

Supporting innovative learning approaches through Mobile Integration in the workplace - Oncology Nursing

Deliverable D3 Methodology Manual

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1. INTRODUCTION

The SMILE-ON project has the aim of developing a new approach to vocational training using mobile devices to extend learning activity into daily practice. The idea is to integrate theory learning with practical skills development. The project is located in the context of oncology nursing. The mobile communication involved will function as a “virtual layer” that integrates with the nurses’ daily interaction with patients. Using smart phones, they will be able to communicate in real time in the work place and access relevant content according to their needs. The idea is that the “space” created will facilitate exchange of experiences with tutors and with other participants, and thus increase opportunities for learning from them in the workplace.

The field of oncology nursing is a new one, and the rapid increase in knowledge and availability of new forms of treatment in the field means that cancer nurses require specialist educational preparation. Furthermore this kind of training approach is new for many of the participants in the project. The approach proposed will constitute an important improvement in the way these new skills are learned, and will increase the capacity of the nurses to perform in this new area of nursing. The project is therefore innovative not only because it involves a new social approach to mobile learning, but also because it constitutes an innovation in the area of nursing training. These issues make it vital to ensure that the process of development and adoption of the new approach in each context is appropriately monitored.

The project will involve an initial needs analysis, followed by the development of an appropriate learning methodology and a mobile toolkit to support it. The approach will then be piloted, in each of the partner countries in two cycles. The first pilot will focus principally on the validation of the learning approach, while the second will also pay attention to exploitation and sustainability issues, and the possible extension of the approach to other contexts.

The principal objectives of the project are:

1. To develop a methodology for integrated, “just-in-time” learning in the workplace using mobile devices.
2. To develop a software toolkit for the Android operating system that will facilitate the implementation of the methodology.
3. To pilot the methodology and software in a range of workplace contexts across Europe, in the sector of oncology nursing.
4. To disseminate the results of the work and ensure its adoption beyond the project life cycle.

The main results of the project will be:

1. The approach and methodology, which will be described in a manual describing the approach and example activities to be used in the methodological implementation of the approach. Teacher training materials will also be produced.

2. The software toolkit, developed initially for Android-based devices.
3. Results of the pilot process, collected in a global report on the different stages and a version for public distribution.

The project is divided into 10 work packages:

WP1 Needs analysis

WP2 Methodology

WP3 Technological development

WP4 Pilot 1

WP5 Pilot 2

WP6 Evaluation of the approach

WP7 Dissemination

WP8 Exploitation

WP9 Project Management

WP10 Quality Assurance

This work is located in WP2 and focuses on the development of the learning methodology of the project.

2. LEARNING METHODOLOGY IN SMILEON

Using the results of the needs analysis carried out in WP1 (see deliverables 1 and 2), the next step in the project is focused on developing the methodology that is the central focus of the project. The basic idea of this methodology is that the use of mobile technology can allow the learning process to be facilitated outside and beyond the classroom context in which most oncology nursing training currently takes place. The idea is for the technology to permit the creation of a “virtual layer” in the nurse’s professional practice by means of which their learning can be integrated with their daily interaction with patients. In this way their professional activity can be enriched and supported, both by access to relevant content precisely when they need it and by the creation of a real-time virtual space in which the nurses can exchange experiences, using a range of media, with tutors and other course participants. The experience of the partners is that nurses benefit from, and make extensive use of, opportunities to interact with their peers around the subjects they are learning and a central aim of this approach is to facilitate this.

The development of the methodology involves several stages. The first stage of the work, which is the subject of this report, has involved an overall definition of the pedagogical approach, based on the principles that learning is social, and especially effective if it is grounded in and developed through practical experience and application of what is being learned. Kolb's experiential learning approach has been used as a model for the development of the overall approach. Particular attention has been paid to the fact that this is an emerging field in which practice is evolving, and this makes reflection and the exchange of experience all the more important as part of the learning process. The new skills in this new job are still in the process of definition and the pedagogical approach has taken this into account.

