A Review Research on Mobile Social Networking Application in Constructing Seamless Learning Space

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Abstract—**Much like web-based social networking, as a brand new social media, mobile social networking is increasingly influence people's lifestyle, and the "Post 90s" students are the mainly users of this new medium. Nevertheless, the worrying thing is that the learning situations of undergraduate students are confronted with many difficulties and challenges. On the other side, with the widely spread of the Mobile Internet and mobile devices, mobile learning is becoming more and more popular. Therefore, making full use of mobile social networking and other mobile technologies, to construct a sustainable seamless learning space of mobile learning for colleges and universities, and to design relevant learning resources and processes, have important significance of motivating students' learning enthusiasm and improving their learning effect.**

Keywords-mobile social networking; mobile learning; seamless learning space

I. INTRODUCTION

As the social nature of human, communication is the basic way of the existence of human in society. The revolution of communication way will surely cause the change in lifestyle of human. In recent years, with the continuous development of mobile internet technique and the growing popularity of mobile terminal, the communication way of human is constantly changing. As a whole new social means, mobile social networking is changing the lifestyle of human in all aspects. While the youth, especially those college and university students, are the major users of mobile social networking.

Current college and university students are mostly "post-90s" who grow with internet, mobile phone and online games, and they tend to enrich campus life by the way of entertainment. Moreover, they are unwilling to mediocrity, long for a sense of belonging, love to create and share, seek their own identity, and pursue for new and change. Consequently, as a whole new media with convenient entertainment and interactivity, mobile social networking has a natural attraction to "post-90s". According to investigation statistics, the usage proportion of mobile social networking by "post-90s" students is far higher than that by other groups, and thus they have rapidly become the major users of the mainstream mobile social platforms of China such as Tencent QQ, Sina Microblog and Renren.com.

However, in other aspects, there are still some problems and challenges in college and university students' learning. Firstly, due to old learning methods, classroom teaching is difficult to shake off the common teacher-centered mode and the mechanical man-machine interaction, beside that there is no effective interaction mechanism between teaching and learning. Secondly, students lack the interests and initiatives to learn, so that PCs and mobile devices are difficult to play a role in addition to entertainment. Thirdly, it is difficult to carry out the context learning, and theoretical knowledge cannot be effective applied in practice.

The context of learning at university is a special learning form; it is closer to social practice and it has more profound depth. Meanwhile, learners have mental maturity and strong initiative. Thus, the environment of learning at university to be built up should be learner-centered, have abundant supply of learning resources, can arouse the subject consciousness of students in leaning atmosphere and spirit, and finally support and promote the deep interaction between teachers and students, between learners, and between learners and experts.

The introduction of mobile social networking into learning environment and the constructing of seamless learning space have following advantages [1]:

- Natural presentation of learning context.
- Learning when required.
- Ubiquitous learning environment.
- Popularizing immense amounts of learning resources.
- Natural interaction and learning mode.
- Learning is no longer the behavior of individual's cognition, but the process of sharing and constructing the social network.

II. MOBILE LEARNING AND SEAMLESS LEARNING SPACE

In recent five years, with the popularity of mobile communication network and the increasingly improvement of computing and memory capacities of mobile devices, "Mobile" has become one of nouns cause the most attention of people. Meanwhile, convenient mobile devices and network make that the communication and information are ubiquitous. Under the background above, mobile learning emerges, which refers to a process that in anytime and anywhere, when required, learners can obtain learning resources by mobile devices and wireless communication network to communicate and coordinate with others, or to construct personal and social knowledge.

The development of mobile learning goes through three phases [1]:

(1) The core of first phase is to research how to construct mobile learning system, environment and content. Meanwhile, the key of learning design in this phase is to transfer knowledge well and more convenient, and the learning theory is based on behaviorism and cognitivism. The learning mode includes: Instant Information Feedback System in Classrooms, Mobile Learning based on SMS, Podcasting, etc.

(2) In second phase, more attentions are paid to how to make use of the convenience and characteristics provided by mobile technologies, construct suitable learning space, plan learning process, and promote learners to participate in or internalizing cognition. Unlike that in first phase, its learning theory is based on constructivism. The learning mode includes: Mobile PBL, Mobile Inquiry Learning, Social Learning based on Mobile Technology, and Mobile Education Games, etc.

(3) Generally, current researches on mobile learning pay more attention on context sensitivity of mobile devices and the design of seamless learning space, and take context sensitivity as its major theoretical basis.

