M-learning guidebook

Guidelines to introduce mobile learning in schools

ENGLISH VERSION

Erasmus+









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Design and Layout by: www.valentinagilardi.it e www.marinidesign.it

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Summary


COLEG
CAMBRIA


A business opportunity
discovered?
9
2
2
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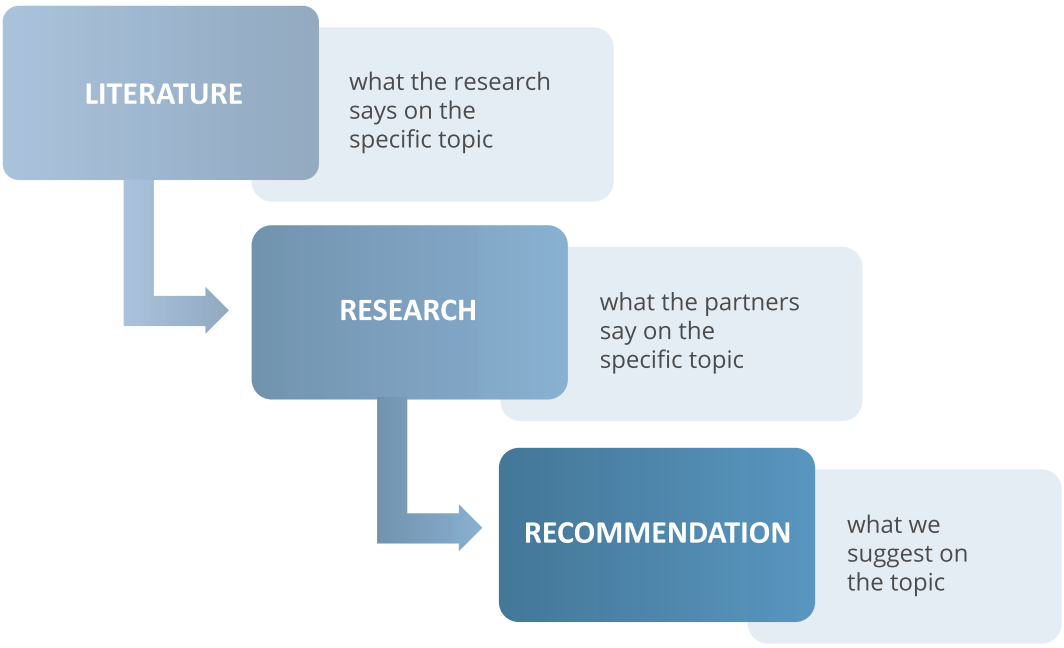
Show image
It is created, no doubt
It is all a question of
both
none
COLEG
CAMBRIA

INTRODUCTION

The guidelines are organized in 3 parts:

1. A review of the research developed so far on the implementation of ICT projects in the educational system that place the project in the context of actual researches on ICT-based didactics and mobile learning pedagogy. IT will moreover underline which pedagogical strategies with ICT and mobile devices in particular encourage more learner-centred approaches, group work and participative learning and promote inquiry-based learning, learning-by-doing, problem solving and creativity.
2. In the light of the main results of the literature review, the experiences and situations of each partner of the project are described and analyzed.
3. Ultimately a set of practical instruction will guide and support those involved in the task of "digitalize" education.

Graph 1 the structure of the guidelines



Along with these guidelines, the Molvet project has enabled the definition of a model (MoLUM - Mobile Learning Unit Model) that, stemming from the knowledge and experience of all of the partners, can be used during the planning and development of any project of innovation involving the introduction of mobile devices in the classroom.

The model is the result of the research developed during the project and has been tested and verified by the partners during the implementation of each intervention.

PART 1
THE STATE OF THE ART

INTRODUCING ICT IN THE EDUCATION SYSTEM: A DIFFICULT PATH

Surely there is little doubt about the huge diffusion that Internet, smartphones and ICT devices have among the youth (Eurispes, Telefono Azzurro 2013; Livingstone, Haddon & Anke (eds.) 2012). In Europe the number of young Internet users is constantly growing, thanks to the diffusion of mobile devices, and a recent survey from the EU kids Online project found that 43% of European teenagers between 15 and 16 use a smartphones to be online (Mascheroni e Ólafsson, 2014). The growing and ubiquitous diffusion of mobile devices among the youth has elicited a reflection among the world of educators, academic and social society on the opportunity of their integration in the teaching practice. In a survey carried out in the United Stated in 2012 48% of the interviewed parents thought that mobile devices could be useful for the learning of their kids out of the classroom, and 62% said they would agree to buy a mobile device that their kids could use at school (Project Tomorrow, 2012).

Not only kids use the technology, but they need to do it with great proficiency, in order to avoid the risk of a digital divide that will put them in a disadvantaged condition. Positions in the information society can be more influenced by your place in the virtual world than where you physically are (Castells 2008). Therefore, the need for the education system to include ICT in their curricula, providing training and support to the learners.

The introduction of ICT in the educational system is quite recent, with the first experiences generally taking place in the Eighties (White 2008).

The very first steps of what is now called the Internet took place in 1973, when the first TCP/IP protocol was developed, but the WWW (World Wide Web) was presented at the CERN only in 1989 by Robert Caillau e Tim Berners-Lee. The first WWW pages were static and simply provided users with information. In the years following the introduction of the World Wide Web many educational institutions were creating pages online where their data became easily available. The following step was the one to the web 2.0 or the “dynamic” web (when compared with the previous “static” web », O’Really 2005). This definition includes all the online application that allow a high level of interaction between the user and the website such as blogs, forum, chats, Wikis, all sorts of websites allowing to share different kind of media (fotos, videos, audio…) and social network sites. The increasing possibility to access data and interact online has modified the educational background, somehow forcing the teachers and educators to an adaptation of their programs and teaching strategies, in the absence of clear guidelines (Kop e Hill 2008). At the moment schools are adopting various models of ICT introduction, such as the 1:1 Technology, where the school provide a specific device for each student, or the BYOD (Bring Your Own Device), where students are encouraged to bring to school the devices they already use at home.

Unfortunately sometime these initiatives are undertaken in an acritical way, and the introduction of ICT is driven more by some market logic or a “naive” desire to be in line with the time (Melhuish e Falloon, 2010), than careful reflection on the variables involved in the success of this kind of initiative. Innovation should be preceded, for instance, by a careful analysis of the specific socio-cultural context, and an evaluation of the benefit and issues that the introduction of ICT will generate (Merchant 2009, 2012).

The BYOD model for example expose an organizing problem as the devices owned by the students are in most cases not designed for learning, very different among themselves and forever changing, being substituted by new models for reason that are not technical, nor educational, nor even rational or predictable (Traxler 2010).

Rarely is the introduction of ICT preceded by pilot projects that would allow an early identification of possible problems, a clear evaluation of the potential gains and guide with these results the following project (Hartnell-Young

e Heym, 2008 Burden et al., 2012).

The introduction of ICT in school has, among the academics, both supporters and detractors. Sometime however the supporting opinions lack a real analysis and come out a bit dogmatic, affirming the value of ICT as an educational tool as self-evident and simply stating the necessity of ICT in the education to prepare the kids for the world awaiting them (Parry 2011)-

- the introduction of ICT is unavoidable and their value self-evident (Wagner 2005)
- ICT clearly help the students getting a better education, if and when teachers use them in a creative and innovative way (Murray 2010)

It has been observed for example that "A range of psychological attributes, both cognitive and psychosocial, influences learning. Cognitive skills such as reading ability, working memory/cognitive load and psychosocial factors, such as self-esteem/efficacy, motivation, self-regulation and metacognitive ability, all play an important role in maximising the learning opportunities offered by Web 2.0 technology (Terras et al, 2013).

Moreover, it's been pointed out how most often mobile technology has been created with completely different purposes than educational, and this reflects negatively on their usability, and educators end up "underestimating what it might do, and by over-adapting education to accommodate to what it offers" (Laurillard 2007).

The first investigations evaluating the impact of the ICT introduction into the educational system have given mixed results: the outcomes are unclear, contradictory, quite often a major investment in technology innovation is followed by minor changes in the didactic and underuse of its potentials. Research found that the use of ICT is often sporadic and superficial, tending more toward reinforcement of traditional practice than enablement of curricular transformation (Eteokleous, 2008; Lai and Pratt 2008).

Other studies (Livigstone 2012, Vanderline and van Braak, 2010) have highlighted the lack of comparable data and validated scales in the description of innovative projects outcomes, an issue that makes it all the more harder to effectively analyze the reasons of success (and of failure). In her review of the difficult relationship between ICT innovation and classroom practice, Livingstone provide two possible and explanations. First of all it is observed the lack of convincing evidence of improved learning outcomes that may provide stimulus to a quicker, more effective change. Than it is suggested that this difficulty in establishing traditional benefits, combined with" the uncertainty over pursuing alternative benefits, raises fundamental questions over whether society really desires a transformed, technologically-mediated relationship between teacher and learner", and point out how the debate "over whether ICT should be conceived of as supporting delivery of a traditional or a radically different vision of pedagogy based on soft skills and new digital literacies" is still open.

CASE STUDY 1 – PIERI AND RANIERI 2014

In their work, Pieri and Ranieri describe more specifically one case of successful integration and one case of unsuccessful integration **IPad Scotland Evaluation** (Burden et al., 2012)

A pilot project realized between March and June 2012 by the Scottish University of Hull, involving high schools, with pupils going from 7 to 14 years old.

Every teacher involved in the project was provided with an iPad, while of the approximately 365 students the majority had access to a personal iPad, in school and at home. A smaller number had personal access to the

device only in school, and one school deployed the devices as class sets which were handed out and collected in after each lesson.

Teachers received a short training, including both pedagogical and technical notions and were provided with support on those aspects throw the whole project. The training was organized following some suggestions derived by the analysis of the literature such as:

- adopt strategies of **situated learning** "learning that takes place in the same context in which it is applied"
- promote collaboration and sharing among the teachers (**collaborative learning**) to encourage the reflection on the uses of the technology
- let the teachers experience opportunities and uses of the technologies (**experiential learning**)

The project was followed by the researchers, that intended to verify the impact of the iPad introduction on the practices of the teachers and of the school.

Using a mix of quantitative and qualitative data collection strategies the researchers were able to find out the information below.

STUDENTS

Students used their iPad in all subjects, to use the available apps (such as Page, Keynotes, OfficeHD, Drawing or iMOvie), search in the Internet, take notes, share their work with teachers and peers, and make videos and photographs

the personal possession of the iPad played a major role in the success of the adoption of the tool:

- it improved the levels of motivation and involvement, promoting a higher level of autonomy and feeling of self-efficacy, encouraging the student into taking the learning "into their own hands"
- moreover, it facilitated interdisciplinary activities.

TEACHERS

Just after the training teachers were using their iPad mainly to do the same activities that they did before, but with a new tool. As their familiarity with the tool improved (thanks to the collaboration with other teachers or the same students) teachers started to introduce more innovative activities, such as the use of Apple TV, Airserver or Reflection.

Among the benefits of the use of iPad teachers pointed out:

- a wider range of activities available for the lessons
- simplification of some practices such as the distribution of material to the students
- create lessons that were more appealing, multimodal and interactive

- an improvement in the collaborative attitude of teachers and students, testified by spontaneous moments of peer tutoring and the birth of **community of practice** involving both students and teachers.

PARENTS

- Bringing home the iPad helped parents in integrating more with the school activities of their children. Parents were generally more involved, and reported a higher level of willingness to talk about school activities from their offspring.
- According to parents, the use of the iPad positively influenced motivation and interest towards school activities in their children.

SAFETY

- Concern about data safety and eSafety were expressed by local authorities.
- The schools responded pointing out that:
  - the use of safety software interfered with the actual use of the iPad
  - being safe online depends more on the education on the adoption of correct behaviours than anything else, and that schools should be able to provide such education.
- For what concern the safety of the actual iPad, no problem was registered and students took good care of their devices.

CASE STUDY 2 – NICHOLAS 2003

The researchers analyze the three year experience (2007-2010) of a secondary school in Australia, following its attempt to introduce and sustain an mLearn programme using personal digital assistants (PDAs). The school was selected for the enthusiastic support that the project had received by the schoolmaster. The project intended to promote the innovation of pedagogical practices and a higher level of personalized learning throw the use of personal PDA for teachers and students. Specific training was provided to the teachers, initially directly promoted by the headmaster and later delegated to the project coordinator. However the results of the project were not up to the expectation, and it was eventually dropped.

According to the analysis of Ng and Nicholas, the interactions between the actors involved (school leadership, teachers, students) played a key role in the outcome.

STUDENTS

- Decided to participate to
  - gain skills on the use of the PDA,
  - achieve better learning
  - improve organizational skills
  - satisfy their parents expectations
- Evaluated positively
  - the Wi-Fi connection
  - the possibility of taking and sharing notes
- However, they thought that:
  - the PDA was more suited for entertainment activities than school ones (at the end of the project they had used it more than expected to listen to music and play, and less than expected to do homework). Among the critical aspects were some technical issues pointed out by the students, such as slow Internet connection, lack of a camera in the device, smallness of the keyboard and so on.
  - the teachers should have used the PDAs in more innovative ways
  - all together their opinion on the utility of PDAs as a learning tool worsened during the time of the project.

TEACHERS

- Teachers joined the project to:
  - achieve better ICT skills
  - be more up to date with what their students do and know about ICT
  - improve their teaching skills, and create lessons more attractive and engaging for the students
- At the end of the project they had improved their ICT skills but their opinion on the utility of PDAs as teaching tools had decreased:
  - students didn't take care of their devices, they often forgot them at home, didn't use it to learn etc.
  - there were technical issues that made it difficult to use the devices (as pointed out by the students)
  - after the initial enthusiasm of the school leadership. the project was not adequately supported and there wasn't enough time/space dedicated to teachers doubts and confront.

SCHOOLMASTER

The schoolmaster confirmed the decrease of his involvement and enthusiasm in the project, adducing as explanation:

- the technical faults of the device
- the resistance of teacher to really modify and improve their teaching strategies.

PROJECT COORDINATOR

The project coordinator agreed with the schoolmaster on the impact of the technical faults of the device and the resistance to change opposed by the teachers but added as critical factor the abandonment of the project by the schoolmaster after the initial, deep involvement. This left him in charge, but in a weak position because he had not been involved in all the previous phases of the project.

In conclusion, Ng and Nicholas point out how the lack of coordination between the involved parties, and the conflicts arising as a consequence have to be seen as the main reasons for the project failure.

IN THIS CLASSROOM SOMETHING IS GOING TO CHANGE...

Pedagogical practices are usually broadly described as either content centred and student centred:

- **content centred approach**: these approaches focus on the transmission of knowledge. This kind of approach can be described as relying strongly on the abilities, skills and efforts of the students. Student achievement is the main objective of teacher centred curriculum, but teachers are driven to meet accountability standards and may have to sacrifice the needs of the students to ensure exposure to the standards (McDonald 2002[1]).
- **learner-centred approach** the focus is on metacognition, on how individual students learn. Individual learners' heredity, experiences, perspectives, backgrounds, talents, interests, capacities, and needs find a space to be taken into account. McCombs (1997) defined learner-centred as a foundation for clarifying what is needed to create positive learning contexts to increase the likelihood that more students will experience success.

The web 2.0 should facilitate the shift to a new, welcomed (at least by some, such as Dede 2008) pedagogical paradigm, and the integration of appropriate pedagogies and Web 2.0 tools can help create and support collaborative student and faculty communities (Hicks, Graber 2010).

Some of the key elements of the ICT for education are its interactivity, its adaptability (both in the content and in the learning pathway, Clement 2000) and the possibility of accessing the resources from virtually anyplace (Ally 2009). All of these characteristics are apt at promoting practices of active learning, situated learning, co-creation of knowledge, peer-review and new ways of work evaluation (Ranieri, Pieri 2014).

However, as we have introduced, the most common use of ICT in the classroom imply a transposition online of the usual, content and teacher centred (as opposed to student centred) activities:

- the online program replicate the model lesson/discussion/test
- all the contents of the program are chosen by the teacher and organized in a logical order that the students are invited to follow
- just like in the classroom, students can pose questions to the teacher or discuss among themselves via email, chat, forum and so on..
- the effectiveness of the teaching is valued using tests of memorization and comprehension
- ICT are used to deepen the investigation of the contents make their presentation more appealing (using multimedia and hyperlinks) when compared to a textbook.

As pointed out by Everhart (2002) this kind of structure of the lesson is equally accepted by the majority of both teachers and students. As teaching models evolve toward more learning-centred approaches, most students need to learn how to learn, that is, to move away from dependent, passive behaviour toward active, self-directed learning (Weimer, 2002) while most educators need to adopt new forms of pedagogy that rely more on instructor-student contact, collaboration among students, active learning, prompt feedback, and the encouragement of

1. https://www.questia.com/library/journal/1G1-108911203/from-teacher-centered-to-learner-centered-curriculum

diverse ways of learning (Chickering & Ehrmann, 1996).

"For ICTs to be used to transformationally, educational leadership must re-evaluate the fundamental meaning of schooling. Technology cannot lead school reconceptualization; technology must reflect it". (Drenoyanni 2006).

In such a contest the ICT became a cognitive instrument, not merely useful to access and transfer information, but to support collaboration and socialization among students, and involve them in practical, creative activities. For example they can be used to:

- create groups and collaborate online
- look for information
- look for and use resources
- analyze and compare data
- create representations of one's knowledge
- communicate
- solve problems
- share resources
- and much more....

