

## Research Article

### Mobile Education-proposing a Mobile Learning Model for Designing an Institutional Mobile Scenario

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**Abstract:** Inspired by the theory of activity, the context model and previous researches, this paper proposes a model bringing together the key concepts of a mobile learning environment based on the concept of contextualization, major advantage of mobile learning. It details the learning mobile environment, its main components, its characteristics and the different interactions between them. The proposed model meets the constraint of mobile learning complementarity, allowing flexibility in its integration with classroom learning such as e-learning or blended learning. It mainly improves upon conventional learning methods and advocates others such as situated, interactive and connectivist learning. Indeed, research several that mobile learning enhances the educational program and reinstates it into the daily lives of learners through their own mobile technologies. Properly implemented, Mobile Learning can make learning activities as fun, as beneficial and certainly more motivating for learners and educators especially in the mobile era where traditional learning methods don't meet all learners' needs. Mobiles, connected and in constant social interaction, learners require learning systems more adapted to their communicative and interactive nature. This paper is an early implementation of this concept in learning systems. It aims to help educators to integrate mobile technologies into their learning activities without alternating their educational goals.

**Keywords:** Connectivism, learner attitude, learning activity, learning scenario, situated learning

## INTRODUCTION

The Millennial Generation (Generation Y) is an inquisitive, connected and multicultural generation challenging recruiters and educators (Rollet, 2012). This generation requires immediate answers to questions, loves and values creativity and needs to acquire knowledge on the go. Generation Y is used to "connexity", they are the most interactive generation and responds to loud and quick visuals, audio and music (Eisner, 2004). They use technology in their daily activities, teaching and learning should not make exception.

Traditional learning methods are not enough for these young people, exchange and practice. Indeed, successful managers attribute their success to practice for 70%, to exchange between peers for 20 and 10% to formal training (Dieren, 2012).

New technologies, especially mobile devices and wireless networks, offer great benefits for education in the Mobile Age. They meet, on a large scale, the needs of this new generation and can respond if properly implemented, the requirements of the new educational systems. In this sense, Lisa Nielsen, author of Innovative Educator blog confirms: « when the world

inside schools is different from the outside, what are we preparing our students for? When we avoid these technologies in the real world instead of adopting them, we leave our students ill-equipped to take advantage of the power of these technologies for learning, free to develop a respectable digital footprint and without sufficient knowledge to navigate with security in the social web", (Wylie, 2012).

Mobile Learning is a combination of individualized learning and learning anytime and anywhere (Gikas and Grant, 2013). It has lately become a subject of many significant projects in schools, workplaces, museums, etc. These projects range from providing revision questions to children by mobile phone, to context-sensitive learning in museums (Sharples, 2006).

Educators are still confused about mobile learning and how it can be well implemented into the educational program respecting pedagogical objectives. To this end, this article will address the following questions: What is Mobile Learning? Why should it be implemented? How should implementation occur?

This study presents a solution to integrate mobile technologies into the classroom, as with e-learning or blended learning. It proposes a model highlighting the key concept of mobile learning, namely, the context. It

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aggregates the components of a mobile learning environment, characteristics, interactions between them and especially the influence of each component the learning activity nature. The model is not based on any learning method, leaving choice to the teacher according to the purpose and the needs of learners. However, its implementation through an existing learning scenario proves that our Mobile Learning model allows switching from a classical approach to multiple advanced approaches. It also promotes situated, contextual, collaborative and interactive and connectives learning, proving the great contribution of mobile learning.

**Challenges of current learning systems:** A major goal of education is to provide learners with the skills and knowledge they need to become competent adults. Education systems offer means of support to prepare young people for the real world. It becomes imperative in our changing world to reassess not only the abilities that students are acquiring in our schools, but also the way of acquisition. And when the program content changes, it goes without saying that the way to present it must also change (Ministère de l'éducation de la Saskatchewan, 1993).

Educators also realize that learning is an interactive process and that students need to participate actively in achievable, useful, relevant and stimulating tasks to meet the challenges of their of program studies.

Indeed, the great cultural transformations of our world, the changing of our social habits and even the evolution of economic and technological sectors as well as the globalization, greatly affect our daily lives. Today, the internet provides access to different resources and covers countless disciplines. Additionally, the social network phenomenon increasingly pervades social interaction.

