual support from students. The



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findings of the research revealed how cognitive, social and teaching aspects are firmly connected and could be integrated to provide an effective learning experience and linguistic awareness in support of teachers' personal and professional development. Additionally, the results show how the learning back round of the participants effect the process. The participants started to see the outcomes of collaboration, with various commenting on the benefits of integrating individual learning with pair/group work and learning from others.

They also reported that group work has provided indications of the skills, knowledges, and abilities that information technology workers and students will need to succeed in the technology-rich environment of the future. These skills include cognitive and social abilities and self-efficacy. The students learned how to use software programs by starting to interact with the software by "playing" with it, to initially develop a mental map or model of the structure of the technology. The students then updated and refined this mental map as they applied it to a variety of applications, all the time monitoring their own progress, mental effort, and success (self-regulation).

It is very encouraging to observe that teachers report not only to believe that their ability to teach cross-curricular skills (an area known to be particularly challenging for teachers) to have been the skill most impacted by eTwinning, but that they support this statement by asserting that it is the teaching practice that they implement most, of all the practices mentioned, now more than before, as a direct result of eTwinning.

This is a very positive result, as while teachers often have access to resources and professional development opportunities related to the teaching of their specific subject area, there are fewer resources and training opportunities available to them to develop their skills in teaching and assessing transversal competences and themes, and this is partly why teachers find this particularly difficult. eTwinning therefore has a clear role to play in continuing to fill this gap.

V. CONCLUSIONS

The research results prove the efficiency of the research project in reference to its pedagogical purpose and application. It can be suggested that in general, supervisors and trainees are positive enough about the use of online learning communities and the interactive tools that these communities offer to them to improve the quality of their work and they are highly motivated for the use of ICT in their everyday teaching especially to collaborate with their colleagues from other countries. However, it is obvious that they would need further support and training on the use of data management and the use of technology in some special cases. There is also a strong need for pedagogic training to support teachers with the required ICT competences to motivate themselves and improve their professional practice and to provide their future students with an effective guidance for an efficient interaction with ICT tools and pupil participation.

We can conclude that teachers' collaboration networks play an increasingly important role in fostering ICT enabled innovation for learning at system level. We also argue that teachers possess valuable situated knowledge and experiences that should be taken into account in any attempt to upscale and mainstream innovative learning environments using ICT.

eTwinning collaboration has also led teachers and student teachers to further develop a wide array of interpersonal skills, such as communication, cooperation and better time management. In addition, the opportunity to collaborate in another language has helped teachers and their students to enhance linguistic skills. Some teachers also claim that participation in eTwinning has enabled them to ameliorate their leadership skills, through managing people, taking initiative and learning to support and instruct team work. Others felt that through their participation they had opportunities to be creative, to develop their own ideas and learn how to learn through collaboration.

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