JRC Technical Notes

Teacher Collaboration Networks in 2025

What is the role of teacher networks for professional development in Europe?

Notes from the Workshops held on the 6th and 7th June 2011 at the Institute for Prospective Technological Studies of the European Commission Joint Research Centre

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Executive Summary

How education develops largely depends on the evolution of the role of teachers. Information and Communication Technologies (ICT), in particular the Internet, are believed to have greatly impacted the way teachers are doing their jobs. A large majority of teachers in Europe (85%) claim that ICT have improved their teaching, and two-thirds claim to combine various modes of ICT as resources for their teaching (Cachia, Ferrari, Ala-Mutka, & Punie, 2010). Notwithstanding these promising figures, it is widely acknowledged that teachers still have to cope with organizational problems in schools that make them less willing to get the most out of the technological resources they have at hand. Curricula, in many cases, have not kept up with the demands of today's knowledge society for skills and competences. Furthermore, the tight timetables they impose impede teachers from exploring innovative pedagogies (Cachia, et al., 2010).

In this context, the Internet offers unprecedented opportunities for teachers to share experiences and to collaborate with other schools and areas and even across national frontiers. Online networking tools do indeed provide platforms where resources can be shared, instead of each individual teacher having to redesign them, hence reducing teachers' workloads. They also provide a space for teachers' professional development, as well as a platform for integrating the diverse and fragmented lifelong learning landscape.

However, the potential of teachers' networks for the future of education has not yet been studied in depth; little evidence is available to inform the design and the implementation of policy action to renovate the lifelong learning Education and Training (E&T) framework. In this context, the Teachers' Lifelong Learning Network (TeLLNet)[1,2] project has been set up to identify the key contribution of teachers' networks to the future of E&T, by understanding how social learning networks can support teachers' competence building, in particular through i) informal dialogue to improve teaching, ii) professional development networks and iii) individual and collaborative research. To achieve its aim, TeLLNet focuses on the eTwinning network, a community for schools in Europe made up of more than 100,000 members, which offers a platform for staff (teachers, head teachers, librarians, etc.) working in European schools to communicate, collaborate, develop projects, share practices and be part of a cross-border learning community.

This report gives the findings of an expert workshop organized by JRC/IPTS carried out within the TeLLNet project to start the debate on how teachers' networks are currently contributing to the modernization of the educational systems, and what they will be like in 15 year time.

The output of the workshop can be summarized as follows:

1. **Teachers' networks enhance the quality of teaching** by enabling teachers to expand their capacity in a wide range of dimensions. These span from subject matter knowledge to general pedagogy and pedagogical content knowledge, curriculum and educational context knowledge, knowledge about learners' characteristics, about educational aims, purposes, values and their philosophical and historical influences. However, to date we still lack empirical evidence showing the actual impact of teachers' networks on each of the above dimensions.

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2. The potential of ICT-mediated social networks, including teachers' networks, is currently limited by:

   - A walled-garden approach sustained by commercial networks, lacking network and data portability and poor interoperability between social networking sites.
   - Limited user control of personal information and the need to duplicate data on different sites.

   In order to reap the potential benefits of networking and sharing applications for innovation in E&T systems, experts believe that policies should focus on the pursuit of openness, the promotion of **open standards, of free (libre) and open software solutions and data portability, as well as free culture and open educational resources**.

3. **Privacy** issues constitute one of the main challenges to be addressed for a wider take up of social networking platforms in E&T (especially as the personal data of minors are often at stake) across Europe, and on other continents. However, the privacy protection argument should not be used in order to advocate closed systems.

4. **The current reach of teachers' networks is limited to innovators and early adopters**. Given the positive impact of social learning networks, the wider take up of such networks is a desirable goal, which should be actively pursued. During the workshop, a number of ways of achieving this end were identified:

   - Endorsing teachers' extrinsic motivation through a supportive organizational environment, e.g. by establishing career recognition schemes for teachers' professional development and by avoiding over-loaded curricula which can prevent teachers from dedicating time to their own professional development.
   - Encouraging the development of solutions that ensure the network members are in control of their personal data.
   - Facilitating sharing of educational resources, e.g. by promoting the use of creative commons licenses (or similar).
   - Fostering quality control mechanisms (e.g. reputation-based) to enhance the value of being part of the network.
   - Creating organizational scaffolds to drive take up (e.g. teacher training, expert advice, technical support, visualizations of where teachers are in the network, a translation application, etc.).
   - Promoting collaboration between researchers and practitioners in the field of E&T.
   - Devising long-term sustainability strategies for teachers' networks.

5. Teachers' networks will evolve in parallel with ICTs: it will become more and more crucial that the **education community have a stake in the design of future applications** that will serve its needs and will shape the way it performs its activities.

6. The eTwinning model is considered successful good practice in terms of:

   - confidence and security for idea sharing;
   - historical recording of existing school collaboration practices;
   - its bottom-up approach with low administrative burden;

- ratio between number of participants and running cost;
- providing a safe environment for teachers and students, due to its support from a national support service endorsed by the Ministries of Education.

However, the experts who participated in the workshop suggested there is still room for improvement, namely:
- eTwinning should be granted interoperability with other networks, which would allow users to export and import personal information from other networks and share specific information across different networks;
- Informal learning achievements should be recognized;
- User profiles could be extended to include teacher trainers who can play a significant role in an application like eTwinning;
- Formative evaluation loops and track records should be devised to document and analyze the evolution of the eTwinning concept and platform over time. This analysis would allow policy-makers to better understand how small innovative practices become successful and start to spread across the teacher population.

7. Workshop experts suggested that similar models of eTwinning could be implemented by the European Commission in the following fields and areas:
- Third sector organizations where there is a growing need to capitalize on projects in other countries;
- Language learning for migrants: much of what they learn happens outside formal education;
- Research: providing a space where researchers can network with each other and where policy-makers can play a role in enabling balance between research demand from the industry and research supplied by academia.
- Rare diseases: A platform for patients, researchers and GPs to learn about such diseases.

Workshop Introduction

The workshop was opened by David Broster, Head of the Information Society (IS) Unit of the Institute for Prospective Technological Studies (IPTS), one of the 9 Research Institutes of the Joint Research Centre of the European Commission.

David Broster presented the audience with the research agenda of the IS unit, highlighting how its focus has shifted over time from the analysis of the ICT sector as an industrial sector to the analysis of the implications of the pervasiveness of ICTs in every realm of the knowledge society. He stressed the pivotal role of socio-economic analysis of ICT for Learning and Inclusion in the research agenda of the Unit, framing in this arena the workshop on the Future of Teacher Collaboration networks.

Yves Punie and Romina Cachia completed the introduction of the workshop. They explained that the workshop was organized as part of the TeLLNet project,[3] coordinated by European Schoolnet, which is one of the numerous projects the IPTS is involved with in the area of the future of learning.