These factors affect the nature and behavior of today's young people and require educators to abandon certain practices. For example, the learning process based on information research must yield to this practice for the benefit of the analysis of this information and its application in daily exercises within learners.

It has become clear that educators are no longer the only possessors of knowledge and power. This will promote the role of the educator to guide and mentor learners in selecting the right teaching materials instead of presenting it through lectures. Educators must assign a more active role to learners. They are no longer passive receivers; they tend to question the usefulness and even the relevance of learning activities offered by their educators. They seek a similarity between market needs, daily life and the pedagogical material.

Education systems encounter numerous challenges such as:

- Follow learners' social and cultural trends and developments

- Provide content and relevant learning activities to new generations environment and their needs
- Overcome the non-continuity between learners' daily lives and learning activities
- Lack of motivation, commitment and sense of responsibility of learners
- Lack of teachers' motivation and their resistance to introduce new practices in their teaching methods
- Use of traditional pedagogies that are more individualized and do not favor collaboration, exchange and sharing characters and which are based on the assessment of knowledge rather than their exploitation

In general, education systems must respond to two issued etailed in the next section: namely, used learning approaches and models and new learners' attitudes in the 21<sup>st</sup> century.

## **LEARNING MODELS AND APPROACHES**

Educators are looking for effective teaching and training methods that re-engage learners and increase their sense of responsibility for selecting their educational material.

The Ministry of Education of Saskatchewan stated that: "[...] to take responsibility for their lives at a time of such rapid social change, students should never stop learning. Like most aspects of daily life are called to change profoundly; independent learning should enable individuals adapt to the constraints of work, family and society" (Ministère de l'éducation de la Saskatchewan, 1993). Thus, institutional systems should migrate to knowledge-centered, learner-centered and skills-centered models, fostering communication, collaboration, sharing, autonomy and the establishment of a sense of responsibility among students, decision making and relevant analysis.

There are a variety of models, strategies, methods and techniques of teaching and learning. However, their use in education systems is limited. In fact, educators are limited to conventional models largely based on lectures, exercises and evaluations reproducing studied material in formal learning.

Social trends and the development of information require that we must focus on: learning models such as social interaction; on strategies such as interactive teaching; experiential learning and independent study; and on collaborative and situated learning methods such as surveys and experiments. We should combine several methods to obtain richer and more varied learning activities. In addition, we must integrate tools highlighting the potential of new technologies such as information, construction and contextualization tools.

Effective pedagogical tasks should (Ministère de l'éducation de la Saskatchewan, 1993):

- Be specific with a reasonable size
- Be feasible given the abilities and interests of the student
- Involve students actively
- Be challenging and relevant for students

Educators must utilize different pedagogies depending on context and learners' needs and combine multiple approaches and methods. They must remain creative in the types and objectives of the proposed learning activities. They must (Ministère de l'éducation de la Saskatchewan, 1993):

- Assess the needs of all students
- Combine multiple pedagogies
- Offer learners freedom in performing tasks
- Make learners participate in decisions about their own learning
- Evaluate the relevance of learners in analyzing information and solving problems
- Increase learners' skills through challenging activities

Thus, even if the curriculum indicates required learning, it must be flexible enough to take account of the learners varied backgrounds, prior knowledge, skills and interests, as well as differences in community expectations (Ministère de l'éducation de la Saskatchewan, 1993). Also, processes such as critical inquiry, reflection and investigation are considered more important than acquiring static knowledge (Ravenscroft, 2011).

### LEARNERS' ATTITUDES

Besides the limitation of teaching methods, teachers must deal with a second problem concerning new learners' social attitudes.

Indeed, in his description of Web 2.0, Tim O'Reilly does not focus on the technological aspect, but described it rather by the new attitudes of users (Reinhardt *et al.*, 2009). Web 2.0 is based on the characteristics of communication, exchange and collaboration, which are new attitudes of new generations. 21<sup>st</sup> century students have more resources at their disposal. They like to discuss, rather than passively receive, they prefer to discover for themselves and they prefer practice to theory.

Students today are more difficult to motivate and to satisfy. To learn, they require:

- Seeing the relevance of the material to be studied
- Taking part in decisions relating to their learning
- Feeling motivated
- Understanding the relationship between the educational approach and the learning experience and between the latter and daily life

This situation has worsened with the evolution of mobile technologies. Indeed, learners use these technologies in various daily tasks. And when schools prohibit their use in formal learning, education becomes a burden for them. It causes a break between them and their exciting social life full of interesting experiences.

