Mobile Learning Detractors

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Mobile technologies are commonplace in our society, with more than 4.5 billion mobile cells registered worldwide in 2009. With so much available equipment, learning solutions providers have a long history of experiments concerning the delivery of information to a specific user, preferable in any location he might be. Although after 20 years of serious experiments we are still... experimenting, mobile learning seems to be the next best thing in education, except for those who dismiss it as a fad. This paper deals with this latter point of view, not necessarily rebutting it, but trying to see whether the arguments are like the fabled sour grapes of those who did not understand the paradigm or there is really something wrong with adding mobility to education.
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1 Introduction

In February 2010 The International Telecommunication Union reported that in 2009 there were 4.6 billion mobile cellular subscriptions globally. The organization expects this to reach 5 billion in 2010, with the number of mobile broadband subscriptions exceeding one billion globally during 2010 [1]. One month later, Gartner released their predictions [2], estimating that by 2011, over 85 percent of handsets shipped globally will include some form of browser. Thus, it is easy to understand why E-Learning solution provider Blackboard released [3] Mobile Learning applications for all major mobile platforms in less than a year (going as far as acquiring the company responsible for the category defining suite on iPhone[4]).

However, predictions also fail to mention anything about E-Learning using mobile devices. There is no mention of m-learning in Gartner's Top 10 Consumer Mobile Applications for 2012 or in Top 10 Mobile Technologies to Watch in 2010 and 2011. Different elements that might be included in a Mobile Learning initiative are being mentioned (for instance: local awareness, mobile browsing), but concerning the stakes that big E-Learning providers have invested in E-Learning on Mobile (like Blackboard's expensive acquisitions), it was expected at least a "nod" from the Gartner analysts.

This paper deals with the views of those who think M-Learning does *not* deserve to be taken into account on the medium term predictions, at least not in the current meaning of the term. Some of these detractors consider the technology is not ready, as staring into a 2.8 inch screen for two semesters is not a viable solution. Others believe the mix between management, tech support and pedagogy is unbalanced. And there are others who consider that at the root of Mobile Learning problems are those working with curricula and teaching materials.

We should state from the beginning that the hardware manufacturer or the solution provider itself is irrelevant to this discussion, because we are referring at the technology level, not the devices themselves. Also, it can be argued that the manufacturers did their jobs, since in less than a decade we went from monochrome displays to 800x600 full color resolution, videoconferencing and network access, plus the development made in software application for them.

While peer-reviewed academic journals are a preferred source of material, the books and research papers published in the field of Mobile Learning are of little use to this critical approach, except for fact checking. As the mainstream authors and researchers

promote guidelines, methodologies and, lacking other word, *belief* in the M-Learning paradigm (for instance [5] or [6]), the critics have to rely on different publishing methods to make their disagreement heard. Still, we have to recognize that the technical limitation of the mobile hardware (battery life, low processing power, small display, networking infrastructure costs, etc) are mentioned in most of the books and academic journals we have consulted. However, for this paper, we had to consult blogs and online journals, and appeal to studies, books and research papers in order to corroborate data and claims.

One of the most important sources of information about the mobile learning effort is [7]. Although more than a year old, the book covers the steps taken toward a generalized mobile learning initiative in 9 countries the authors consider ahead of the others. However, the book does not cover Europe. Insights about EU's vision can be found in the deliverables from the MOBIlearn project [8], which identifies itself as *a worldwide European-led research and development project exploring context-sensitive approaches to informal, problem-based and workplace learning by using key advances in mobile technologies*. Among the reports of this 2002-2006 project we can find *Guidelines for learning/teaching/tutoring in a mobile environment* [9], and *Best Practices for Instructional Design and Content Development for Mobile Learning*[10]. Definitions and examples of mobile learning applicability in different areas can be found in Angela Bridgland and Patrick Blanchard's article *Powerful, portable, personal computing: is M-Learning and opportunity in e-learning*[11]*?* or, in "elearn Magazine"'s article *Lifelong-Learning Support by M-learning: Example Scenarios*[12]. We cannot end this list of books and articles without mentioning Allison Rossett and James Marshall's article entitled "What's Old Is New Again", written for the "T+D (Training+Development)" Magazine [13], one of the few attempts to measure the actual level of e-learning usage. The article focuses on what e-learning tactics and techniques are actually being used by managers. Despite the fact that the survey fails the statistical rules of representation, it does offer some interesting insights about e-learning and mobile learning (the surprise in the case of the latter being the absence from current and future plans).