Yves Punie stressed that the current challenge is to understand how to foster the shift from educational systems that reflect an industrial model of growth and competitiveness to suitable learning paths that match the needs of a knowledge society.
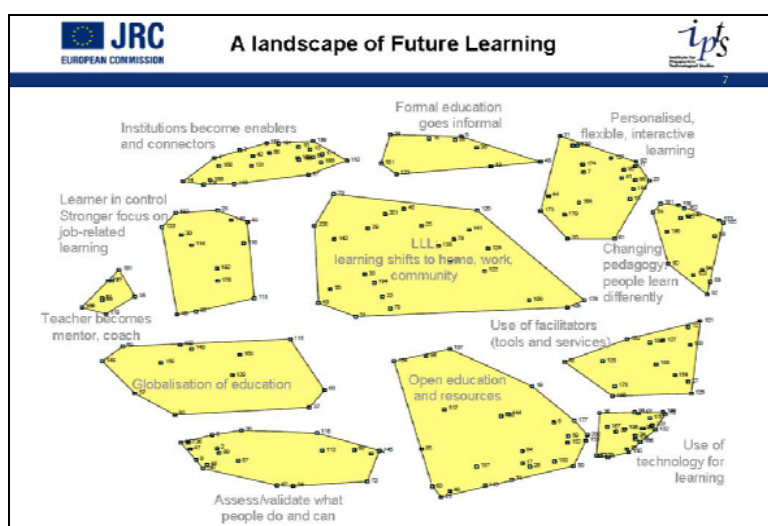
Figure 1: The transformation of learning and teaching is leading to a new landscape: The figure shows the main dimensions of change (Redecker, et al., 2011).

He pointed out that teachers are recognized to play a crucial role in this paradigm shift, by becoming pedagogical guides, enablers and facilitators of personalized, informal, collaborative learning paths. He stressed however that, notwithstanding the fact that it is widely acknowledged that learning happens more and more out of the formal education systems, it is extremely complex to gather evidence that could support the

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[3] TeLLNet project has been set up to study the eTwinning network, to understand its dynamics so as to provide better support and services for teachers' in-service professional development.

implementation of policy action to embed such new practices in a renovated lifelong learning E&T framework.[4]

Romina Cachia introduced the objectives of the workshop, emphasizing its exploratory nature. She presented the agenda (ANNEX 1: WORKSHOP AGENDA) and the different group work sessions focusing on the foresight aspects of the workshop.

A roundtable presentation followed, where participants introduced themselves. For convenience sake, the participant list is enclosed to the present report as an annex [ANNEX 2: PARTICIPANT LIST].

During the workshop the hash tag #collab2025 was established by participants to document the discussion on Twitter.

Presentation of the TeLLNet Project (Riina Vuorikari - EUN)

Riina Vuorikari is the project manager of the TeLLnet project. She is a Senior Research Analyst and Project Manager at European Schoolnet since 2000. She has a background as a teacher on which she built a researcher profile.

European Schoolnet (EUN) is a network of 31 Ministries of Education in Europe and beyond. EUN was created in 1997 to bring about innovation in teaching and learning to its key stakeholders: Ministries of Education, schools, teachers and researchers. It promotes the use of ICT in schools and considers technology as a fundamental lever of change and innovation.

TeLLNet was set up to better understand how social learning networks can support teachers' competence building, in particular through i) informal dialogue to improve teaching, ii) professional development network and iii) individual and collaborative research.

TALIS, OECD, 2009

Figure 2: Data from OECD Teaching and Learning International Survey.

Vuorikari pointed out how the findings from the OECD's report (OECD, 2009) show that "informal dialogue to improve teaching" was mentioned as the most common activity for professional development with a participation rate of over 90% in most countries. In the same report, teachers also claimed that participation in informal dialogue has a moderate or high level of impact on their professional development.

Involvement in a "professional development network", which eTwinning can also be considered to be, ranks high as regards the perceived impact on teachers' development, although it is not among the high participation rated activities. More formal types of professional development activities, such as courses, workshops, educational conferences and seminars are also characteristics of eTwinning. This can indicate that

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[4] Punie referred to the actual inclusion of new learning practices in educational curricula and in reformed assessment, recognition and certification modalities.

eTwinning, as a professional development network, has a high potential for satisfying some of the professional development needs of teachers in Europe.

TeLLNet's focus is on eTwinning: an existing community of schools across EU, which is currently made up of more than 80 000 teachers. eTwinning aims to provide teachers with sources of inspiration and possibilities for professional development.

The current reach of eTwinning is 2.64% of all teachers in the EU and, with respect to the curve of Diffusion of Innovations (DoI), it is still limited to innovators and early adopters. Given the positive impact of social learning network, scaling up the take up of eTwinning is considered a desirable goal.
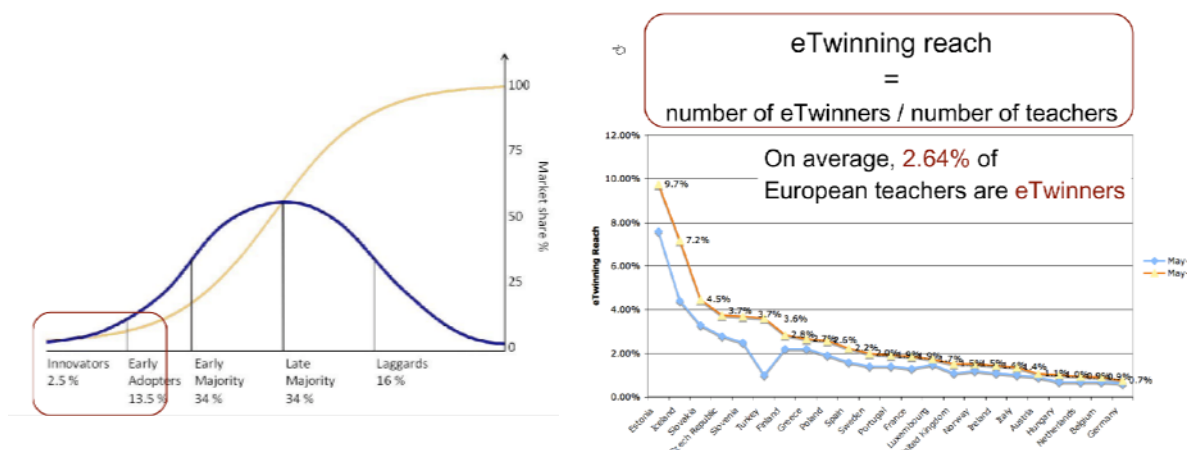
Figure 3: eTwinning reach across EU and categories of adopters according to the DoI theory.