### MOBILE EDUCATION

Technological development has given birth to smart phones, wireless networks and various other mobile devices like Tablets, iPads, iPods, etc. These devices are lightweight, small size and include several features allowing users to carry them wherever they go and use them for many daily activities. These technologies are becoming increasingly adopted and young people are more familiar with their use. Statistics show that the mobile phone has become the primary media globally and internet network coverage reaches nearly 90% of the world's population (Lienard, 2009).

In 2001, Marc Prensky noted that "Our students have changed radically. Today's students are no longer the same people for whom our educational system was designed ". These 'digital natives' are exposed to new technologies and feel more engaged in learning by using them. Our students not only want mobile learning, but they need it (Wylie, 2012).

A mobile device is able to globally position itself. It can resolve queries between friends or off era video explaining the concept of inheritance in object-oriented programming. An iPad offers the opportunity to read whole books during a trip by train. A mobile device allows the acquisition and the construction of knowledge by learners in different contexts.

**Defining mobile learning:** Several communities have defined mobile learning according to their own experiences. Some see it as an extension to e-learning. Others define it compared to the use of mobile devices in the learning process. While some focus more on the mobile nature of learners.

Indeed, according to the second perspective, Mobile Learning refers to the use of mobile or wireless devices for the purpose of learning on the go (Park, 2011). Sharples (2006) Points out that mobile learning is not just about the use of mobile devices or the dissemination of content via small screens but it is learning across contexts. These contexts do not just refer to physical ones but also to the movement between the different disciplines and fields of knowledge.

In our vision, mobile learning is a new learning style derived by the learners of the digital age, their attitudes and their requirements and to meet their needs to acquire information while moving using mobile technologies. It can be used as a complementary system to any learning process.

However, this use of mobile technologies must take into account both technical characteristics of these devices, the mobile environment itself and its essential components.

**Values and contributions of mobile learning:** Educators, who have used mobile technologies in the learning process, testify that:

- It is important to bring new technologies into formal learning (Uden, 2007)
- Mobile learning can be used to diversify the types of learning activities (Uden, 2007)
- Mobile learning can be used to re-engage young people
- Mobile technologies assist students' motivation
- Mobile learning encourages the sense of responsibility (Uden, 2007)
- Mobile technologies act as reference tools
- Mobile learning opens up the possibility of collaboration between groups of young people who find difficulties to become part of a community (Ministère de l'éducation de la Saskatchewan, 1993)
- Mobile Technologies improve organizational skills through management tasks and planning applications

Kelly Tenkely recently presented a proposal on iPAD use at her primary school. She argues that the iPad offers the opportunity to improve learners' skills and abilities. According to her, "the education of the 21<sup>st</sup> century must be active, engaging and personalized to maximize its efficiency". Students should have universal access to mobile technologies that enable critical thinking, differentiation and solving problems (Wylie, 2012).

Yordanova (2007) confirmed that mobile learning can improve collaborative learning. Indeed, the Wi-Fi connectivity of mobile devices, their capacity to collect

information and to detect locations can all be exploited creatively to enhance group learning.

The use of mobile technologies in education is a stimulating factor of learners' motivation and interest. Educators can use them to animate their course, to introduce it somehow motivating outside of class sessions as well as to post some videos of the course presentation for students as a revision.

**Mobile learning main components:** Mobile Learning can be implemented and integrated as a complementary part of the existing learning system to provide a coherent and effective system only if we take into account all the entire mobile environment, its characteristics and components.

Thus, in a previous article, Marzouki *et al.* (2013) we explained the different characteristics of the mobile education considered relevant which are:

- Informal, contextual, situated and authentic
- Immediate, appropriate, just in time, anywhere and anytime
- Personalized
- Personal, individualized and learner centered
- Complementary
- The content is:
  - Short, simple and interactive
  - Specific and targeted
- The mobile environment is
  - Attractive and easy to use

Basic components, characteristics and constraints, are presented in the Table 1 below.

Mobile Learning is a new learning format based on delivering and designing specific educational activities. The latter are dependent on all the mobile learning environment components as shown below.

