M-LEARNING: A NEW LEARNING PARADIGM

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ABSTRACT

21st century is known as an age of learning. It was declared to be the age of information and communication technology due to the revolution of mobile technology. Mobile technology has become an integral part of our lives. We cannot work in the society without mobile, internet etc. every body is using online technology in day today working. According to Telecom Regulatory Authority of India (TRAI), "India had 456.7 million mobile subscribers…". Mobiles are not just a playing but beyond it, it is an amazing educational tool for teaching and learning process. M-learning is the new sensation in the field of education. M-learning is now creating a new wave of educational development for sustainable and viable learning option. It is based on the convergence of mobile technologies and wireless infrastructure. The present paper highlights the concept of M-learning, Characteristics, Types, Significance, M-Learning System, Categories of Mobile learning and their Technologies, Advantages and Disadvantages of M-learning.

Key Words: Learning, M-learning, E-learning, M-technology, PDAs.

INTRODUCTION

In this new millennium modern technology plays inevitable role in our lives. Without modern technology we cannot go forward. Now-a-days anywhere anytime education is made possible. The practice of providing education with the help of modern technologies is termed as e-education or e-learning or m-learning. Mobile technology in word open various ways for new educational technologies aimed at fulfilling the country's educational needs. There are various ways to use mobile phones for enhancing learning.

Mobile phones plays an important role in our day today lives in various purposes. One of the important purposes is learning. Mobile learning, as a novel educational approach, encourages flexibility; students do not need to be a specific age, gender, or member of a specific group or geography, to participate in learning opportunities. Restrictions of time, space and place have been lifted.

CONCEPT OF M-LEARNING

Mobile learning, sometimes called m-learning, is learning accomplished with the use of small, portable computing devices. These computing devices may include: smart phones, personal digital assistants (PDAs) and similar handheld devices. There is some debate on the inclusion of tablet and laptop computers. Often, wireless two-way internet connection is assumed as an integral component. Mobile learning refers to the use of mobile or wireless devices for the purpose of learning while on the move. Typical examples of the devices used for mobile learning include cell phones, smartphones, palmtops, and handheld computers; tablet PCs, laptops, and personal media players can also fall within this scope (Kukulska-Hulme & Traxler, 2005). M-learning is the idea that a student can learn from any place at any time using portable learning devices. M-

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learning or 'mobile learning' is any sort of learning that takes advantages of learning opportunities offered by mobile technologies.

- M learning means "acquisition of <u>any</u> knowledge and skill through using mobile technology <u>anytime, anywhere</u> that result in <u>alteration of behaviour</u>".
- M learning also brings strong portability by replacing books and notes with small RAM's filled with tailored learning contents.
- M-learning implies different things to different people. Here there are some definitions of M-learning given below:
- According to Quinn (2000) *"Mobile learning is learning through mobile computational devices"*.
- Shepherd (2001) Says: M- learning is not just electronic, it's mobile.
- Colazzo, Ronchetti, Trifonova, and Molinari (2003) state that, "A mobile learning educational process can be considered as any learning and teaching activity that is possible through mobile tools or in settings where mobile equipment is available."
- Polsani (2003) defines *"mobile learning as a form of education whose site of production, circulation and consumption is the network"*.
- Pinkwert et. al. (2003), who defines m-learning as *". . . e-learning that uses mobile devices and wireless transmission."*
- Trifonova (2003) Any form of learning (studying) and teaching that occurs through a mobile device, or in a mobile environment.
- Kynaslahti (2003) identifies three different elements for mobility and all of these are valuable to teachers and students while they are teaching and learning –
→ Convenience
→ Expediency
→ Immediacy
- Keegan (2005) The provision of education and training on PDAs/palmtops/handhelds, smartphones and mobile devices.
- Sharples (2005), who defines m-learning *" . . . as a process of coming to know, by which learners in cooperation with their peers and teachers, construct transiently stable interpretations of their world."*
- Traxler (2005) defined it as *"any educational provision where the sole or dominate technologies are hand held and palmtop devices."*
- Pea and Maldonado (2006) stated that mobile learning incorporates *"transformative innovations for learning futures"* (p. 437).
- Parsons & Ryu (2006) M-Learning is broadly defined as the delivery of learning content to learners utilizing mobile computing devices.
- Peters (2007) also stated that it was a subset of e-learning, a step toward making the educational process *"just in time, just enough and just for me"* (Peters, 2007, p. 15).
- Ally (2009) The process of using a mobile device to access and study learning materials and to communicate with fellow students, instructors or institution.