HOW DO WE LEARN? A QUICK REVIEW OF THE MAIN THEORETICAL APPROACHES

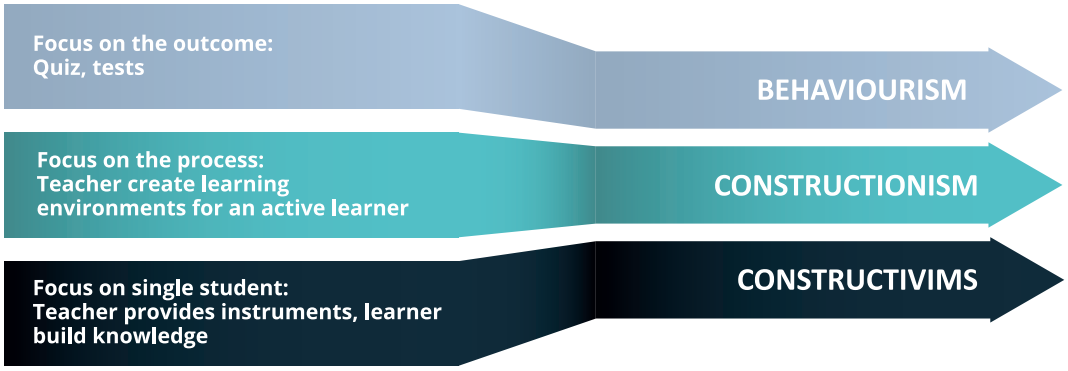
The **Behaviorism** perspective, emerged methodologically in the early twentieth century and predominant in the psychological and educational world for many years, still leave traces in the way educators conceptualize their work in the classroom. According to behaviorism the process of learning occur thanks to the transmission of information, we can infer the learning by the actions of the learner,. For instance, we can give a question to our student, if the answer received is right we will give a prize, a positive reinforcement. In this perspective the aim of education is the transmission of knowledge from an expert to a novice, and that this aim is achieved at its best proceeding in a scientific, objective-driven way.

While behaviorists are only interested in the visible outcomes of the learners, **Constructivism** start there to investigate the underlying cognitive structures. This approach describes the learning as the result of a constant exchange between the learner and its surroundings, and conceive the learner as an active creator of its own knowledge, not merely a receiver of notions. The exchanges between the learner and its environment produce change of both of them, in a constant process of development. This approach see the teacher as a "creator of learning environments" where the learner can actively and in a self-aware way, proceed in its learning. If the learning is a process of modification and reorganization of previously existing cognitive structures, the role of the teacher will be that of creating the right conditions for the "cognitive conflict" to arise, and for the learners to find their new solution.

The next step in the theorization of learning processes was taken by **Constructionism**, a theory that assimilates

concepts coming from philosophy, psychology and cybernetic. The core concept of constructionism is that it's the learner who really build its own body of knowledge: just as every person is different, so will be his or her body of knowledge. When applied to actual teaching strategies this approach has taken different declination. The concept of **situated, or anchored learning** for instance refers to the relevance of the contest where the learning is happening have on the process. As a consequence learning throw real practices, case studies and any kind of authentic activity will be more effective than any kind of de-contextualized learning.

The principles of **Activity Theory** highlight the impact that an active role of the learner has on the achieved results. Learning is not a passive process of information reception, but active construction of knowledge, and the school experience should be molded in such a way as to favour a more active role of the learners.



MULTI-MODAL LEARNING

It is a widespread leitmotif in the world of education that

> "people remember the 10 percent of what they read; 20 percent of what they hear; 30 percent of what they see; 50 percent of what they see and hear; 70 percent of what they say; and 90 percent of what they do and say"

As extensively explained by Subramony et al. (2014), these statistics are not supported by scientific evidence, and has been widely but abusively adopted to demonstrate the superiority of basically any other kind of teaching to the traditional one, where the teacher addresses the classroom.

While it is impossible, and probably quite useless, to try and demonstrate that one way of teaching is better than any other, as teaching necessarily has to be adapted to the specifics of the context, the content, the general situation, this "rumor" highlights the appeal and the interests aroused by alternative ways of teaching.

A teaching practice that includes differentiated stimulus for the students, or involve them in the production of their own content can greatly profit from the adoption of ICT. In a 2009 review by Berk, for instance, the results of a number of studies on the value of videos as teaching tools are resumed, and offer an extensive view on the subject:

1. the use of videos is described as stimulating for the verbal/linguistic, spatial/visual/, musical/rhythmic and even emotional intelligence, both at an interpersonal and intrapersonal level;

2. the results highlights that videos activate both the right and the left side of the cerebral cortex, and manage to stimulate all its levels. In fact the most "ancient" part of our brain (that sometimes is referred to as our "reptilian brain") is activated by sounds: the limbic system emotionally react to videos and music, while the neocortex (which is the "newest" part of our brain) analyses the contents at an intellectual level;

3. videos impact as well the pace of brain frequencies according to some study, "slow, reflective, thought provoking video clips foster Alpha waves. They relax the brain, which can be useful when reviewing content so it passes into long term memory (Millbower, 2000). Fast action, exiting video clips can snap students who are in a drifting Alpha or meditative Theta state to Beta waves pattern, those that characterize attention and a fully awake mind.

One of the most prominent authors that worked at the design of educational multimedia is the American educational psychologist Richard M. Mayer. His multimedia learning theory posits that optimal learning occurs when visual and verbal materials are presented together simultaneously. The superiority of multimodal learning is explained by the author as consequence of the existence of two different canals of working memory, one activated by auditory stimulus and one activated by visuals. When the information is given in the two modalities simultaneously, the learner can activate both receptive systems so that the cognitive load on each working memory is reduced, and the learning capacity improves.

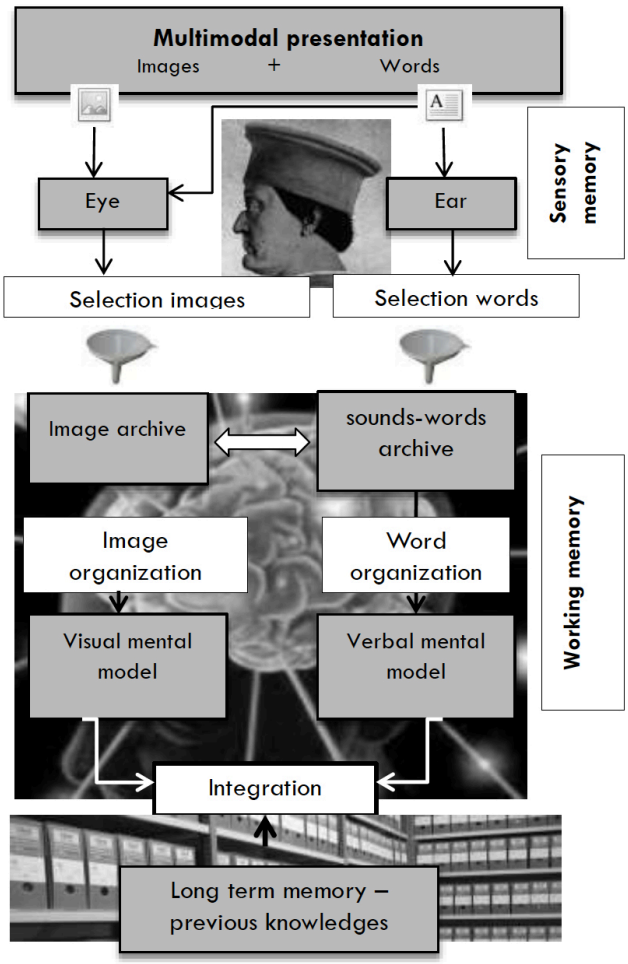


Figure 1 *Graphic representation of the Multimodal learning theory (Mayer 2005)*

Elaborating on a number of experiments that tried to establish the superiority of multi-modal learning over mono-modal (that is, presenting learning content using both audio and visual stimulus vs only audio or only visual, for example), Mayer has defined a first group of principles describing multi-modal learning. Other authors have elaborated on the firsts results (Mayer e Moreno 2003; Ginns 2005; Chan e Black 2006), reaching the formulation of a core set of principles.

The multimedia effect is the first and main principle, affirming the superiority of multi-modal presentation of information for their memorization. Presenting via different perceptive channels allow the learners to create a number of mental representations that can than be linked to each other.

The contiguity effect state that the efficacy of multimodal presentation depend on simultaneous presentation for the stimulus: giving an audio explanation followed by a video will not have the same impact. only when the different systems of reception are activated at the same time the creation of links is facilitated.

Finally, according to the modality effect, when combining images and words, words should be presented in audio, not in onscreen text: Pics or videos resented with a subtitled commentary are less effective that when accompanied by audio, because the visual working memory is otherwise overloaded (there are some exceptions, such as when the text is in a language not familiar to the learners...).

The previous level of knowledge possessed by the learner has an influence on the impact of a multimodal lesson: when the learner has little or no previous knowledge on the subject the impact of multimodal presentation is greater, while on an expert learner it will have a lesser impact. To explain this result Mayer suggests that students with a higher level of knowledge are able to autonomously create images accompanying the explanation, a result that is much harder to achieve for someone just approaching a new subject.

A meta-analysis from Cisco (2008) compared the impact of interactive and non-interactive multi-modal teaching with traditional teaching in the learning of basic and advanced knowledge. The results of this study show that interactive teaching methods are especially successful for the acquisition of advanced knowledge, while the training on basic knowledge or abilities is facilitated by a non-interactive, multimodal kind of teaching.

Of course also other variables have a strong influence in the results of the training of a students, and the studies on multi-modal learning highlighted at the same time the relevance of the student's motivation an feeling of self-efficacy.

In a review confronting three different kind of training (face to face only, online only, blended) Means et al (2010) observed that blended teaching resulted as the more effective teaching strategy. This result may be explained by the higher amount of time that students dedicated to the educational material when presented in this form. At the same time, it is speculated that this form of training stimulate and encourage the adoption of a new pedagogical approach in the teachers, or simply a greater differentiation of the contents offered to the students, all variables that seems to facilitate the learning.

Another aspect highlighted in the review concern the level of cooperation vs solitary work developed by the students: the best results appear to be obtained when the students work either in collaboration with each other or under the direct instructions of the teachers, while when they are made to work alone the results are worst

ICT IN THE CLASSROOM

From the very early stages of the research on the adoption of ICT in the classroom their impact on the develop-

ment of new kind of relationships and communication styles became evident (Mason 2001). The peculiar mix of characteristic belonging to the written language to the rapidity and agility of verbal exchange and the quick pace of innovation of this field produced an ever growing variety of ways of interaction, from simple, straightforward ones to very complex, from technically easy to challenging, of all kind of pace and tone.

ICT mediated interactions are developed in a flexible environment, potentially very stimulating, where creativity, motivation and engagement play a strong role in the final outcome of the communicative exchange.

There are a number of characteristics of the media adopted to convey a communication that need to be taken into account when planning to integrate mobile devices in the classroom. Among the most relevant we have found:

- the media richness;
- the synchronic vs asynchronous type of communication allowed;
- the different mix of face to face vs online interaction.

MEDIA RICHNESS

In order to describe the new tools and applications available to communicate and deliver educational content it is useful to refer to the concept of richness of the medium. It refers to the ability of a medium of reproducing the information sent over it (Trevino, Lengel and Daft 1987). It is possible to imagine two kinds of information being transmitted during communication: the data, and the symbol, that is information about the information or about the individuals who are communicating (such as voice inflection, expressions and so on (Sitkin, Sutcliffe and Barrios-Choplin 1992).

Among the variables influencing media richness there are the possibility of immediate feedback, the capacity of transmitting non-verbal cues such as face expression, or the one of convey emotions (this includes also emoticons :-) the possibility of transforming and adapting the message in according to its receiver.

When planning a communication mediated by ICT these are all elements that should be taken into account in order to pick the most appropriated tool for our aim. For example, if what we want is an exchange of information and data a “poor” media is probably the more suitable (such as an email). On the other hand if what we want to achieve is an improvement of the students social and affective involvement in a community of research and practice, rich medias will be more useful[2] (Rourke, Anderson e Garrison 1999). Some more reflection on this issue can be found in the article **Media Richness, Social Presence and Technology Supported Communication Activities in Education** from Biran Newberry.

SYNCHRONIC VS ASYNCHRONOUS COMMUNICATION

This aspect of the communication should be most definitely taken into account when planning a project of introduction of mobile devices in the classroom. It’s a variable that deeply affects the kind of resources that it will be possible to adopt, but also the results that will be obtained. Each option has some plus and some cons that should be considered when deciding which resource is more suitable to reach the prefixed aim both in case the choice

2. Information from Brian Newberry, Media Richness, Social Presence and Technology Supported Communication Activities in Education, **http://learngen.org/Resources/lgend101_norm1/200/210/211_3.html**.

is relatively free from external conditioning, or if technical issues (or other kind of issues) limit the possibility of choice (What kind of internet connection is available? Where can the students go online? And so on...)

ASYNCHRONOUS COMMUNICATION

- Students can choose when to consult the resources, adapting the study to their needs:
- Users have the time to think before sending out a message, elaborating more on their communications. It can help more timid students, or those with learning impediment or not writing in their mother tongue:
- All exchanges remain online, and can be accessed at a later time. This is especially useful to promote meta-reflection on the learning path;
- It is easy to introduce a moderator in the message exchange, to check that the conversations stay on topic and no inappropriate material is shared;
- At the same time, it may be more difficult to really engage the students in the exchanges and conversations can fade without ever reaching their objective

SYNCHRONIC COMMUNICATION

- The possibility of immediate feedback support a deeper immersion in the task, making this communication especially useful for activities of brain storming, group-building and creation of new resources;
- The combined impact of immediate feedback and online connection support the activity of research on the Subjects, for example enabling the creation of conceptual maps (Barnes, Marateno e Ferris 2007) or parallel research during an online conversation (VanDoorn e Eklund 2013);
- Among the problems there is the difficulty of a complete supervision of the exchanges, due to their rapidity, so a little bit of control on the material exchanged will be lost;
- Another difficulty relates to the organization of the online meetings, from the timing (finding a moment when all the participants have free time, tool and connection can be a real challenge) to the system capacity required to carry out the activities (an online Skype call will provide a very good connection and up to date software).

Synchronic	Asynchronous
Chat	Email
Social network	Blog
Telephone	Wiki
Video-conference	Website
	Online file storage

Table 1 *Instruments of syncrhonous and asynchronous communication*

FACE TO FACE VS ONLINE INTERACTION

Another relevant aspect of the introduction of a mobile device in the training path of a learner concerns the amount of training that will take place in the classroom, compared to the one that we are planning to move in the virtual world, and when the devices will be used.

Starting from an analysis published by Spring in 2004, we can roughly categorize the various mix of training path in 5 categories:

1. Classroom interactive learning between students and teachers and among students.
2. Independent learning where students or teachers are learning and studying alone in a variety of environments and modes including aspects of self-directed lifelong learning.
3. Networked learning through contact with groups, individuals and sources where quite different influences and experiences are creating a qualitative difference to both standard and blended teaching and learning.
4. Organizational learning including learning communities, learning precincts and learning cities.
5. Managed learning where education technology is creating, through computer managed communication and learning management systems, capability to enable teachers to negotiate and provide individualized curricula and learning experiences for each student.

THE RESEARCH ON THE VARIABLES INFLUENCING THE INTRODUCTION OF ICT IN THE CLASSROOM

A common reflection stemming from different research results in the field of ICT use for educational purpose points out that the integration of computer technology is a complex concern that requires sensitivity to individual and contextual variables (Mueller, Wood, 2012). Consistently, investigations have looked into teachers related variables (Ranjit Singh, T. K., & Muniandi, 2012) and role played by school principals (Polizzi 2011), but also into dimensions such as the design and implementation of ICT in educational settings; the evaluation of its impact; the scaling up of these kinds of innovations; and the cost-effectiveness of technology-enhanced learning environments (Rodriguez).

The first, more relevant reflection arising from these studies is that all the components of the educational system should be involved in the process of change.

Among the factors influencing the fruitful integration of ICT in education we found, for example, the attitude towards the use of ICT in education (Player-Koro, 2012), the teachers' level of confidence in ICT use, the amount of technical support and of training that combines ICT and pedagogical aspects (BECTA , 2004).

Given the rapidity with which the body of research on this field is expanding, we propose here a review of studies, without any pretense of covering all that has been published in this field, but trying however to give a complete representation of the work developed so far.

In a study on the use of ICT among preschool teachers in Flanders Kerckaert, Vanderlinde and van Braak (2015) found that 'ICT use supporting basic ICT skills and attitudes' occurs more frequently and is related to:

- the grade of the preschoolers,
- the teachers' self-perceived ICT competences and
- the number of years of experience with ICT at school.

'ICT use supporting contents and individual learning needs' is strongly related to:

- the grade of the preschoolers,
- teachers' self-perceived ICT competences,
- ICT professional development and teachers' attitudes towards the possibilities of ICT for teachers in early childhood education.

In another study from 2006, analyzing the main issues connected with the introduction of ICT Hew and Brush found the difficulties to be related to:

- level of resources (i.e. technology, access to available technology time or person people, and technical support),
- level knowledge and skills (on technology, technology-supported pedagogy, and technology-related classroom management),
- institution's connected variables (including leadership, school time-tabling structure, and school planning),

- attitudes and beliefs (about teaching and learning and about technology),
- assessment's connected variables (involving pressure to meet higher standards and high scores in state tests, meet vast material requirements, conformance of technology integration with external requirements of traditional exams),
- subject culture (shaped by content, pedagogy, and subject assessment) – both from the perspectives of the stakeholders and organizations of the education system.

In 2013 Khalid and Lilian added to this list a number of elements which may undermine the outcome of a project:

- Vision, strategy and plan: lack of time to make the ICT strategy plan, lack of ICT policy plan, ICT integration plan, ICT integration leadership, integration support, evaluation of implementation of ICT integration.