Table 1: Basic components of a mobile learning environment

Components	Characteristics	Constraints
Learners	<p><b>Mobiles:</b> In continuous moving in space and across disciplinary fields, through the ICTs used</p> <p><b>Communicating:</b> Tend to share their ideas, interests and sources of information, to collaborate and work together</p>	<p><b>Demanding:</b> In terms of</p> <ul style="list-style-type: none"> <li>• Instantaneity in obtaining information</li> <li>• Adequacy of resources</li> <li>• Good quality with minimal time and cost</li> <li>• Staying updated</li> </ul>
Educators	<p><b>Mobiles interested:</b> To further enhance pedagogical content using ICT</p>	<p><b>Conservatives:</b> At the use of mobile technologies they lack expertise in e-learning content development</p>
Devices	<ul style="list-style-type: none"> <li>• Portables</li> <li>• Linked to the internet network</li> <li>• Containing location utilities</li> <li>• Multitude of applications facilitating communication, sharing and collaboration</li> <li>• Enabling social interactivity</li> <li>• Organization, planning and task management applications</li> </ul>	<ul style="list-style-type: none"> <li>• Small size of the screen</li> <li>• Binding input and display modes</li> <li>• Multiple manufacturers: difficult to ensure compatibility of information source format</li> <li>• Limited storage and processing capacity</li> <li>• Limited battery autonomy</li> </ul>
Network transfer	<ul style="list-style-type: none"> <li>• Extended and wide range accessibility</li> </ul>	<ul style="list-style-type: none"> <li>• Weak reliability</li> <li>• Average transfer speed</li> <li>• Non widespread availability</li> </ul>
Context	<ul style="list-style-type: none"> <li>• Stimulant: real-world situations</li> </ul>	<ul style="list-style-type: none"> <li>• Noisy</li> <li>• Entertaining, distracting</li> <li>• Is not conducive toward focused mental concentration</li> </ul>

**For learners:**

**Adaptive:** Activities adapted to the needs of learners, their preferences and also their location.

**Interactive:** Requires a minimum of learners' interaction to increase their involvement in the learning process. In fact, their understanding will improve with manipulation.  
Easy and intuitive

**Customized:** Freedom of choice of type of subject, schedules of reception, interfaces, etc.

**For educators:**

**Simple to design:** Simplicity of mobile learning activity development and ease of integration into pedagogical scenario.

**For devices:**

**Synthetic:** Because of the size of the screen and input and visualization modes.

**Lightweight:** Because of the size of storage and processing capacity.

**For transfer networks:**

**Minimum of multimedia:** This is to restrict the use of video and audio in order to ensure a wide accessibility.

**For the context:**

**Context aware:** Using localization features.

Each component of this environment is interacting with the other components. And each of them has a direct impact on the content of the learning system and generally on the pedagogical activity.

## MOBILE PEDAGOGICAL DESIGN

The development of mobile technology and its use in learning contexts requires us to regulate this use. Students as educators must be able to take advantage of the potential and advanced functionality of mobile devices in an optimal manner.

Mobility remains fairly new and relatively unexplored, so teachers are not yet able to control this dimension so as to integrate it efficiently into existing learning systems.

Based on this assumption, we propose guidelines and a synthetic model offering educators the necessary means to design a pedagogical scenario promoting the optimal use of mobile technologies.

Thus, we offer a framework developed to design a pedagogical scenario (Retbi *et al.*, 2012) enriched by Mobile environment concepts.

**Pedagogical design:** "The key purpose of the teacher is to create effective and stimulating opportunities for

learning through high quality teaching that enables the development and progression of all learners" (Retbi *et al.*, 2012). This rule also remains valid for designing a pedagogical scenario.

When a teacher wants to design his course, he develops the content and activities for each part of the course. These activities will be carried out by learners following an execution order to satisfy the educational qualification as well as the objectives.

In this sense, a compromise between the flexibility of the expression of a pedagogical scenario and the support of the educational dimension allows eases integration of the mobility concept.

Thus, we propose that a learning scenario be described as a composition of activities. Each activity will consist of an adaptive sequencing of actions. The latter is expressed as a flow using simple and/or conditional transitions and synchronizations. More explicitly, each learning scenario may be defined according to:

- Activities and objectives associated with them
- Actions that make up the activity and who se execution increases the efficacy performance of activities. They can be of various granularities (debate, evaluation, discovery, quiz, etc.) It is also necessary to provide a description of the action by identifying:
  - Services and educational tools, i.e., communication tools (email, chat, forum, etc.) or information tools (documentary database, FAQ, etc.)
  - Learning resources (text, audio, video, etc.) necessary to the performance of the activity
  - Intention that motivates the action which led to achieving the activity objectives
- Adaptive sequencing of actions, indicating the execution order of actions and the nature of the transition from one action to another. This sequencing is expressed by a simple transition, a conditional transition or synchronization

We rely on a flow-oriented visual syntax that will be as follows.