M-learning provides the potential to provide the right information to right people at the any time and any place using portable learning devices. Thus the m-learning can be summarized in a single statement – **"deliverance of education or any learning via any portable devices".**
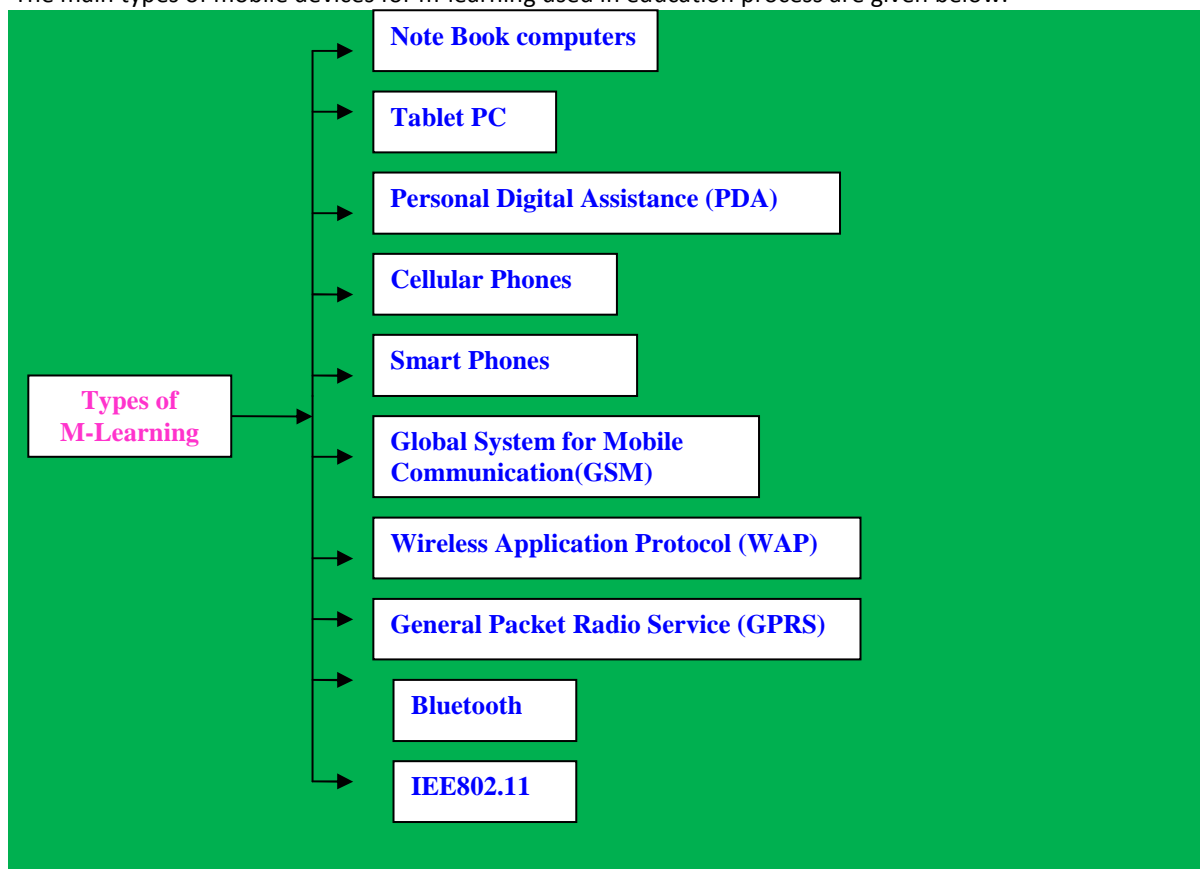
CHARACTERISTICS OF M-LEARNING

a. **Accessibility -** The information is always available whenever the learners need to use it.
b. **Immediacy -** The information can be retrieved immediately by the learners.
c. **Interactivity -** The learners can interact with peers, teachers and experts efficiently and effectively through different media.