2 Definitions and Usage

The MOBIlearn Guidelines are defining Mobile Learning as *Any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies* [9]. Another widely used definition (for examples: [14], [15]) states that M-Learning, *although related to E-Learning and distance education, it is distinct in its focus on learning across contexts and learning with mobile devices.* Despite hardly being a scientifically resource, we will accept Wikipedia's definition [16] of mobile devices, *a pocket-sized computing device, typically having a display screen with touch input or a miniature keyboard*.

Other viable definitions of Mobile Learning start with *The advent of mobile technologies* [which] *has created opportunities for delivery of learning via devices such as PDAs, mobile phones, laptops, and PC tablets (which are laptops designed for a handwriting rather than a keyboard interface). Collectively, this type of delivery is called m-Learning* [17]. Or, a definition through its goals: *The task confronting the field of Mobile Learning is to harness this vast availability of wireless technology to education and training. Its role is to orchestrate the move from the wired learning environment of today to the wireless virtual learning environment of tomorrow* [7].

One can see a difference between the first definitions and the latter ones: the use of laptops/notebooks/netbooks/tablet PC`s. The MOBIlearn guidelines dismiss the definitions that include specific tools, in favor for the above mentioned, but use laptops as comparing elements later on. Other scientists

expressively dismiss laptops, as they are *portable, not mobile* [18].

The discussion is a little circular: most of the successful experiments with Mobile Learning included sending participants in low-if-any network coverage, with Tablet PCs, although the only basic difference from a normal laptop is the lack of a keyboard [7]. While this poses certain problems, it also offers some interesting possibilities in terms of hand recognition and communication in abnormal environments. For instance, in one of the most successful experiments, the University of Melbourne, having won a contract from HP, gave TabletPCs to some medical students and sent them to remote locations in medical practice [11]. In order to overcome the lack of network access, a full medical database was loaded on the TabletPCs. So the students were mobile (meaning they were out of the school class, doing what many consider "best way of teaching"), but in terms of technology usage, they were just carrying slender desktop computers.

The problem is that by dismissing the usage of TabletPCs, one dismisses much of the pilot programs success. It can be argued, however, that TabletPCs were used because of the limitations of other technologies, in terms of processing power and storage; issues that are steadily overcome as the smartphone technology and network coverage pick up speed.

Mobile Learning application can be used for schools-and-alike-type of education and for employee training. The first case covers the academic usage. The latter deals with companies that want to implement internal training or with training companies that could use Mobile Learning technology in order to better fulfill the needs of the clients. There are two reasons why a discussion should keep the two cases apart:

- Firstly, it's about costs; for now, full scale tests of Mobile Learning technologies have been done with state support, for academic organizations [7]. That is the case in Australia, Canada and United Kingdom (where there are national policies and funding for that), the European Union (which also had a framework for developing mobile education), South Africa, China and India (these three had state scholarships). So, in order for a private company to attempt to use Mobile Learning, they have to defray the costs of the equipments, to explain the advantages to the clients. There are studies (like [13]) that showed the fact that clients would rather stick with the classroom approach and it would be unfair to blame that on the training organization; it is clients' money, after all.
- Secondly, in the United States, choosing a mobile equipment means taking into consideration the carrier that supports it. While in Europe the same device can be used in multiple networks, in the USA there is a fierce competition between mobile carriers, including exclusivity on some devices. So it was hard to think about a universal solution, for instance on a campus level, without taking into consideration the fact that the universities have to provide the equipment themselves, since nowhere in the study contracts does it say anything about students having to accept a certain carrier. And that goes for the commercial M-Learning application too, since a universal platform (like Java) is a recent addition, and any solution provider should have really thought about the device and the carrier of choice.

This led to pocket-like implementation in America's institutions [7] (which, ironically, mirrors the pocket-like situation in Europe and Australia, but this time because of the chronic under funding of the projects).

