

Less (in Context) is more (Creativity): M-learning as a Short Lived Traveling Idea at the University of Pretoria

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Technological innovations in ICTs have unleashed new educational practices worldwide. Most higher education institutions nowadays use different kinds of e-learning. In this paper we will show that constraining local conditions have triggered fast adoption of mobile technology in the distance education – coined m-learning - by the University of Pretoria. Because many distant students in South Africa only have a mobile device instead of a computer at their disposal, the University of Pretoria was prepared to adopt m-learning quite early. While ten years ago most South African distance students only had simple mobile devices, without the possibility to access internet, the UP resorted to m-learning, even before the conditions for optimal use of m-learning were present. This was only possible by transforming the innovative idea of m-learning in a first experimental phase to the local South African context. Because the m-learning experiments at the University of Pretoria consisted of both elements of adoption and transformation, the introduction of m-learning should be framed a traveling idea. We will also show that the process of adaptation stopped once the local constraints vanished, that is, once more distance students obtained smartphones.

INTRODUCTION

The American Society for Training and Development defines e-learning as “learning that is delivered, enabled, mediated by electronic technology for the explicit purpose of learning” (Rossen & Hartley, 2001, p.2). This definition is broad enough to cover all different forms of e-learning that have seen the light. E-learning has taken a lot of forms because of the huge

technological developments that transformed computers from the outsized mainframes in the 1970s into today's tiny handhelds such as smart phones and touch screens. Over the past fifty years an exponential growth of computer hardware capacity has doubled the speed of computer processors roughly every two years. Simultaneously, the increase of capacity in data transport over computer networks, and the size of digital data storage have kept the same pace. This phenomenon, often referred to as *Moore's Law*, (Moore, 1965), applies to the whole of information and communication technologies (ICTs). The technological innovations enabled the diffusion of internet, multimedia, digital imaging, music, and most recently, social media and the mobile web. They were a motor for innovation in many areas, including higher education.

Initially computers were introduced for research at universities in the 1960s and 1970s. In the first half of the 1980s, computers started being used by teachers in education, as the enabling channel to what is now referred to as e-learning. With the emergence of the World Wide Web and search engines in the early 1990s, the potential of ICTs for teaching and learning noticeably increased, marking in fact the first generation of e-learning. From 1993 to roughly 2000 the main ICTs tools used in higher education were email, presentation software, and to a lesser extent, the World Wide Web, which at that time consisted of mainly static web pages. In the late 1990s and early 2000s a second wave of e-learning innovations led to the development of electronic learning environments. These environments were based on proprietary software. From 2004 onwards a third generation made its entrance globally. The focus in e-learning shifted from a technology driven approach towards an approach based on pedagogical principles (e.g. Siemens & Tittenberger, 2009). Students themselves were more encouraged to use the learning platforms in pro-active ways. Currently e-learning is moving away from proprietary software towards use of open resources, which are freely available on the Web. These resources are both open source electronic learning platforms, and social media, comprising blogs, wiki's, micro-blogging, gaming, video, social networks, and other collaborative applications.

Although the global evolution of e-learning clearly kept pace with the global technological innovations over time, an additional contextual analysis is needed to explain which educational institutions adopted what kinds of ICT into their educational programs. In this paper, we will thus not primarily look at the evolution *in time* of e-learning practices but focus our attention on the evolution of e-learning practices *in space*. In particular, we will focus in this paper on why and how the University of Pretoria in The Republic of South Africa took a head start in adopting m-learning; at least when compared to the VU University Amsterdam (VU) in The Netherlands. The most relevant difference between the universities to mention in this paper is the strategic use of distance learning.

South Africa has traditionally offered this form of education, to provide opportunities for the less privileged students, who live in remote areas, and have to combine study with daily work. As such the *distant students* represent traditionally a large part of the UP student population. The VU does not offer distance learning curricula because students can easily commute to the campus. Also students between the UP and the VU differ significantly in their ability to use electronic devices. All the VU students will make use of their own PC or laptop for doing their assignments, communicating with instructors, and other related educational purposes. In addition to that most of them also will have a mobile phone; but this phone is not primarily used for educational purposes. South Africa distance students do not have a lot of electronic devices at their disposal. The first electronic device available to them is a mobile telephone. These contextual differences obviously account for the differences in propensity of the two universities to put m-learning high on the agenda. Clearly, at the VU there is no urgent need to offer m-

learning services to the students. Hence the possibilities for m-learning have largely been left unexplored at the institutional level until now. On the contrary, the University of Pretoria has been building the UP experience with m-learning for multiple years now.