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d. Context-awareness - The environment can adopt to the learners real situation to provide adequate information for the learners.
e.   Permanency - The information remains unless the learners purposely remove it.
f. Flexible Learning, Large mass covered, reduces students' indiscipline and unrest problem.
g. Used Very where at every time.
h. Most of mobile devices have lower prices than desktop PCs.
i. Similar size and light weight than desktop PCs.
j. Ensure bigger students engage as m-learning is based on modern technologies, which students use in everyday life.
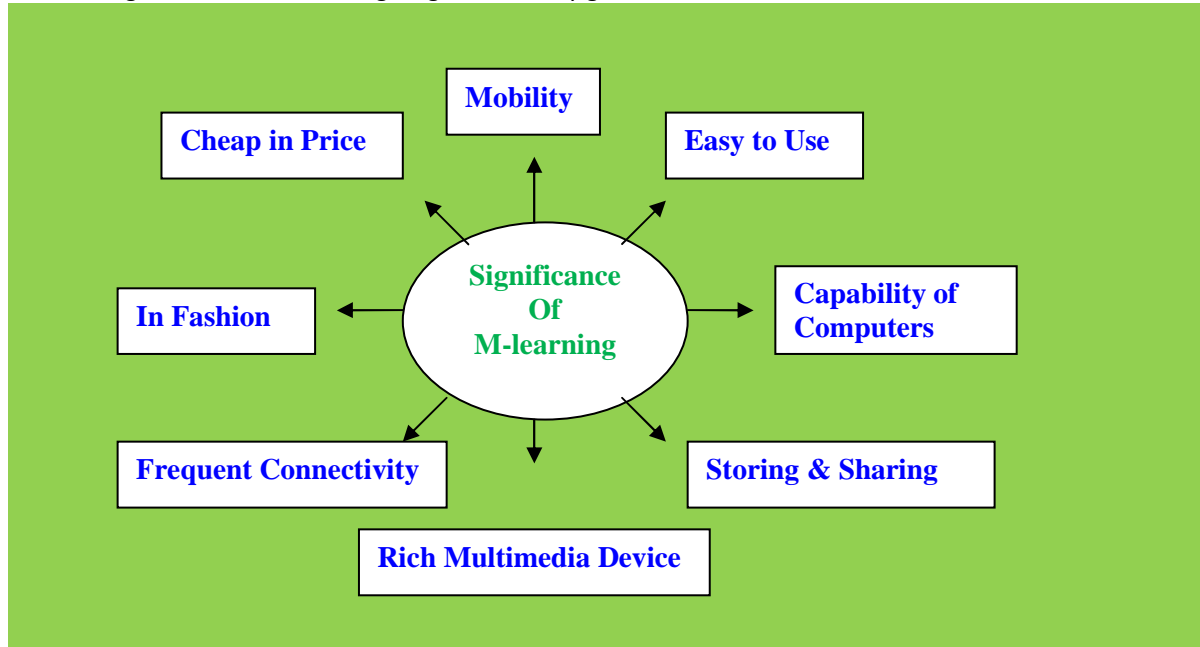
TYPES OF M-LEARNING

The main types of mobile devices for m-learning used in education process are given below:

SIGNIFICANCE OF M-LEARNING

Here the significance of M-learning diagrammatically given below:

Mobility: M-learning decreases limitation of learning location; it focuses on the mobility of learner and learning. Mobile devices can be used anywhere, and any time, including at home, college or even in traveling.

Easy to Use: Now-a-day, we can use mobile easily. We can access information, take photographs, record our thoughts with one device, and that we can share with our friends which make mobile phone as user as friendly and personal device.

Capability of Computers: Mobile devices have all of the functional capabilities of modern computers, especially smart phones, symbin and PDA phone devices have all of the computing capabilities which helps learner to support various learning software of M-learning.

Data Storing and Sharing Capacity: There are two different types of Mobile phone memory – Internal and External. Both memories can be used to data storage; we can save our important data or file on memory card. All the multimedia mobiles have capacity of transfer information between mobile to mobile or mobile to PC through USB cable/ Bluetooth. In this way these connections help learner to exchange data with other people and gain considerable knowledge.

Rich Multimedia Device: Mobile devices are not a single utility tool but it is a multi-utility device which engages learners through providing rich media content like music, videos, games and other entertaining and informational content which make it best multimedia device.