In an extensive review of studies from LeBaron and McDonough (2009) a number of topics are identified:

- ICT investment among agencies and the levels of government are poorly coordinated.
- spending on technology is insufficiently systemic and inappropriately targeted.
- educational leaders are poorly trained either in general principles of effective leadership or in the particular application
- particular application of leadership to ICT
- Classroom teachers are poorly prepared to integrate ICT effectively or collaboratively
- ICTs themselves are not employed to train educators about ICT
- ICT investments are made in schools that are not structured in a way that capitalizes on their benefits.

According to LeBaron and McDonough (2009) the greatest challenges of ICT integration relate to vision, policy and leadership. ICT is changing faster than educators have shown themselves able to track. In order for each sector to capitalize on the knowledge of other sectors, this suggests a need for closer cooperation among educators, university researchers, teacher preparation personnel, government policy makers, non-government organizations (NGOs), and the private sector.

The Technology Standards for School Administrators (International Society for Technology in Education, 2009) were created to assist school administrators in identifying core knowledge and technical skills needed to fulfill their leadership roles. The standards were categorized into five main sections namely:

1. Visionary leadership
2. Digital-Age Learning Culture
3. Excellence in Professional Practice
4. Systematic Improvement
5. Digital Citizen.

As we can see, although the names of the variables may differ from one research to the other, there are strong similarities in the influencing factors the various analysis identify.

Table 2 *Variables influencing the integration of ICT*

Institution related variables	Bibliography
School leadership	Emily Wong, 2008 Tondeur et al. (2008) Polizzi 2011, Anderson and Dexter, 2005, Hew and Brush 2006; LeBaron and McDonough, 2009
Culture and ethos that support change	Tearle, 2004
Visible involvement of the Principal	Tearle, 2004
School previous experience with ICT	Kerckaert, Vanderlinde and van Braak, 2015
School planning and time tabling structure	Hew and Brush, 2006
Assessment standards	Hew and Brush, 2006

Teachers related variables	Bibliography
Educational paradigm: student vs subject centred	Emily Wong, 2008, Mueller, Wood 2012;
Teacher's knowledge of technology related classroom management	Hew and Brush 2006
Attitude towards the use of ICT in education	Player-Koro, 2012, Vannatta and N. Fordham 2004; Ertmur et al 2012, Ranjit Singh, T. K., Muniandi, 2012, Hew adn Brush 2006
Teachers' level of confidence in ICT use	BECTA , 2004; Kerckaert, Vanderlinde and van Braak 2015, Marks 2009; Shapley et al 2010; Valanides and C. Angeli,2008, Ranjit Singh, T. K., Muniandi, 2012, Hew and Brush 2006
Propensity to take risk	Mueller, Wood 2012; Drent and Meelissen 2008
Propensity to lifelong learning	Mueller, Wood 2012, Ranjit Singh, T. K., Muniandi
Cooperative environment	Ranjit Singh, T. K., Muniandi, 2012
Feeling of self-efficacy and professional development	Gulbahar 2008; Mueller et al. 2008

Design and implementation of ICT integration	Bibliography
Amount of technical support	BECTA , 2004, Hew and Brush 2006
Constant maintenance	Ranjit Singh, T. K., Muniandi, 2012
Training that combines ICT and pedagogical aspects	BECTA, 2004, Vannatta and N. Fordham 2004; Ertmur et al 2012: Marks 2009; Hew and Brush 2006; LeBaron and McDonough, 2009
Allotting of enough time for specific training	Ranjit Singh, T. K., Muniandi, 2012; LeBaron and McDonough, 2009

Design and implementation of ICT integration	Bibliography
Ongoing professional support for ICT integration	Parr and Ward 2006
ICT techniques embedded in the education programs that prepare teachers to integrate ICT into their own classroom teaching	Ottevanger et al. 2007; Graham 2008
Clear vision and definition of strategy and implementation planning	Khalid and Lillian, 2013: LeBaron and McDonough, 2009
Coordination between agencies of different levels (government, local, single school)	LeBaron and McDonough, 2009

One of the main problems of the research so far is connected with this lack of common definition and shared instruments of evaluation, not to mention a shared definition of what learning with ICT should be. Vanderline and van Braak (2010) highlight that many of the models developed to examine the factors affecting the use of ICT in educational settings only provide a source for qualitative study, while there is a lack of scale development that may help measure the actual impact of the variables.

Author	Theoretical Underpinnings	Central Concept	Influencing Conditions
Kozma (2003)	Comparative education, school reform, technology and education, diffusion research, etc.	Innovative pedagogical practices that use technology	• Innovation characteristics (e.g. complexity, clarity) • Micro level (e.g. teacher background, classroom size) • Meso level (e.g. leadership, ICT infrastructure) • Macro level (e.g. policy makers, economic forces) • Outcomes (e.g. teacher competences)
Tearle (2004)	• Management of change • Use of ICT in schools	Use of ICT in teaching	• Individuals (e.g. ICT skills, beliefs in ICT) • The ICT implementation process (e.g support and training, resource provision) • The whole school (e.g. strong leadership)

Author	Theoretical Underpinnings	Central Concept	Influencing Conditions
Lim (2002)	• Sociocultural approach • Activity theory	ICT-based lessons as activity systems	• Course of study (e.g. curriculum, assessment) • School (e.g. ICT facilities) • Education system (e.g. recruitment and training of teachers) • Society of large (e.g. publishers)
Hew and Brush (2007)	Technology integration in K-12 schools	Technology integration for instructional purposes	• Barriers: resources, institution, subject culture, attitudes and beliefs, knowledge and skills, assessment • Strategies: vision building, overcoming scarcity of resources, changing attitudes, professional development, reconsidering assessment

From Vanderline and van Braak, (2010)

To this aim they developed an instrument that detects the school e-capacity, i.e. the schools' ability to create and optimize sustainable school level and teacher level conditions to bring about effective change through ICT. Two main elements were acknowledged in the design of the framework: the significance of school level conditions as contributing factors for the use of ICT in education and ICT integration as a special case of educational innovation. The evaluation of the e-capacity include 3 scale, namely:

School level

- 'ICT school support and coordination'
- 'Schools' ICT vision and policy'
- 'ICT infrastructure'

- Teacher's level
  - 'ICT teachers' professional development'
  - 'Teachers' ICT competencies'
- Student's level
  - 'ICT as an information tool'
  - 'ICT as a learning tool'

- 'Basic ICT skills'

This model has been chosen to carry out the evaluation of the Molvet experience, and will be further discussed in Part 3 of these guidelines.

PLANNING THE INTEGRATION OF ICT, SOME ADVICE

In a 2009 review, Hill, Song and West have summarized the results of all the research that adopting the perspective of the Social Presence Theory y[3], have investigated the use of ICT in education.

The researchers have identified the recurring variables that played a major role in the development of the projects examined, and created a table that provide useful guidelines for the planning of a project of multi-media learning.

Table 3: *Application of Social Learning Constructs in Web Based Learning Environments (Hill, Song e West 2012, adapted)*

Construct		Applications in WBLEs
Context	Interactions	Provide opportunities for creating and sharing in-depth messages
		Enable support by more knowledgeable others
		Encourage interaction by the instructor and peers
		Are facilitated by the introduction of a "model of interaction" by the instructor
	Group and class size	Keeping the group size monitored easy the exchange of communication between group members of different expertize: bigger groups may support peer to peer communication but not the communication between students and instructor.
		Monitor class size to enable consistent and engaged interaction
	Resources	Provide strategies to identify, interpret, and utilize resources (providing just the resources will not have a positive impact))
		Encourage effective use of postings and other resources
		Diversify the resources to promote a deeper learning and facilitate the access to students of various approaches

3. "Social presence theory classifies different communication media along a one-dimensional continuum of social presence, where the degree of social presence is equated to the degree of awareness of the other person in a communication interaction (Sallnas, Rassmus-Grohn, & Sjostrom, 2000). According to social presence theory, communication is effective if the communication medium has the appropriate social presence required for the level of interpersonal involvement required for a task. On a continuum of social presence, the face-to-face medium is considered to have the most social presence, and written, text-based communication the least. It is assumed in social presence theory that in any interaction involving two parties, both parties are concerned both with acting out certain roles and with developing or maintaining some sort of personal relationship. These two aspects of any interaction are termed interparty and interpersonal exchanges (Short, Williams, & Christie, 1976)" wikipedia.org/wiki/Social_presence_Theory

Construct		Applications in WBLEs
Culture and community	Culture	Facilitate online interactions so they meet the needs of learners from a variety of cultures (for instance, the researcher underline gender differences in the approach to multimedia learning objects)
		Provide multiple formats for communication to meet differing cultural needs (for example, asincronicous interactions will facilitate students of a different mother tongue than the one used in the course)
	Community	Facilitate connection-building in small and large groups: online work can also be classroom work! Support collaborative activities
Learner Characteristics	Epistemological beliefs	Take into consideration reflective thinking abilities
		Gain an understanding of epistemological beliefs of the students to guide the design of the project
	Individual learning styles	Gain an understanding of the learning styles to guide the design of the project
		Enable different levels of interaction to accommodate individual learning styles
	Self-efficacy	Enable choice in interactions to minimize or prevent social anxiety or the one derived from the use of "new" tools.
		Promote self-regulated learning
	Motivation	Incorporate authentic activities
		Send messages regularly to motivate learners

Focusing more specifically on learning with the support of mobile devices, Terras and Ramsay (2012) have identified five main challenges that need to be taken into account when projecting a learning path:

1. Context plays an important role in the creation of memories: "when the encoding context (the physical location where a memory is created) and the recall context (context of invoking of memory)are the same, memory is superior. When designing learning activities, mobile learning developers should be aware of the potential problems that a change of context can provoke.

2. As human cognitive resources are finite, and only a certain amount of them is available at a certain time, mobile learning can expose to greater distraction in the term of background noise and interruption, and mobile learners may need a higher level of attentional control in order to cut out external stimulus and focalize on their task.

3. Over stimulation coming from the learning opportunities situated in the extended cognitive network of the Web 2.0 oblige to a greater work of selection and screening of redundant or irrelevant input to their learning.

4. All the previously stated difficulties require from the mobile learners a development of metacognitive notions that will make them aware of how they learn and be sensitive in particular to the increased demands of mobile learning and how they can best be managed.

5. Lastly, the authors point out how especially in mobile learning, individual differences matter: the different ways that technology may be used, as different uses and the differing underling motivations may impact differently on academic performance. It is important for all learners to understand how the devices can assist their specific learning need.

SUMMARIZING THE CRITICAL ISSUES

The experiences of use of ICT and more specifically mobile devices in the classroom developed so far have highlighted a number of advantages, such as:

- access to a huge amount of resources that enrich the learning experience, stimulating at the same time the ability of independent search and data selection
- higher level of motivation and engagement among the learners, that reinforce the feeling of self-efficacy
- promotion of the collaboration between learners and trainers or among peers, in the building and sharing of knowledge
- availability of many interactive tools and options promoting autonomous work among the learners
- easy access to a wide public with which one's work can be shared.

At the same time, those involved in the implementation of a project of mobile learning will have to face a number of issues (Gedik et al., 2012; Kong et al., 2014; Ng e Nicholas, 2013; Traxler, 2010):

1. Need for an **initial analysis** of the context where the project of innovation will take place, that will take into account the main socio-economic variables as well as all the stakeholders interests and the specifics of the institution where the project will take place.
2. Definition of a clear "road map", where **vision, objectives, strategies and planning** are identified and made explicit, as well as the expected outcomes and the assessment that will be carried out. **Periodical assessment** should be scheduled and the feedback be used to correct the planning of the following phases of the project, in a dynamic management of the innovation.
3. **Initial effort**: especially in the beginning of the introduction of new technologies, a big investment in energy is required, because it will be necessary to provide the right environment, choose the right tools, , familiarize with them, overcome some unavoidable technical issues.
4. Role of the **school leadership**: according to some researcher the major agent of change is the local school principal, who should train in transformational leadership. The support of the school managers needs to be explicit and unwavering, or it will undermine the credibility of the project and therefore the engagement of the others involved parties.
5. **Communication**: from the very early stage of the ideation and planning through all the implementation of the project, it is fundamental to keep open the communication flow between all the stakeholders (school management, teachers, students, parents...).
6. **Accessibility issues**: from the possibility to connect to the internet at home to the special needs of students with impairments, all these issues needs to be addressed for the project to really start.

7. Promotion of a **school climate** that embrace **change and innovation**, both at a technical level and at a pedagogical one, supporting really innovative use of the ICT. Trainers and learners should interact in a climate encouraging **cooperation** and **learners-centred strategies**.

8. **Adequate investments**: the innovation of the school's equipment is not always covered by the available funds, and some investment will be necessary. However there are growing alternative solutions for low budget projects (open software and so on).

9. **Constant innovation**: the field of ICT is constantly changing and evolving, and the adoption of out of date devices or tools may mine the authority of the trainers and have a negative impact on the level of engagement of the learners. The introduction of ICT should not be seen as a once for ever moment, but as an ever evolving process.

10. **Technical support**: in any phase of the project it's fundamental for the involved parties to be able to refer to a reliable source of technical support.

11. **Training**: the training provided to the teachers needs to include both technical and pedagogical aspects. Especially relevant is the investigation of the implicit representation that they have regarding the introduction of mobile devices in the training. The same representations, as well as the most common practices of use of the devices needs to be taken into account for what concern the students.

PART 2
WORK TEAM

MAIN CARACTERISTICS

The analysis of the literature has highlighted a number of variables that have an impact in the implementation of a project of mobile learning. In order to gain a better understanding of the specific needs of each partner and the critical issues that the Molvet project will have to face, all partners have been interviewed.

The results allowed the definition of the starting point for each partner, and the creation of a list of useful reflection that will guide the definition of the following phases of the project.

- **Partners differ in all dimensions taken into account: the institutions are private and public; small and big, offering various level and type of courses:** this is at the same time an enriching factor and a critical issue to be taken into account because the specific needs and the problems faced may differ a lot.
- **Propensity for student centred pedagogical approaches:** this is a facilitating factor common to all partners.
- **Non-homogenous presence of staff supporting innovative projects:** realities lacking this kind of support may need special care in the planning and extra attention during the implementation of the project.
- **General diffusion of ICT facilities:** this is a facilitating factor, however the differences in the kind of technology available and the history with ICT for each institution needs to be take into account.
- **Non-homogenous level of staff training in innovative teaching:** the shared training sessions of the Molvet project will need to take this into account in order to provide useful training for all level of previous knowledge.
- **Non-homogenous level of support gained from official institutions external to the partner:** some institution are facilitated, and maybe others can be helped to improve their visibility and gain more support from external agencies.
- **Non-homogenous diffusion of quantitative measurement of previous experiences achievements:** the research will include quantitative measurement.

A CLOSER LOOK TO THE TEAM

THE TEAM

The project involves partners of different vocation, including private and public organizations, dedicated to the education of young people, or adult, and offering a wide variety of courses. The number of employees and of students goes from quite small to very large ensembles, providing in fact an extremely variegated group of reference.

APPRENTIS D'AUTUEIL

www.apprentis-auteuil.org

Level of education provided: Vocational training

Number of employee: 40

Number of students: 140

DIMA are special classes for drop-outs wishing to follow a vocational training.

Remedial courses: trainees are proposed personalised homework and are supported by the teachers. Trainees are involved in ICT projects but in sports activities too, which valorise their talents.

They are increasing their experience at the EU level especially through the Leonardo mobility: carpentry trainees to Finland, catering trainees to Malta, to Morocco in summer.

This year subject (for DIMA and 3ème PRO) is Charlie Chaplin.

CAP are vocational training programmes (for 15-year-olds); main sectors are: cooking, ser-vice, carpentry; some of these are managed through the apprenticeship methodology: 12 weeks at the VET centre and 36 in their family enterprises (masonry, car-pentry).

A FARIXA - DXEFPIE

XUNTA DE GALICIA
CONSELLERÍA DE CULTURA, EDUCACIÓN
E ORDENACIÓN UNIVERSITARIA

www.xunta.es

Level of education provided: VET, EQF level

Number of employee: about 70

Number of students: 900

Is a public organization that belongs to Regional Ministery of Culture, Education and University organization. It is responsible for the management of competences and functions that are attributed to the Xunta de Galicia in terms of formal education in full extension, levels and degrees, modalities and specialities. It manages all public educational centres of all non university studies

Age of students involved in Mo.L.VET: 16-18

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

www.civiform.it

Level of education provided: Compulsory education for minors B – Adult higher education C – Continuous and life-long training for adults CS – Continuous and life-long training in special areas "Special areas" refers to training courses aimed at the following groups: - Immigrants from other EU countries or from non EU countries - Disabled (both physically or mentally) - People affected by the new types of poverty

Number of employee: 63

Number of students 700

COLEG CAMBRIA

www.cambria.ac.uk

Level of education provied: EQF levels 1-6

Number of employee: 1.600

Number of students: 27.000

Coleg Cambria is a young college as they are the result of the merger of 2 colleges, 2 years ago. They are the biggest college in the Wales (there are 13 colleges in the Wales but 10 are in the South, the most populated area).

Students to be involved in MoLVET are included in 1 to 3 level programmes and therefore are aged 16 to 19 years old. Levels of the use of technology are the same for all programmes at College, but proposed activities may have a more academic or general or professional character. At Coleg Cambria academic teachings tend to be "personalized".

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

www.cpfonte.it

Level of education provided: Upper secondary school, Vocational Training, Vocational Courses

Number of employee: 97

Number of students: 1100

TCMB

www.tcmb.gov.tr

Level of education provided: Upper secondary school, Vocational Training, Vocational Courses

Number of employee: 1600

Number of students: 27.000

A "young" association, created 3 years ago; at the beginning under the stimulus of the Ministry of Education in Istanbul. It's made of experts representing specific expertise and skills inside the association; some of these experts are not based in Istanbul.