The paper is structured as follows. After this introduction, we will show in the second section that both universities have a similar institutional interest in adopting new e-learning practices. In the third section we describe in detail how m-learning was introduced at the UP in the fourth section, we describe different theoretical frameworks that help analyzing the m-learning adoption at the UP. The paper ends with a conclusion with both practical and theoretical implications.

Institutional Adaptors of e-Learning Platforms

Global technological evolutions have given educational institutions over the world the opportunity to incorporate new E-learning services. Each learning institutions decides on its own which new technologies are adopted to support their educational programs. In this section we will show that both the University of Pretoria and the VU University of Amsterdam adopted and fine-tuned an extensive e-learning platform.

University of Pretoria

At the University of Pretoria the idea of having a virtual campus was triggered by both international trends and local conditions. On the one hand, various international forums and publications proclaimed that the universities will be revolutionized by globalization and ICT. Tsichritzis (1999, p. 93) stated that new technological possibilities will not only change universities but also increase global competition for students and influence the mode of teaching. The international pressure contributed to the implementation of the Virtual Campus at the University of Pretoria. On the other hand, important local push factors were the remarkable growth of student numbers, the need to enhance student support, the increased access to mobile devices among students, and the demand for cost effectiveness and cost reduction because government subsidies to higher education institutions in South Africa had to be lowered.

The relevance of e-learning for higher education has been commonly acknowledged at various institutional levels in South Africa (Czerniewicz & Brown, 2005). The crucial role of ICTs to improve teaching and learning in South Africa has been documented in many policy documents such as the National Plan for Higher Education (2001), the National Research and Development Strategy (2002), the National Research and Technology Foresight ICT Report (2000), and the White Paper on E-Education (2003).

In 1997 27.000 resident students and an additional 26.000 distant students were enrolled at the UP. To meet the needs of the large number of distant students, the UP decided to make “telematic education”, which is basically distance education including e-learning, one of the university’s mainstream activities. Initially, distance education at the UP was delivered, mainly paper-based, although to a minor extent videoconferencing, broadcasting and Web-based courseware were also being used. A new plan for a “virtual campus” was set up at the UP (Lazenby, 1998). The aim of this ambitious project was to provide the necessary ICT infrastructure for the whole university.

The council of the University made e-learning part of the core business of the university. The project was implemented according to an internal university discussion document called “Focusing on the Client Into the future with Flexible Learning”. This document provided the background, guidelines and recommendations for education innovation at the University of Pretoria. The key mission was to offer open, life-long and flexible learning to students. To ensure

its implementation new policies and structures were implemented and funds made available to support e-learning programs. A centralized academic support service department, a Department for Telematic Learning and Education Innovation were established. The virtual campus at the UP comprised a newly built computer network infrastructure, connecting all premises on the physical campus and providing basic ICT services such as email, internet and Web access, and online administrative services to all resident students, staff and the external community of distance students. The virtual campus had the function of a web-enabled product of service offering for the whole of the UP. The initial concerns of the virtual campus were merely focused on the technological delivery of services including ICT management, and only to a lesser extent focused on the pedagogical principles involved in e-learning. The success of the centralization of academic, financial and administrative services in the Virtual Campus were extended to the physical centralization of these services through the creation of the Client Services Centre.

The UP staff has been very active in exploring the possibilities of the Virtual Campus. They introduced many new e-learning practices. A good example of such an innovation was the development of the masters program in Computer Assisted Education within the Faculty of Education. Lecturers asked students enrolled in this new master program to design and use their own Web-pages, which all together formed a collection of course materials. Email messages and a list serve supported the whole assignment and provided the necessary communication throughout the course for the lecturer and the learners. Students gradually started using their own virtual classroom. The academic assignment became a place where social interaction occurred. As such they demonstrated that a course using Web-pages and email, with limited or no face-to-face communication or classroom lecturing can be equally effective as traditional education in terms of learning objectives. The Masters program in Computer Assisted Education designed can easily be considered an early adopter of e-learning practices within the University of Pretoria. The University was one of the early adopters in South Africa of WebCT. WebCT was implemented in 1998 as a Learning Management System (LMS) to support the integration of e-learning within the institutions teaching and learning strategy

VU University Amsterdam

Also the VU successfully included e-learning in their educational strategy in the late 1990s. The form of e-learning which is applicable to the VU is called “augmented e-learning”, because ICTs are used as a complement and enrichment for the traditional classroom setting.