Frequent Connectivity: Connectivity is the most important factor of M-learning. With the help of a strong connectivity network, one can connect and interact with each other. There are various mobile applications like Bluetooth, Wi-Fi, infrared which help to connect with other devices and users.

In Fashion: Basically young students are largely adopters of new technologies because novelty has its place of life. Today's mobiles are not just a communicative device of students for many it is a part of life. Young students use the mobile phone as a way of expressing their sense, style and luxurious life in this way mobile phones are now became a symbolic tool of fashion.
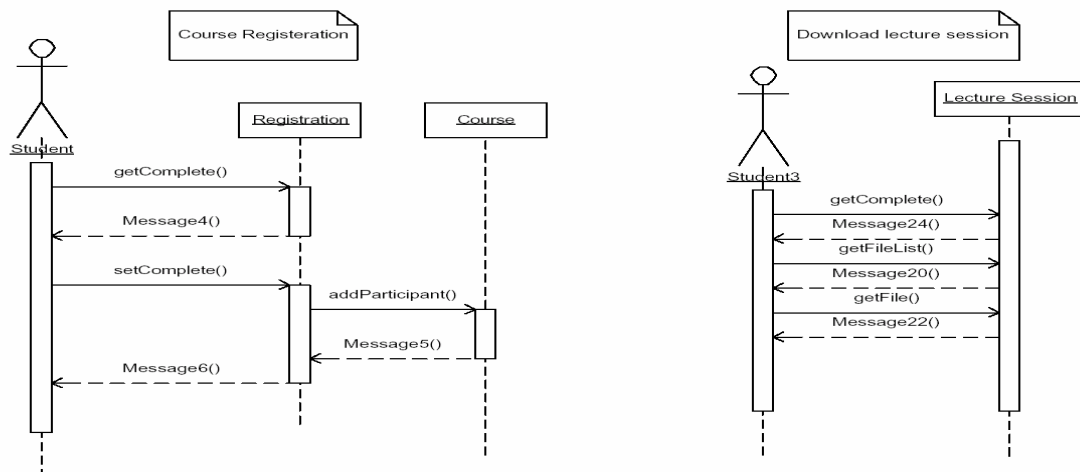
Cheap in Price: Very beginning mobile was considered as luxury. The price of a handset and call rates was beyond the reach of an ordinary people. But in present prices fall and it is very cheaper than other devices.
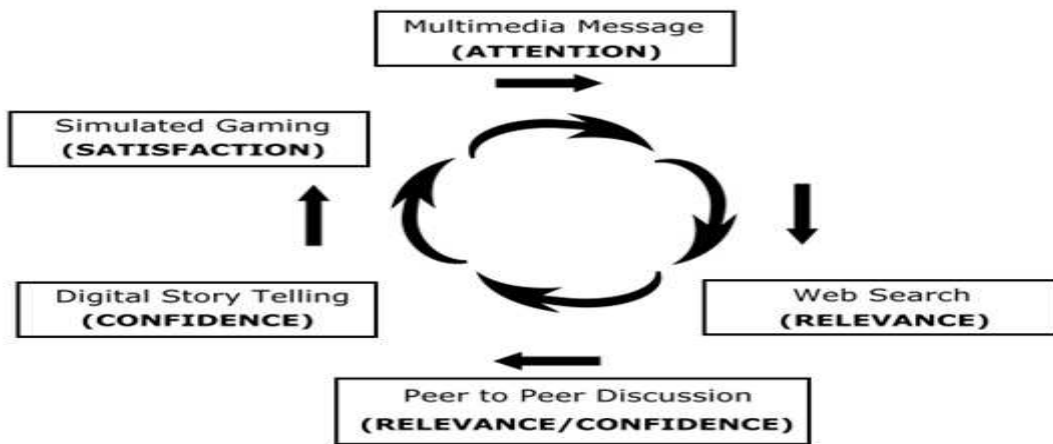Beside these, there are some other significances of M-learning:

➢ It is important to bring new technology into the classroom.
➢ It will be more light weight device compare to books PC's etc.
➢ Mobile learning could be utilized as part of a learning approach which uses different types of activities.
➢ Mobile learning needs to be used appropriately, according to the groups of students involved.
➢ Mobile learning can be a useful add-on tool for students with special needs. However, for SMS and MMS this might be dependent on the students specific disabilities or difficulties involved.
➢ Good it supports is needed.
➢ Mobile learning can be used as a 'hook' to re- engage disaffected youth.
➢ It is necessary to have enough devices for classroom use.
➢ Encourage and support learning at any time of day / location.
➢ Facilitates personalised learning.
➢ 'TEL' without location-fixed computers.
➢ Facilitates work-based learning.
➢ Promotes collaborative learning.
➢ Supports evidence-gathering / work-based assessments.

