Mobile Learning in Developing Countries

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MOBILE LEARNING APPLICATIONS

TEACHING AND LEARNING

M-learning can complement other teaching and learning methods or replace them, and can be adapted to fit any course or other methods. It can also be used for non-students and non-academic support, such as:

• Practical case, feedback and information.
• Maintenance and guidance.
• Supporting students across the nation.
• Course administration and management.
• Institutional quality assurance.

Some negative aspects of learning include the possibility students may feel:

• Pressure to learn in a given time.
• That location-aware technology is monitoring their movements.
• Electronic messages, and can be modelled in the same ways as other methods. It can also enhance non-academic and para-academic support, such as:

• Concepts or definitions for revision.
• Browsing and searching of short texts.
• That location-aware technology is monitoring their movements.
• Pressure to learn or train anywhere, at any time.
• Institutional quality assurance.
• Motivation and guidance.
• Pastoral care, feedback and remediation.

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• Pressure to learn or train anywhere, at any time.
• Institutional quality assurance.
• Motivation and guidance.
• Pastoral care, feedback and remediation.

M-learning supports this through:

• Support with personal information management in a new
• Data-collection capability for completing assignments.
• Continued access to other students within their online community.
• Graphical tools that support mind-mapping.
• Data collection for projects.
• Communication to and from other students across the entire country.

CASE STUDIES

University of Wolverhampton, U.K.

Students use mobile devices to support staff and dyslexic students in teaching, learning and administration. It is a partnership project involving four universities and the charity, The Royal National Institute for the Blind (RNIB).

Institutional quality assurance is crucial in helping to establish the role of mobile learning in teaching and learning and for the rest of the organisation. This can be achieved by setting up a mobile learning application that allows students to access course material.

Students who may never meet each other, or their teachers, face-to-face.

MOBILE LEARNING IN DEVELOPING COUNTRIES

Written and researched by

John Trayler, Learning and Teaching Research Fellow, Centre for Learning and Teaching, University of Wolverhampton, U.K.

Agnes Kubulaku Hulme, Senior Lecturer in Educational Technology, Institute of Educational Technology, The Open University, U.K.

The Knowledge Series is a topical, start-up guide to distance education practice and delivery. New titles are published every year.

Included in this title:

• MOBILE LEARNING IN DEVELOPING COUNTRIES

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All Web references and links in this publication are accurate at press time.

Series editor: Grace Chin | Series designer: Alex Hennig

PDA Essentials

A TOPICAL, START-UP GUIDE TO DISTANCE EDUCATION PRACTICE AND DELIVERY

Knowledge Series

Commonwealth of Learning

An electronic mediator or “e-moderator” must be downloaded and read comfortably on a small screen.

Facilitated by a teacher, as a guide. Although technology use, especially validating procedures for technology-supported learning. This process will material is suitable, only that the content is viewable.

Process for people who are not familiar with technology and think they will not be able to understand the content is to develop content that complies from the systems and devices. Adopting this approach does not guarantee the or “reversioning” the content, is to develop content that complies from the systems and devices. Adopting this approach does not guarantee the

Use lectures, seminars, books and handouts, Web pages and computer-

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Commonwealth of Learning
M-learning is “anytime, anywhere” way to learn that en longs access to education for all

INTRODUCTION

M-learning has developed widely in Europe, the United States and parts of East Asia, but generally in English education, and even more rapidly, the shift from traditional learning and advancement. M-learning has been driven by the specific detailed and innovative business, specific relative between teacher, student and subject, and for the specific details of learning outcomes. The aim of a learning outcome is to ensure that the user is able to achieve a specific level of learning, which may change the rules of access to education and bring significant input into the learning experience.

However, mobile devices differ in their intended use. For example, some devices are designed for playing music, others for making calls or taking photos. These differences are important, as they may influence the design of the device and the overall usability.

Using handheld computers or smartphones as an access to education, the learning experience can be extended to the maximum extent possible. This is made possible by the integration of multimedia content, which can be accessed and shared over a wireless network, enabling learners to connect with each other and to the learning resources they need.

MOBILE SYSTEMS AND HANDHELD DEVICES

Handhelds at mobile devices are:

- A mobile device
- A web browser
- A printer
- A scanner
- A camera
- A video camera
- A GPS receiver
- A music player
- A media player

IMPLEMENTATION STRATEGIES

Handheld devices can be adapted to the specific needs of learners, for example, by providing keyboard and screen options for different input languages. The devices can also be configured to provide a variety of applications, such as document management, communication, and collaboration tools.

SOFTWARE PROGRAMS

Comparing Pocket PC and Palm:

- Pocket PC:
  - General “office” applications, especially Palm versions of word-processing and spreadsheet programs.
  - More powerful, with the ability to run complex applications.
  - Larger screen
  - Faster processor

- Palm:
  - More user-friendly, with the ability to run simple applications.
  - Smaller screen
  - Slower processor

In terms of cost, Pocket PC is more expensive than Palm, but both are compatible with a wide range of applications, including word processing, spreadsheets, and presentation software.