In 1999, the VU established an official support unit to update and modernize their teaching and learning practices with the use of new tools in information and communication technologies. Many ICT tools such as presentation software, offered plenty of opportunities for enhancing teaching and learning at all faculties.

Until 2006 the approach at the VU was merely directed on the use of new ICT tools and less on pedagogical frameworks. As a result, innovation initiatives took place at different levels of VU. The central ICT department coordinated some initiatives. Other activities were initiated by individual lecturers, or sometimes exercised at faculty level. In this way several decentralized faculty-based learning infrastructures were created. Great differences existed in the level of “ICT-readiness” between different disciplines at the VU. The exact sciences had been using ICTs in research for more than two decades, whereas e.g. the humanities and arts had been less exposed to ICTs.

As of 2006 a more centralized and coordinated approach was taken at the VU towards a stable and homogeneous infrastructure for all faculties and departments. For the ICT in teaching

and learning, a new university-wide pedagogical policy was designed, named the VU *Onderwijsvisie*, the Educational Strategy Paper. The central idea in the new strategy was to work towards a *community of learners*, in which teachers and learners collaborate in the creation of relevant content, in which research is imbedded within the educational process, and where the research methodology is introduced to students in an early stage of the curriculum. All e-learning initiatives and practices at the VU had to be aligned with this new vision on education.

The next step was the planning and establishment of a new centralized digital learning infrastructure for all students. E-learning should go hand in hand with cost reduction, and administrative efficiency. The new systems should be offered as a reliable service. For this reason a limit was set to the number of e-learning applications available, and conditions were set for the whole e-learning infrastructure. The whole design, setup, planning, implementation and coordination of the adoption of e-learning were done in a rather top-down manner.

At the VU, one is aware of the opportunities of new technologies that will probably arise in the next few years, which may influence e-learning. For example, the existing electronic learning environment Blackboard in place since 2002 is currently being re-evaluated because of its traditional teacher-centered approach (see e.g. Dalsgaard 2006). Budgets and policies should allow adoptions to happen, but are limited by the availability of funds and the scope of ICT support services which cannot support and host a great variety of software products. For reasons of support consistency, the VU does only support a fixed number of software platforms, and banned all forms of in-house software development.

Besides these structured, planned and coordinated educational projects, the VU still offers space for innovation at grassroots level, by supporting and funding small-scale projects initiated by individual lecturers. Lecturers are encouraged with small educational prizes to try new e-learning practices, and to disseminate their experiences. Successful and innovative projects are presented on video clips, podcasts made available on the university's website, interviews and articles are published in the university press, to spread the news and the ideas.

M-LEARNING AT THE UP

There are thus solid e-learning university platforms provided by the central councils of both universities which are supported through changing educational strategies and policies. Local determination by champions together with changes to institutional structures have made the implementation of new e-learning practices a success at both universities. The previous section can thus be seen of an illustration of the diffusion process of standard e-learning practices at both universities. In this section we will shift the focus from the diffusion processes of standard e-learning practices to the adoption and adaption of m-learning practices at the UP. The adoption of m-learning at the UP deserves special attention because the introduction of involved, beyond the adoption of a novel idea, also the adaptation of the very same idea in order to make it of practical use to the South African context.

According to Evans (2008, p. 492) m-learning extends e-learning by making use of portable (handheld) devices like digital media players, smartphones, PDAs or laptops. These devices allow students on the move to learn when and where they have the time by transporting learning materials easily. The distinctive feature of m-learning is that it enables studying whilst traveling. M-learning appealed to busy people in Europe and the US, who had to combine their full-time jobs with the need of long-life learning (e.g. Keegan 2002, Brown, 2003, Evans, 2008).