Once the overall approach was defined, the partners worked on the creation of the details of the methodology. This involved in particular the development of a range of learning activities that can take place in the workplace, simultaneously with the nurse's professional practice, using the "virtual layer": the range of mobile applications in the toolkit which will be developed in WP3. It should be noted that this work package runs largely in parallel to WP3, and that there will be extensive contacts between these two work packages. The pedagogical requirements defined in this work package influenced the choices made in the development of the toolkit, and at the same time were influenced by the affordances of the applications that make up the toolkit.

The final stage of WP2 will involve design of an appropriate teacher training strategy to introduce tutors to this new methodology, and the development of teacher training materials.

2.1 Kolb's learning styles. Pedagogical approach

Experiential learning: experience as the source of learning and development

Kolb's learning theory sets out four distinct phases of learning which work sequentially in a continuous loop which is described as an experiential learning cycle. The cycle is the central element of Kolb's includes this 'cycle' as the central principle of his experiential learning theory. In the cycle, 'immediate or concrete experiences' provide a basis for 'observations and reflections'. These 'observations and reflections' are then assimilated and transformed into 'abstract concepts', which in turn give rise to actions, which become new experiences. At this point the cycle begins again

According to Kolb this continuous loop of experience and observation, followed by reflection and then action, is present in most situations where learning takes place. There is a process of continuous experimentation and development of knowledge through reflection on this experience which enables new experiences, and further knowledge.

Kolb's model works on two levels:

The experiential methodology:

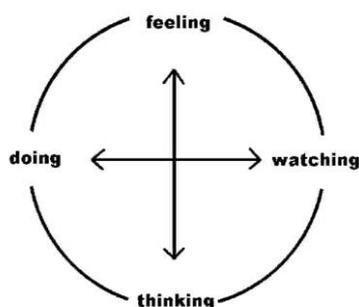
1. Concrete Experience. (Experiencing)
2. Reflective Observation. (Reflecting)
3. Abstract Conceptualization. (Thinking)
4. Active Experimentation. (Acting)

and the translation to what Kolb refers to as learning styles: (each learning style is composed by the combination of two elements of the methodology above)

1. Diverging (Experiencing + Reflecting)
2. Assimilating (Thinking + Reflecting)
3. Converging (Acting + Abstract Conceptualization)
4. Accommodating (Experiencing + Acting)

In this way we can see that the different phases coexist and overlap in these “styles”. The cycle provides a model of the different phases of learning but at any particular moment the individual may be engaging in combinations of the phases. Though any particular individual may tend to use one “style” more, they tend to be co-present. A full learning process will involve all of the phases. In a mature individual the four styles are integrated.

Kolb describes two continuums is the first called the Processing Continuum (how we approach a task) on the east-west axis in the diagram below and the Perception Continuum (our emotional response, or how we think or feel about it) on the north –south axis.



Kolb’s “styles” are the combination of two lines of axis (continuums) each formed between what Kolb calls “grasping experience” (doing or watching), and transforming experience (feeling or thinking) ‘Grasping the experience’ defines our approach to it, while ‘Transforming experience’ describes our intellectual or emotional response to it.

Kolb argues that these cannot happen simultaneously, we are either “grasping” or “transforming”. While this is debatable, the two axes provide useful insights into the kinds of

activities that take place in a learning situation. The methodology we adopt needs to cater to these.

The result of that decision produces our learning style, hence the two-by-two matrix below. We choose a way of 'grasping the experience', which defines our approach to it, and we choose a way to 'transform the experience' which defines our emotional answer to the experience.

Our learning style is a product of these two choice decisions:

1. Our approach: to watch or to do, and
2. Our emotional response: to think or to feel.

For example, we may react to a new experience by watching others involved in the experience and reflecting on what happens, or just doing it, and then reflecting. Meanwhile, we transform the experience into something useful by thinking, analyzing or planning and experiencing the concrete and tangible qualities of it.

The combination of these elements are as follows, using Kolb's terms.