ZUBEYDE

zhmtal59.meb.k12.tr

Level of education provided: Vocational secondary school, 14-18 years old

Number of employee: 100

Number of students: 1.200

Public school depending directly from the Ministry of Education

MAIN PEDAGOGICAL APPROACHES/METHODS ADOPTED IN THE ORGANIZATION

While each organization necessarily has to modulate the pedagogical approach adopted on the specific of the course and of the students, all of the partners share a propensity to student centred approaches. This propensity provide an ideal environment for the introduction of ICT in the didactics

APPRENTIS D'AUTEUIL

From traditional teaching to more student centred approaches (it's called pedagogie differencié). Peer support, group work, and so on. Waiting to introduce flipped classroom.

A FARIXA - DXEFPIE

Pedagogical methods are teachers responsibility and they decide which method will be applied. So there are multitude of different pedagogical methods

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

Learning by doing approach that allow young people to gain and practice skills related to a professional profile, so that they can quickly find a job

skills approach, centred on real tasks, authentic assessment of the professional performance and the centrality of the student throughout the training process

problem based learning

re-motivating approach for students with a school disadvantage through the offer of vocational guidance and coordination among schools/guidance services/vocational training centers

COLEG CAMBRIA

Using the flipped classroom as a pedagogical approach the College has 5 guiding principles for teaching and learning:

- Learner led learning
- Skills based learning
- Enabling learners to make outstanding progress
- Inspirational and effective teaching for all learners
- Learning Teachers

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

Skills approach, centred on real tasks, authentic assessment of the professional performance and the centrality of the student throughout the training process.

Problem based learning.

Re-motivating approach for students with a school disadvantage through the offer of vocational guidance and coordination among schools/guidance services/vocational training centers.

TCMB

Group work

Cooperative learning

Problem solving

ZUBEYDE

Learning by doing approach

Skills approach

Problem based learning

Group work

Case study

Problem solving

E-newspaper

MAIN STAFF ROLES (SPECIFY THE ONES INVOLVED IN INNOVATIVE TEACHING PROJECTS)

Research has highlighted the relevance of the school management commitment for the success of any innovation project.

The group of partner show a variety of management organization, some of which are more clearly adapted to the promotion of ICT integration in the school system, while for others an extra-effort may be required in order to identify reliable promoter for the innovation process.

APPRENTIS D'AUTUEIL

Headmaster, pedagogical coordinator and innovator, for each class one teacher that works as coordinator, from the organization (but on regional level) there are other figures such as a person responsible for European and International projects, education expert (sort of social worker), teachers, dormitory staff.

A FARIXA - DXEFPIE

Director General of Education, Vocational Training and Educational Innovation, Assistant Director General of Vocational Training, Head of Department of Vocational Guidance and Enterprises Relation.

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

Board of Directors (involved in innovative teaching projects)

Coordinators/Project managers (involved in innovative teaching projects)

Project designers (involved in innovative teaching projects)

Tutors (involved in innovative teaching projects)

Vocational guides

Teachers/Trainers (involved in innovative teaching projects)

Administrative staff, secretaries, auxiliary staff

COLEG CAMBRIA

Quality, Learning and Student Experience; Learning Technology Support Manager; Learning Technology Staff; Teacher Training staff; Lecturing staff in areas involved in project.

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

Board of Directors (involved in innovative teaching projects)

Coordinators/Project managers (involved in innovative teaching projects)

Project designers (involved in innovative teaching projects)

Tutors (involved in innovative teaching projects)

Vocational guides

Teachers/Trainers (involved in innovative teaching projects)

Administrative staff, secretaries, auxiliary staff

TCMB

Learning Technology Staff, Teacher Training staff, Lecturing staff

ZUBEYDE

Learning Technology Staff, Teacher Training staff, Lecturing staff

TECHNOLOGICAL INFRASTRUCTURES/HARDWARES AVAILABLE IN THE ORGANIZATION (EVEN AT EXPERIMENTAL LEVEL) AND SOFTWARES USED BY TEACHERS AND STUDENTS

The range of hardware and software currently available in the different institution is quite wide, going from more basic and "old-school" choices to a range of quite innovative products. However, all the partners seems to reach a technological level such as to allow the implementation of innovative didactic practices. As shown by previous research, the level of technological innovation and of ICT integration in the didactic do not directly correlate, but are mediated by a number of variables, connected with the school management, the body of teachers and the general organization of the projects. Therefore, if a minimum level of ICT is required in order to allow the experimentation to take place, it is not necessary to own cutting edge technology to start real innovation in the didactics.

APPRENTIS D'AUTUEIL

Wifi (not always working), iPad in the dormitory (for homework, not in the classroom) and for the teachers, computers (one for each student) in the classroom

A FARIXA - DXEFPIE

Smart boards

PC and laptop computers

Spotlights

Local network and WI FI

Office programs

Specific software related to different vocational training areas

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

23 classrooms with PCs, projector, loudspeakers or audio system dolby surround

4 IWB Epson EMP 400WE with projector

5 labs with 110PCs or MAC, projector, loudspeakers

1 lab with PC, outing plotter, plotter to plate, multifunction A3 colors

88 tablets (Samsung Galxy and Ipads) for trainers/students

WI-FI covering the whole building

2 Reflex cameras

1 professional videocamera

5 TV sets with DVD and VHS

Software smart technologies

Adobe suite

Skype

Dropbox

Google apps

Mindmap/Freemind

Polaris

COLEG CAMBRIA

Wifi across all sites

Windows network

3,000 Google Chromebooks for general study

420 Tablets (Samsung Galaxy Tabs, Nexus 7s, Nexus 10s, iPads)

PCs for Computing and & IT courses

Macs for Art, Media and Music Technology

Bring Your Own Device is encouraged

Moodle 2.8;

Google Apps for Education (Drive, Docs, Spreadsheets, Sites, Communities, Google + Blogger, YouTube, Google Classrooms);

Canvas (MOOC);

Learning Assistant ePortfolio; Onefile ePortfolio;

WeVideo;

Articulate Storyline 2;

Adobe cloud production suite;

Guidebook and Appshed for creating Apps; eStream;

a wide range of Apps for (IOS, Android, Windows Mobile and Blackberry - multiplatform where possible)

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

3 classrooms with PCs, projector, loudspeakers or audio system dolby surround

4 IWB Epson EMP 400WE with projector

1 lab with machine tools

1 lab bodywork

1 lab garage

1 laboratory plumbing e heating

40 tablets for trainers

WI-FI covering the whole building

1 Reflex cameras

1 professional videocamera

1 TV sets with DVD and VHS

Office Programs

Adobe suite

Skype

Dropbox

Google apps

Engineer software

TCMB

Smartboard

Tablets

Android

Internet, not always wifi

ZUBEYDE

60 Smart Boards With Internet Connections (In Every Class)

100 Mbit Internet Connection and WiFi

Windows Network and about 100 PC's (Staff and Students Both)

Office Programs

Adobe suite

Skype

Dropbox

Google apps

Linux Systems

PREVIOUS TRAINING EXPERIENCES OF THE PARTNERS' STAFF

While the diffusion of ICT touches all of the partners, it appears that the level of staff training on innovative teaching methodologies is more differentiated. While some institutions include a training program as an integrated part of the internal structure, other partners rely on more episodic programs, and a less cohesive and structured planning.

APPRENTIS D'AUTUEIL

The teachers are involved in many different projects of innovation. The training of the teachers is very personalized, for each teacher is sought out a specific training that can be best useful. After the project promoted by

Orange the request for training in ICT is growing, 90% of the teachers were asking for it.

A FARIXA - DXEFPIE

DXEFPIE provides a lot of different types of courses to train in several areas and of course in innovative teaching projects.

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

Two free-lance professional lead a training course (24 hours) about how to realize involving and motivating lessons with multimedia tools; it was targeted at 16 teacher/trainers of different training sectors.

Topics:

- Google app and collaborative learning
- Free softwares for collaborative learning
- Software to manage the interactive board
- Interaction between the interactive board and mobile tools
- Producing contents for interactive learning

COLEG CAMBRIA

Yes - this is one of the areas of focus for staff training days.

The Department directed by Sarah is in charge of the training of the trainers even if there is not a true “training package” (hours) dedicated to the training; nonetheless each department organises some training on technology innovation.

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

No

TCMB

-

ZUBEYDE

Our staff have been trained two times about our smart boards and tablets. Their training last about 2 weeks at our school.

It was about learning free softwares for collaborative learning, learning software to manage the interactive board, learning how to interact between the interactive board and mobile tools, and producing contents for interactive learning.

FUNDS OR FINANCING BODIES AVAILABLE TO SUPPORT INNOVATIVE TEACHING PROJECTS/REGULATIONS/LAWS THAT FACILITATE INNOVATIVE TEACHING

Just as the support of the School management greatly increase the probability of success of an innovation project, it is easy to imagine that official support from public institution may play a role in promoting such initiatives. In fact, the more active partners (in the field of ICT innovation) seems to be able to rely of a more specific support network provided by their country' institutions.

APPRENTIS D'AUTUEIL

-

A FARIXA - DXEFPIE

General State Budget

LOMCE (Quality Education General Law) promote innovative teaching in all levels of Educational System.

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

ESF

Erasmus plus

National laws

Ministry of education

Local funds

COLEG CAMBRIA

JISC

National projects supported by Welsh Government become available at times.

Her Majesty's Inspectors (Estyn - Wales / Ofsted - England), National Guidelines for Teachers

Delivering a Digital Wales, Find it, make it, use it, share it: learning in Digital Wales, FELTAG and ETAG. Guidance from ColegauCymru / Colleges Wales (Wales) and Association of Colleges AOC (England)

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

National funds

Ministry of education

Local funds

TCMB

None

ZUBEYDE

National funds

Ministry of education

Local funds

INSTITUTION'S PREVIOUS EXPERIENCES IN EU PROJECTS OR INNOVATIVE TEACHING PROJECTS

APPRENTIS D'AUTUEIL

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A FARIXA - DXEFPIE

DXEFPIE has a wide experience in EU projects. LLp projects (Comenius, Leonardo da Vinci, CEDEFOP study visits and Erasmus + (KA1 and KA2). Related to Innovation projects we have differents innovation projects (regional): Plan Proxecta (promotion of educational innovation through project methodologies) Plan Abalar (Integration of ICTs in Education), E-Dixital Project (integration of digital book), Technological Innovation Awards.

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

With reference to EU projects, Civiform's experience is related to the following EU Programmes:

- Former LLP (Grundtvig learning partnerships, Comenius bilateral partnership, Leonardo da Vinci mobility, Leonardo da Vinci Networks, Leonardo da Vinci TOI, Cedefop study visits)
- Erasmus plus (KA2 Strategic Partnership)
- Daphne
- Interreg IV Ita-Aus
- IPA Adriatic

With reference to innovative projects, Civiform's experience is related to:

- "A SCHOOL IN ORDER: STUDENTS WITH THE LICENSE": a project with the aim of setting up a training program that is not limited to punish students by disciplinary action, but allows them to repair their own shortcomings, through a path designed to restore value, guaranteeing conscious and responsible behavior.
- "LEGALITY": a project to promote legality in local schools.
- "INN - EDUCATIONAL INNOVATION": A project that intends to activate a series of actions that lead to introduce the use of digital technologies both mobile (tablets and smartphones), and fixed (multimedia interactive whiteboard and computer), in teaching.
- BEBO – BEyond the BOok (LLP Grundtvig learning partnership): a project that consists of an exchange of good practices to promote active learning through a problem-based approach (Problem Based Learning) and the use of video as a privileged teaching tool.
- DROP APP (Erasmus plus KA"): a project that promotes the use of ICT tools as a way to let youngsters express themselves, avoiding the risk of early school leaving.

COLEG CAMBRIA

Year			
2012	LdV P	Promote Youth Entrepreneurship	2 year learning partnership project
2012	LLP	K Values	Multilateral project, which developed the digital storytelling methodology for use in employment
2012	GRU LP	BEBO	Learning partnership which applied problem-based learning technique to the production of short videos
2013	LdV TOI	Mapping- hands-on-methods and practice-based principles for promoting individualized learning in VET	Transfer of Innovation project, promoting individualised learning across Europe. Project was led by Denmark and Finland, for whom individualised learning is a legal requirement

Year			
2015-2017	KA1	Skills for Europe	New project

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

We have no previous experience of this

TCMB

The Association is partner of some international projects for which they select some “pilot” schools, as they’ll do in Mo.L.VET.

FATIH: smart class with interactive board is a national project, the biggest financed by the Ministry of Education, to promote technological and methodological innovation in schools. The project includes: delivery of IWBs and tablets for ALL students; 42,000 schools are involved (primary and secondary education) for more than 500,000 students

Weak points: many teachers are not used to these technologies and don’t know how to use them with students; there’s a national plan of training of the teachers but it hasn’t started yet.

ZUBEYDE

We don’t have yet.

FEEDBACK FROM STUDENTS AND STAFF PREVIOUS INNOVATIVE TEACHING EXPERIENCES

When they do it, they like it, so let’s do it! On a more serious tone, the answers to this question, although generally encouraging and positive, highlight the lack of quantitative instrument of data collection that may provide a more analytical feedback on the real impact of such initiatives.

APPRENTIS D’AUTUEIL

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A FARIXA - DXEFPIE

All participants have a positive vision of these experiences

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

The experience was positive, students would like to go on with this type of training.

COLEG CAMBRIA

Feedback from students and staff is generally positive. Good practice is shared with other departments by staff involved in the project. At the end of the summer term and start of the new academic year there are dedicated training days. Lecturers are involved in course reviews and contribute towards directorate self assessment reports.

Recognition from the sector through the College winning a number National awards for teaching and learning and the use of technology.

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

No previous experiences

TCMB

No previous experiences

ZUBEYDE

No previous experiences

INTERVIEWS TO THE PEOPLE RESPONSIBLE FOR THE IMPLEMENTATION OF MOLVET PROJECT IN EACH INSITITUTION

To gain a deeper knowledge of the partners starting point, a qualitative interview with the person in charge of the Molvet project in each institution[4] was carried out, and the results, summarized, provided further indications useful for the continuation of the work.

The questions investigated the critical issues previously highlighted by the research, providing useful insight on the specific situation of each partner on those points.

APPRENTIS D'AUTEUIL

PREVIOUS EXPERIENCE

1. Does your Institution have previous experiences of an innovation project involving ICT?

Yes, an experiment with Orange foundation. They gave iPads to thome students and some teachers. The idea of the project is to study the use of the iPad among the students during the afternoon, what kind of app are used by the students when they are doing homework in the afterschool time, and what kind of input is given by the teachers. Ipad are not used in the classroom, only. The study will also check the impact on students' grades and behavior in school.

2. What is the position of your school leader towards the projects of innovation and introduction of ICT in the school? Is there explicit attention? Has any kind of stimulus and/or support been provided?

Thierry is the school leader and yes, he gave attention to this issue. The Auteuil establishments are late in the introduction of ICT in the school, and he is aiming at improving it. He wants to install the ENT (Espace numeric de Travaille), a space were students and, teachers can cooperate among themselves and with foreigners. This will be available in September, and it will be very important to be able to continue the Molvet project.

3. When a new project is undertaken, who is involved in the planning and in the decision making? Are the teachers involved and, if so, how?

For each project a steering group with teachers who volunteer to be part of it is created. One person direct it (either the school leader or a teacher form the dep.) and there are 2 meetings a month. For the Molvet project there is already a group, form the Informatics dep., and this group is composed of 4 teachers, the school leader and some educator, all together it's 8 people. They are all usually involved in ICT related activities. During projects we work with Mindview 6 for the organization of the project, it's a mind map with Gantt.

4. Is collaboration among teacher supported in any way? What is the climate with reference to the

4. Between the first phase of research and this second one partner, Lichron, decided to withdrew from the project, therefore that interview is missing

work relationships?

There is the habit of working together. For example in April, we organized a medieval festival in the school and all the teachers and students worked together.

Think about one specific project that involved the introduction of mobile devices or ICT in the classroom: **ORANGE project**.

1) Can you describe its planning and implementation? Who was involved?

Orange made a call, and Auteuil answered. From Paris the association chose their institution for the experimentation. Orange contacted Auteuil at national level, than Auteuil wrote the project, Orange accepted it and then the three school were chosen.

2) Which technology was adopted?

iPad, Google app.

3) What kind of pedagogical approach was adopted? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving...)

It depends on the subject: in history and geography they used 2 or 3 support, in French classic support. History and geography gave the best results because they were using really new tools, where students could color and draw things.

4) What was the impact on teaching strategies and learning outcomes?

There was a visible change in the students' performance: many students have difficulties, for example at writing, and they found the iPad an easier way to do homework. This also because, thanks to the technology, the teachers were giving different kind of homework.

5) What have been the strongest points?

The relationship between teachers and students was improved, and also between teachers and educators working in the college. The project gave them an opportunity to meet and work together and this helped their relationship.

6) And what the main problems?

The old teachers had difficulties using the iPad, there is need for training. Also, the Wifi of the institution needed to be reinforced.

7) How was the evaluation of the project carried out?

There is an external study, carried out from Auteuil, that will evaluate the exit. The results will be provided to Orange, and on that basis Orange will decide if the project will carry on.

8) What happened when the project ended? There was some lasting change in the school routine?

The project initiated a process of mentality change and opening to the introduction of ICT.

MOLVET PROJECT

Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)

There will be 28 students, between 14 and 19, level 5 (france), studying kitchen and “service”.

Which part of the training program or subjects or competences will you exactly plan to work on with your students?

During the project students and teachers will be using their new working space (ENT), and the flipped classroom will be introduced. It is important to work on some specific skill of movement that is connected with their study. For example if I am doing a crepe flambé there is some specific movement i have to learn and video can be very useful for this.

Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?

Videos, kitchen apps.

Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?

Very little.

Have you ever planned a mobile learning object or at least an ICT-integrated learning object?

No.

Have you got a “format” to plan your mobile or ICT-integrated learning activity?

No.

Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

Yes, they have an informatics expert in the center, but not every day. So one person will be in charge of the connection between students and teacher and the informatics.

A FARIXA

PREVIOUS EXPERIENCE

1) Does your Institution have previous experiences of an innovation project involving ICT?

No previous experiences of projects of innovation with ICT, but some experience of other kind of projects.

2) What is the position of your school leader towards the implementation of innovative projects in the

school? Is there explicit attention? Has any kind of official stimulus and/or support been provided?

The school leader receives the proposals form his Institute's trainers or from other Institutions, like the Consejeria de Educaccion, for the various projects that may be started. He makes the final decision but after that he delegate to the staff the management of the project. For example, the project Molvet has been accepted by the school leader but is managed by someone within the school, and by another referent in the Consejeria.

3) When a new project is undertaken, who is involved in the planning and in the decision making? Are the teachers involved and, if so, how?

Usually the person presenting it will do the planning and carry it out once authorization has been gathered. For the planning of Molvet only two teachers were involved.

4) Is collaboration among teacher supported in any way? What is the climate with reference to the work relationships?

The school counts on about 50 teachers, there is a good collaboration climate but it's mainly based on personal initiative. There are monthly meetings between coordinators and departments meetings, and meetings of the "vocational guidance team". There are no interdisciplinary projects, each department carry out its own program.

Think about one specific project: Business start-up. Helping the student to create their own business.

a. Can you describe its planning and implementation? Who was involved?

The Consejeria de educacion en Santiago contacted the school, the school leader approved and appointed a teacher, as coordinator of the project. Then, depending on the students' project, the teacher of the right department and specialty was involved: if the project is about building they will involve the teacher of that department and so on.

b. What was the theme of the project (what was the project about)?

The project supports the students in the creation of their own business.

c. What kind of pedagogical approach was adopted? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving…)

A little of everything: it is adapted to the project that the student is developing, the work is very personalized.

d. What was the impact on teaching strategies and learning outcomes?

So far they did it only with students that already finished the courses, although it may be carried out also during classes.

e. What have been the strongest points?

The creation of working position, the support of the student even when he finished school, facilitating his integration in the working world. But the most important is that they provide all the technical support to start up their business: computers, a working space, all the initial costs are supported.

f. And what the main problems?

Convince the students to do it, take the step, come up with ideas of business and have the courage to really start.

a new enterprise.

g. How was the evaluation of the project carried out?

There has been no official evaluation, but the results so far have been very good: 3 business already going, one of which is already completely independent.

h. What happened when the project ended? There was some lasting change in the school routine?

It's a permanent project, it will last until the government says so. Only the "older" students really profit from it for the young ones dont see it as an accessible. doable option. Generally, in the school routine, everybody, not only the students but also the teachers, seem to be more interested in the classes on "business start up", that is strongly connected to this project.

MOLVET PROJECT

Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)

The project will involve students in their last year, age from 18 over, with 4 groups based on ICT competence level. Students are from the from tourism and audio-visual production training programs. About 25 students will be involved.

Which part of the training program or subjects or competences will you exactly plan to work on with your students?

All that is about business (marketing, planning, funding...).

Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?

Using Kahoot they will develop contents to work with in class: video tutorials, questions, data analysis. They will receive points for each action in the "game".

Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?

They will be using their own mobile phone and a tablet in class. Not clear if they will be able to take the tablet home. There is wifi in some space, otherwise Internet connection for every computer of every classroom.

Have you ever planned a mobile learning object or at least an ICT-integrated learning object?

No, so far mobile were even forbidden in the classroom.

Have you got a "format" to plan your mobile or ICT-integrated learning activity?

The theacher referent for the project developed a format that include contents for 10 units, adopting the flipped classsroom methodology and projects and group work

Have you got a technical support inside your organization to develop a mobile or an ICT-integrated

learning object?

The other involved teacher will be their support, he is not in the school but in a school nearby.

SCUOLA CENTRALE FORMAZIONE - CIVIFORM

PREVIOUS EXPERIENCE

1. Does your Institution have previous experiences of an innovation project involving ICT?

Not a lot of experience, but we are starting. For example there is a small project on the use of tablets for teachers, 20 teachers were trained but it was only a 16 hours course so far.

2. What is the position of your school leader towards the projects of innovation and introduction of ICT in the school? Is there explicit attention? Has any kind of stimulus and/or support been provided?

The organization can count on an Innovation and Project Implementation department, of which Renata is the manager, that is specifically dedicated to the introduction of innovative practices in the school. Since last year there the school is under the direction of a new manager who is interested in the promotion of ICT, but as he is newly arrived, it's all just beginning. School manager and Innovation and Project Implementation department do work in cooperation, and many projects are being introduced.

3. When a new project is undertaken, who is involved in the planning and in the decision making? Are the teachers involved and, if so, how?

There is a dedicated group that promotes projects: we look for initiative, write the projects, participate to tables and meetings, choose various themes and each year propose something. Every year we propose something new that is then integrated in the classroom. The consensus is given all the time, because innovation is what we do for work, we exist to propose new things and are not subjected to "limits" from the school managers.

Sometimes a teacher may propose something, especially for one owns training. The teachers needs are collected via questionnaires and interview, but mostly it is up to us to come up with new things.

4. Is collaboration among teacher supported in any way? What is the climate with reference to the work relationships?

Teachers collaborate, all teachers of a same area share advice, teachers of the same sector will coordinate to reach coherent skill's achievements, but it still could be improved. Moreover we, as an Institution, are financed by Regione Friuli, and receive strict instructions on what is possible to do and what not.

Think about one specific project that involved the introduction of mobile devices or ICT in the classroom: Tablet for the teachers

a. Can you describe its planning and implementation? Who was involved?

The project was proposed by Scuola Centrale, our national representative, that received the financing. We as a school applied to participate to the project and were given the opportunity. The teachers involved were selected

by the school leader. The training was organized by Renata, but there was also some meeting organized by Scuola Centrale. Those last meetings were not very successful, as teachers found it difficult to attend for various reasons (timing, school program...).

b. Which technology was adopted?

Tablet

c. What kind of pedagogical approach was adopted? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving...)

The training was only for teachers, (traditional lesson and practical exercise).

d. What was the impact on teaching strategies and learning outcomes?

It stimulated curiosity, some of the participants now want to learn more, even if some of them feel that the use of tablets it's difficult for them. The training was not extensive enough to really change their teaching strategies, they would need more time.

e. What have been the strongest points of the project?

It gave the teachers an opportunity to see some new ways of teaching, and gave them to try out a new device, it woke up their curiosity.

f. And what the main problems?

Technological issues: tablet Samsung (vs apple), interaction with the smartboard was difficult, wifi in the school should be improved to support the number of students and teachers of the school. Cultural issues, resistance to change. Third: it would work much better if the students had a tablet... but there is not enough money. Forth the coordination of teachers work and time for training. There is a lot of absence from work for illness and so on, so it does not leave time to take the teacher out of the classroom to do training.

g. How was the evaluation of the project carried out?

No evaluation, the project is still going.

h. What happened when the project ended? There was some lasting change in the school routine?

The project is not yet developed enough to see its impact.

MOLVET PROJECT

Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)

About 40 students will be involved, aged between 17 and 19, attending their second year of secondary education. The areas will be wellness and graphic.

Which part of the training program or subjects or competences will you exactly plan to work on with

your students?

This has not been decided yet.

Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?

We only have some ideas so far, possibly: video tutorials, but we are not sure yet.

Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?

There is wifi in the school, a video camera, tower computers with internet connection and standard programs, a number of mac with programs for graphic and video, a dropbox (only for coordination and project management).

Have you ever planned a mobile learning object or at least an ICT-integrated learning object?

No.

Have you got a "format" to plan your mobile or ICT-integrated learning activity?

No.

Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

They have one systems analyst working in the school, a technician taking care of software and hardware, one expert on mobile learning and a few expert in graphic design and video making.

COLEG CAMBRIA

PREVIOUS EXPERIENCE

1. Does your Institution have previous experiences of an innovation project involving ICT?

Yes, a few.

When they moved from Microsoft Office to Google Apps for Education. They started using Google Chromebooks on the wireless network rather than installing fixed PCs. Now students have a google account and they're expected to do most of their work in Google Docs, Google Sheets, Google presentation; they can share their work with each other, with the staff and vice versa through shared Google Folder or Google Community. Students have Chromebooks and they use Google Apps. They use some books, e-books and they try not to print very much. They also use Moodle and ePortfolios

The second important experience was when we introduced Bring Your Own Device and the use of tablet devices in College. A series of events 'Connect Cambria' were held across the College to raise awareness of best practice and ILT development, help learners to connect their own devices to the College wireless network, and suggest useful free Appss for learners to download. The Apps included those that were being used by tutors to engage

and assess learners. The College's Facebook and Twitter feeds were also promoted as import channels of communication.

2. What is the position of your school leader towards the projects of innovation and introduction of ICT in the school? Is there explicit attention? Has any kind of stimulus and/or support been provided?

The position of their school leader is supportive, encouraging a culture of innovation. They have three words that can make clearly understand what the college aims to do and these are: inspire, innovate and succeed. Innovation is a very important thing for them. In order to support that, there has been a huge investment in infrastructure and equipment, they've got wireless everywhere on all their six sites, so learning can happen anywhere in the college. They have a total number of 420 tablets and 3,000 chromebooks. Students are encouraged to use technology as much as possible in the college. The message from management is that teachers need to be always looking at how teaching and learning can be excellent in college, so management is not very tolerant when people don't engage really.

3. When a new project is undertaken, who is involved in the planning and in the decision making? Are the teachers involved and, if so, how?

Teachers are involved, so it's usually a manager from that particular curriculum area, but it depends on whether it is a college project or a project of a particular area. If a small department comes with an individual idea and tries it out with the ILT support, if it seems to be successful, it is something they will share with other areas of the college and where possible, when members of staff have done something well, they teach other staff about that.

4. Is collaboration among teacher supported in any way? What is the climate with reference to the work relationships?

They have staff training days over the year and what they try to do is to include members of staff who have been using technology well or any teaching strategy well to share that with other members of their team. Teachers share their knowledge with each other.

Think about one specific project:

a. Can you describe its planning and implementation? Who was involved?

Project: Google Apps for Education.

The IT manager thought it was more appropriate to invest more in wireless across the whole college and bringing mobile devices and Chromebooks into classrooms / workshops, rather than learners away from their normal classroom into an IT lab.

b. Which technology was adopted?

Google Apps for Education, as a part of that using Google Docs, Google Gmail, Google Drive and shared folders.

c. What kind of pedagogical approach was adopted? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving…)

Learner-centred approach: Flipped Classroom (Laura's Presentation attached).

d. What was the impact on teaching strategies and learning outcomes?

Good satisfaction from learners in surveys they do – it's too early for them to know whether they score better in an exam, but as for the assignments the students do through the year, they seem to do them better.

e. What have been the strongest points?

Wireless everywhere, as this enables them to use and try out any kind of technology to work on what is most appropriate for learners. It also ensures that learners can connect and learn actively.

f. And what the main problems?

Initially staff were not very confident with the success of this new project, they were a bit negative about using Google rather than Microsoft as at the time the formatting tools in Google Docs were more limited, as a consequence students didn't think it was very good as well, the attitude of the staff was having a negative impact on the students. But it's much more improved now. The benefits of collaborative working in Google Docs was the reason the project was a success despite staff concerns.

g. How was the evaluation of the project carried out?

Through learner surveys and discussions with staff.

h. What happened when the project ended? There was some lasting change in the school routine?

The projects will probably never end, technology is always changing – The school routine has changed completely.

MOLVET PROJECT

Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training programme, etc.)

Sector: Construction

Age: from 16 to 19 Level 2 (full time students) and then from 14 to 16 Level 1 (they are still at school, but one day a week they go out of school and they go to the college for practical sessions).

Which part of the training programme or subjects or competences will you exactly plan to work on with your students?

Practical Skills.

Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?

Apps, Videos, interactive posters enabled differentiation using augmented reality.

Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?

Not in the organization for the same subject.

Have you ever planned a mobile learning object or at least an ICT-integrated learning object?

They've developed courses in Moodle and e learning courses linked to Digital badges about eSafety / Safety online. In addition to this they have developed individual learning objects such as videoclips, interactive posters and Apps that can be used in teaching and learning.

Have you got a "format" to plan your mobile or ICT-integrated learning activity?

No

Have you got a technical support inside your organisation to develop a mobile or an ICT-integrated learning object?

One full time person learning technologist, Sarah (ILT Support Manager) and another person who helps a few hours a week.

SCUOLA CENTRALE FORMAZIONE - FONDAZIONE OPERA MONTEGRAPPA

PREVIOUS EXPERIENCE

1) Does your Institution have previous experiences of an innovation project involving ICT?

No previous experience. The other involved teacher arrived in 2012 and this is the first European project that FOM undertook.

2) How involved is the direction of your institution in the planning and management of the lessons in your school? Is there any indication on the pedagogical approaches that should be adopted? And on the way of carrying out the courses?

The interviewed, school manager, has promoted a strong investment for the innovation of FOM, both in the technological aspects and in the approaches and methodologies adopted. Every classroom has been provided with a LIM, wi-fi connection was provided for the whole school and families can found on the school website PDF of all school communications and timetables. From September 2015 the electronic registration will be adopted and families will be able to verify on the website the student's presences/absences and the subjects of the school hours. At the present time, all of the teachers (50) and part of the students have a tablet.

Since last school year the interviewed has decided to increment the weekly hours of English classes. Fluency in English is seen as an essential skill for the learners to be able to open up and access the European scene. To this aim they joined the TI.FORMI project which allow 8 students (the most deserving ones) to go to Ireland in summer, where they study English one week and for three weeks do stage, supported by the European Career Evolution (Sandro Sorato).

The interviewed is also promoting the adoption of the flipped classroom methodology to dismantle the classic/ traditional approach to teaching of most of the staff.

3) Is collaboration among teacher supported in any way in your institution? What is the climate with reference to the work relationships?

The climate in the Institute is not bad, there is collaboration among the stuff, supported by the organization of training courses, like the one organized by Apple, and some other that will start in September. The idea is to activate focus groups and training on specific topics such has methodological approaches to disabilities.

4) What kind of pedagogical approach are adopted by your teachers? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving…)

Traditional approach.

5) What are the strongest points of your Institution?

The Institute is a vocational center that has in the connection with the business and the organization of stage with local artisans its strongest point. Usually the companies are very satisfied with the work of our students and about 70% of them end up with an apprenticeship contract, while the remaining 30% find a job within the second year of ending the school.

6) And the critical issues?

There is a risk of closing into a microworld. This is why they decided to take part to the molvet project.

MOLVET PROJECT

Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)

The students involved are attending the third year (16/17 years old) of turism and graphic courses, they are all provided with tablets.

Which part of the training program or subjects or competences will you exactly plan to work on with your students?

Web designing.

Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?

The teacher will assign a different objective to each students, ie the realization of a multimedia touristic guide, the video for the launch of a new product, an app…

Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?

The students have already realized videos for the promotion of our school that are available in Youtube, but as an independent work, not integrated in the school program.

Have you ever planned a mobile learning object or at least an ICT-integrated learning object?

No.

Have you got a "format" to plan your mobile or ICT-integrated learning activity?

No.

Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

Technical support is provided by an engineer an information technology teacher, who attended the Apple training.

TCMB

PREVIOUS EXPERIENCE

1. Does your Institution have previous experiences of an innovation project involving ICT?

The school has project experience in different fields, like media and drama, documentary, drop out prevention, career planning inclusion of students, entrepreneurship.

2. What is the position of your school leader towards the implementation of innovative projects in the school? Is there explicit attention? Has any kind of official stimulus and/or support been provided?

The interviewed is the project manager, he makes the decisions. But this doesn't mean the headmaster is not involved: he volunteers to be involved. Still all responsibility is on the interviewed. The input is found by him, there can be sugge-stions by others but usually it's him. The Molvet was proposed by him to the school.

3. When a new project is undertaken, who is involved in the planning and in the decision making? Are the teachers involved and, if so, how?

For every project a team is created, involving teachers or teachers and students. They are involved in every phase of the project, planning and decision making. They are chosen among those that volunteer. Normally is a team applying, but sometimes the interviewed can prepare the applications alone because he already knows he will have a team to support him later, also because he works in touch with human resources.

4. Is collaboration among teacher supported in any way? What is the climate with reference to the work relationships?

Usually they support each other, but it depends on the people. There are hundreds of people in the school, some prefer to work individually some to work in the team, some like to support and some prefer to stick to their work. Generally there is good team atmosphere. There are lot of teachers and lot of department and many interdisci-plinary projects.

Think about one specific project: **MEDIA AND DRAMA**

a. Can you describe its planning and implementation? Who was involved?

Hurcan applied for the project and it was approved from National Agency. Some people volunteered and he chose 2 teachers, for drama and two for media (teachers of history and philosophy but also very good at video making). Then they chose the right students, that could work with them, from different classrooms

b. What was the theme of the project (what was the project about)?

Project was about youth culture. students were to express and describe their own culture by drama documentary and media documentary. They used video making technology.

c. What kind of pedagogical approach was adopted? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving...)

Group work, cooperative learning, problem solving. It was a team creating a story and they all made their story together.

d. What was the impact on teaching strategies and learning outcomes?

They enjoyed and were happy to be in the project, to be able to express themselves. It was a project with Greece. Maybe it did not make not a big difference on school subjects, but had the impact of widening their vision of the world, knowing about other cultures, expressing themselves (plus gaining knowledge on video making and drama).

e. What have been the strongest points?