Tom Brown, supported by a M-Learning committee consisting of relevant stakeholders, of the UP recycled the idea of m-learning. They argued that this new channel for communication could also be used in distance learning of the UP because in the early 2000s the use of mobile telephony had grown dramatically all over Africa. The distance education at the UP served mostly students of less privileged communities, in e.g. rural areas. It is exactly that this group of students who have no other electronic devices than their mobile phone. Statistics from recent internal surveys indicate that more than 99.8% of residential students owned a mobile phone then. Tom Brown knew also that the m-learning solutions used in the Northern hemisphere could not simply be copy-and pasted to the University of Pretoria. The problem is that the m-learning practices assumed the presence of sophisticated handheld devices, which allows the students on the move to access their learning content.

This was not the case in South-Africa then because most mobile subscribers mainly used cheaper mobile phones, without extensive multimedia options. In particular, the lack of access to the Internet from these telephones was a local problem.

Therefore, many South-African universities have started pilots to test the use of m-learning as an alternative for Internet-based distance learning. The UP decided to go ahead by making use of the much simpler SMS technology. The first m-learning pilot at the UP started in 2002. It involved three course programs of the Faculty of Education, i.e. Education Management, Law & Policy, Special Needs Education. A total of 1725 students participated in the first pilot. 97.3 % of the students were non-white; 66.4 % of them were women, 77.4 % were English-second-language speakers, 83.8 % of them were aged between 31 and 50 years. In terms of technology use 99.4% of the participating students owned a mobile phone; only 0.4% of them had access to E-mail. The first pilot consisted of broadcasting bulk SMSs by the coordinating teachers to the students. The SMSs mainly communicated administrative messages: reminders for examination dates, calls for registration, and notifications of dates for contact classes. The SMS technology was only used as a structuring device to keep the distance students focused. Because of technological constraints, the pilot project could not be pushed any further. It was not considered feasible to deliver course content.

In a subsequent pilot that involved more than 3000 distance students also basic content was delivered to the students via SMS technology. In particular, carefully structured SMS messages were sent to the student at the most opportune time during the study program. Some SMS messages did not require response from the students but only instructions were given to them. More advanced SMS communication, occurred when the lecturers asked the students to answer via SMS some questions that were delivered on paper or by SMS. Finally distance students could also send SMSs to ask questions when facing problems with study material. The lectures then replied by SMS when and how an answer could be expected. Examples of the SMS sent to students by the lectures are shown in Table 1.

Hendrikz and Prins (2009) analyzed the effects of this pilot. They concluded that the new SMS tools developed by the Unit for Distance Education to deliver similar academic activities in a classroom to the distant students were valuable. The information sent by SMS reached the students, and students responded significantly better to the SMS information, compared to the formerly used notifications sent through hardcopy letters by post to their home addresses. The distance students also indicated they like receiving SMSs from the university. They reported that the SMSs made them feel closer to the university, supported them in structuring their studies and increased their level of motivation. Finally, Hendrikz and Prins (2009) found that more students managed to get their degree on time with the introduction of m-learning. Moreover, it appeared

that for the university the communication costs of the mailings were largely reduced by the use of SMS. Not surprisingly, they concluded that m-learning is a useful means for reducing the number of drop-outs in distant learning education.

TABLE 1
SMSS SENT BY THE UNIT FOR DISTANCE EDUCATION TO DISTANT STUDENTS

Instructional SMS	<i>“LPO 402 students, work through Assets on pages 43-44 in tutorial letters 1 booklet. This is important for Assign 1 and also for Assign 2 & final project. UP”</i>
Quiz paper SMS	SMS to start the quiz <i>“LWP 401 student, SMS only your student number via reply SMS to start a quiz with UP about LWP 401. The quiz is two questions long. the UP”</i> SMS quiz question <i>“LWP401 student, to reply press a, b or c & send. Effective inclusion happens only if the: a) system changes fast, b) system changes or c) learner changes. UP”</i>
Response to student questions	<i>“LAP & LWP401 students. Ask a question about content in LAP or LWP 401 via reply SMS till 24 Aug. Start question with the module code. We will answer in 2 days. UP”</i>

Source: (Hendrikz & Prins, 2009)