In order to foster greater take up and to reach the early majority, it is crucial to understand what are the adoption dynamics. For this reason, TeLLNet resorts to a multi-faceted methodology that will last the three-years of the project, namely:

- Longitudinal studies based on real eTwinning data,
- Social Networking Analysis (SNA),
- Visualization techniques,
- Scenario forecasting exercise for policy makers and shapers.
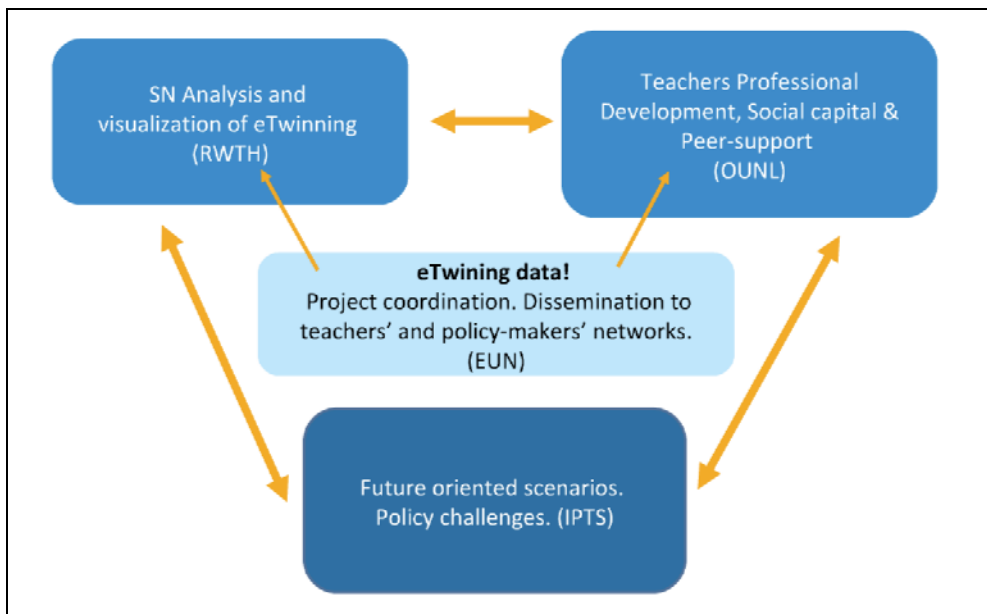
Figure 4: TeLLNet tasks distribution across the consortium.

Current research question for the project are:

- How dependent is eTwinning on a small core of highly networked nodes (SNA shows that eTwinning relies on a large core group which is well connected through a number of core clusters)?
- What is the role of brokers across clusters?
- How does the number of projects someone is participating in affect their position in the network?
- How does the network evolve through time (There is evidence of a growing order in the structure of the connections).

The aim is to understand how to lever on existing points of strength to spread and push the diffusion of eTwinning among teachers.

eTwinning (Santi Scimeca – EUN)

Following the introduction on TeLLNet, Santi Scimeca from EUN provided a deeper insight into eTwinning scope, objectives and uses.

He stated that eTwinning is the **community for schools in Europe**. It offers a platform for staff (teachers, head teachers, librarians, etc.) working in European schools to communicate, collaborate, develop projects, share and be part of an exciting learning community in Europe.

He explained how the community is supported at European (through EUN) and National level, where National Support Services (Ministries of Education in many cases) help schools and teachers in setting up eTwinning projects.

Scimeca pointed out that *eTwinning is not a website*, though the visible part is a web platform. The project works because of elements that are not hard-coded in software applications, but pertains to intangible assets like peer learning, sharing of resources, informal collaboration and intrinsic motivation.

Scimeca highlighted how the project has evolved through time showing that more and more face-to-face events are taking place to respond to teachers' needs. Furthermore, he underlined that eTwinning should be seen as a versatile toolbox that any individual teacher can use the way s/he desires.
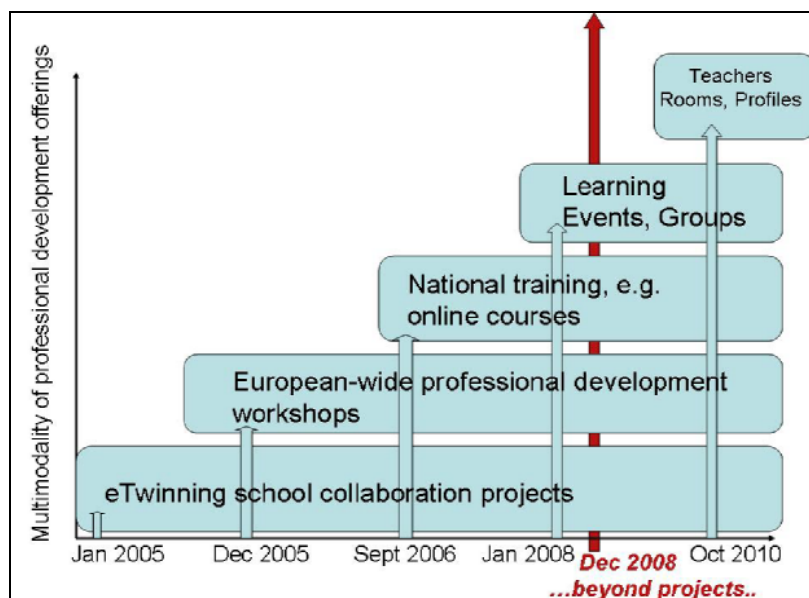
Figure 5: Multimodality of professional development offerings

He explained that different strategies have been adopted to expand the reach of eTwinning (according to his data, the reach is of 3,9% of EU teachers of which the active core is 30%). Peer-campaigns have proven less effective than expected. Likewise, the involvement of school principals has not produced dramatic results. It seems crucial that action is taken at the level of **career recognition.** It is expected that if the use of the platform is formally recognized as an asset within carrier assessment exercises, take up will significantly increase.

Participants to the workshop mentioned that access to eTwinning is restricted to acknowledged teachers, which limits the capacity of other stakeholders (e.g. researchers, scholars, bloggers, etc...) to contribute to it. They also questioned what is public and private on the eTwinning and what is taken into account when eTwinning is analyzed. Participants also suggested that recognition of teachers' usage of eTwinning should also take into account and value offline activities, which take place besides of eTwinning. As confirmed by previous studies, teachers participating in eTwinning do half of the work outside school in their free time.

In terms of reach of eTwinning, some participants suggested that the fact that smaller countries have larger participation suggest that there is a network effect. In small countries, it is easier to reach second and third degree teachers.

The Future of Teacher Collaboration Networks in 2025

Presentation by Prof Marilyn Leask

Marilyn Leask is the Dean of the Faculty of Education, Sport and Tourism at the University of Bedfordshire. She is both researcher and teacher. Her research is focused on the use of technologies to support professional learning and development. She has been instrumental in establishing TeacherNet, the European Schoolnet, the Teacher Training Resource Bank, Communities for Public Service and Education Communities. Previously she worked in central government with knowledge management roles, e.g. developing strategies to support research based policy and practice.

Her presentation provided a diachronic view of social learning networks when EUN was born 15 years ago, today and in 15-year time.

15 years ago web tools were embryonic, mobile phones were primitive, Information Technology (IT) literacy was low, connectivity in schools was limited and technology was not in the hands of young people. The concept of research-informed practice was not in general use.

Today the landscape has radically changed:

- High quality resources are increasingly available free of charge amongst a plethora of poor resources;
- Hand-held devices owned by adults and young people combine phones, cameras, computers, TV and film, radio, email, music, e-books, podcasts, video-casts etc;
- Fast speed low cost access to the internet is increasingly common;
- Personalised learning can be supported almost anywhere, anytime;
- Web2.0 tools support interconnected private and public professional communities of practice (e.g. www.communities.idea.gov.uk; www.educationcommunities.org).