The best part of the project was a team having one story: the single students had to come with their own story, each, and they combined them all, so the resulting movie really belongs to the team.

f. And what the main problems?

The meetings of students from different schools was a bit difficult to be organized.

g. How was the evaluation of the project carried out?

The project is ongoing but the first year is finished and the movie produced by the students participated to two festivals in Turkey and Greece were very appreciated.

h. What happened when the project ended? There was some lasting change in the school routine?

Before the project took place there wasn't any video making or drama project in the school: after the festival many students saw the documentary and were interested in the project, they had the opportunity to see what their Turkish and Greek peers were able to do with drama and video and were positively impressed and encouraged. So now many students are asking to be involved in such activities.

MOLVET PROJECT

Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)

Most probably the project will involve between 30 to 40 of 10-11 grade (between 15 and 17). Maybe more if more classes are involved. The subject is electronics.

Which part of the training program or subjects or competences will you exactly plan to work on with your students?

Probably we will use some app but not sure on what specific subject.

Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?

Anything that will make them interested in the subject throw using technology, any student could choose to do a different thing. We don't really know what formatech can suggest, what Hurcan expects is that students will not focus on the subject in a traditional way, but that the mobile object will make them focus more on the subject. And of course training the teacher using the technology

Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?

Smartboards, internet connection (not sure if wireless). The teachers know how to use technology, not so much about app and smartboards, but of course given their background they learn this kind of things easily.

Have you ever planned a mobile learning object or at least an ICT-integrated learning object?

No

Have you got a "format" to plan your mobile or ICT-integrated learning activity?

No.

Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

No.

ZUBEYDE

PREVIOUS EXPERIENCE

1) Does your Institution have previous experiences of an innovation project involving ICT?

No previous experience of other projects, but the interviewed is new at the school.

2) How involved is the direction of your institution in the planning and management of the lessons in your school? Is there any indication on the pedagogical approaches that should be adopted? And on the way of carrying out the courses?

It's a public school, the headmaster cannot control all the things. There is a shared approach, the government tell the directors how to do things, they make meetings and the headmaster gives the directions.

3) Is collaboration among teacher supported in any way in your institution? What is the climate with reference to the work relationships?

Every two weeks there is a meeting among teachers from same subject (for es: he is ICT teachers, and meet with other teachers), 2-3 times a year all teachers come together. They have smartboard, 57 and maybe 50 computers and this means there is always problems so ICT teachers help the others, and vice-versa. For example every year they organize a school festival, and all school teachers come together and support the festival: one help with the computers, another with the sound system and so on.

4) What kind of pedagogical approach are adopted by your teachers? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving…)

Group work, but especially traditional lesson. For Mehmet lessons problem solving and case study.

5) What are the strongest points of your Institution?

They have 8 departments. This sometimes is bad but sometime is good, because you can get help from any department. We have graphic, photography and ICT and they can all work together on projects and exchange information and knowledge.

6) And the critical issues?

Maybe technology is the weakest spot: there is need for better internet and wireless connection. Moreover teachers are not so good with ICT, they need training.

MOLVET PROJECT

Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)

Between 20 and 30 students of ICT, from 16 to 18, secondary vocational school. The subjects will be web programming and web designing

Which part of the training program or subjects or competences will you exactly plan to work on with your students?

Web programming and web designing

Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?

They will create website, and also work on flash program, animations. (HTML 5 is the best solution for flash problems)

Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?

Internet connection, but not so good, in his dep. There is wifi but not in all of the school. They have 2 servers and 15 computer in each lab. Each student can work on one computer, and also smartboards. A national website where teachers can find and share resources.

Have you ever planned a mobile learning object or at least an ICT-integrated learning object?

No.

Have you got a "format" to plan your mobile or ICT-integrated learning activity?

No.

Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

The interviewed is the technical support.

The information collected can be summarized in a table that will help defining the projects, highlighting the path that can be taken.

	Intruments availables	Project's wish list	Dissemination's must know
Apprentis	ENT (Espace numeric de Travaille), Mindview 6 for the organization of the project, it's a mind map with Gantt. iPad, Google app	flipped classroom video of specific movements kitchen apps an Emenù with recipe and videos on how to do them	old teachers need more training 8 persons involved already in the project "success day", one evening to gather and celebrate how good they did: all partners and workers are invited to celebrate the success of the students
A farixa	Kahoot own mobile phone tablet desktop computer flipped classroom group work projects work	develop contents to work with in class: video tutorials, questions, data analysis tourism and construction	good climate but no official cooperative initiative. meetings between coordinators and departments meetings, and meetings of the "vocational guidance team" 2 people involved in the organization of the project

	Intruments availables	Project's wish list	Dissemination's must know
SCF/Civiform	Ict facilities maybe ipads	something for the career of Wellness or Electrician and Graphic For graphic: instruction on how to realize a leaflet/ book. Video tutorial, Conceptual map (language)	an Innovation and Project Implementation department teachers of a same area share advice strict instructions on what is possible by regione friuli
Cambria	Google Apps for Education Google Chromebooks Moodle ePortfolios own devices Tablets other free Apps (...) interactive posters video Facebook and twitter flipped classroom videoclip apps collaboratve work (google docs)	Apps, Videos, interactive posters enabled differentiation using augmented reality	staff training days: Teachers share their knowledge prevous projects evaluated through learner surveys and discussions with staff
SCF/FOM	LIM Tablet a video promoting the school available on youtube	Videos with eng sub for promotion of the prosecco region flipped classroom Tourism and language	promotion of focus groups and training on specific areas
TCMB	Smartboard Tablets Android Internet, not always wifi Group work, cooperative learning, problem solving.	3 or 4 group, each with one trainer. Maintenance and installation of electrical households. Create an instruction digital guidebook for specific household tool, also with video	big school, many interdisciplinary projects, "tradition" of involvement in all kind of projects, based on voluntary participation

	Intruments availables	Project's wish list	Dissemination's must know
Zubeyde	Smartboard Android Internet group work case study problem solving e-newspaper	Web programming and web designing use of flash animation Video with sub Website in Turkish and English	periodical meetings of teachers of the same subject ICT teachers support the rest of the teachers in the use of technology

PART 3
APPLICATION

ASSESSING THE STARTING SITUATION

As introduced in the literature review, one of the issues highlighted by the research on innovative projects of ICT integration in the school is the lack of reliable data, of quantitative, systematic recording of the conditions and the impact of the initiatives undertaken.

This step is very important not only for the general improvement of the knowledge on this subject, but also for the specific improvement of the very same projects, that could use such feedback to make informed decisions concerning ICT policy and practice (Vanderlinde, Hermans and Van Braak 2010).

The scales provided to help the schools auto-evaluate their situation have been tested for reliability and consistency, and represent therefore a valid instrument that allow to start a circular process of evaluation, feedback and correction throw the development of the innovative projects. The choice of providing already tested instruments is supported by the idea of offering not only a validated instrument but also the possibility to confront the data collected with others, already analyzed and published. Of course there is no coded evaluation of the results, and all the data have to be intended only as relative point of reference. That is, there is not a "good" or "bad" result, but only a higher or lower value with respects to the values scored by other institutions, or by one same institution in a previous evaluation. In fact, the repetition of the evaluation before and after the implementation of a project is one of the recommended practices we suggest to adopt. These data will provide reliable evaluation of the outcomes reached and of the issues that remain critical.

THE E-CAPACITY MODEL

This model was elaborated by Vanderlinde and Van Braak in 2010, and has since been adopted to evaluate the "e-capacity" (that is, in the word of the authors "the schools' ability to create and optimize sustainable school level and teacher level conditions to bring about effective ICT change").

The researchers, after an extensive analysis of the variables so far identified as having an impact in the introduction of ICT in the school system, have elaborated a conceptual framework that organize those variables in a set of levels.

The model imagine the actual change occurring in the use of ICT in the classroom as the core of a multi-layer set of variables, with each layer having an impact on all of the underlying ones.

At the more external level found place national and international policies, as well as socio-economic conditions, affecting schools and individuals. Then, still at a quite general level, the school improvement conditions are taken into account: these conditions, that include the kind of leadership the school has, the level of participation of the body of employees in the process of decision making and the kind of relationship existing among the teachers, are all elements concurring in the results of any action of innovation that the school may decide to undertake.

The next three levels are those more directly connected with the aim of this study, and are therefore included in the scale of self-assessment provided. The research developed by the authors, in fact, has demonstrated how at least part of the variables identified directly related to the e-capacity of the schools. The variables related to the school improvement have been shown to have a more mediated effect, while all of the variables directly connected with the ICT have been valuated as directly connected with the exit of innovation practices. The choice of

including only part of the developed scales is taken (on suggestion of Prof. Vanderlinde) with the aim of supporting the compliance of the teachers, by trying to keep the questionnaires as short as possible

AT the same time, in view of more recent research outcomes, a layer has been added between the ICT school condition and the ICT teachers conditions, to evaluate teachers educational beliefs. This variable has proved very relevant to the exit of an innovative project connected with the use of ICT and it is therefore appropriate to add it to the original set.

EVALUATION OF THE SCHOOL E-CAPACITY

All of the teachers involved in the project should answer to the scales proposed, and the analysis of the answers will help determinate what are the strong points and the critical issue for each Institute. Moreover, if the questionnaires are submitted at the end of the project it will be possible to confront the two sets of data and evaluate the progress made. Some partners of the project will even compare the data collected from the classes involved in the project with those of other staff members and learners not involved in the project (control group), to be able to separate the impact of the project from the general advance produced by the normal attendance.

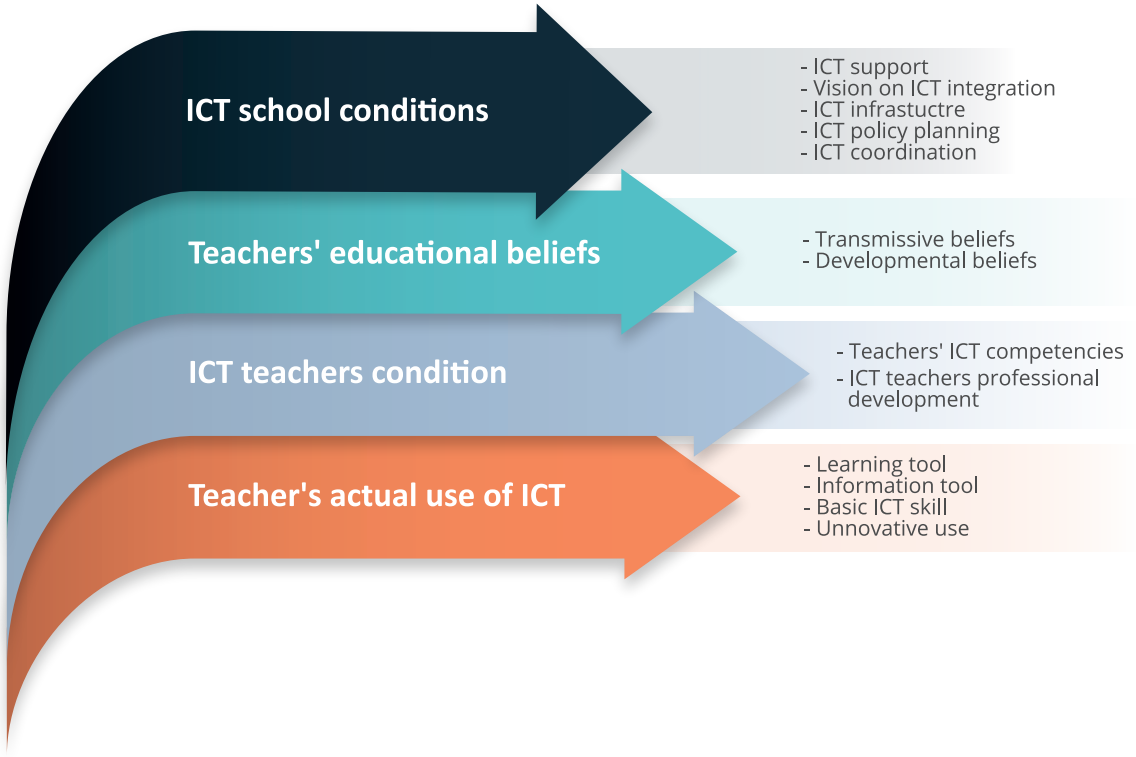
	Control group	**Experimental group**
Time 1 (before intervention)	Ideally there should be no major difference between these two groups at this stage	
Time 2 (after intervention)	The answers could have changed for both groups but: • The difference from time 1 and time 2 in the control group will be due to other variables • The difference from time 1 and time 2 in the experimental group should be greater, accounting for the impact of the intervention	

Table 4: *An example of experimental design tha allows the analysis of the impact of the propsed intervention*

The proposed instrument is an adaptation of the "Institutionalized ICT use scale" created by Vanderlinde, Aesaert, van Braak (2014) While most of the items of the original scale remain, some little adaptation was required, and some items added, in order to better fit the needs of the project.

The questionnaires can be delivered in English or in the mother tongue of the respondents, depending on the specific needs, but special care should be taken when proceeding to the translation of the items. It is very important that the meaning of the items remain unaltered, and we strongly recommend to verify carefully the quality of the translation.

The questionnaires can be proposed in and paper version, or, better, using an online tool (the Institution may have something already available, or it is possible to use an online resource for this aim.



Teacher's actual use of ICT (Institutionalized ICT use scale, Vanderlinde, Aesaert, van Braak 2014)

The scale includes items evaluating the teaching of basic ICT skills, of the use of ICT as a learning tool, of the use of ICT as an information tool, and of innovative ICT use.

Assess your agreement with the following items on a scale going from 0 (completely disagree) to 4 (completely agree).

	Never 0	Every term 1	Monthly 2	Weekly 3	Daily 4
1. Learners in my class learn the basic skills to use ICT					
2. My students use software and computer programs to learn					
3. My learners learn to use ICT in a proper manner					
4. My learners use software and computer programs to make exercises					
5. Learners in my class use ICT to create artefacts/ carry out projects					

	Never 0	Every term 1	Monthly 2	Weekly 3	Daily 4
6. In my class learners use ICT to look up and select information (e.g. Google, Yahoo, etc.)					
7. My learners learn about ICT because I use ICT during classical instruction					
8. My learners use ICT to store information					
9. In my class, learners with learning problems use appropriate educational software and instructional computer programs					
10. In my class, learners use digital databases (e.g. Wikipedia, GoogleEarth, GoogleBooks, etc.) to look up for information					
11. My learners use ICT to share files with each other					
12. In my class, we make use of simulation software, whiteboards, beamers to exemplify and/or explain complex matters					

ICT teachers conditions

	Completely disagree 0	Disagree 1	Neither agree nore disagree 2	Agree 3	Completely agree 4
1. I frequently attend in-service teacher trainings about the educational use of ICT					
2. I frequently attend technical ICT in-service teacher training courses					
3. I try to keep informed about everything that has to do with ICT in education					
4. I take initiatives to learn about everything that has to do with ICT in education					
5. I have sufficient technical knowledge and skills to use ICT in classroom					

	Completely disagree 0	Disagree 1	Neither agree nore disagree 2	Agree 3	Completely agree 4
6. I can easily fix technical problems when being confronted with it					
7. I have sufficient organizational skills to integrate ICT in my classro-om					
8. I have sufficient background to use ICT in my classroom for instructional purposes					
9. I have shortcomings to use ICT in a pedagogical and didactical way					

ICT school conditions

	Completely disagree 0	Disagree 1	Neither agree nore disagree 2	Agree 3	Completely agree 4
1. In our school, we can receive technical support while working with ICT					
2. In our school, we can receive pedagogical support when working with ICT					
3. In our school, colleagues help each other when facing problems with the ICT-equipment					
4. In our school there is a clear con-tact person for everything that has to do with ICT integration					
5. Our school has a clear vision on the role and place of ICT in educa-tion					
6. My school has a well developed ICT policy plan					
7. The schools' vision on the place of ICT in education is well-known by all colleagues					

	Completely disagree 0	Disagree 1	Neither agree nore disagree 2	Agree 3	Completely agree 4
8. The schools' hardware infra-structure (computers, laptops, computer class, etc.) is sufficient to integrate ICT in classroom practices					
9. I am satisfied about the schools' software (CD-ROMS, computer programmes, etc.) I can use with my learners					
10. The ICT infrastructure in my class is appropriate for the ICT-acti-vities I do with my learners					
11. I am satisfied about the schools' ICT peripheral equipment (digital projector, digital camera, etc.) I can use					

Teachers educational beliefs

Even if the suggested scale was originally created for a primary education assessments, its founding values can easily be applied to education at all levels, and with only little adaptation the scale can be a valid instrument for educators of different kind of institutions.

Beliefs about Primary Education Scale (Hermans, van Braak, Van Keer 2008)

The scale was constructed with the intent of assessing the general orientation and objectives of education, the nature of the educational content, and desirable ways of knowledge acquisition. Subsequently analysis resulted in the definition of a two component structure.

The first component, labelled 'transmissive beliefs' assesses the extent to which respondents believe education serves external goals and is outcome oriented with a closed curriculum. It also evaluates to which extent knowledge acquisition is perceived as being most adequately achieved through transmission.

The second component was labelled 'developmental beliefs' and determines to what degree education should be oriented towards broad and individual development, be process oriented with an open curriculum, and to what degree knowledge should be acquired through construction. The focus is both on the active engagement in the construction of knowledge by taking the learning needs and experiences of students as starting point as on the harmonious development of learners. In this way, the foundations for the developmental line of thought are in line with Piaget, Dewey, Vygotsky, and Bruner. The first 9 items of the scale refer to the first component, while the last 9 refer to the second one.

Assess your agreement with the following items on a scale going from 0 (completely disagree) to 4 (completely agree).