The success of the pilots has contributed to further developments in the field of distance education academic support. In 2010, the Department of Education Innovation has put into pilot phase the mobile based version of the Learning Management System (LMS). The University uses Blackboard as LMS. Blackboard Mobile provides two services: Blackboard Mobile Central and Blackboard Mobile Learn. Mobile Learn was piloted in July 2011. The availability of mobile learn was initially not advertised among the pilot students. Blackboard Mobile Learn extends the use of the LMS and supports student engagement by making much of the core LMS features available on mobile devices in an engaging and intuitive way. Although the initial uptake was not as expected none of the initial users reported any problems in using the mobile application on their phone. Although the m-learning project within the Faculty of Education contributed to further investigation of other m-learning projects, no institutional solution exists during the pilot to deliver content through mobile phones. The UP has through the pilot integrated in 2011 Blackboard Mobile Learn in its implementation strategy of the new Blackboard 9.1. This will enable the UP to implement a solution that will change the integration of m-learning from isolated pilot or case studies to institutional use. The availability of this m-learning solution may escalate not only the use of mobile devices for distance education support but will also extend the use of the LMS, branded as *clickUP*.

It is expected that Blackboard Mobile Central will allow the UP to meet the expectations of the current and prospective students and lecturers. It will enable any mobile user in the world access to information about the university campus services and content. This enables the UP to market itself within the international landscape of other higher education institutions that have

already adopted a mobile strategy. The roadmap for implementation of the Blackboard Mobile solutions is to institutionalize Mobile Learn and Central in 2012. Data from the pilot indicated that the predominant mobile platform being used to access e-learning at the University on cell phones is Blackberry followed by Android. The implementation of Blackboard Mobile Learn at the University of Pretoria contributed to other institutions in South Africa investigations to integrate it in order to scale up m-learning.

DISCUSSION

In the case description two diffusion processes are present. First there is the adoption of increasingly more sophisticated mobile telephones by South African citizens. Second we describe the adoption of m-learning practices by the UP. The adoption of mobile devices by South African citizens will be treated as exogenous. The discussion in this paper will only focus on the introduction of the m-learning by the UP. We see two fundamental differences in the m-learning practices in the Northern hemisphere and the South African context. First there is a difference in the software technology being used to deliver content to distance learning. In the classical version internet technology is used to deliver the content to students on the move. In the South African context internet technology was not a necessary requirement to start experimenting with m-learning practices. While having restrictions, the UP resorted to SMS technology to deliver content instead. Second there is a fundamental difference between the learning practices of the distance student. While in both situations there is a clear separation in time and space between the instructors of the higher education and the student, the Northern hemisphere distance student is on the move when studying and the South African student is in his/her natural habitat. S(h)e is less mobile than the Northern hemisphere student and most probably the time constraints for learning are lower. The second difference has important implications on the value m-learning in the two contexts. M-learning in the Northern hemisphere creates value by providing access to study materials during free time. On the contrary M-learning in South Africa creates value by being able to communicate with the higher distance education without having to displace oneself.

Because the UP has made fundamental changes to the original concept of m-learning to tailor it to its own needs, we think that this case cannot be simply described by classical theories of diffusion of innovations (e.g. Rogers, 2003). Classical theories typically explain when organizations adopt new ideas, practices, or objects that are perceived to be new into their organization. For instance Rogers (2003) classified adopters according to the speed of adoption. He argued that units in a social system can be labeled as innovators, early adopters, early majority, late majority, or laggards depending on the timing of adoption. According to Rogers (2003) innovators trigger early adopters, who in turn trigger early majority, who in turn trigger late majority, who in turn trigger laggards to adopt an innovation. The diffusion of an innovation is based on communication in which intended adopters seek information from others who already have adopted the invention before. The final decision to adopt an innovation depends on whether the intended adopters are confident enough that the invention will bring about enough advantages to oneself. The innovation therefore needs to be perceived as better than any other alternative and it needs to fit with its existing values and needs (Rogers, 2003). Clearly, this was not the case at the start of the m-learning project at the UP. There were too many practical problems with the m-learning from the north-hemisphere. Because the m-learning version of the Northern hemisphere was not practical, the team of Tom Brown could not adopt it. Nor was it

compatible with the South African context. If they would have simply adopted the same m-learning technology as in the Northern hemisphere in the early 2000s then it would only have cost the UP a large amount of money without any benefits.