If we look into the future, it is likely that by 2025:

- **Blended, collaborative and independent just-in-time learning** will enable personalized professional development leading to a better-qualified deeply knowledgeable workforce.
- An **international** education sector **e-infrastructure (Independent from Governments)** will be in place, supporting:
  - o Formal and informal learning through access to high quality **research informed professional knowledge** (presented in a range of media),
  - o Collaboration through invitations to join international **collaborative projects**,
  - o Construction of new knowledge through **multi-stakeholder engagement** (e.g. teacher/researcher) on decisions about research topics and as co-researchers,
  - o **Rapid publication** of new, but well tested ideas,
  - o Publications in the most appropriate form to the topic and easily usable to a range of users (e.g. sound, print, video).
- Knowledge Services at the same level as those provided to medicine and to other professions: www.cochrane.org, www.communities.odea.gov.uk http://healthguides.mapofmedicine.com/choices/map/index.html including a number of heterogeneous tools (Online communities of practice, E-surveys such as Bristol

Online surveys http://www.survey.bris.ac.uk, Online research methods, Mind-mapping, Software to search across databases e.g. www.eep.ac.uk, Translational research,[5] etc...).

Marilyn Leask further inquired the potential contribution of teacher networks for their capacity building addressing the following dimensions:

2. (Subject) Content knowledge...
3. General pedagogic knowledge...
4. Curriculum knowledge...
5. Pedagogical content knowledge...
6. Knowledge of learners and their characteristics...
7. Knowledge of educational contexts...
8. Knowledge of educational ends (aims), purposes, values and philosophical and historical influences: and of a subject...

Figure 1: National KM tools to support four key staff KM behaviours
Organisations with KM strategies expect their staff to demonstrate four key KM behaviours ie to be able to *find and use* knowledge to build next practice and to *create, share and manage* knowledge for the benefit of the organisation or the sector (IDeA, 2008). The figure shows the national KM tools which could support these behaviours in education.

1. Finding and using knowledge
- research databases are linked &cross-searchable
- practitioners and policy makers expected to use research

2. Sharing knowledge
- significant research is published quickly & disseminated extensively
- publication methods use ICT effectively – multimedia/multi-layered flow charts

3. Creating knowledge
- teachers' questions are the focus of research, gaps are highlighted and researchers are invited to fill the gaps
- educators can find and join research/professional networks *and* projects in their areas of interests
- processes exist to scale up promising small scale research & researchers collaborate to build large scale studies

4. Managing knowledge
- mechanisms exist to ensure research addresses teachers' questions
- research covering all main areas of professional knowledge is available (see Table 1) including subject-specific pedagogy, SEN pedagogy and generic research

Figure 6: KM tools supporting 5 key staff behaviours (Leask, 2010)

She stressed that in existing networks there are assets that can be exploited to create a fertile social learning environment:

– Openness,
– Network and data portability across communities,
– Interoperability.

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[5] To study how translational concepts could be applied to this domain, see: BERA guidelines: http://www.bera.ac.uk/publications/guidelines/ or REPOSE guidelines: http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=759

She reminded us that according to a study by McKinsey (2009) there is no direct link between expenditure and quality of outcomes in educational systems: Quality of teaching is the critical factor in improving student outcomes.

In order to understand how to improve the quality of teaching, she suggested analyzing drivers, barriers and ways teachers learn to understand where to exert a lever:

	Internal motivation	**External motivation**
Drivers	Professionalism (the children) and personal pride Team spirit	Finance Performance review/Inspection Publication of students' grades Continuing professional development points systems?
Barriers	**Personal**	**Professional**
	Other commitments – family, community Lack of confidence in researching and sharing new knowledge •.....	Lack of support to try out new ideas e.g. for junior staff Lack of understanding of processes for producing new, validated professional knowledge (i.e. lack of links with teacher-researcher networks)
How do teachers learn?	**Informal learning**	**Formal learning**
	From each other e.g. TeachMeets, tweets From collaborative activities and from networking e.g. e-twinning From their professional association activities, publications From the media –web, press, TV – educational channels From training new teachers	From conferences and courses Accredited research projects – not necessarily courses

Finally, Leask highlighted the importance of including teachers who train teachers in projects and communities of practice similar to eTwinning. She also questioned whether anybody has studied if students are using eTwinning to teach each other.

Participants reacted to her presentation, particularly on the aspects related to the walled-garden approach of commercial networking sites.

Following her presentation, the chair of the session asked Leask to put forward her view on what is the role of government in her vision of 2025. According to Leask, a centrally coordinated community needs to be independently funded. She gave the railway network connectivity as an example of a public good. She also hailed the EUN model for the fact that while all governments are involved, at the same time, if one government moves, the community does not collapse.

Participants agreed with Marilyn Leask that an open model should be pursued, promoting open standards, free (*libre*) and open software solution, data portability, free culture and open educational resources.

Many current online applications, such as social networking sites (SNS) provide ample ways in which users can share different modes of data. At the moment, all of them want users to do it on their platform. In this respect, the sharing that currently exists remains superficial. At the

same time, these companies cannot be ignored because most of them are already doing what we are envisioning. The ideal would be for something similar to be created which allows users to do things online, with the objective of benefiting the user rather than the company.

All agreed that this should be a regulatory priority. It is crucial that learners should be able to configure their learning space in ways that best suit their needs.

It was mentioned that content licensing is also a priority. Educational content should be released with a copy left license such as creative commons.

In thinking about the future, it is important to ask who the leaders of change are. Change could be happening at the local level. Also, while there are many examples of e-infrastructures, little effort is dedicated to how these platforms could fit teachers' practices

Presentation by Tom Barrett

Tom Barrett´s presentation addressed the issue of social networking for teacher professional development in terms of **transparency**. Online communities and social networking applications allow teachers to be transparent about their online professional work. He mentioned examples like edubuzz.org (an example of how sharing of work has led teachers to improve their practices) or TeachMeet (which helps teachers stay in the profession as they feel they are not alone) and other examples that provide a window into the teacher's work (E.g. Sealife unit, Twitter blog marine biologist). However, he also highlighted that when we discuss teachers' networks, it is also important to understand how children network in the classroom.

Figure 7: Tom´s network followed him to the workshop

With respect to Twitter, Tom Barrett mentioned that it is often criticized because of the triviality of the 140 character messages, and the stream-like interaction. However these assets are also the points of strength of such a network, which meets the need of fast, light, concise contact, appealing to the bite-size behaviours. Barrett provided an example of how 140 characters allowed him to connect and bring with him to the workshop his personal network from all over the world. And how the same network was able to reciprocate with him through the same channel .

Barrett also pointed out that wall-garden communities are virtually non-existent: teachers like other people, have their own networks, and if tools were free, open and easy to use these networks would be used as resources (e.g. #movemeon book actually moved from online to offline). A major message of this presentation was the synchronization of different communities echoing Shirky's ideas on synchronizing of communities.

In discussing sharing and openness of communities, as opposed to close and private communities, some important issues were highlighted: for instance, issues of privacy,

especially if children are involved; and, the other side of the coin, how to trace performance and competencies in SNS without infringing the privacy rights of users.

**Presentation by teachers and NSS on eTwinning**

Following the keynote speeches teachers involved in the eTwinning platform and representatives of National Support Services gave a brief presentation.

Renata Wojtás (Teacher in Poland) stated that joining eTwinning provides great satisfaction, as it enables motivation. eTwinning is a source of innovation, and inspiration, a platform for communication and collaboration and a playground for exploration and experimentation.