**Simple transition:** Linear passage between two actions without any condition. Represented by an arrow.

**Conditional transition:** Transition that checks if an expression of the action execution (number of correct answers, time limits, etc.) is valid, then action1 else action 2.

**Synchronization:** It can manage the parallel execution of actions.

The identification of the degree of granularity in an activity or an action depends on the educational approach adopted by the teacher, the profile and

requirements of learners and specific nature of the learning environment.

**Key concepts of a mobile learning scenario:**

**Context:** According to Ting (2013), students learn best when they have the opportunity to acquire skills and theories in the context where these skills and theories are used.

Learning is an ongoing process. It takes place when we are engaged in our daily activities. This means that we are able to learn from our own experiences and our mistakes and those of others (Naidu, 2004). However, this does not mean that we should allow the process of learning to occur randomly. On the contrary, we must make learning pedagogy more realistic.

A mobile learning system is able to meet these needs through its major key concept: the context. Mobile devices linked to the internet through wireless networks, in addition to features such as GPS, enable gathering information about the user, his preferences, his interests and his environment. These data form the user's context.

Dey, Abowed and Wood define context as any information that can be used to characterize the situation of an entity. This entity can be a person, a place or a relevant trial matter to the interaction between a user and an application, including the user and the application themselves.

A successful instructional design must be specific to the context, from the moment that cognition is defined by its relationship to a given context (Uden, 2007). This means that we do not only learn in the context, but through the context also. Knowledge is always contextualized; it is an activity that is co-determined by the individual and the environment.

Adapted to our context, the Tarasewich model (Tarasewich, 2003) could be extended as detailed below. Indeed, in a mobile learning environment, the context is a key concept influencing participants in the learning process as well as the mobile educational scenarios and learning activities resulting.

The mobile context contains participants, devices and physical environment. Each element of the context maintains the interactions with the other elements:

- Participants are learners and educators
- **Mobile technologies:** Mobile devices and wireless networks
- **The physical environment:** The location, lighting, noise, etc

Learning can be seen as a process in which students can acquire information and manipulate artifacts with the help of teachers and shape their thoughts through social interaction with peers (Ting, 2013). In fact, mobile learning allows different interactions of learners.

**Learners:** During the learning activity, each learner works individually, or with other learners in collaborative activities via mobile technologies. This allows a high level of communication, exchange and sharing resources.

**Learners and educators:** In a mobile environment, interactions between educators and learners are still more favored and are bi-directional.

Learners can also become sources of information and knowledge. They can share it with their teachers.

Educators, for their part, become rather like tutors and assist the learners in the selection of existing information, their handling and especially their analysis.

**Learners and mobile technologies:** Learners use mobile technologies to have immediate, instantaneous and personalized access to information. This interaction is governed by the ownership criteria. The ownership is extremely important in the motivation of the student. It allows customization and individuality in the learning process. Indeed, learning with its own device and more particularly with its own application, guaranteed a personalized learning environment for each learner. This creates another criterion which concerns familiarization.

Mobile technologies in their turn provide resources to learners through their different application according to their characteristics and their connectivity. They allow them exploiting information in their context (Ng'ambi and Lombe, 2012). This ease of access has an important role in the motivation of the learners and their re-engagement in the learning process.

**Learners and physical environment:** The physical environment of the learner emits messages and signals to learners through sounds, images, etc.

Learners also communicate with their environments through the collection of data, whether images, sounds, behaviors, etc.

**Educators and mobile technologies:** Mobile technologies offer educators a new way to disseminate knowledge with a more advanced way which can motivate them even more.

In their turn, educators can use these technologies to instantly access educational resources.

**Mobile technologies:** Technologies include mobile devices and wireless networks. Devices connectivity, their features, speed, reliability and the width of the bandwidth of wireless networks are both constraints and booster the interactions between the participants and the other components.

A mobile device may contain multiple applications connecting together to provide a complete and specific

system to learners. These applications can communicate using wireless or offline Exchange networks.