This is however only one part of the story because the team of the UP did not completely abandon the idea of m-learning. Instead it adapted the idea to increase the advantages and compatibility with the local context. From this view, we should conclude that, because the UP relatively quickly considered m-learning, the UP should be classified as a relative early adopter in the theory of Rogers (2003). After all, the UP is a very important higher education institution in the African content (see for example the Webometrics ranking of World universities). Also, the UP was willing to take on the idea of support by mobile phones without a lot of persuasion. These two features, its status and its serendipity are two essential features of early adopters in the framework of Rogers (2003, p. 283). And as Rogers (2003) suggested, early adopters typically make changes to the newly adopted innovation. Our case description has revealed that this was also the case.

There is however an important difference between the changes that were proposed by the UP and the changes proposed in the framework of Rogers (2003) which are called reinventions. Reinventions consist of minor modifications once an innovation is being adopted. They normally occur when implementing an innovation; after the decision to accept an innovation. By adopting m-learning, adopters test the innovation and iron out bugs. This may result in ideas, practices, or objects which have become easier, simpler, quicker, cheaper, and more advantageous to use by the population at large. Especially the changes that early adopters normally propose, pave the way for others to adopt the new innovation as well.

The changes that were initiated by the UP were more fundamental than minor modifications of the original idea. Instead they entailed a complete transformation that did not serve the Northern hemisphere students. They are not interested in distance learning via inferior SMS technology while Internet is available. Instead the transformation was proposed to increase the fit between m-learning and the local South African needs. Moreover the changes were not the result of a trial and error exercise but were planned in advance because the UP was aware that their local context was fundamentally different. Because it was clear from the beginning that the adaptation of m-learning would only be relevant for the local South African context and the transformations were fundamental, we argue that the introduction of m-learning at the UP cannot be described by the model of Rogers (2003). This case thus forces us to take another framework which should emphasize more the use of the mobile device to support learning to its function within the society (see also Traxler, 2007). After all it was the increasing importance of mobile devices for distance learning that has triggered the UP to focus on the implementation and integration of m-learning strategies within the teaching and learning strategies at the institutional level.

To express the pivotal impact of the local context on the pervasiveness of the local adaptation, we resort to the framework of traveling ideas (Bal, 2007). Traveling ideas are essentially about the adoption and local adaptation of successful ideas from one context into another. According to the framework of traveling ideas, diffusion is not simply a matter of adopting a new idea from one context into another because in the process of introducing the new idea, it is adapted and changed to better fit with the local needs. We found it useful to bring in mind the metaphor of the persistent spread of viruses to understand the framework of traveling ideas and its potential better. For viruses to mutate, there first need to be carrying agents, who spread the idea to others, who in turn are receptive to the carrying agents and or their viruses.

Moreover, in order to find its place in the new biotope and survive, the virus may need to adjust to the local context, which may imply a mutation of the virus. When the mutation implies a fundamental change, it becomes a traveling idea. On the contrary when the mutation implies only a cosmetic change, the mutation is a reinvention.

Similarly, the first version of m-learning at the UP, has led to a strong change in order to accommodate m-learning to the South African context. Thanks to the local adaptation, which entailed a shift to SMS technology and a fundamental mutation of m-learning from facilitating content to disciplining students, the innovation caught on at the UP. Hence the diffusion of m-learning at the UP could best be explained via travelling ideas. Framing the case description this way, has many advantages.

First it makes clear that it is possible that two fundamentally different versions of the same idea co-exist at the same time but at different places. It is clear from our case description that at some point of time m-learning meant something different for the UP than it did in the Northern hemisphere. A traveling idea is thus something new but not entirely brand new. On the one hand, there is a striking resemblance with other artifacts of the same idea. On the other hand, the traveling idea does not correspond to imitation, because the artifact has deliberately been tailored to its new context. The adaptation to the new context implies that the innovation has been changed while at the same time retaining some of its original genetic features. In the South African case of m-learning, it allows to explain why a second version of m-learning emerged in the beginning of the millennium. There were enough South African students with simple mobile phones and few with smart phones. If the trend of the increasing smart phones hangs on, there is most probably no need to hang on the South African version of m-learning, and the UP will eventually pick up with the classic version of m-learning. The first pilots in the beginning of the millennium are important from a managerial and theoretical perspective. From a managerial perspective, this case shows that the experiments were not in vain. The UP has learnt a lot from the early pilot studies. The experience is used to bring the mobile technology to the existing e-learning platform of the UP. Without these pilots, the UP would most likely be not this far in pushing mobile technology to its virtual campus.