Carmen Moreno Liso (Teacher in Spain) added that an important dimension that eTwinning brings about is *fun*. Furthermore, eTwinning provides the right context for teachers to become familiar with the subject matter they have to address in class: while pupils are familiar with technologies, they still need guidance on how to manage their online presence, for instance on SNS. eTwinning is the ideal platform to stage this type of learning.

Both teachers highlighted the value of eTwinning not only for teachers' professional development, but also for students. At the end of their presentation, they shared with the rest of the audience some drawings (see below) by their pupils, representing their class in ten years' time:
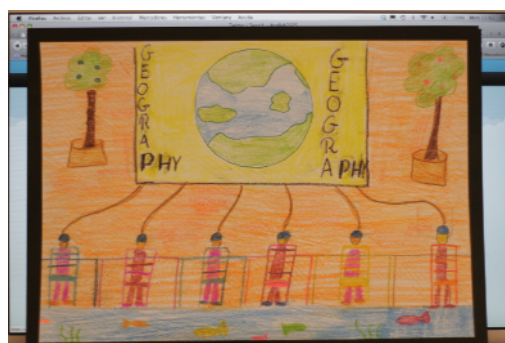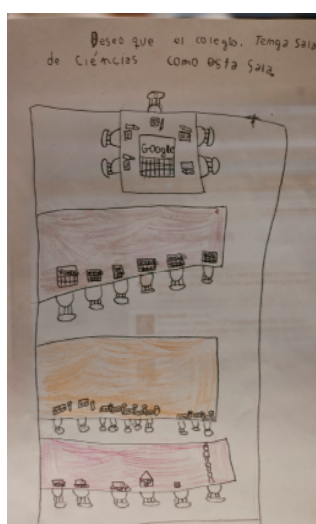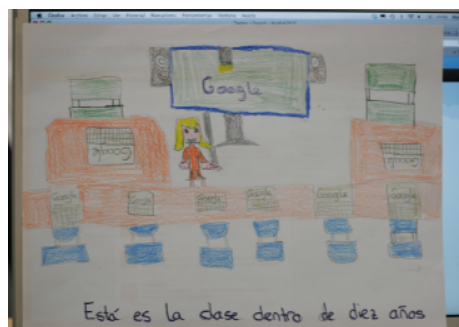
Two of the above pictures refer to Google. There was spontaneous consensus that policy makers should be warned about this type of commercially monopolized scenario. Education should not become dependent on private proprietary solutions. A regulatory body should definitely assess the risk for the collective good.

Carlos J. Medina, representative of the Spanish National Support Services (NSS) called the audience attention on three main points:

1. Open gardens are desirable, however the walled garden approach has advantages in terms of children's safety and security;
2. A secondary objective not to be underestimated relates to the need to educate parents with respect to online activities, by making interesting content available to them
3. In Spain, the support of the Ministry of Education is fundamental for the successful operation of eTwinning, since it reacts and acts on teachers' requests and needs, with respect to specific training for instance.

In reaction to his points, there was consensus that eTwinning would benefit from a greater involvement of other stakeholders.

Susan Linklater, responsible for LLP for schools within the British Council mentioned two additional aspects:

i)   The role of Ambassadors for the diffusion of the eTwinning "virus",

ii) The need to set up a career recognition system both at national and cross-border level. She claimed that NSS have a particular stake in this respect, as they are the actors who are best heard at European level.

Working group session on Personas

Romina Cachia presented the objective of this session of the workshop, i.e. to elaborate on the personas that have been sketched as a result of a preliminary ethnographic and social network analysis of eTwinning. More in detail, she asked the groups to discuss how they would expect these characters to evolve through time and in what ways Teacher Collaboration will affect their jobs in the future (frame 2025). In specific, participants were asked to discuss:

– Issues related to the personas (both positive and negative implications)
– What could happen to them in 2025?
– What we would like to happen to these personas?
– What should be done to make this happen?

Three groups were set up, with each discussing two personas per group. The outcome of this session will be elaborated in the final report, which will be delivered towards the end of the TeLLNet project.

The future of teacher collaboration networks in 2025, challenges and perspectives

The following tables summarize workshop participants' views on the future of teacher collaboration networks tackling different dimensions.

They result from focus-group sessions where participants started the discussion assuming that networks are a powerful resource to have higher quality teaching and learning, and a desirable one.

Organizational	– Adopt hybrid network approaches
	  o Bottom-up: Teachers collaboration
	  o Top-down: National support services
	  o Local networks
	– Address the financial sustainability issue: there should not be the risk that some teachers are excluded because they cannot afford network access; there are conflicting interests, which need to be identified, free access for all is not enough; sources could be World Bank, UNESCO.
	– Promote Free (libre) and open software
	– Promote open standards and specifications which are crucial for the development of grassroots initiatives
	– Promote user-centricity of networks (e.g. content needs to remain under users control)
	– Promote decentralized solutions to access other social networks from eTwinning, to see other connections able, single entry point
	– Give more visibility to eTwinning, e.g. developing a show case on how eTwinning works
	– Facilitate a light version access to? Connect with other networks
	– Link also the results of the projects, participants can rate projects
	– Link research with new developments in eTwinning
	– Address privacy issues, copyrights on content produced, foster sharing agreements or the free culture paradigm.
	– Recognize informal learning competences
	– Reinforce monitoring and evaluation by measuring the quality of projects and partnership:

	o Collect evidence, even using crowd sourcing techniques
	o Carry out Social Network Analysis
	− Get visibility at policy cycle level
	− Cascade services at different levels
Technology	− Improved search on eTwinning (including the use of keywords, tagging, etc.)
	− Separation between public and private spaces
	− See people as resources
	− The system automatically discovers tags, keywords, finds people to help each other
	− The system to recognize your competences and activity in eTwinning
	− Connect all the services, blogs, activities, events, single teacher profile
	− Developer tool kit, develop own applications, Adding some software development on eTwinning
	− Raise awareness of what you can share and what you cannot share
	− How can I take all my data to another network? Somewhere else? Licensing and data portability.
	− Creative common licenses for production in eTwinning
	− Helps to connect to other people, and things get further
	− Mobile eTwinning applications
	− eTwinning applications for iPad.
Teachers	− Teachers will get recognition, eTwinning driving license, get incentives
	− Teachers will get support
	− Continued connected will be common
	− Teacher are more flexible to join the networks and combine them as they want
	− Find in eTwinning a place to develop their abilities, competences, skills, to learn what they can do in a networked community. Help teachers to see what their role in the network is
	− eTwinning will be a customized space, where teachers can work they way they like
	− Teachers get personalized recommendations and resources
	− Teacher training includes the use of eTwinning, so they learn what is
	− Combine offline networks and online networks
	− How does a community validate the response/experience of lurkers?
	− eTwinning needs to recognize different ways of participating
	− We need collaboration between teachers, teacher training schools, universities
Social	− People need to learn how to behave on social networks (particularly pupils), in professional networks, everything matters, so don't behave unprofessionally
	− [Trustworthiness within online communities]: eTwinning is a peers' network, by peers, for peers; that brings responsibilities, such as the need to trust; after all, one needs to know to whom one is talking to, also a teacher.
	− eTwinning only allows teachers in, it should be widened to include teacher trainers, for example
	− Facebook: moral questions about whom to be friends with: in eTwinning

	you have avoided those questions beforehand
	– Social recognition, likes, forwards, useful, re-tweet
	– Foster social contacts outside the eTwinning online platform, i.e fostering interoperability with other networks e.g. Facebook, Ning by addressing the following bottlenecks
	o Open and closed networks
	o Privacy issues
	o Data security
	o Dissemination
	– Support emotional side
	– Availability to express emotions and show emotions
	– Information about the connections
Desirable future	– Solution that is sustainable
	– Guide participants, so they know how to act in the network
	– Provide formative feedback on how they are doing in the network
	– Blend offline and online learning formats
	– Free, *Libre* and open culture
Outside influence and trends	– Political agenda influences developments
	– No clear long-term policy to take this further,
	– How research influences the new, innovation of eTwinning
	– Policies and data protection
	– Possibility of including a fee to be able to sustain the network