M-LEARNING SYSTEM

Here the interaction between users and M-learning system is diagrammatically given below:-
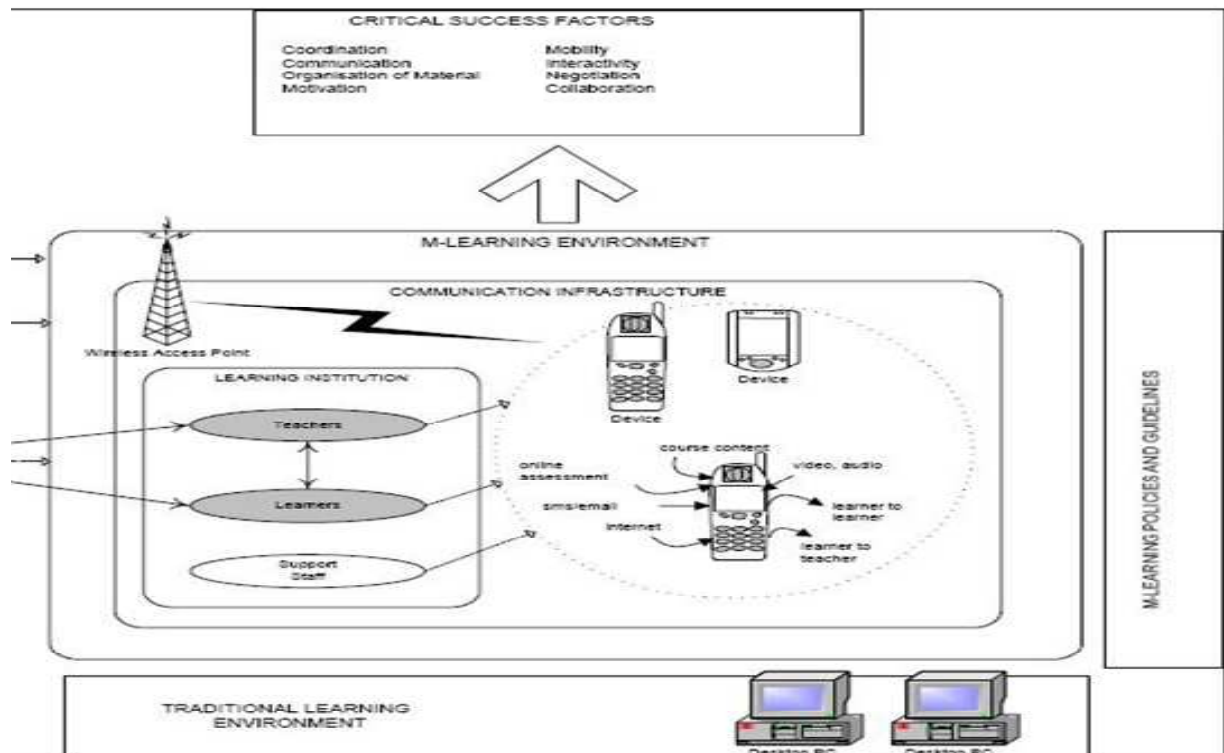

(The sequence diagram of the interaction between the user and the m-learning system)

(Learning Cycle in Shih's Mobile Learning Model)

Recommendation for adoption of M-learning in developing countries. When considering the adoption of wireless technologies in education, schools need to ensure that learners, teachers and parents are involved as much as possible in the planning mobile learning initiatives.The school also provides support and training in order to make success of m-learning.

MODEL AND DISCUSSION

(Model for M-learning adoption)

The stakeholder in the proposed model include
1. Learners
2. parents
3. Teachers
4. System designers (execute on the device – include both software developer and hardware manufacturers)
5. device venders (sell the devices)
6. support staff.