Second, we argue that because the traveling ideas framework accounts for the coexistence of multiple local versions of the same innovation, it lowers the odds of misclassification by Rogers (2003). The problem is that his model of diffusion is too restrictive in terms of their outcomes. The model only pays attention to the path of ever increasing rates of adoption. In his model an innovation spreads out as long as more organizations adopt it. In the framework of traveling ideas the assumption of increasing rates of adoption can easily be relaxed. As long as there is a local interest in an innovation, the innovation can survive without growing globally. Because of the local transformation, there is strictly speaking no empirical evidence of an increase in the number of adoptions in the model of Rogers (2003). Nor is it entirely right to suggest that a completely new innovation has started. The most correct way to deal with the experiments is most likely to ignore these experiments at the UP and to assume that the UP did not adopt the m-learning innovation in the beginning of the millennium. As this case illustrates, this comes with a classification cost once the UP adopts the normal m-learning innovation at a later stage. The introduction of traveling ideas is important because without it we would most likely classify the UP wrongly in the diffusion model of Rogers (2003). If we ignored the information on the pilots that were taken on in the early 2000s and waited till the UP decides to integrate the mobile version of Blackboard to qualify the UP as an adopter of m-learning, we are too late. Without the notion of traveling ideas, we would classify the UP in a category after the early adopters; most

likely early or late majority. The case clearly shows that the UP is in fact an early adopter when it comes to m-learning. It was eager to try out a new innovation even before the conditions were met. In South Africa it was a pioneer in terms of m-learning. It deserves the credits it should get.

CONCLUSION

In sum, we have explained that m-learning, is a relatively new form of e-learning. While both the University of Pretoria than the VU University of Amsterdam have embraced ITC into their educational programs, this paper shows that at least in the area of mobile learning the University of Pretoria has taken a lead (compared to the VU University of Amsterdam). Because m-learning fitted more in the South African context for distance learning at the start of the 21 century, the University of Pretoria was more eager to integrate mobile technology into their didactical program. Hence, already in 2003 the University of Pretoria started experiments with mobile support through SMS for didactical purposes. During the experiments, deliberate changes in m-learning were tried out. These processes of local adaptation lead to a transformation and a fundamentally different version of m-learning; both from a technological and socio-technological point of view. In this paper, we have therefore framed these experiments as traveling ideas in which the innovative idea of using mobile technology for learning purposes was tailored to the specific needs of the distance students in South Africa. In *hindsight*, we could also identify these experiments as growth options for the UP to fully invest in a mobile platform because of the rapid take-off of smart phones among South African students. In the travelling idea metaphor, it means that the traveling idea was short-lived because the context kept on changing and erased the specific conditions that were needed to adapt the mobile technology to the local needs. The traveling idea was thus a step to propel the process of adopting new mobile technology at the UP.

This paper has both theoretical and managerial implications. From a theoretical side, this paper shows some of the pitfalls when using classical diffusion theories. It runs the risk of assuming that some adopters of innovations are too passive or that their ability to make changes is only marginal. Not all adopters wait till the innovation is easy, simple, quick, or cheap enough to introduce it. This case shows that when an innovation is sufficiently attractive, the possibility exists that local innovators may proactively maneuver around the hurdles they encounter to make use of the innovation anyway. When these adaptations only lead to minor modification, we should call them reinventions. On the contrary when these adaptations fundamental transformations, we should call the outcomes traveling ideas. The case also clearly shows more research is needed on the local adaptations that adopters introduce.

From a practical perspective, this paper contains a positive message. Institutions that consider adopting e-learning in the near future, especially those who just started the process, mostly likely universities in developing countries, can take courage from the examples given in this paper. An important lesson to remember is that e-learning practices can be implemented to the local context, according to their own needs, taking into account the restrictions, if one is willing to rely on its own creativity and serendipity. This message is especially relevant as it can be expected that global networks of educational practitioners will keep on propagating newly created e-learning practices. It is each responsibility to feed these innovations. Let's start by creating our own traveling ideas.

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