	DOING	WATCHING
FEELING	ACCOMMODATING	DIVERGING
THINKING	CONVERGING	ASSIMILATING

Diverging: This combination involves looking at things from different perspectives. There is a tendency to **observe** rather than act, and the imagination and **reflection** are used to solve problems after gathering the information. This combination is common in situations that require **ideas-generation**, for example, brainstorming, and there is a tendency to use **group work**. For example, a group of nurses with a problem relating to the provision of a particular treatment may observe how each of them is carrying it out and the problems that arise, and discuss this and possible solutions, before reaching a joint conclusion and implementing it. Each of the stages of Kolb's cycle is represented

Assimilating: In this combination, a concise and logical approach is adopted. There is a focus on good clear **explanation** rather than practical opportunity, and on ideas and abstract concepts. In formal learning situations, this implies **readings, lectures, exploring analytical models**, and providing time for learners to think things through. An example of this is a nurse reading an article about a particular treatment and thinking about it, before applying it.

Converging: this combination focuses on finding solutions to **practical** issues. **Problem-solving and decision-making** through finding solutions to questions and problems are typical activities. The combination is commonly associated with **technical** tasks and problems rather than social or interpersonal issues and frequently involves **experimentation** with new ideas, **simulation**, and work with practical applications. An example of this could be the process in which a nurse uses a new treatment and learns as she goes along how to perfect the process.

Accommodating: This combination focuses on intuition rather than logic, and involves an practical and **experiential** approach. Learning emerges through engagement in new challenges and experiences, and carrying out plans. It frequently involves **work in the field** trying different ways to achieve an objective and there is a tendency to **work in teams** to complete tasks. An example might be the introduction of a new procedure on a ward, in which the nurses work together to find the best or most appropriate way to implement it through practical application of it and reflection.

2.2 The experiential approach in relation to SMILEON

As we have seen there are different combinations of types of learning and development. The different ways of learning may be useful in different learning contexts and situations. Conventional teaching and training are based mainly on knowledge transfer, but this forms just one part of the picture (assimilating).

The conventional knowledge transfer usually assumes what the learner needs to learn, and the best way for it to be learned. In addition, the learning action usually is focused on the need to pass an exam, which is very often quite different from the requirements of the context the individual will be or is already working in. This is especially true in the nursing context, where individuals have to learn on the job through experience. The aim of the methodology is to support this kind of learning and though conventional transfer approaches may have a role to play, the other combinations are frequently much more relevant.

In our view focusing on experiential learning is a powerful way to focus on the real learning needs of nurses, and provides a way to provide a more inclusive approach to teaching and developing different people, since the different combinations provide a variety of ways of adapting the learning process to individual and contextual needs and make it more relevant and so increasing the sense of personal value and purpose for the learner.

Note that the word learning is used here in order to emphasize the learner-centred nature of the approach, which is crucial to the experiential learning concept. The

words training and teaching usually focus on the teacher or training perspective (on behalf of the teaching or training organization - e.g., a school or employer).

Experiential learning is a very important concept as the core methodology in our project. The word **experiential** means that the learning objectives are achieved through personal experience and involvement in the learning process, rather than through teaching or training in a group by transfer of knowledge.

While conventional training is designed and delivered by an organization for the purpose of developing the capabilities (knowledge and skills) of a group of people, experiential learning is controlled by the individual for the purpose of achieving personal development and growth. In conventional training the needs of the 'organization' are the primary driver of the learning content. In experiential learning, the starting point is the person, and the primary driver is to help the individual grow and learn and develop according to his needs. People need certain prescribed skills and knowledge for their education and their work. But they also need to be helped to develop as individuals too, not only as professionals' part of an organization.

Developing people as individuals, which is the basis of experiential learning, implicitly enables learning methods to fit each person's needs and natural preferences, because learners are encouraged and helped to learn and develop in their own ways, using methods which they find most comfortable and therefore enjoyable. This is key to ensuring that they are motivated to keep on learning.

Experiential learning can help to provide a positive emotional platform which will respond positively and confidently to future learning, and also brings into play the concept of multiple intelligences - people should not be limited by a method of teaching based on reading and writing.

