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மாநாட்டுக் கட்டுரைகள்
CONFERENCE PAPERS

$E=mt^2$

E-Learning = M-Learning makes Tamil learning Squared

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ABSTRACT

"Choose proper time and act and place
Even the world you win with ease"

Our main objective in this part of the project has been to extend the distribution of Tamil language learning materials and communication to lighter equipment, specifically PDA and mobile phone. The challenge is then to develop the system and server side to present materials in ways suitable for PDA technology, find acceptable solutions for distribution of materials and for *administration to student, teacher to student/student to teacher and student to student communication.*

It is our aim in designing the environment for the mobile learner to extend and increase the flexibility of Tamil language education, that to some extent took a step backwards when converting from paper based to online learning, where students largely were required to study at a place (and at a time) where a computer with access the Internet was available.

INTRODUCTION

Walk down any high street today and the picture is very different. Every other person seems to have a phone pressed to their ear, and if they are not talking on it, they are texting or "gaming". That mobile glued to a youngster's ear can train him as easily as it entertains him.

The mobile phone transcends boundaries of education, class and status. The vast majority of young people are up to speed with the ever-developing - and increasingly complex - technologies involved.

"We want to help young adults who lack basic skills or who are not keen on language learning,". Materials had to be short, sharp and bright to grab the learners.

TAMIL LANGUAGE LEARNING THROUGH MOBILE

M-learning offers a powerful and practical solution to many learning and training challenges, such as:

- in collaborative projects and fieldwork
- as a classroom alternative to books or computers
- where learners are widely dispersed
- to engage with learners who in the past have felt excluded
- in promotional and awareness campaigns
- for 'just-in-time' employee training.

From a teaching and learning point of view, campus-wide internet access - or even access that targets social and learning spaces such as refectories, libraries, lecture rooms and labs - is what truly blends together online and face-to-face learning. It means that while they're on campus, a student can access their online learning just by turning on their netbook or iPhone. They can contribute to class online

discussions while eating lunch or access their readings before class, using the technology they already have with them: their laptop, netbook, or other wi-fi capable mobile device.

For mobile language learning - and even for flexible learning - at any educational institution, equipping formal and informal learning spaces (such as social spaces) with fundamental enabling technologies like wireless internet access has to be at the top of the priority list. It even makes sense from a budget point of view, as every laptop a student brings in and uses takes pressure off the student labs. This, in turn, reduces the amount that has to be spent on standard-image, admin-locked, physical lab computers… and frees students to use their own computers which can be configured to best support their particular program of study.

MOBILE TECHNOLOGIES AND ARCHITECTURES

As were identified in the course of the Tamil m-learning project five broad categories of technology must be considered. When implementing a mlearning project; namely, transport, platform, delivery, media technologies, and development languages.

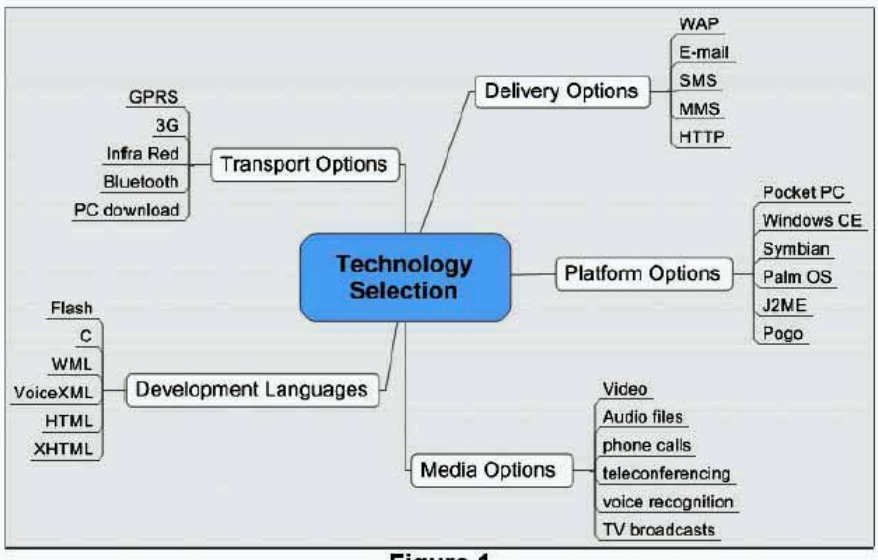

Figure 1

- The appropriateness of the technology for students;
- Ease of use and reliability;
- Costs;
- Teaching and learning approaches;
- Interactivity;
- Organizational issues;
- Novelty, as a choice not to use existing technology;
- Speed, i.e. how quickly materials can be developed.