3 Commercial Issues

Author and consultant Clark Quinn, gave the following answer concerning M-Learning: *Mobile Learning is not about courses on a phone. […] while there are learning implications for mobile devices, it's really about performance support. Yes, one of the applications of mobile devices is learning*

augmentation, extending the learning experience over time through distributed presentations, examples, and practice, but the real opportunities are providing context-sensitive support for the mobile workforce. [19]

Assisting field workforce was the goal of some programs that planned to use PDAs in teaching workers. However, one could ask if sending information about the consistency of the mountain to a geologist on top of that mountain is learning or just remote data access. On the other hand, sending a geologist on the top of the mountain in order to have him there and teach him about the mountain (through webcasts, for instance), is called *learning situation* and is one of the flagships of Mobile Learning [12].

Still, the importance that Quinn attaches to the Mobile Learning methods in teaching adults is undermined by a late 2009 survey [13]. According to its authors, 605 out of 968 responses came from corporations, with 13 percent of the respondents working in higher education and 8 percent in the government and military sectors; almost 60 percent of those who responded had been "in the field" for at least 10 years. *The most frequently occurring E-Learning practice is the testing of skills and knowledge. […]Instructional design practices that represent pedagogy options made a strong showing. Tutorials, scenario-based learning, and problem-solving strategies were persistent.[…] E-coaching and the use of mobile devices were rare. A long-favored strategy, online discussions to support knowledge transfer from the classroom to the workplace amazed us by being not at all typical of the practices reported by respondents. Web 2.0 activities involving user-generated content and collaboration were also scarce, except in academia*.

Even though the survey fails in terms of representation, it does point out some interesting conclusions: first of all, there is a predominance of "old ways of teaching". Although enlisted as something to be wanted, personalization of content appeared only scarcely. Furthermore, the main usage of E-Learning is testing, instead of teaching.

Other surprises came from the part of the survey that dealt with the barriers to E-Learning. Money was quoted, alongside *resistance to change, technology shortcomings, and a client preference for the familiar—the classroom.* However, *employee resistance and inability to learn independently were not top-of-mind; neither was the ability for employees to handle the technology* [13].

In a statement from 2008 (so before this survey was published) the author and E-Learning researcher Mark Oehlert expects that he will *continue to watch as gaming design and instructional design talk past each other and fail to find a satisfactory hybrid solution* [20]. Since instructional learning is associated with classical, classroom style learning, this line can be interpreted as an accusation, *ex ante*, to the way the teaching process is proposed by the learning company towards a learning-interested organization.

The aforementioned survey came with another piece of information: the least occurring E-Learning practice was *our programs are delivered on mobile devices*, scoring an average of 1.11 out of 3 (where 1 means "rarely or never"). Even though the survey was not representatively correct, it still shows the limit of the implementing. It can be argued that the mixing of money issues and the client preference for the classroom makes it hard to implement it in commercial activities. After all, the greatest success was achieved with pilot programs and test runs in an academic environment (usually state-funded).

4 Educational Issues

When asked about his expectation for 2010, author and pedagogist Roger C. Schank, answered: *Mobile E-Learning will go away. There is always the latest thing in E-Learning that everyone must do. ...E-Learning will not happen, at least not seriously, on mobile phones. Because it takes time to learn something. You have to really understand a situation. You have to practice*

a skill. You have to consider alternatives.. [...]. This takes time—a lot of time. [...] I don't know about you, but staring at mobile phone for an hour makes my eyes hurt. Try doing it all day for a year. He also added that *We don't learn anything instantly. Real learning is not done on a train or a bus. The kinds of courses that can be delivered that way will be shown to not be particularly useful* [21]

Other opinions do not consider M-Learning a fad, but a disappointment: teacher and learning consultant, Chris Nash claimed no less than *The End of the M-Learning Revolution*: *If PDA's were seen as the answer of how to address the personalization agenda, then how have we ended up replicating the same traditional, Victorian teaching methods? Watching a lesson where 30 kids are doing identical tasks on their PDA's does not deliver choice even if they have options for choice of input method (text, image, sound). Learning styles is not merely about which tool you use to capture you thoughts but also about the environment in which people find it conducive to learn and the ways in which we are more successful in processing stimuli or information* [22].