Differences between experiential learning and conventional training and teaching might be represented as:

CONVENTIONAL TRAINING	EXPERIENTIAL LEARNING
training-centred	learner-centred
prescribed fixed design and content	flexible open possibilities
for external needs (organisation)	for internal needs

transfers knowledge/skills	develops knowledge/skills via experience
fixed structured delivery	not delivered, unstructured
measurable components	more difficult to measure
suitable for groups and fixed outcomes	individually directed, flexible outcomes
EXAMPLES: presentations, classes, reading, attending lectures, exam study, observation, theoretical work.	EXAMPLES: learning a physical activity, games and exercises, role-play, outdoor activities, teaching others.

2.3 From experiential learning to informal learning: a new paradigm

Since 2002, Bersin & Associates have been studying the best practices in the organization, management and governance of corporate learning and development (L&D). In 2003, they published their first report, entitled *The High-Impact Learning Organization*[®], and they published a new study in 2008. The main mission has been to identify the specific dimensions of corporate training that define and create high levels of business impact.

As part of the ongoing research, they began to notice certain potentially disruptive trends in the evolution of the learning functions themselves, including a growing recognition of the:

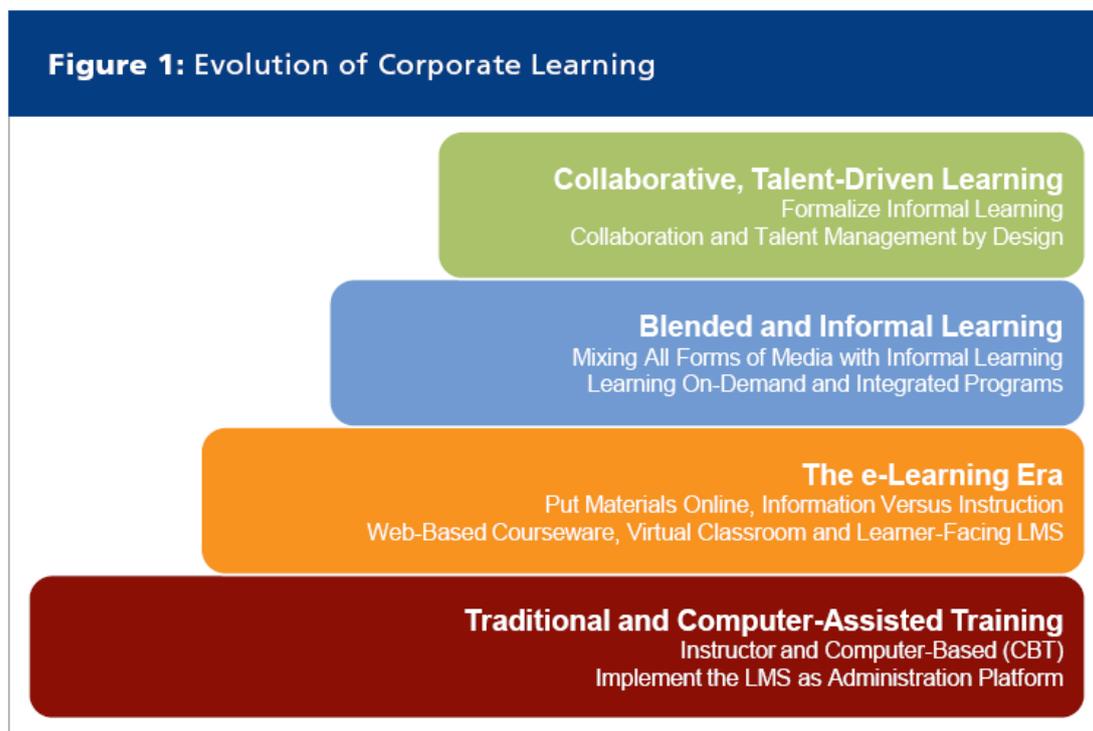
- Importance of informal learning in organizations,
- Power of new technologies to both deepen and hasten the flow of information across organizations;
- Changing needs and expectations for learning on the part of new generations of employees;
- Increasing speed at which the human capital needs of the organization are changing; and,
- Increasing inability of current practices to solve all of these new challenges.

These emerging trends raised some questions about the basic operational practices of learning departments. They realized that most training departments struggle with current practices, such as e-learning development; how will they handle new practices, such as using social software tools to support social learning?