IMPLEMENTATION OF MOBILE LEARNING

The traditional learning environment is one in which learning may still take place via desktop PCs. Within the m-learning environment, the communications infrastructure, here represented by a dotted line, contains wireless access points enabling communication among the mobile devices, notably mobile phones, PDAs, and wireless handheld devices. It also enables learner-to-learner interpersonal communication, as well as learner-to-teacher interaction.

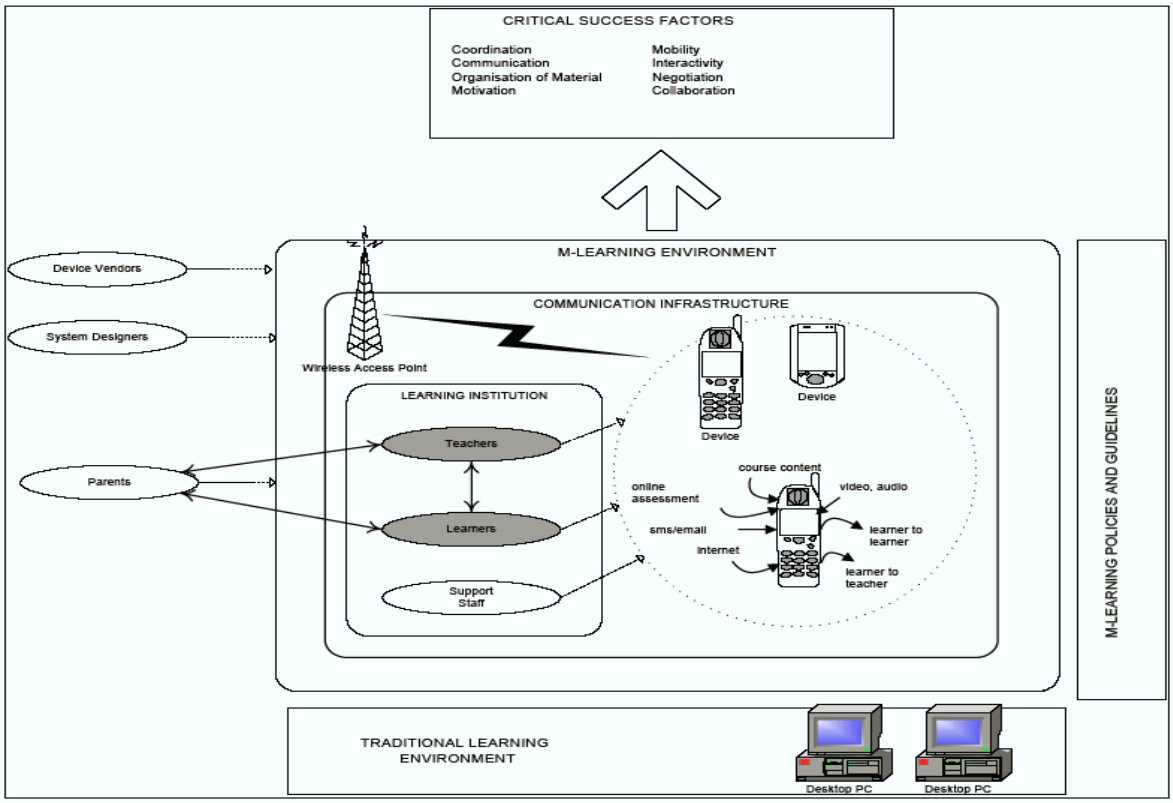

Figure 1: Model for M-learning Adoption

Defining mobile learning as a function of its facets

From the analysis of the proceeding sections, it becomes obvious that a systematically correct and systemically complete definition of mobile learning must take into account many parameters and also ways in which they interact and influence each other. In order to be able to visualize, conceptualize, and hopefully later, study in greater detail such parameters and their inter-relations, we propose the following abstract formulation for the definition.

$$(1) \qquad \text{MLearn} = f\{\, t, s, LE, c, IT, MM, m \,\}$$

t = time	Whereas t was discontinuous and discrete for previous paradigms of learning (e.g. mainly whenever in classroom), for m-learning time during which mobile learning can take place may be continuous.
s = space	In the classroom paradigm, space was simply defined as the classroom and to some extend the learners' home. Now space is not constrained at all and it may even incorporate virtual spaces.
LE = l-environm	The learning environemnt consists of at least those elements summarized in Table 5.
c = content	The curriculum, the specific educational themes and chosen topics covered are now structured in a completely different fashion and follow different rules and priorities. The learner usually shifts from topic to topic and from discipline to discipline, in what might appear as a chaotic pattern.
IT = technology	This parameter is quite complex. It encompasses all technological aspects and momentary characteristics of both the hand-held device and the surrounding environment (i.e., services available, antennas, repeaters, external devices within reach etc.).
MM = mental	This parameter contains as a conglomerate of the learner's mental abilities, prior knowledge, preferences, motivation, momentary attention etc.
m = method	The "method" is a conglomerate of all parameters related to delivery of and interaction with content. These may include pedagogy, philosophy as well as technical and logistical aspects such as method of presentation (or assessment).