	0	1	2	3	4
1. Education has to be directed towards helping learners get a position in the labour market. (i.e. get a job, or be 'employable')					
2. An important task of schools is to prepare young people for the professional world					
3. Good teaching' ultimately is aiming to raise economic productivity					
4. The content of a lesson has to be completely in line with the curriculum					
5. A teacher must define, in advance of the lesson, the learning content of each individual lesson					
6. The school should be driven by the expectations of society					
7. Schools always have to focus on the acquisition of knowledge					
8. It is recommended that a teacher does not deviate from the content of an agreed learning program					
9. The main task of a teacher is to transmit knowledge and skills to learners					
10. The learning process always has to start from the learning needs of the learners					
11. During a lesson, we use resources and artefacts that the learners bring to the classroom as well as those from the school (own books, etc.)					
12. The learning process has to be in line with what learners know and are able to do					
13. Learners must get the opportunity to build up their own knowledge in a collaborative way or together with the teacher					
14. A shift from 'knowledge orientation' to 'skills orientation', is right for education					
15. Good teaching always relates to the personal experiences of the learners and to their own 'world'					
16. The emphasis on cross-curricular goals is important					
17. The school has to promote the total and harmonious development of young people					
18. It is important to follow broad themes and undertake the associated projects in a class even without being sure what the exact learning outcomes will be					

Classroom Practice

Two questions are added in order to collect more clear evidence on the specific tools adopted by the teachers and the pedagogical strategies used to deliver lessons.

When teaching, I use the following strategies:

- Frontal lesson
- Group work
- Peer education
- Socratic dialogue
- Cooperative learning
- Project based learning
- Problem solving
- Flipped classroom
- Other: _____

What apps do you use for your teaching? (list all of the apps adopted to deliver the lesson or used by the students to complete work)

_____

EVALUATING THE STUDENTS STARTING POINT

The instrument chosen should be able to detect the following aspects about the students experience:

- engagement,
- attitude to use of ICT for learning purposes,
- attitude towards education/involvement toward the classroom.

and at the same time be short and simple, to maximize their compliance with the task.

The instrument we suggest was adopted by **Ng and Nicholas (2013) in their longitudinal study**, and the results of their observation have been published and could therefore be used as basis for comparison.

Once again thought the questionnaire was slightly modified in order to gain other, useful information from the partners.

Students questionnaire

1. What type of mobile device do you use? Can you list all of them? (smartphone, iPad, tablet...)
2. What is the operative system of the mobile device you use more often?
3. What apps do you use most often?
4. What apps do you use for school?

5. How often do you use Internet for personal aims?
    - More than once a day
    - Once a day
    - Once a week
    - Less than once a week
6. How often do you use Internet for school, homework or study?
    - More than once a day
    - Once a day
    - Once a week
    - Less than once a week

Technical aspects of using a mobile device

Assess your agreement with the following items on a scale going from 1 (strongly disagree) to 5 (strongly agree)

	Strongly disagree 1	**2**	**3**	**4**	**Strongly agree 5**
1. I know how to use my mobile device.					
4. Mobile devices are easy to use.					
7. I need special training to use a mobile device.					
15. Writing with a mobile device is easier than writing by hand on paper.					
16. The screen on the mobile device makes it difficult to do my school work.					
17. It is easy to access the Internet with mobile devices.					
19. With a mobile device, it is easy to send messages to my friends					

Learning with mobile devices

	Strongly disagree 1	2	3	4	Strongly agree 5
2. Mobile devices help me learn my subjects better.					
3. I like using technology for learning.					
5. Mobile devices make learning easier.					
6. I am excited about using a mobile device					
8. Mobile devices make learning fun.					
9. I learn better with technology.					
11. There are no disadvantages in using mobile devices in the classroom.					
12. Mobile devices make learning more interesting.					
13. Mobile devices help me organize my time better.					
14. Mobile devices do the same things as a desktop computer.					
20. With a mobile device it is easy to take my school work home.					

What do you think about using mobile devices and Internet for school?

_____

VISITOR AND RESIDENT, AN ALTERNATIVE ASSESSMENT TOOL

(**http://daveowhite.com/vandr/**)

Developed by professor David White, the Visitor and Resident distinction is an alternative way of describing the position of people in the virtual world. It provides a two dimensional field where each online activity can be placed on the basis of its visitor-resident character or it's personal-institutional character. The visitor modality includes all the online behaviours that use the internet simply as a tool to comply a task (find an information, buy a ticket...), while the resident mode is related to the online behaviours aiming at connect with people, and having an online social presence. All of these behaviours can be undertaken because of some personal interests or because of a working/studying request, which define the second axis of the proposed space.

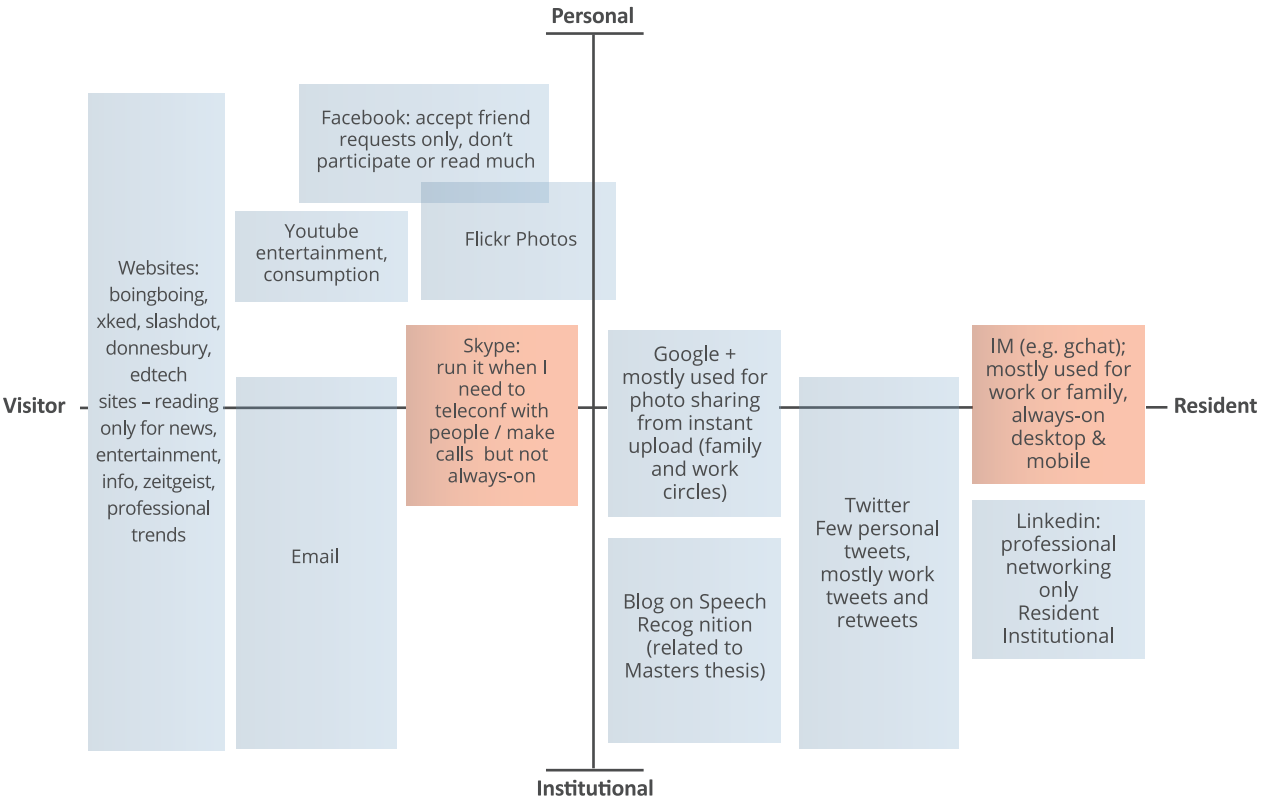


Figure 3: **Some example maps from David White website**

Mapping the online behaviour of people can be helpful in

- see how they learn in formal and informal context,
- show how they are engaging with others
- check on supportive practices and so on...

A detailed description of a workshop aiming at defining the Visitor&Resident profile of staff and/ or learners is available online.

The workshop can be a starting point for reflection on actual online practices, and exploration of areas such as Digital Literacy and Digital Experience. It will help identifying personal and institutional starting points, and plan future activities and objectives (**https://www.youtube.com/watch?v=sPOG3iThmRI**).

ICT IN THE CLASSROOM, THEORY AND PRACTICE

The introduction of ICT in the didactics is a process that allows the student, step by step, to gain growing levels of autonomy in the organization of the work and in the use of the available resources.

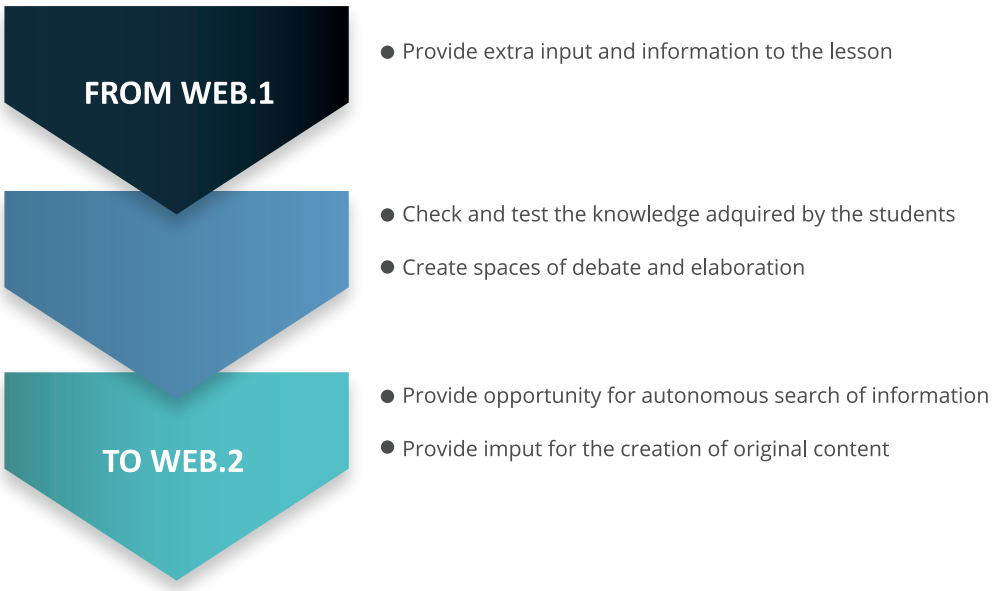
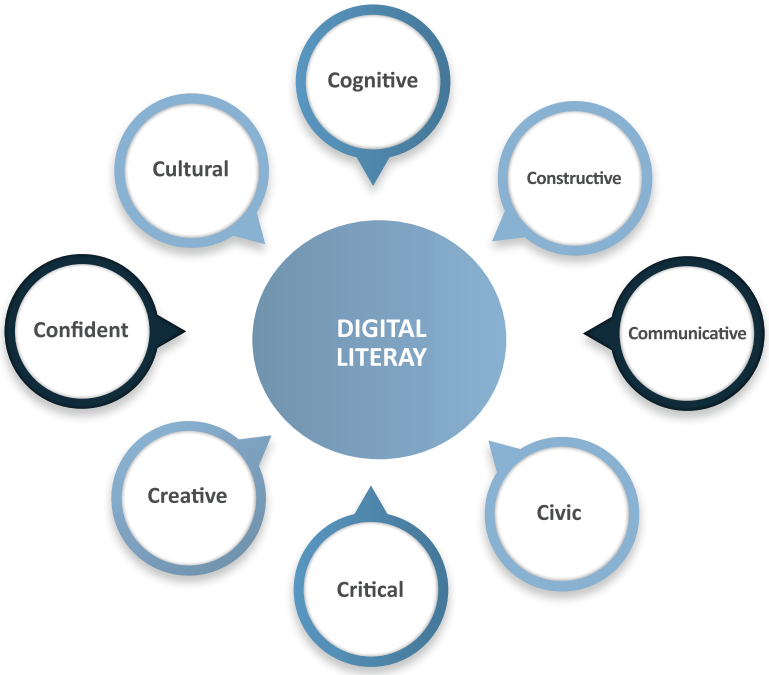


Figure 4: *Examples of different application for ICT in the classroom*

Students should acquire not only what was defined as **computer literacy** (that is, the knowledge and skills needed to use computers) but what has been called **digital literacy**, the knowledge, skills, and behaviors necessary to use a broad range of digital devices and allowing one to understand how to use a network, relate to others online, find info and evaluate them, be aware of digital issues.

In his analysis, Doug Belshaw identify eight core elements composing digital literacy (Belshaw 2011).



Their acquisition can be declined specifically to the skills that a learner should acquire:

1. **Cognitive**: "Functional internet literacy is not the ability to use a set of technical tools, rather, it is the ability to use a set of cognitive tools" (Johnson 2008). For the student it means engaging in activities that will expose to a wide range of tools, and developing a critical understanding of how the different tools may (and may not) be used and with which effect.

2. **Constructive**: "Digital literacy is the awareness, attitude and ability of individuals to appropriately use digital tools in order to enable constructive social action" (DigEuLit project 2006). For the students this means to be able to use ICT in a constructive, not passive way, for example by remix existing resources and content to create new ones, and at the same time be aware of the different kind of licenses under which things are shared and learn to use them.

3. **Communicative**: "Digital literacy must therefore involve a systematic awareness of how digital media ae constructed and of the unique «rhetorics» of interactive communication" (Buckingham 2007). Students should learn to differentiate the appropriate ways to communicate in different online networks and when using different devices

4. **Civic**: "The ability to understand and make use of the ICT – digital literacy – is proving essential to employment, success, civic participation, accessing entertainment and education".(Conlon e Simpson 2003). Students can get in contact with wider networks, national and international organizations and be part of a more ample debate and action.

5. **Critical**: "Once we see that online texts are not exactly written or spoken, we begin to understand that cyberliteracy requires a special form of critical thinking. Communication in the online world is not quite like anything else". (Conlon e Simpson 2003). Students need to be aware of the specifics of digital communication, from the different interpretations that a message can have to the issues of online privacy, safety and data collection.

6. **Creative**: "The creative adoption of new technology requires teachers who are willing to take risks... a pre-

scriptive curriculum, routine practices... and a tight target-setting regime is unlikely to be helpful". (Conlon e Simpson 2003). With ICT students can and should be encouraged to test new ideas, create resources, experiment. They can in this way develop an understanding of the processes, procedures and systems that lie behind digital technologies rather than the specific elements of software/hardware involved.

7. **Confidence**: "Modern society is increasingly looking to people who can confidently solve problems and manage their own learning throughout their lives, the very qualities which ICT supremely is able to promote" (OECD 2011). Students should be helped to identify the key skills to act in the digital world, auto-evaluate their own level and develop a community of practice to help progress in skills and attributes.

8. **Cultural**: The nature of literacy in a culture is repeatedly redefined as the results of technological changes (Hannon 2000) For the student cultural elements include the ability to move easily between different digital environments and use learning technologies in a variety of different contexts. Moreover it means being aware of how personal background may impact on the use of ICT

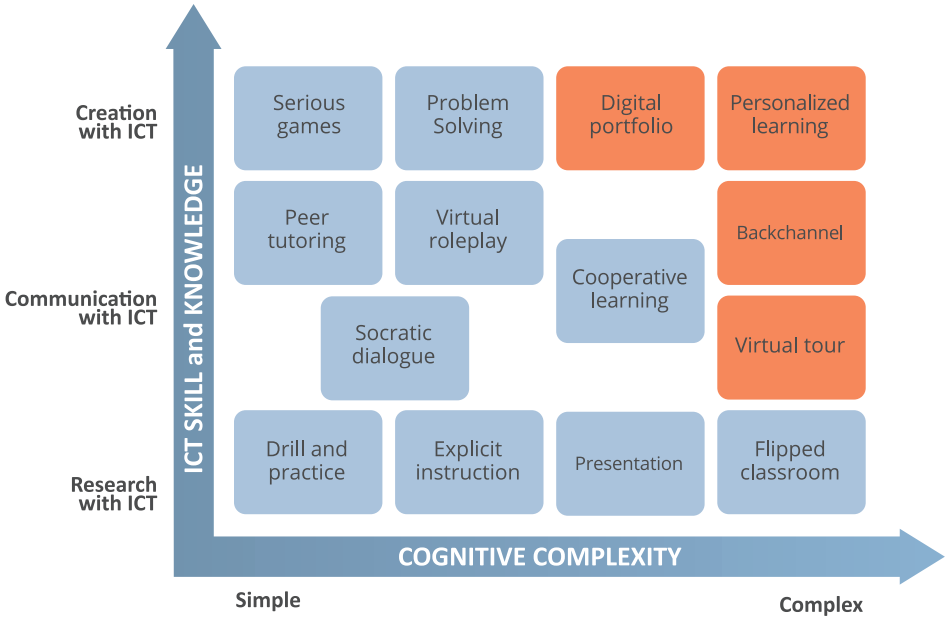
It is possible to identify two main variables that characterize the use of ICT in the classroom:

- the cognitive complexity of the task (going from very simple ones, with precise, step by step instructions to the more complex ones, where students have to work in autonomy)
- the level of complexity in the use of ICT (at a very basic level, technologies are used to realize simple, pre-determined tasks, while when the technological know-how grows, they become tools for the realization of complex, creative works).

These variables allow to conceptualize a bi-dimensional space where all the activities that merge ICT and didactic can be placed, according to their degree of cognitive and technical complexity.