Corporate learning is entering a new era – one of social, collaborative and talent-driven learning.

Nowadays, professionals still need formal training that is built around specific problems and formal courses; however, they need as well the availability of a “learning environment” in which they can find information, collaborate and build their own learning plans.

These considerations are highly relevant in the field of oncological nursing as well. Each of the points raised by Bersin in relation to the corporate world is an issue in hospitals as well.



Source: Bersin & Associates, 2009.

In a conscious or unconscious way, people find new opportunities to learn every day. Sometimes, these opportunities are in a traditional classroom or in the development of a project. But, more often, learning opportunities are not associated to a formal and pre-designed learning action. While learning has traditionally been understood as something that takes place in formal contexts the impact of informal learning is today growing more and more. The impact of the technologies has played an important part in this

According to Bersin & Associates, in a learning context, “formal” means that the program elements are pre-designed, have a formal structure and have specific, well-defined learning objectives. “Formal training” programs are those that have traditional modules and a formal structure – in essence, a “beginning” and an “end.”

Bersin & Associates define “Informal learning” as “... any learning opportunity that is accidental, ad-hoc, unplanned and which likely happens without the guidance of a discipline, such as instructional design.”

New researches about learning show that many corporate managers believe that almost 20 % of on-the-job skills are learned through formal training. 80% of all organizational learning occurs informally – or on the job.

The modern high-impact learning organization recognizes that most learning takes place in informal ways. The content, technology and formal design processes don't fit into the knowledge channels that are emerging in the organizations. So, in response, modern learning

organizations are rethinking their processes and approaches to the natural flow of the organizational knowledge.

Specialists on informal learning consider the 3 following types:

- On-demand;
- Social; and,
- Embedded.

On-Demand Learning: refers to learner-led activities, such as self-study e-learning, books, reference materials, videos, podcasts and other forms of content that the learner uses on his own when needed or as directed. The idea of knowledge transfer remains present but the agenda is set by the learner and the situation, rather than a fixed programme or syllabus

Social Learning: Includes all of the ways in which we learn from each other – through questions, discussion and feedback. In today's new technology environment, social learning take place in new, low-cost, highly interactive ways. We connect people very quickly and in groups by using social networking, communities of practice, wikis, blogs and instant messenger. Using these tools, we can now create highly specific social learning groups that can leverage the expertise of many people to solve the problems of the few.

In e-learning environments, communities of practice are an extremely useful social learning resources. These kind of communities were identified by Etienne Wenger and other authors in the 1990s. According to Wenger, a community of practice is *"a shared domain of interest" where "members interact and learn together" and "develop a shared repertoire of resources."*

In this approach, people learn from peers and experts, not from formal trainers. This is the main focus in this project (SMILEON).