(2) $s = f\{MM\}$

The spaces which the learner may wish to visit or wander (theoretically) depend on his/her free will and preferences, and to some extent to time (i.e., during the night, mobile learning activities might not be possible).

(3) $c = f\{MM, soc, edu\}$

- edu = educationally relevant
- soc = socially responsible

The chosen educational themes must be the result of a *negotiation* between the learner's agent (in which his/her MM is coded) and what we as society wisely have decided that it is socially responsible.

(4) $LE = f\{IT, S, C\}$

- S = available services (agents, facilitators, access to knowledge)
- C = learning community

The learning environment is not only defined by the available technology but also by the presence of and access to available services such as agents, facilitators/coach, knowledge bases, tracking ssytems as well as other learners who are part of a learning community.

(5.1) $IT = f\{s\}$

The IT available depends on the technologies that are available in the concrete space (physical or virtual in which the learner is working.

(5.2) $IT = f\{s, m\}$

We propose IT to also be a function of m; this imposes new requirements for design because it implies that if the interaction with a specific type of knowledge requires some m that is currently not available, IT must be in a position to ubiquitously negotiate the addition of the necessary service.

(6) $MM = f\{MA, k, p, \alpha\}$

- MA = mental attributes
- k = prior knowledge
- p = preferences
- α = attention

We suggest that m is a function of the learner's mental abilities, prior knowledge, preferences, motivation, momentary attention etc. This imposes new requirements for the design of educational environments and choice of pedagogy, because it requires knowledge of these parameters. The authors have a parallel project in which they attempt to model MA. Parameter k, can theoretically be available (in the future) if we assume that all learning activities of the individual are negotiated by his/her (permanently available and accessible) agent. Parameter p can be dynamically modified by the learner. The inclusion of the parameter α opens up a whole new area for research, because it will require real-time methods of monitoring and keeping track of the learner's changing attention.

(7) $m = f\{PM, Ph\}$

- PM = Pedagogical Model
- Ph = Philosophical paradigm

The choice of the methods to be applied during the learning interactions is a function of a pedagogical model (or sub-unit of it) appropriate for the type of learning experiences at hand, as well as a philosophical approach suited for the particular moment (i.e., location, learner's preferences, etc.). Research in the design, standardization, delivery, etc. of learning objects, as well as research related to modeling and managing user preferences, is of great importance for the concretization of these relations.

$E = mt^2$ E-learning equals m- learning makes Tamil learning squared according to this equation m-Learning refers to the use of mobile and pocket IT devices, such as PDAs, mobile phones, and laptops in teaching and learning is equivalent to E-Learning the convergence of the Internet and learning, or Internet-enabled learning and vice versa.

CONCLUSION

Mobile learning may currently be most useful as a supplement to ICT, online learning and more traditional learning methods, and can do much to enrich the language learning experience. It is widely believed that mobile learning could be a huge factor in getting disaffected young adults to engage in language learning, where more traditional methods have failed. As mobile phones combine PDA functions with cameras, video and MP3 players, and as tablets combine the portability of PDAs with the functionality of desktops, the world of learning becomes more mobile, more flexible and more exciting. The increasing rate of mobile penetration versus Internet density may result in m-Learning being a more promising medium than e-Learning. In terms of addressing technical infrastructure and associated administrative issues, a Five-point plan may be followed in relation to the implementation of mobile technologies for learning:

- Investigate a cost model for infrastructure, technology and services.
- Study the requirements of all those involved in the use of the technology (learners, teachers, content creators) to ensure it is usable and acceptable.
- Assess that the technology is suited to the learning task and examine advantages and disadvantages of each technology before making a decision on which one to use.
- Develop procedures and strategies for the management of equipment when it is provided by the institution. Provide training and (ongoing) technical support to the teachers to enable them to use mobile technologies to enhance current and to enable new instructional activities.
- Consider the use of mobile technologies to support collaborative and group learning.

"Learning is wealth none could destroy

Nothing else gives genuine joy"

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