Imagining New Technologies for Teacher Networking in 2025

In this session, participants were divided into two groups to discuss new technologies for teacher networking in 2025. The first group participated in a foresight session convened by Miriam Leis. The second group carried out a creative thinking exercise in a session coordinated by Benjamin Harbo & Rune Osmundsen.

Foresight with Miriam Leis

The conversation began with thoughts on emerging technologies. A recent Horizon report was mentioned and some highlights in terms of emerging technologies (time for adoption – one year or less) were picked out:
- Ambient technologies,
- Learning analytics – re systems that schools use,
- Augmented reality – time for adoption likely to be a couple of years.

From the beginning it was deemed important to highlight the need to ensure that an independent e-infrastructure was advocated (though everybody recognized that it is hard to compete with major commercial companies that have conquered huge market shares). Participants in this session envisaged the need to force big players to open their standards and to have regulators who would take responsibility for users' data so that these do not remain private property in the hands of commercial players who are driven by revenues (vs public utility).

Other more visionary areas in which technology is expected to expand are:
- Brain research,
- Artificial intelligence for better understanding of learning needs and requirements.

In relation to teacher collaboration networks, it is expected that the following aspects related to technology will play a more determinant role in the future of learning and of teacher collaboration:
- Telepresence.
- Teacher profiles improving – social networks but better, more automated inputting of data and of your learning, now it is still very analogue <-> lifeloggers with cameras; but inputting is also reflecting on what you are doing.
- Mesh-ups, distributed networks – no need for centralized networks; self-organization needs to be organized.
- Network visualization technologies helping teachers to understand where they are in the network and improving their networking skills.
- e-infrastructures, open standards, no separate networks.
- Modelling context – beyond location-based profiles linked to student performance [Context within which someone participates (and the extent to which it influences participation) is important though poorly modelled].
- Google Translate or other similar applications could play an important part in enabling teachers to become engaged, and more – and more diverse – partnerships to be formed as language becomes less of an obstacle.
- Brain interfaces – and remote activating, but brain interfaces and better shuffling.
- Multifunction devices: divergent – convergent – 1 device or the network;
  - o eTwinning technologies:
  - o Single sign on to link different networks that members belong to

- o Mobile technologies
- o Augmented reality – teachers more time to network
- o Multimedia rich partner finding and data-mining to match teacher needs (multi format fruition, e.g. through podcasts)
- o Digital competence – teacher in eTwinning do not know how to create a profile, skills
- o Gathering and exploiting useful and relevant data
- o How can we mine online profiles of people in a way that is useful?
- o How do we profile ourselves online? The way we input data is very important. We need better ways to document best practices that are performed by individual teachers and their pupils.
- o How do we ensure we have better connection between teaching experiences and online profiles?
- o Leaving trails about individual learning path that could be gathered to enable other teachers to make contact more easily and more successfully with potential partners/collaborators – other members of the network.
- o Inputting information about oneself can be a tool for reflection for people – technology should be designed/exploited to encourage greater reflection (and so more useful/relevant/representative profile info).
- o It's important that any tools like these accord with principles of 'self-regulation ergonomics' - i.e. they enable reflection/representation etc in ways that convey an individual's personality without making unnecessary extra demands on their time for inputting data.
- o Example of new Facebook applications that collect info from your profile and present your 'life' (My memories or the Museum of Me). A way to create narrative out of scattered information.
- o Online profiles should have links to social/emotional aspects of an individual that are important in oiling the wheels of group dynamics, to more accurately be reflected in online communities/networks
- o To maximize the usefulness of improved profile-related data, we need more sophisticated search tools to enable teachers to link up with accuracy and purpose, and to find relevant information quickly and easily.
- o The technology should enable the network to be organized so that it can be self-organizing.
- o Social and emotion rich networking environments and exchange, more than just emoticons,
- o Self-regulated ergonomics, for entering in networks;
- o Gaming tools for teacher collaboration
- o Accrediting teachers' participation in networks
- o Current eTwinning Learning Events might become more central to the network, as increased demands for online opportunities from teachers/schools who cannot be released from the day job. More focus on online learning, such as teachmeet/webinar type events? (we will need to develop better tools and models for this, as well as systems for supporting/developing/facilitating content – this should even be outsources – and link dissemination, perhaps to online profile data somehow. We also need to make sure, if we are dealing with huge numbers of teachers, that the hosting technology is stable and secure…).

o   We need assessment tools to support the work that teachers do as part of this network, something that will enable meaningful assessment of teachers' contributions. E.g. teachers could receive CPD points for participation – these have considerable currency in some though not all countries.

It was also mentioned that there are a number of existing technologies that will play a greater role in Education in the coming years:

- **Machinima** – cinematic technique used with video games – players write the script, use technology to narrate, e.g. to explore violence and gender issues: 'scenario gaming'. Using existing technology in reflective ways.
- Another technology already exists today and will become more important – the '**switch off**' button. Risk of overload as information and means to access it continues to increase. So technologies need to guarantee private spaces, not always 'on'.

A number of **challenges** will emerge relating, for instance to:

- **Security**
  o   It will become increasingly important to protect the network and ensure that bona fide humans sign up, not machines (which are becoming ever smarter at fooling other machines…). Cloud computing presents challenges – cf Facebook, as examples of inappropriate access to data. Where is the cloud? How secure is our data?
  o   Whatever changes, it is vital that security remains central to a network such as eTwinning – it's one of its key 'selling points' in the world of education.
  o   Adult cyber bullying
- **Content production** (user-generated content vs educational publishers), role of books, annotated eBooks – role of commercial publishers big problem closed wall garden approach
  o   Will books disappear? Yes or no, yes at universities now more eBooks borrowed then printed books
  o   Content created by teachers and students – annotated eBooks were suggested as a technology that could make this easier. Although eBooks are now in some universities exceeding conventional books in terms of items borrowed from libraries, the group felt that, at least in the schools sector, the format of academic books is unlikely to change much in the next 10-15 years.
- More smart schools, such as smart homes, more ambient and unobtrusive technologies
- **Spamming problems**, protection of networks and fraud
- **Cloud computing drawbacks**
- Anonymity, privacy and switch off button
- **Information overload** (see switch off above)
- **Data ownership**: Need for better ways to deal with your data, profile and information, meaning construction through storytelling – hacking by the use, critical use of technologies for user.