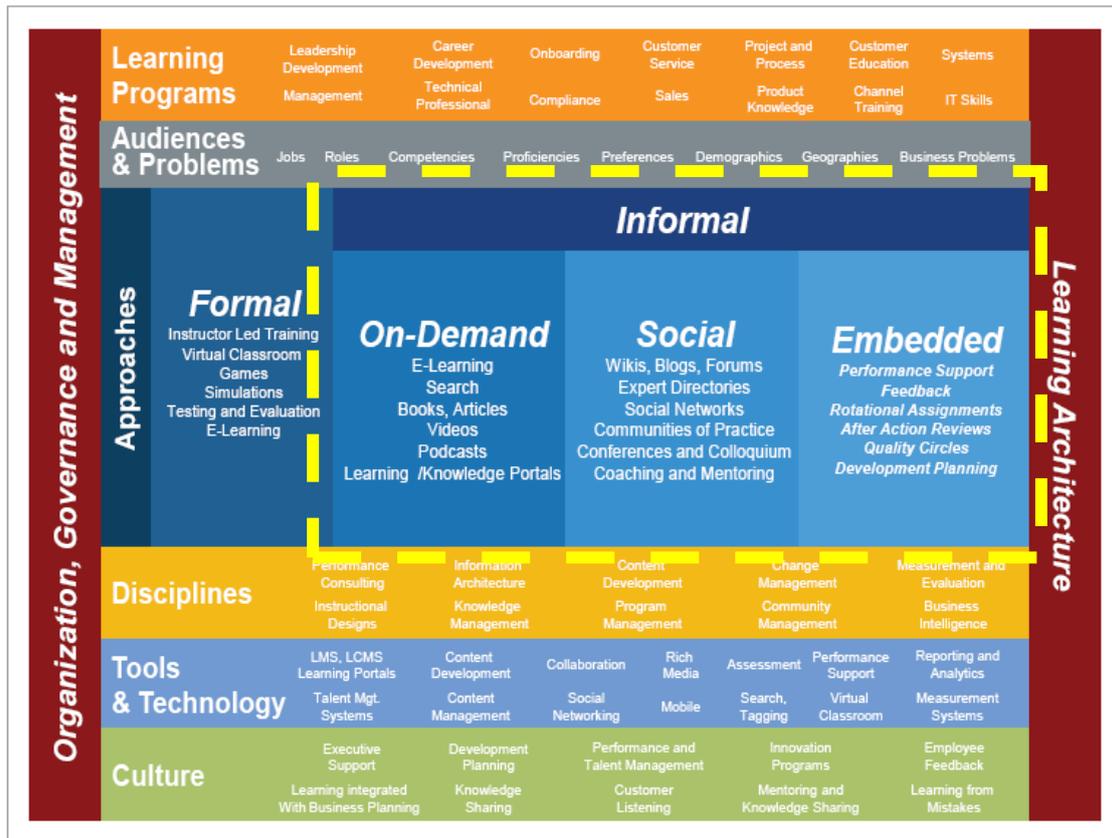
Embedded Learning: Embedded learning is all of the learning that happens as part of work itself. It can also be described as emergent, since it arises from the workplace activity itself, and is integrated with it. After-action reviews, project post-mortems, customer feedback processes or any other moments of engineered reflection on the success and failure of our actions are other examples.

The challenge for today's learning departments is to formalize informal learning – that is, to create approaches that support informal learning and achieve the same or more benefit than formal learning activities.

In SMILEON, we consider that the nature of the context and the changes taking place in the field make it imperative to ensure our approaches to learning include elements of informal learning. For this reason the methodology includes on-demand, social and embedded, or emergent activities.

We aim to create an environment to support informal learning and generate situations in which informal learning can emerge. To do this it is vital to establish clear objectives and implement processes for monitoring and evaluating the efficiency and alignment of the activities that take place

Figure 8: Bersin & Associates Enterprise Learning Framework®¹⁰



Source: Bersin & Associates, 2009.

2.4 From informal learning to social learning

As described above, outside of traditional learning, professionals and individuals are learning in other not so traditional ways: some of the time they are not even aware of the learning process as they are reading a new or listening to a colleague.

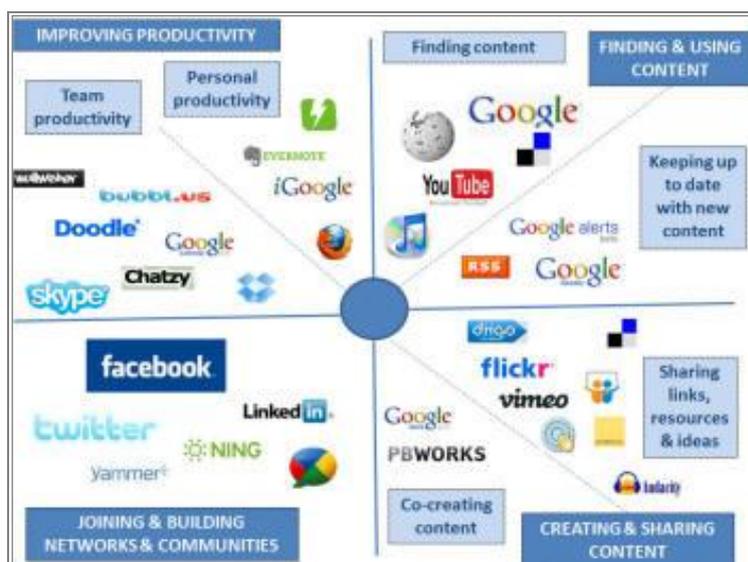
Recent studies recognize that informal learning needs to be recognized and supported by organizations. In fact, the availability of new media, including virtual mobility, has meant that people are now much more able to plan and manage their personal and individual learning, and technology can be used to support this.