Once such a space is conceptualized, it is possible to create an imaginary map where all the main ICT school practices can be placed in a crescendo, from the more simple to the more complicated. **The classification is by no means to be intended as fixed, but only based on the "standard" practice, as, of course, every activity can be ideated and proposed with different levels of complexity.**

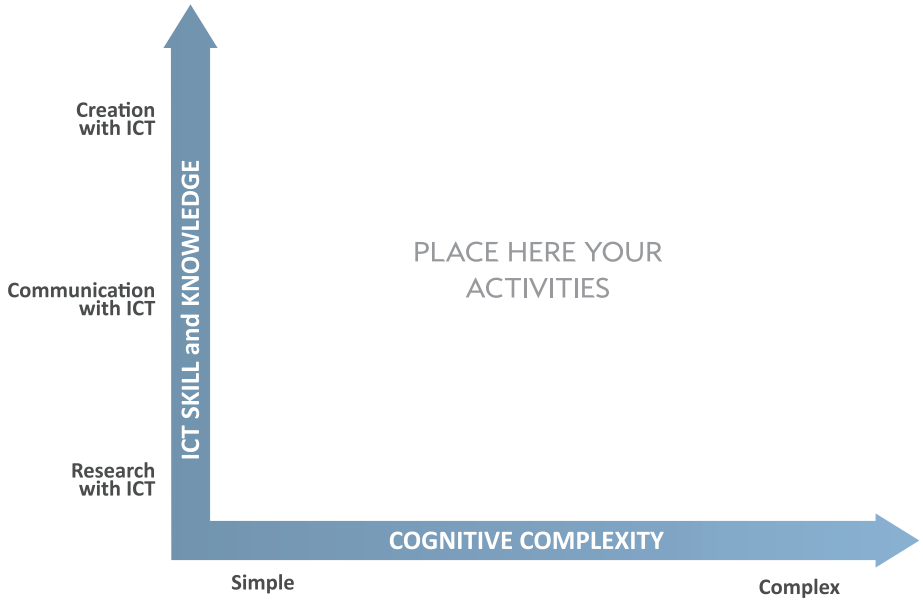
Figure 5: *Map adapted from education.qld.gov.au/smartclassrooms*



To make an example, let's think about the different "positions" that the realization of a .ppt presentation could take on this graph:

- **Explicit instruction** – the teacher provides very detailed indication on the slide structure and contents, and the learner comply and create the presentation. Another option could be to give a presentation already done to the learner and ask to do some modification
- **Cooperative learning** – learners are divided in groups. In every group the main object of the lesson is divided in sub-units and each learner is assigned one, on which he will become the official "expert". All of the experts of a same sub-unit then reunite in order to look for information on their topic, and create a little presentation with the results of their search. The original groups are than recreated and the various experts work together to combine the various slide into an organic new presentation
- **Peer tutoring** – the learners create a presentation and then subject it to the evaluation of one or more other learners, and vice-versa
- **Digital portfolio** – alone or in group the learners create a presentation of each one of the topic discussed in the class and keep them in a folder that can eventually be shared online.

Suggestion for the training of trainers: imagine an activity that you wish to carry out in the classroom and try to place it on the map below. Explain why you choose to place it there.



BASIC KNOWLEDGE

The very first step when introducing ICT in the classroom should always be a checking of the students' level of familiarity with the technology. It is quite predictable that the youngest (kids) or the oldest (adult students) will need to spend more time practicing basic skills, but one should never assume that the even the more web connected teenager possess such skills!

Many researchers have pointed out that the so called "digital native" are not necessarily experts (or even just familiarized) with the programmes that allow to create a text, calculate, or carry out any other basic function.

This is why it's important to verify always the general level of ICT skills of the students, and check especially for the ability to:

- manage files (create, save, organize in folders)
- use main programmes (writing, spreadsheet, create slides...)
- use Internet (email, browser, searching tools..)

Managing files

The student should be able to:

- create a file
- modify it, (importing images, hyper-textual links and so on)
- save the file in the desired location
- create and organize folders
- find a file previously archived.

In this phase of the training it may be useful to introduce the students to the concept of filename extension, providing a basic explanation

Office suite

A standard Office suite, such as the Microsoft one (expensive but usually already installed on most computers) or its free equivalents (OpenOffice for instance is among the most famous free ones) is composed of a number of tools, and the main ones are word processors, a spreadsheets and presentation programs

Students should be able to do some basic operation with all of these tools, such as.

Word processor

- create a file
- use the revision tools (Thesaurus, spell check....)
- use some basic formatting tool (Capital, Bold, Italic, Underline, change text and background colors.....)

- insert a table
- insert an image, either something already in the program or an external one,
- create a graphic
- create and insert hyperlink

Spreadsheet

- create a tabel
- insert data
- use the functions of sum, mean and so on
- create a graphic

Presentation

- create a presentation
- create slides with different kind of contents: text, images, graphics, videos, hyperlinks...
- create effective vs un-effective slides
- present one's work to the class

Use of Internet

Students should start learning basic skills that are essential to carry out most of online activities and then proceed to the more complex activities:

- use a browser (open a window, open a tab, move between tabs...)
- use a search engine (search for information, choose the right key words, select relevant outcomes...)
- find in the Internet the information asked by the teacher
- open and use an email: send out emails with specific details (use of cc, ccn, attach files, block users, change password...)
- open and use an Instant Messaging profile: security settings use of emoticon, multi-users conversations...

Online activities

Once the basic knowledge is acquired, it will possible to undertake activities that combine various abilities. These activities are the "bricks" of the new pedagogical path. Usually the lesson plans that involve the use of ICT integrate different tasks, moving from online to offline, from individual work to collaborative and group work, in a dynamic and elastic way that can change and adapt to the specific needs of the students.

Among the bricks available to the teachers we can find:

- collaborative creation of a file (a text, a presentation) using an online platform such as Google Doc
- creation and modification of images and videos thanks to digital cameras (and smartphones!) and free tools such as Gimp
- creation of audio files, with programs such as Audacity
- creation and sharing of personalized maps
- creation of word clouds and analysis of text contents
- recap of a lesson or of a subject, or support to a brainstorming session with the creation of a concept map
- creation, management and sharing of a blog, a profile on a social network or even an Internet page.

FROM WEB 1.0 TO WEB 2.0

ICT lends itself very readily to holistic learning, collaborative grouping, problem-oriented activities and integrated thematic units.

The ICTs alone will not improve pedagogy. They will, however, support and assist teachers who shift their pedagogies to be more student-d, project-based and collaborative. Scaffolding techniques are readily supported by ICTs.

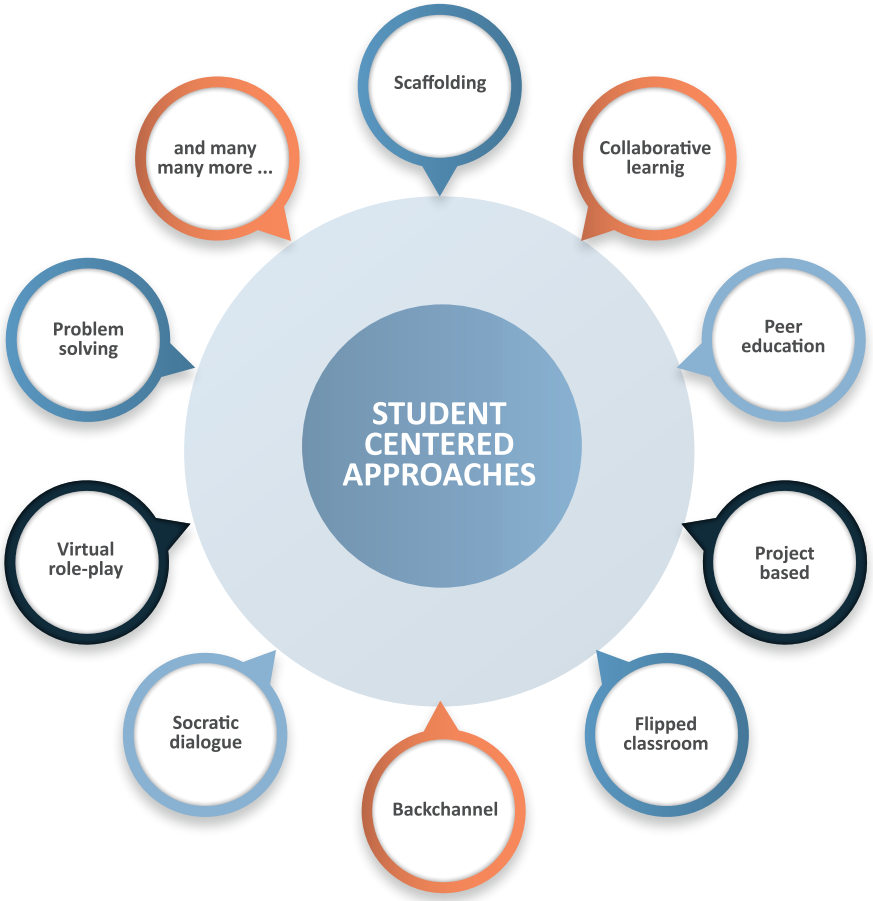
(Dellit 2002)

To really integrate ICT in the didactic trainers can adopt one of the strategies that have been so far developed by previous innovators, or creating their own unique projects.

As previously introduced, all of the tasks and projects that the learners may undertake can be customized to better fit their needs and abilities, by augmenting or reducing the cognitive complexity of the instruction or the level of ICT skills required.

There are many ways a lesson can be planned in order to achieve a more student-centred structure. Many of the techniques developed through the years by pedagogies interested in creating a different, more deeply engaging experience for the students, can easily be adapted to the use of ICT, as the use of mobile device strongly push the student to have a more active part in the learning process.

The list of such strategies of teaching is long and always growing, but some of the more widespread are included in the graph below and are going to be adopted by the partners of the Molvet project while carrying out their experimentations.



- **Scaffolding**: is a learning process designed to promote a deeper level of learning. Scaffolding is the support given during the learning process which is tailored to the needs of the student with the intention of helping the student achieve his/her learning goals (Sawyer, 2006). This support may include the following: resources; a compelling task; templates and guides; guidance on the development of cognitive and social skills. Four main types of scaffolding mediated by technology have been identified: **conceptual**, helps students decide what to consider in learning and guide them to key concepts; **procedural**, helps students use appropriate tools and resources effectively; **strategic**, helps students find alternative strategies and methods to solve complex problems; **metacognitive**: prompts students to think about what they are learning throughout the process and assists students reflecting on what they have learnt (self-assessment). This is the most common research area and is thought to not only promote higher order thinking but also students ability to plan ahead. (Jumaat, Nurul, Farhana & Zaidatun, Tasir 2014)

- **Collaborative** learning: Methodologies and environments in which learners engage in a common task where each individual depends on and is accountable to each other. People engaged in collaborative learning capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, monitoring one another's work, etc.). ICT allows the communication to be both synchronic (chat or calls, shared screen...), moderated and guided by the trainer, and asynchronous (emails, shared folder) giving the trainer opportunity to check and evaluate the work done.

- **Peer education**: Students use **expert peer tutors** to **develop** aspects of their digital literacy and **scaffold** their completion of digital assessment tasks.

- **Project based**: Projects vary greatly in the depth of the questions explored, the clarity of the learning goals,

the content and structure of the activity, and guidance from the teacher. The teacher is a facilitator, working with students to frame worthwhile questions, structuring meaningful tasks, coaching both knowledge development and social skills, and assessing what students have learned from the experience.

- **Flipped classroom**: The trainer provides learners with some material (typically short videos, but it could be any kind of thing) to study at home, before coming to the lesson. The time in the classroom is then spent applying what was studied at home to the solution of relevant questions, verifying and consolidating their understanding. In this way the work at home benefits of the richness of online information, while the time in the classroom can be organized in a core practical, experience-oriented way.
- **Backchannel**: is the practice of using networked computers to maintain a real-time online conversation (occasionally fact checking) alongside the primary group activity or live spoken remarks. While engaging with teacher, peer or expert presentations or demonstrations, students contribute to a backchannel to discuss relevant aspects, summarize key points or ask fellow audience members clarifying questions.
- **Socratic dialogue**: After establishing **working protocols**, students participate in substantive conversations with peers **using online discussion boards** to **develop** and **clarify** understanding of concepts and receive **constructive feedback**. Students engage in robust conversations to argue opinions and make decisions in a predefined online space (blog,SNS, forum...).
- **Virtual role-play**: Students take on the role of a character or prominent figure and interact with others in a web conference, via chat or email, create a mock online profile within a Social Network and let him post and interact, realize audio, video or a written interview...the possibilities or adaptation of this strategy are huge.
- **Problem solving**: Students work to solve challenging, real-world or life-like problems related to subject disciplines. Students leverage a range of traditional and digital tools to create and publish their work to state-wide audience using predefined, protected networks and profiles (school website or blog...).

COPYING STUFF: COPYRIGHT, COPYLEFT AND RELATED ISSUES...

When working with ICT it is very important to take into account all of the issues related to the respect of image and copyrights. Among the most relevant areas that trainers and learners should take into account we suggest:

- the use and diffusion of images (both photo and video) with underage subjects
- the use of any kind of material found online (images, slides, words...)
- the diffusion of material produced by the students.

A more in depth analysis of these issues and some suggestion for step that can prevent problems to arise will be developed in the course of the project and included in this section of the guidelines.

As a general indication the partners have decide to:

- collect a form asking parents of underage learners the permission to use their images for educational non-commercial aims;
- teach students to search only for free material, distributed under **creative commons, copyleft** or similar

licenses;

- help students identifying the right licence to apply to their work when it's shared online.

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ATTACHMENT – THE QUALITATIVE INTERVIEWES

PREVIOUS EXPERIENCE

1. Does your Institution have previous experiences of an innovation project involving ICT? If not, go to page 2, question 1. If you have no previous experience of any kind of project go to page 3, question 1
2. What is the position of your school leader towards the projects of innovation and introduction of ICT in the school? Is there explicit attention? Has any kind of stimulus and/or support been provided?
3. When a new project is undertaken, who is involved in the planning and in the decision making? Are the teachers involved and, if so, how?
4. Is collaboration among teacher supported in any way? What is the climate with reference to the work relationships?
5. Think about one specific project that involved the introduction of mobile devices or ICT in the classroom:
    - can you describe its planning and implementation? Who was involved?
    - which technology was adopted?
    - what kind of pedagogical approach was adopted? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving...)
    - what was the impact on teaching strategies and learning outcomes?
    - what have been the strongest points?
    - and what the main problems?
    - how was the evaluation of the project carried out?
    - what happened when the project ended? There was some lasting change in the school routine?

MOLVET PROJECT

1. Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)
2. Which part of the training program or subjects or competences will you exactly plan to work on with your students?
3. Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?
4. Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?
5. Have you ever planned a mobile learning object or at least an ICT-integrated learning object?
6. Have you got a “format” to plan your mobile or ICT-integrated learning activity?

7. Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

PAGE 2

PREVIOUS EXPERIENCE

1. What is the position of your school leader towards the implementation of innovative projects in the school? Is there explicit attention? Has any kind of official stimulus and/or support been provided?
2. When a new project is undertaken, who is involved in the planning and in the decision making? Are the teachers involved and, if so, how?
3. Is collaboration among teacher supported in any way? What is the climate with reference to the work relationships?
4. Think about one specific project:
   - can you describe its planning and implementation? Who was involved?
   - what was the theme of the project (what was the project about)?
   - what kind of pedagogical approach was adopted? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving...)
   - what was the impact on teaching strategies and learning outcomes?
   - what have been the strongest points?
   - and what the main problems?
   - how was the evaluation of the project carried out?
   - what happened when the project ended? There was some lasting change in the school routine?

MOLVET PROJECT

1. Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)
2. Which part of the training program or subjects or competences will you exactly plan to work on with your students?
3. Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?
4. Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?
5. Have you ever planned a mobile learning object or at least an ICT-integrated learning object?
6. Have you got a "format" to plan your mobile or ICT-integrated learning activity?
7. If yes, would you please send it to Formatech, to the following email address: stefania.corrizzato@gmail.com?
8. Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

PAGE 3

NO PREVIOUS EXPERIENCE OF PROJECTS OF ANY KIND

1. How involved is the direction of your institution in the planning and management of the lessons in your school? Is there any indication on the pedagogical approaches that should be adopted? And on the way of carrying out the courses?
2. Is collaboration among teacher supported in any way in your institution? What is the climate with reference to the work relationships?
3. What kind of pedagogical approach are adopted by your teachers? (Traditional lesson, group work, cooperative learning, flipped classroom, problem solving...)
4. what are the strongest points of your Institution?
5. And the critical issues?

MOLVET PROJECT

1. Which class/group of trainees/students will you involve in the MoLVET project? (i.e.: age, level of education, name of the training program, etc.)
2. Which part of the training program or subjects or competences will you exactly plan to work on with your students?
3. Which kind of mobile object(s) (artefact(s)) do you expect to produce with your students?
4. Are there any already available resources (platforms, videos, apps, etc.) for the same subject(s), competence(s), etc. in your organization?
5. Have you ever planned a mobile learning object or at least an ICT-integrated learning object?
6. Have you got a "format" to plan your mobile or ICT-integrated learning activity?
7. Have you got a technical support inside your organization to develop a mobile or an ICT-integrated learning object?

AN INTERVIEW TO THE INVOLVED STAFF

- Why did you choose to participate to this project? Which aims did you want to achieve? Did you?
- How would you describe the organization of the project (management of technical issues, training...)?
- Which role di your school management play in the project?
- What was the feedback form the families of your pupils?(maybe irrelevant, depending on age and situation of the students...)
- The introduction of mobile devices changed:
    - the way you organize your lessons? Can you specify?
    - the relationship with the pupils?
    - the relationship with your collegues?
- Did you notice a change in your students' performances, after the introduction of mobile devices in your lessons? (level of knowledge achieved? Motivation and involvement? Level of auto-organization?)
- What are the best aspects of the project?
- What are the worst aspects of the project?