Robert Shanks blames the teachers for the current status. *Having been a professor myself for 30 some odd years, I've developed a healthy disrespect for professors as a group. They tend to lobby for keeping their lives easy, and that means, among other things, making sure they don't have to teach too much or teach in a way that makes them have to work too hard.[…] Lectures exist so that the many can be educated by the few and universities can spend less on teachers. In an online format, it makes no sense at all* [23].

In his turn, Chris Nash, while answering comments to his article, exonerates teachers as a group, but blames those in charge with the whole system" *There are many exciting and engaging technologies out there that stimulate students learning and offer different ways to interact with the world, and actually there are many teachers out there brave enough to have a go at offering a more student-centric curriculum based on a more personal access to learning, it's just that there are equally as many people, be it politicians, commercial organizations, or senior education advisers who make it so damned difficult to thrive and make it so easy to slip into Victorian teaching practices because ultimately the results are more 'measurable'* [22].

It should be stated that at the time the article was written, in Chris Nash's country, United Kingdom, a national framework for educational upgrade was in place, which, among other things, had a program for implementing home-access to technology for youngsters. As of June the First, 2010, the organization that was overseeing it was abolished.

5 Other Technical Issues

Many papers about Mobile Learning start with listing the achievements in mobile technologies. This is used to support the promotion of M-Learning (or at least the first part, mentioning the advantages). Some authors even go as far as claiming *it is so important for researchers and practitioners to be familiar with mobile technology applicable to m-Learning. It simply is not possible for someone to log onto a learning management system (LMS) wirelessly from a personal digital assistant (PDA) if wireless networks don't exist or if PDAs do not support wireless connectivity* [24].

However, in Mark Oehlert`s view, this is a big mistake: *We are content to continue barreling along down the Mobile Learning road, when 95% of those m-efforts begin with a focus on the technology. STOP!! More so than with PC-based efforts, mobile efforts MUST begin with the user experience - THAT is* [the] *place we must reverse engineer from, NOT from the hardware to the user* [25]. He also suggests some stages that need to be covered in any discussion about M-Learning:

- Stating the requirement for mobile content (as opposed to any discussion about terms like Mobile Learning/instruction/performance/ support)

- Describing the optimal user's mobile technology-mediated experience in meeting that requirement (as opposed to anything concerning optimal organization mobile technology)
- Discussing the capabilities necessary to meet the requirements without a reference to any particular platform
- Constructing a technology baseline of the organization (both end-user and infrastructure)
- Only then, w*hile considering the implications of our user experience work, our capabilities that we need and our existing and near-term technology environment, we may BEGIN to ever so gently talk about specific technology* [25].

On a similar note, concerning wrongful approaches to M-Learning, training specialist Clark Quinn stated in 2008: *there will continue to be „E-Learning Solutions Providers" with no one on the executive/management team who really understands learning* [20]. However, the problem is bigger than training-company-managers-who-think-they-know-best. E-learning analyst Miranda Welch comments upon Gartner's definition of M-Learning: „*Mobile e-learning solutions enable training and development teams to create, publish, notify, deliver and track learning content and manage learning interactions for mobile users, regardless of their mobile devices". To me this definition does not cover the communication capability afforded by the technology. The definition seems to focus on the "management" of learning again, rather than the learning itself* [26].

Returning to the academic part of Mobile Learning, studies have shown [5] that universities have problems in assuring the financial sustainability of the M-Learning project beyond the pilot phase. Some proposed [6] using students` own mobile units (since most, if not all, had reasonably recent cell phones), but still, there was the problem of carrier costs. Other studies have shown that as the complexity of the teaching process gets more complex, students are more dissatisfied with the results [27]. Which leads us to Mark Oehlert's comment: *I will [...] continue to argue that Mobile Learning (as opposed to "imMobile Learning?") will not cross into the mainstream as long as we continue to fail to adapt our design to the fact that most mobile devices are first audio devices and, distantly second, visual devices. Continuing to define "Mobile Learning" mainly by it association with one class of technology (cell phones) will have a similar effect* [25].