Access to contents and resources is available 24 hours a day online, so that we can search, create and store information and knowledge for just in time (and just in case) use. Furthermore, the web not only allows us to locate relevant content but also to meet other people with whom we can communicate and share experiences. Social learning may be defined as “all the ways in which people learn from one another: through questions, discussions and feedback” (Bersin & Associates).

Much research indicates that social interaction around resources, experiences and new knowledge is very positive for learning outcomes; discussing the new knowledge with peers is a way to explore, co-reflect, cement and consolidate it. This is very close to the vision of SMILEON in which the nurses, connected by their mobile devices, function as a community of practice, learning from and with each other.

Groups of individuals are using these new tools to self-organize: collaborating and creating contents, and working and learning together. Even in traditional training events, teachers are using these tools to promote more collaborative and social learning. Today, learning technologies are designed to support different ways to learn: formal, informal, self-directed and social learning.

However, not all technologies promote social learning. LMS primarily support formal learning: students and teachers work around a traditional virtual course; even LMS 2.0 support social learning but in a formal and structured way: everybody joins around a content or resource, and follows a sequenced set of discussion and other activities. However, this does not support the emergent, unplanned nature of workplace experiential learning very well. However, according to Jane Hart's studies, there are a wide range of tools that can help to create social learning. The tools may be organized in 4 main areas according to objectives: improving productivity, finding contents, building communities and co-creating contents.



Some of these tools, especially the ones that center on building communities, will be used to develop our SMILEON project: such as Facebook, Twitter, LinkedIn. The toolkit that will be used will function more as a personal tool for nurses than as a centralized LMS system, and it will emphasise social interaction as a key part of the methodology.

Another issue to consider is the idea of content. Using tools like wikis and blogs in the traditional classrooms initially to interact around a subject, generates content around that subject. The process aids reflection and the interaction helps to contrast new knowledge with others. Blogging is a clear example of social learning. When students blog and read others' blogs is that a network of interactions appears: a social learning network. This means that much of the learning is "delivered" and is created by the group, rather than content, produced by publishers, organized and structured into courses, and consumed by students, as is the case in traditional learning. Learning content is co-created and distributed in very different channels. Rather than being composed, organized and packaged, e-learning content is syndicated, remixed and repurposed by student. Learning becomes a creative process, and the content itself is less important than how it is used processed and discussed and learning content- created by students- can be the basis for learning activities with the same results than traditional learning content.

SMILEON, then, focuses on a new less centralized methodology in which a "buffet" of resources, activities and access to other people is available to the learner, in order to facilitate on-demand, social and emergent activity that allows the nurse to learn in the workplace as she works, and moves around the hospital. In this process the methodology will provide opportunities for her to have new experiences, observe others, reflect and discuss them share her ideas and incorporate these ideas in to new actions in a continuous learning cycle thus integrating learning and work.

These methodological considerations are given shape in a collection of activities that support experiential workplace learning for nurses. The activities include:

- On-demand activities, centered on resources provided in the system. Eg watch a video.
- On-demand activities centered on resources generated by learners. Eg read another nurses journal.
- Social learning activities centered on resources e.g. discuss an article with other nurses, discuss a nurses photo of a patient condition.
- Social learning activities centered on an emergent workplace issue, eg discuss a problem with a treatment.
- Emergent activities, proposed by nurses or tutors related to emerging workplace issues that are learning opportunities.
- Sequenced sets of combinations of activities designed to promote the experiential learning cycle.
- Combinations of the above.

In the Teacher Training Manual we will include a more comprehensive and detailed list of each of the proposed activities.

It should be noted that this document is the first draft of the Methodology Manual and that the definitive public version will be done in the M22 after completion of 2 pilots and it will incorporate some adjustments issued from the pilots implementation.