**Physical environment and mobile technologies:** The physical environment determines the characteristics of mobile technologies. Indeed, network coverage determines the mobile devices connectivity. Lighting will affect the brightness of the screens. This affects, in turn, applications which can be used and their nature.

According to Ting (2013), from the interaction theory, there are two types of interactions between learners: social and educational. Social interactions are mutual, flexible and bidirectional. In the context of mobile learning, social interactions are used in a learning context and alternatively affect educational interactions. The latter, in their turn, become flexible, mutual and bidirectional, which boosts them and strengthens them even more.

**Context and pedagogical scenario:** A scenario is a sequence of learning activities. The scenario is determined and depends upon the learning environment which, in our case, includes all of the context, its dimensions and learning methods.

**Mobile learning affects the activities of learning in several different ways:** Mobile learning has an impact on the granularity of learning activities. Indeed, through the context of mobile learning, learning activities can achieve finer granularity.

Learners, with their mobile and connected character, allow for customization of the learning activity and ensure its authenticity through their needs, their preferences and their profile.

The physical environment in turn determines the nature of the learning activity. Its design imposes more flexibility, accessibility and customization.

Ting (2013) in any learning process, there are three types of interactions: learner-learner, learner-content and learner-educator. Ting (2013) presented an example proving the influence of mobile technologies use on these different interactions. Thus, mobile learning makes the learning process a dynamic system consisting of several interwoven interactions.

Indeed, it is these different interactions that give mobile learning its specific characteristics. They allow it to respond to the recent needs of the 21<sup>st</sup> century education and introduce learning activities combining different approaches to learning.