CATEGORIES OF MOBILE LEARNING AND THEIR TECHNOLOGIES

Aspect of Mobile learning	Networks	Technology	Technology Characteristics	Device
Portable e-learning	---	Cable	Direct, wired connection. Least complicated, least flexible	PDA, iPad, smartphone, flash drive
Classroom learning	Local-Area Networks, rally internet	GSM	Global System for Mobile - the major telephone and data standard used in World	laptop computer PDA's, mobile Phones cell phones
		Wi-Fi	IEEE standard 802.11 for wireless networking,	
		IR	Infra-Red light - Inexpensive, but increasingly out of favor as it requires line of-Sight	
		Bluetooth	An increasingly common networking standard found in many devices. Costs continue to go down and capability goes up, but it does have power requirements.	
Rural mobile learning	Wide-Area Networks	WiMax	A promised wireless, broad-reach, broadband network.	Palms, 3G cell phone , PDA, smart phone and iPODS
		GPRS	Code Division Multiple Access .	
		GSM	Global System for Mobile - the major telephone and data standard used in World	

ADVANTAGES OF M-LEARNING

There are a lot of advantages of mobile learning. These are listed below:-
- Increased mobility: Learning is not restricted to fixed locations any more. Mobile devices allow learners to access learning content and learning interactions anywhere, such as factories, museums, hospitals, shopping malls, cafes and outdoor areas.
- Time-saving: People can now study when they are commuting and traveling.
- Environmental-friendly: It is amazing to find out how much information a mobile device can carry despite its light weight. Less printing is required.
- Interactive: Mobile technology enables students to closely link with their peers, teachers, distant partners, and even interest groups worldwide.
- Use of relatively inexpensive everyday technologies.
- Better opportunities to acquire skills at one's own pace, with a degree of privacy that may be missing when using shared computer facilities or relying on equipment belonging to somebody else.
- Good support for preferred modes of interaction, e.g. accessing audio content or participating in social networks on the move.

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- Catering for interests beyond what is provided in class, through access to additional content such as podcasts or free learning materials (e.g. OpenLearn).
- Handheld devices are often an everyday part of business, so learning can contribute directly to enhancing employability, life skills and work practices.
- Opportunities for learners to give immediate feedback on their learning experience.
- Better assessment and diagnosis of learning problems as they occur.
- Psychological support for those at risk of dropping out, through social networks or personal guidance from a mentor.
- Learning materials can become accessible to a larger audience, through podcasts, mobile applications, blogs and e-books, which are seen by potential students.
- Catering for disadvantaged social groups for whom mobile learning presents an opportunity to improve their life chances.
- Revitalizing the curriculum, rethinking teaching methods and implementing improved feedback to learners.
- Turning geographically dispersed learners into a valuable teaching resource by enabling them to contribute their local knowledge and research data more easily.
- Supporting learner retention, progression and transition.
- Making the learning experience more tailored to the changing needs of individuals, encouraging learners to return for knowledge updating and further study.
- Mobile educational systems have started to emerge as potential educational environments supporting lifelong learning though other forms of learning like distance learning etc are very popular in India, learning is yet to find a pathway into Indian educational system. Also to notice that India's mobile services market is growing at a very rapid pace and the technological base required to support mobile devices is also quite strong in India. So India has the potential to be considered as a strong market for M-learning.
- The learning material is mostly colourful and inviting which may prompt students to go back and forth and practice more.
- Learner gets stimulated in learning.
- Convenient.
- Interesting.

DISADVANTAGES OF M-LEARNING

- There is no denying that the storage capacities of PDA are limited.
- Device may become outdated quickly and students have to keep combating obsolescence.
- The buttons on the keypad or styles pens are small and can be trickily for some people to manipulate. There are attachable keyboards available for some devices but these are also small, can be different to use to cost money.
- Too small display.
- Usable with some models only.
- Network connectivity limitations.
- Expenses / Costs.

CONCLUSION

Despite some disadvantages, m-learning will became more and more popular with the progress of information and communication technologies. M-learning as new technology that was imposed by the fast development of the technology. Mobile technology   progressing education. The M-learning community is still fragmented, with different national perspectives, differences between academic and industry and between the school, higher education and lifelong learning sectors. 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 learning experience. It is

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widely believed that mobile learning could be a huge factor in getting disaffected young adults to engage in 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.

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