OPERATING SYSTEMS

Suitable devices are used to provide the necessary software for access to education. These include:

- General applications
- Learning applications
- Communication applications
- Collaboration applications

These applications can be run on a variety of devices, including desktop computers, laptops, and mobile devices, such as smartphones and tablets.

MOBILE LEARNING AND ACCESSIBILITY

The wide range of mobile devices available means that learners can choose the one that best suits their needs. This is an important consideration, especially for learners with specific learning difficulties or disabilities, such as visual, hearing, or motor disabilities.

Handheld and mobile phone software is generally cheaper than desktop or laptop software, but content providers are forced to prioritise information given to mobile devices.

M-learning is an “anytime, anywhere” way to learn that enlarges access to education for all learners, whether they are in schools, universities, or workplaces. It brings learning back to life, making education more accessible and engaging for all learners.
M-learning is an “anytime, anywhere” way to learn that enlarges access to education for all

INTRODUCTION
Mobile learning (M-learning) is a new paradigm, sustainable, immersive, “anytime, anywhere” way to reach out to educational institutions and practically every individual in the world, who has the ability to access information at any time, in any place and on any device. M-learning provides learning opportunities to those who have been traditionally excluded from access to education, including those in low income or rural communities, and individuals with disabilities.

M-learning has developed mainly in Europe, the United States and in developing countries such as India, Nigeria, Brazil, Indonesia, Singapore, and parts of Latin America and Africa. M-learning is defined as learning that occurs in any time or place using mobile learning tools and technologies. These tools include mobile phones, PDAs, laptops, and even computer systems. M-learning is not only limited to mobile devices, but also includes laptops, desktops, and even computer systems.

M-learning is an “anytime, anywhere” way to learn that enlarges access to education for all.
M-learning is an “anytime, anywhere” way to learn that enlarges access to education for all

INTRODUCTION

Mobile technology ranges from wireless devices to handsets, pagers and personal digital assistants to smartphones and tablets. Although a learning experience remains limited, it is becoming a rapidly converging technology capable of supporting “informal and social learning” (COBIT), providing access to educational tools and resources anywhere and anytime.

M-learning, or mobile learning, is a personal, unobtrusive, spontaneous, and flexible way to learn that enlarges access to education for all. This guide focuses on the use of handheld computers or smartphones. Although m-learning experience remains limited, it is becoming a vital tool for personal learning.

In developing countries, mobile technologies potentially deliver educational and training materials. However, the convergence of mobile technologies and other wireless communication devices; and handhelds, which can be used “anytime, anywhere.”

MOBILE SYSTEMS AND TECHNOLOGIES

Handhelds at the mobile device.

- Are about the same weight and height of a personal wallet.
- Usually have a screen in “face up,” or landscape, orientation.
- Have connecting sockets around the edges.
- Usually have a screen or “interface,” and buttons or a keypad.

IMPLEMENTATION STRATEGIES

- Short-term projects that need to learn and support a range of mobile technologies, and applications.
- Solve problems by adding new services or functionality to existing mobile technologies.
- Extensive training and education programs for mobile technology.

POWER SUPPLY

- Many handhelds or printers, Bluetooth transfers data faster than infrared. Bluetooth—based networks have an advantage because they are not affected by the accumulation of interference.
- Comparing Pocket PC and Palm:
  - Pocket PC consumes more memory and power than Palm, so

SOFTWARE PROGRAMS

Handheld and mobile software is generally cheaper than desktop software. For example, a standard desktop program costs about $100, while handheld software is usually $25 to $50. Although handhelds are cheaper, they may not be available in other languages.

Hand-held units can be used for anytime, anywhere learning. However, some time is needed to set up the handhelds, and they may not be available in other languages.

M-learning programs are developed for each country. Some of these programs have been very successful.

OPERATING SYSTEMS

General academic applications, such as reference material and other educational tools, are widely available. However, many handheld applications are not available in other languages.
M-LEARNING APPLICATIONS

TEACHING AND LEARNING

M-learning can complement other teaching/learning activities or be used to enhance them, and can enable inclusiveness in a course, or as an alternative. It does face barriers, non-responders, and peer academic support, such as:

- Personal, social, feedback, or observation
- Motivation and guidance

- Supporting students in the knowledge
- Course administration and management
- Institutional quality assurance

Some negative aspects of learning include the possibility students may feel to be less relevant, to be more insecure, or that they would be more anxious, to their own feedback, or to the relevance of their own guidance.

- Participants' perceived support and their awareness
- To support students in the knowledge
- To develop their professional development

TRANSMITTING CONTENT

Authors, editors, experts, and facilitators Web pages and computer-aided learning packages from teacher to students. As M-learning offers a range of content transmitted, data delivered to smaller packages, such as:

- Daily in easily digestible texts, and sections
- Multiple choices quizzes with immediate feedback.
- Knowledge and learning in e-books
- Following links to selected websites
- Glossary, version, and information
- A course or a duration in revision

An attention to the suitability and provision for an easy accessible device, or "touching" the content. So, a developed content that complements for the teaching with the technical that make it possible, cross devices, and platforms. The mobile devices are not guaranteed the mandates, but, on the other content is available.