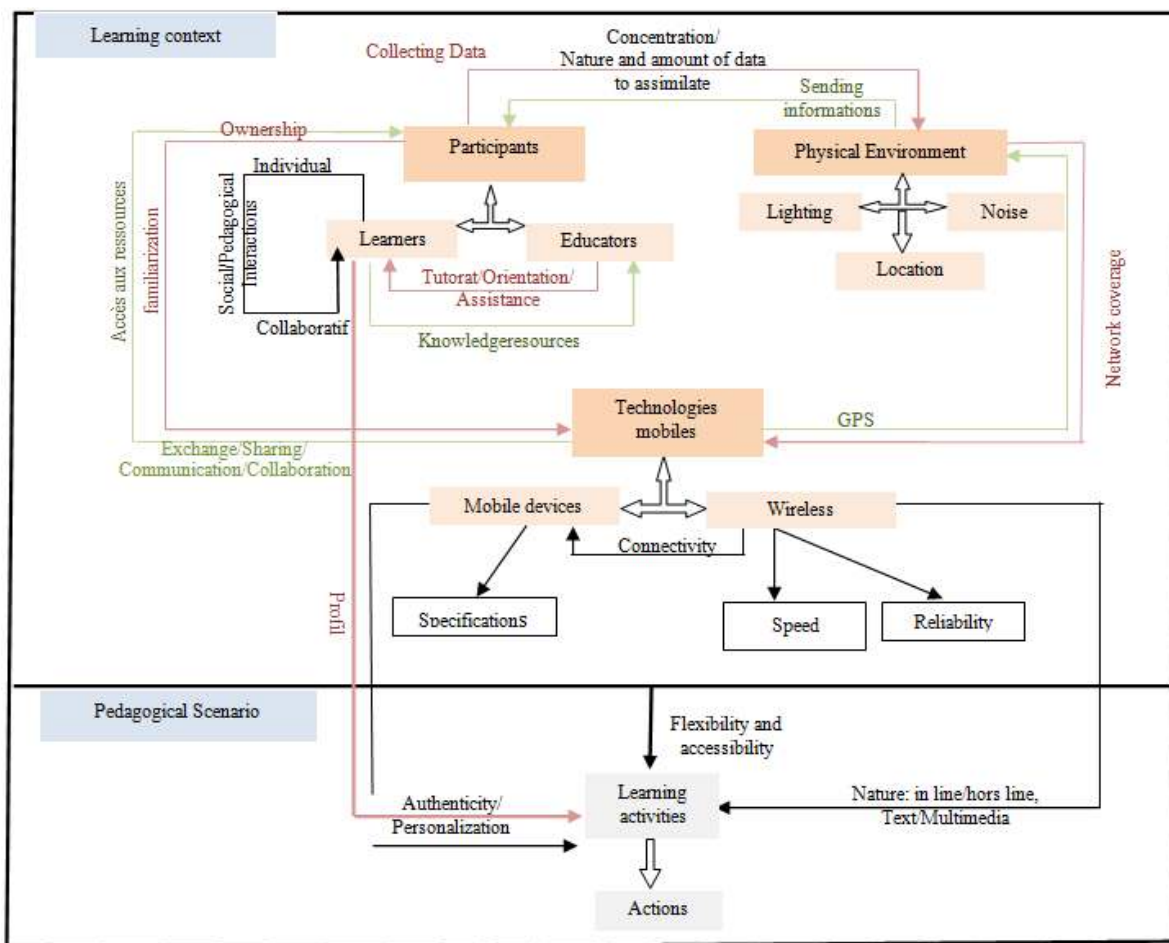


Fig. 1: Mobile learning environment and different interactions between its components

As indicated previously, the learning activity is determined by all the components of the mobile learning environment. Profile and preferences of the learners, mobile technologies and network coverage and physical environment characteristics define the nature, content and the conduct of a learning activity.

The learner will be able to make the choice between a collaborative or individual activity; and potentially a combination of the two.

The below schema (Fig. 1) summarizes what we have presented before. It shows the components of a mobile learning environment and the different interactions between them. It also highlights their influence on the learning process.

**Mobile learning scenario example:** The chosen activity "la biosphere contreattaque" of the life sciences; Biology and Ecology aim to make the learner aware of this potentially dangerous climatic phenomenon.

#### The original scenario:

- Give instructions to students in order to promote reflection and discussion about this phenomenon
- Gather around computers and start browsing the climate change site
- Remind students of the atmospheric components
- Highlight the notion of global ecological balance while citing examples of air pollution and smog, Paris, etc. Establish the link between atmospheric and epidemiological phenomena related to pollution
- Result Analysis
- Discussion
- Reflection on personal feelings

**Mobile learning scenario:** Whether face-to-face or e-learning educational system, mobile technologies are very effective, optimal and appropriate for the preparation and introduction of the learning activity. Further, mobile technologies must be adopted during these stages. Thus, the nature of the activity they broadcast can be more motivating and engaging for students.

According to our model, the scenario of this learning activity may be modified as follows.

**Upgrade and activity introduction:** The educator may provide an upgrade well before the activity using a simulation, a podcasting, memos or even SMS to remind students of the necessary steps of the activity. This use saves time and will serve as a reference for learners if needed during or even after the activity.

A questionnaire could be disseminated to learners letting them choose whether to respond individually or to work collaboratively using a discussion space (social networks, Google groups, etc.) in order to discuss and

share their responses. In this case, the interactions can be bidirectional between educators and learners because they can, in turn, ask questions to educators.

**During the activity:** The educator can use a dialogue generated by the questionnaire at the beginning of the activity to stimulate the discussion, as it may provide answers to the questions posed by the learners.

At the end of activity, the educator may ask students to produce a video from their collected data, their memos and their current achievements. These videos will be shared later via the space previously used for the Questionnaire. It can also propose a voting system to choose the best video to encourage students' creativity.

**After the activity:** At the end of the activity, the discussion space initially dedicated to questionnaire will constitute a reference and a very rich data resource combining social interaction between learners, learners and educators and learners and their physical environment. It also contains data illustrating the phenomenon being studied. This space is beneficial for these learners and others wanting to study the same phenomenon.

## CONCLUSION

Thanks to their many features, mobile technologies will provide a response to a large part of current educational systems challenges. They allow educators to diversify the methods used and to introduce meaningful learning activities. They also re-engage learners and motivate them in their learning process.

According to the proposed model, a mobile learning activity is determined by the interacting learners, learners and educators, learners and their mobile devices, mobile devices and the physical environment.

This exemplifies, that in a mobile context, we could make the activity more fun and beneficial. The data collected by the physical environment promotes awareness by learners of the studied phenomenon and will even arouse their curiosity to learn more during the course.

In the mobile scenario example, exchanges between different learning participants can form a strong basis for the educator to optimize the content of its courses and adapt it. He could integrate parts in response to the questions already raised by learners.

We can notice that learning is passed from using a traditional constructivist approach to a situated, interactive and collaborative learning.

The end of the activity in the classroom does not mean that the learning process is finite. The discussion is always available and whenever a learner adds a new element in the discussion space, all members can be notified and participate if they are interested. In this way, the learning activity is neither limited in time nor in space.



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