Creative thinking with Benjamin Harbo & Rune Osmundsen

This exercise led to the identification of the following technological solutions:

- Geolocation (using GPS) of eTwinning teachers.
- Videoteaching in 3D (blended teaching: teachers + subject learning).
- Intelligent Tracking of teachers and students mood (using bracelets).
- Composing uses of existing technologies to share (according to freedom of choice and ownership).
- Virtual reality to simulate visits and study trips (e.g. moon, cities, but also molecules etc.).
- System to encourage teachers to steal ideas and be rewarded for both being stolen and stealing.

The notion of idea-theft and reward was further debated by the workshop participants:

- Stealing ideas – we work and build on existing practices – if you visit other schools – you go and observe and when you get back – exchange of ideas – if teachers have opportunities to share ideas – they are willing to do so.
- A clear idea/message came out of this session, and that is the demand for a more open social nature technologies.
- Sense of a group – of building a group – not only professional development – proficiency – how everybody grows on ideas through social interaction.
- Open source software movement – sharing language programme – deliberately taking it and there is a reward system.

In this session, workshop participants were asked to place their ideas of new technologies for 2025 along a matrix: open vs regulated technology and individual vs social technology. The image below shows how the ideas that emerged from the discussion led to the identification of solutions that are both social and open:

Figure 8: Creative thinking with Benjamin Harbo & Rune Osmundsen

As can be observed from the same image, in contrast, hardly any new technologies were placed in the section: individual – regulated technology.

The eTwinning Model

Could the eTwinning model be exported to other areas?

This section was dedicated to collect participants' opinions on what other areas of lifelong learning could benefit from adopting the eTwinning model. Participants were asked to reflect on the following points:

- Why is eTwinning successful?
    - o A solution that offers no administration to the participants.
    - o Teachers can be involved very easily – unlike other European Commission (EC) processes, like funding etc. There is hardly any administration.
    - o Great number of participants and the cost is not so expensive.
    - o It has the potential to grow with a relatively small amount of money
    - o eTwinning cannot be expanded to all the world because not every country can offer the national support service.
    - o There is a model at the moment that has a centrally supported system – and there is a lot of emphasis on quality.
    - o Also issues of safety: knowing who is involved there, ensuring that they are teachers.

The above factors are important assets of the e Twinning Model. The issue is how to extend this model, how to dismiss some of its feature without changing its nature in, for instance, less developed countries which cannot offer central support like that provided by EUN and NSS (though these constitute a key success factor).

Also higher education – virtual mobility that we have done on the Erasmus.

A number of areas were mentioned by participants:
- Civil society and Third Sector Organizations – e.g. all the associations that work with ROMA –need to be able to capitalize on projects in other countries, which would benefit from eTwinning.
- Language learning for migrants: a lot of learning, which is outside the ministry of education – can we have similar models to improve?
- Rare diseases: a platform for patients, researchers and General Practitioners to learn about such diseases.
- Similar models could be developed for researchers.
- Issues of control were discussed from various angles. It was highlighted that control is very important for confidence and security, and hence it should not be dismissed. This suggested that you need some sort of community control and rules.
- Interoperability between networks: while it is important that teachers have a site where they can interact, it is also important that this site is interoperable with other applications teachers are also using.
- The environment that is created is important. This is also based on the human capital side and the pedagogical dimension.
- Good quality teaching ideas need to be shared, regardless of where the teachers are geographically. The fact that eTwinning is based on a centrally-supported system, if a country is not able to put together organizationally such a system, it means that teachers in that country will not be able to share those ideas.
- Various ideas were suggested on how eTwinning could change this model from a centrally-supported system to: issues of authentication (the medical area was given

as an example (only recognized doctors can contribute to a website like ganfid-getanoteofyourdoctor); epractice.eu (working at a European level – there are different models of community of practice).
- An important aspect of eTwinning is that while school collaboration has always taken place, now we have a space where it can be recorded.
- A limitation with the current set-up is that eTwinning mostly addresses formal learning, however, in the context of the future of lifelong learning, it should also embrace informal learning.
- Another suggestion was to have an application which is a mix between openness and closeness, so for instance, entrance could be by invitation or by recommendation.

Currently, education in the 27 Member States is still nationally oriented and practices are culturally bounded. It could be useful and interesting to compare practices during teacher training. Again, this suggests that eTwinning should be expanded to other stakeholders: for instance, teacher trainers.

The idea of developing different networks, where networks can be latched to others was also suggested.

Lisa Petrides: the discussant's perspective?

Towards the end of the workshop, Lisa Petrides was asked to provide a discussant's perspective on the output of the workshop.

According to her, education in EU is moving along the same direction as in the US. It is interesting to see the parallels and the differences. In EU there is a greater incentive for collaboration among countries. It may be felt as cumbersome and imposing a heavy burden, however, collaboration is surely the way forward. In the US, education is at the state level – the central government cannot tell the states what to do, therefore there is less cross-border exchange in the US than in Europe.

Petrides questioned how has the original goal of eTwinning has evolved. In her view, it is important to document how what has been found out from the research and how practice has changed, what is being done and what one wants to do. These changes are not explicit anywhere. It is important to think about the path eTwinning is taking and how it is linked to the original objective. For instance, in a place like the Silicon Valley, where risk taking is the norm, it is important to document how innovation becomes successful.

According to Petrides, eTwinning lacks a feedback loop. While the uptake seems very promising, the numbers are still small. The impact is visible by champion pioneer teachers. Notwithstanding the success obtained with the early adopters. eTwinning has not seen its tipping point yet. It seems to be a long tail, and what we have learnt from long tail is that the needs at the end of the tail are not the same needs as the early adopters. The question is how do we turn Shaun into Maria? And more importantly, is this a major goal of eTwinning future development?

There seems to be an issue between wanting to get more teachers to use eTwinning and issues of control. If you want to get more teachers perhaps some of the control could be taken away.

It is important to ask what the next steps are. Could eTwinning be leveraged into another context? Is it better to redesign the platform from scratch? Sometimes there are small tweaks, which could be redeveloped easily. Other times, it may be simpler to start if over again.

In her view, the workshop missed the failure perspective. She explained how 93% of business attempts fail. Only 7% are successful and we spend most of time talking about what works. It is important to talk about failure, to question why some teachers are not there and while some others have failed fast and early.

Moreover, Petrides claimed that teachers should be embedded as part of the policy-making mechanism. There is ample work to be done with teachers.

She also questioned whether eTwinning could be tied to an output? A major question that should be kept in mind is what output DG EAC expects to achieve through eTwinning? Once this is set out clearly, it has to be assessed whether collaboration networks do pave the way for the achievement of this goal. Further measures and indicators have to be identified to assess the actual impact that eTwinning has on that outcome. In a lot of her work on community and networks, they try to look at whether there is any correlation on what happens in the network and the output. So for instance, if you take the output of this morning's session on new technologies, which was suggesting that new technologies will be open and social – is it possible to assess this at the individual level?

When Petrides finished her presentation, workshop participants discussed the following issues:

- As we seem to be lacking the typology of most of the projects on eTwinning, it would be interesting to know what teachers get out of participating in eTwinning. Research already shows that teachers who use eTwinning feel it is fun and the participation in projects, contaminates the classroom with motivation. As yet, it is important to question whether eTwinning is going in the right direction. And whether we should start studying eTwinning in a more codified manner.