6 Conclusions

The main arguments that the mobile learning detractors employ are:

- In the case of training providers, they are restricted by clients' requests; studies and (albeit informal) analyses have shown that in reality, clients do not want something "fancy" as training solutions. They want something simple, cheap and proven. Paying for a prolonged contract to give the employees a context sensitive training is hardly seen as a better option to paying for a three-day classroom-style training.
- In an academic environment, one of the problems is the cost: the education providers cannot afford to pay for the equipment required by all the students. Even if the state-funded pilot program was successful, the institutions cannot sustain a generalized implementation, or even a localized implementation on the long turn. This means that in reality accessing a mobile learning platform means accessing a webpage scaled down for a very small screen. It could be considered mobile learning, (since it is e-learning on the mobile device), but it does not support the buzz it generated.
- Another problem in the educational environment is with the content providers: the teachers do not know how, or do not want to bother to make use of all the possibilities they have. This seems less of a mobile learning issue and more of an e-learning concern as a general. It was argued that copy-pasting the file sent

to printer in order to list the text-book is not e-learning, as it doesn't benefit from any of the IT technologies it employs. Further more, delivering the same course and expecting the same behavior from a whole classroom is nowhere near "personalization of content", one of the pillars of mobile learning. However, it is debatable that teachers are not responsible, since the whole curricula is oriented more toward mass-education and less toward personalization.

- The limitation of this technology makes a full implementation impossible. Apart from battery life and network coverage, there is the problem with accessing the information. The screen of the mobile devices are too small to allow a prolong usage. In West Asia of great success is the audio-book type of content delivery, but there are voices that dismiss learning on a commute train as a viable way of learning, and we tend to agree. Further more, creating a viable audio-book of a whole course is an expensive and difficult endeavor.
- From a development point of view, focusing on the technology first (starting with hardware requirements) is a wrongful approach, as it leads to moving current education materials into cyberspace and to preparing the system for online evaluation, but forgets about the user experience. In this view, the user experience must come first, in other words, any implementation should start with "what should the system (any system) do for the user", "what are the requirements for the platform content" and then work the discussion toward a specific implementation. However, this is hardly the approach a software developer would like to use when pitching his platform to a possible client.
- It should be stated that in our view "resistance to change" is not a valid argument, since it happens to most new technologies, and, lacking any real studies, it is more of a personal feeling of its author than a fact-based claim. However, there are two more issues we would like to put forward:
- One concerns the definition used by e-learning providers to advertise mobile learning, using "learning" to define any means of acquiring information. We consider that learning about a painting is not the same thing as acquiring context-sensitive information about it while visiting the museum which owns it. The difference, however, allowed the software providers to expand their platforms on other markets. Although defining education is not in the scope of this paper, we are on the side of those who consider a standardized evaluation as an important part of the education process.
- A better part of the mobile learning pilot programs practical success was actually achieved using TabletPCs and offline applications. While we do not contest the success of these experiments, and we treasure their findings in terms of user interactivity and content guidelines, we side with those who consider laptops and alike *portable, not mobile*. Again, those affected are application providers, who advertise their product as facilitating mobile access to education through the use of an internet-connected laptop. This might pass as e-learning, but, in our view, it is not m-learning.

This paper's goal is not to dismiss Mobile Learning as a "fad" or as something that should "go away". We strongly support any teacher (and trainer, for that matter) who would want to use the latest technologies in order to better fulfill their role. And we consider that mobile technologies have a lot to offer.

While knowing that the educational system as a whole does need some adjustments to the possibilities that e-learning offers, we consider that the main issues with today's mobile learning are connected to the actual capabilities of existing technology, to the real number of functions an average teacher/client uses or requires (cost taken into account) and to the real interest which the participants on

the market have in this type of technology. The rest is mainly marketing hype that the application vendors created in order to sell their product.

The reality does not look as bright as all the hype seems to suggest. In the same article [21] in which Richard Shank predicted the disappearance of the M-Learning, there was another prediction for 2010, by an enthusiast this time: Hend S. Al-Khalifa, assistant professor at King Saud University. He said: *In my opinion, 2010 will be the year of experimenting with Augmented Reality in the classroom using portable devices […] and exploring the potentials of this technology in teaching and learning. The pedagogical expectations of using such a technology in the classroom, will greatly impact students' learning and kick start a new learning experience!*

Knowing that the first true experiments with mobile learning started in 1990s, one cannot but notice that after almost 20 years, an M-Learning enthusiast still hopes for *experiments using this technology in the classroom*.

No practical, full scale, national implementation, just more experiments.

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