Quality assurance is the key to many activities and emerging standards validation activities for technologies supporting learning. The processes will be transformative for the learning experience of other types of learning, rather than replacing completely.

SHARED DISCUSSION

Users, learners, editors, teachers, and facilitators. Web pages and computer-aided learning packages from teacher to students. As M-learning offers a range of content transmitted, data delivered to smaller packages, such as:

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Quality assurance is the key to many activities and emerging standards validation activities for technologies supporting learning. The processes will be transformative for the learning experience of other types of learning, rather than replacing completely.

CASE STUDIES

University of Wolverhampton, United Kingdom

Uses mobile devices to support staff and disabled students in teaching, learning, and administration. This is run on a pilot to help a group of students with disabilities, writers, and developing using the Slide Message Service (SMS) text messaging, and another pilot group of students with OAP (Older Adults Programme) help disabled organizations, and mobile access to course material. These pilots have a longer delivery on the university, and to staff learning and support in a service.

ZPD project, India

Symbian Symbiote Software Systems, the project uses mobile phones and SMS to deliver high-speed online support. Popular regional content is converted into mobile services and major pilots are being developed, including SMS text messaging, and another pilot group of students with OAP (Older Adults Programme) help disabled organizations, and mobile access to course material. These pilots have a longer delivery on the university, and to staff learning and support in a service.

MOBILE LEARNING IN DEVELOPING COUNTRIES

Further reading and selected tools.

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M-LEARNING APPLICATIONS

TEACHING AND LEARNING
M-learning can complement other teaching and learning methods or replace them, and can cater to learners in very remote and other settings. It can also be used in non-school and non-academic support, such as:

- Personal care, feedback and communication
- Motivation and guidance
- Supporting students across the nation
- Course administration and management
- Institutional quality assurance

Some negative aspects of m-learning include the possibility students may feel:

- Pressured to send text messages
- That location impacts technology or their movement
- Their devices are being tracked, parents and teachers may question their privacy
- Therapeutic or professional development is offered (e.g., counseling).

TRANSMITTING CONTENT

Use lectures, seminars, books and handouts. Web pages and computer-based e-learning packages from a teacher to a student is a way of delivering a range of content traditional classes, but delivered in smaller packages, such as:

- Daily or weekly study tips, reminders and announcements
- Multiple choice quizzes with immediate feedback
- Knowledge and awareness tests
- Following links to selected webpages
- Glossary, vocabulary and information
- Concepts and definitions or reviews

An alternative to adapting existing content for use on mobile devices, or "reversioning" the content, is to develop content that complies from the outset with technical standards that make it portable across computer platforms, such as:

- That encapsulating their professional knowledge on a computer and can be modelled in the same ways as other methods. It can be less problematic if m-leaning is integrated into other types of learning, rather than replacing them completely.

INDIVIDUAL STUDY SKILLS AND INFORMATION MANAGEMENT

M-learning can:

- Data collection for projects
- Quick information amongst students and teachers
- Bibliographic databases in mobile settings
- Computer administration and management
- Tools to help students link together different elements of a course

WORKPLACE EDUCATION

Studies of some disciplines, such as teaching, law, medicine and nursing, spend many courses in placements gaining practical experience. Here, m-learning can provide:

- Continue access to courseware and reference material in the workplace
- Contact and access to fellow students with the same course
- Data collection capacity for training assessments
- Support with personal information management in a new working environment

CASE STUDIES

University of Wolverhampton, United Kingdom

Mobile devices to support staff and disadvantaged students in teaching, learning and administration. It has run a pilot to help a group of students with disabilities, others and providing using Short Message Service (SMS) texting messaging, and another pilot involving a group of students with dual-CGA (CLAN) to help personal organisation, and mobile access to course material. These pilots have been able to achieve success in the university, and to self-helping and support a larger scale.

ZMO projects, India

Sponsored by ZMQ Software Systems, the project uses mobile phones to develop and support interaction and discover amongst students who may never meet each other, or who, if they do, that is off-line. Experiences of mobile learning in the workplace is a training in mobile learning that should form the basis of an effective model of administrative support and training to individual communities, if it is measured. M-learning support forms in a national organisational.

Mobile Learning in Developing Countries

M-learning can provide:

- Translating knowledge to sectors that cannot afford traditional training
- Online training for staff that may not be able to travel to distance learning courses
- Access to course material. These pilots have led to larger schemes in the future. Furthermore, staff and students who use bulk SMS text messaging as in-service training to primary school teachers.

FURTHER MATERIALS

- Kynaslahti, H. and Seppala, P., eds. 2003. M-learning and the author must be retained (www.col.org/knowledge). COL is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning and distance education knowledge, resources and technologies. www.col.org
- The knowledge Series is a topical, start-up guide to distance education practice and delivery, new titles are published each year. The editors, John Traxler and David Flower, are both leading researchers on m-learning. At the time of printing, 15 titles are available, with more planned for release in 2009.


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More information on mobile learning in the workplace.

M-LEARNING APPLICATIONS