- Some participants suggested that there should be collaboration with UNESCO and OECD.

- Also it is important to question how to get eTwinning to the tipping point?

- When it comes to studying the success of eTwinning, it is important to define the standards we will use. Do we look at whether the teacher is successful because she has a lot of projects or because she has written a lot of blogs? Teachers gain different competences. It is important to study how these competences can be measured.

- There seems to be a need for more qualitative research. Currently, policy objectives are based on opinions because it is a challenge for the European Commission to show data on how eTwinning works and is successful. This research should be embedded in the policy imperatives.

Concluding Recommendations

The workshop concluded with a round table statement from each participant, ideally addressed to the Ministry of Education. The statements are listed below:

- If we think about professional development, informal learning is a lot more effective and efficient. Use these networks where learning practices can be intermingled. We should not confine them to different boxes.

- Its worth investing in eTwinning because it is making a lot of improvements for teachers. We can use network analysis to increase connectivity – we need money to enhance the infrastructure.

- eTwinning is an excellent model. It is good value for money. It would be worth exploring it with other groups and practitioners – such as medical practitioners.

- Considerable work related to eTwinning is carried out outside school hours. It is important that a means be identified to measure competencies developed by teachers outside school through the use of eTwinning.

- It is important for teachers to cross boundaries, in order to check what is happening outside their own local areas.

- We are on the way. We should invest more in collaboration and peer teacher training. We have technologies, which would allow us to do this.

- Teacher collaboration networks in the broadest sense, including eTwinning, need to focus on personalization. We need to look wider than education networks. We must look at all kinds of communities of practice, for instance, other professional networks.

- eTwinning provides a cost-effective way of improving the career of teachers. It is a sustainable framework, both from the information and social capital point of view.

- Teacher shortage is an issue. Moreover, it is important to allow the younger teachers to teach us how to use technology.

- eTwinning is great: invest in similar networks, devise innovative ways of how different networks (public and private) to be latched to each other and diverse applications to be meshed and most important, invest more in training of teachers or perhaps we should say mentors.

- Awareness raising is fundamental. Ministries should work to disseminate and promote eTwinning.

- Solutions are already there: Change the curricula!

- Literacy is a very important topic. Skills and confidence to live and work in a digital world.

ANNEX 1: WORKSHOP AGENDA

Workshop: Teacher Collaboration Networks in 2025.

What is the role of teachers' networks for professional development in Europe?

IPTS (Edificio EXPO) – HALL A30

AGENDA	
DAY 1: 6th June 2011	
09.00 – 09.15	Registration
SESSION 1	**Introduction**
09:15 – 10:00	Introduction and Setting the Context (David Broster and Yves Punie – IPTS) Objectives of workshop (Romina Cachia – IPTS)
10:00 – 10:20	Tour de Table
10:20 – 10:40	Presentation of the TeLLnet Project (Riina Vuorikari - EUN) (15 mins presentation – 5 mins questions)
10:40 – 11:00	eTwinning (Santi Scimeca – EUN) (15 mins presentation – 5 mins questions)
11:00 – 11:20	Coffee Break
SESSION 2	**The Future of Teacher Collaboration Networks in 2025 - Presentations**
11:20 – 11:35	Presentation by Prof Marilyn Leask (Dean of Faculty of Education, Sports & Tourism – University of Bedfordshire)
11:35 – 11:50	Discussion
11:50 – 12:05	Presentation by Tom Barrett (Notosh)
12:05 – 12:20	Discussion
SESSION 3	**The Future of Teacher Collaboration Networks in 2025 – Group Work**
12:20 – 12:40	Presentation by Teachers and NSS on eTwinning
12:40 – 13:00	Presentation by IPTS and EUN on Personas and group work assignment

13:00 – 13: 20	Division of Groups. First part of Group Work I: "eTwinning Personas in 2025"(eTwinning Representatives – possibility to ask questions)
13:20 – 14:30	LUNCH
14:30 – 15:15	Second part Group Work I: eTwinning Personas in 2025
15:15 – 15:30	COFFEE BREAK
15:30 – 16:30	Group Work II: Teacher Collaboration Networks in 2025
16:30 – 17:30	Reporting and Discussion

DAY 2: 7th June 2011

09.00 – 09.15	Arrival at IPTS
09:15 – 09:30	Summary of Previous Day
SESSION 4	**Imagining New Technologies for Teacher Networking in 2025**
09:30 – 10:30	Parallel Sessions: Foresight Session with Benjamin Harbo & Rune Osmunder Foresight Session with Miriam Leis
10:30 – 11:15	Reporting and Discussion
11:15 – 11:35	Coffee Break
SESSION 5	**The eTwinning Model**
11:35 – 12:15	How can eTwinning be a model for other areas of Life Long Learning?
12:15 – 12:45	Discussant: Lisa Petrides (Institute for the Study of Knowledge in Management in Education (ISKME)
12:45 – 13:00	Summary of Workshop
13:00	End of Workshop

ANNEX 2: PARTICIPANT LIST

Margherita Bacigalupo: Independent Consultant, Italy

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Abstract

How education develops largely depends on the evolution of the role of teachers. Information and Communication Technologies (ICT), in particular the Internet, are believed to have greatly affected the way teachers are doing their jobs. A large majority of teachers in Europe (85%) claim that ICT have improved their teaching, and two-thirds claim to combine various modes of ICT as resources for their teaching (Cachia, Ferrari, Ala-Mutka, & Punie, 2010). Notwithstanding these promising figures, it is widely acknowledged that teachers still have to cope with organizational problems in schools that make them less willing to get the most out of the technological resources they have at hand. Curricula, in many cases, have not kept up with the demands of today's knowledge society for skills and competences. Furthermore, the tight timetables they impose impede teachers from exploring innovative pedagogies (Cachia, et al., 2010).

In this context, the Internet offers unprecedented opportunities for teachers to share experiences and to collaborate with other schools and areas and even across national frontiers. Online networking tools do indeed provide platforms where resources can be shared, instead of each individual teacher having to redesign them, hence reducing teachers' workloads. They also provide a space for teachers' professional development, as well as a platform for integrating the diverse and fragmented lifelong learning landscape.

However, the potential of teachers' networks for the future of education has not yet been studied in depth; little evidence is available to inform the design and the implementation of policy action to renovate the lifelong learning Education and Training (E&T) framework. In this context, the Teachers' Lifelong Learning Network (TeLLNet) project was set up to identify the key contribution of teachers' networks to the future of E&T. This project aims to improve understanding of how social learning networks can support teachers' competence building, in particular through: i) informal dialogue to improve teaching, ii) professional development networks and iii) individual and collaborative research. To achieve its aim, TeLLNet focuses on the eTwinning network, a community for schools in Europe made up of more than 100,000 members, which offers a platform for staff (teachers, head teachers, librarians, etc.) working in European schools to communicate, collaborate, develop projects, share practices and be part of a cross-border learning community.

This report gives the findings of an expert workshop organized by JRC/IPTS carried out within the TeLLNet project to start the debate on how teachers' networks are currently contributing to the modernization of the educational systems, and what they will be like in 15 year time.

The mission of the Joint Research Centre is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of European Union policies. As a service of the European Commission, the Joint Research Centre functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national.

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