At present, the research and practice fields of mobile learning are constantly refining and dividing. For different countries, mobile learning research and practice are different, for example, America, Taiwan, Singapore and other areas focus on "One-to-one" digital learning and seamless learning, advocate to make use of the connection between mobile technique and other technologies, and thus to provide sustained support in and out the classroom for individual learning and ubiquitous learning of learners [2][3][4]. However, European countries pay more attention to correlate the formal and informal learning context using mobile technique, and support the context learning and community learning. Unlike the scholars above, British and Canadian scholars pay more attention to support the individual distance learning of learners by mobile technique, involving the design of mobile learning activity, the development of open learning content, the establishment of mobile learning standard, etc [5][6].

All concerns above indicate the future development prospect of mobile learning, namely that mobile technique and other techniques can be used to construct a sustainable seamless learning space for learners, in which the formal and informal learning are combined, personal learning and community learning are merged, and the reality and network learning are connected with each other. Thus, "context" and "learning design" will become two bonds by which mobile learning develops towards seamless learning [7][8][9].

III. FROM DIGITAL LEARNING SPACE TO SEAMLESS LEARNING SPACE

Learning space is not just a spatial concept in physical sense, but it has the social attribute, and it is a spatial form that can reflect the communication behavior and the interaction between educators and learners. With the rapid development of communication technique and the popularity of internet, the information acquisition way and the learning mode of the new generation of learners change greatly, and the digital learning space can meet the requirements above.

The main characterization of digital learning space is: by the cooperation and making full use of social relationship network, tacit knowledge in the internal organization can be mined, and thus to achieve the sharing and innovation of knowledge, finally to strengthen the effects of learning [10].

Digital learning space mainly has some functions as follows: integrating several resources and providing "One-stop" service [11]; constructing learning community and emphasizing learning collaboration; combing teaching with support staff; providing learners with full support. Besides, the core of digital learning space is to use collaborative learning environment for knowledge sharing and use the social relationship network for tacit knowledge mining.

Consequently, in a certain sense, seamless learning space comes from "One-stop" service and the concept of digital learning space. Certainly, seamless learning space pays more attention on the cooperation between learning service agencies, the seamless integration of learning resources, and the supporting of collaborative learning [12].

Seamless learning space cannot be constructed without the help of information technology, which includes not only audiovisual media technology and audiovisual service (multimedia data compression technology, stream media, Video On Demand, etc), but also the new generation of network technology (mobile internet, cloud computing, etc) and other assistant technologies (information retrieval, collaborative learning tool, individual information push and share service, etc). Among them, social networking services can provide an important guarantee for seamless learning space constructing, seamless integration of learning resources and implementation of collaborative learning [13].

IV. SOCIAL NETWORKING SERVICE AND MOBILE SOCIAL NETWORKING

"A social networking service is an online service, platform, or site that focuses on building and reflecting of social networks or social relations among people, who, for example, share interests and/or activities and people with similar or somewhat similar interests, backgrounds and/or activities make their own communities"[14].

As a core concept in Web2.0 era, social networking service goes through four major phases, including early conceptual phase (represented by Six Degrees of Separation), the phase of making friends with strangers (the theory that the user can obtain higher social capital by constructing "weak tie", represented by Friendster), entertainment phase (the theory in which an abundant multimedia individual space can be created for attracting attention, represented by MySpace), and social graph phase (the theory that the actual offline social network can be duplicated to online low-cost management, represented by Facebook).

Compared with the traditional network, social networking service has following characteristics:

- Social networking service is shaking off its instrumental characteristics, and return to interpersonal communication. Based on actual social relations, it simulates or reconstructs the personnel relation network in the real world, and accordingly improves the quality and efficiency of social communication.
- Social networking service is user-centered, encourages the users to create value, and highlights the aggregation of micro-contents (represented by Microblog).

- Social networking service combines virtual social communication with actual social communication well.
- Social networking service, such as mobile media, creates a new interpersonal communication form and communication context, and is favor for the reconstructing of the relation between personnel space and public space, and for the effective combination of personnel and public spaces [15].

Recently, social network service has involved all network service forms that are centered at social communications of human. Under this background, owing to the popularity of mobile devices represented by mobile phones and the ubiquitous existence of wireless network, mobile media has become the mainstream development direction for social networking service.

From the view of functional theory on community research, the so-called mobile social networking is a making friends or interactive community based on mobile terminals and wireless network, which can mainly serve as a communication platform for people [16]. Owing to some differences in carrier, information receiving and sending with the common social medias, mobile social networking has some own characteristics as follows: (1) mobility and portability; (2) more extensive audience groups; (3) it is based on more actual social relations; (4) more strong interactivity, entertainment, and individuation.

The related researches on mobile social networking mainly focus on the development history, operation mode and development strategy of mobile social networking, the enhancement of mobile technology on the development of mobile social networking, the relation between mobile social networking and social practice, and other fields. However, the research on the applications of mobile social networking in mobile learning field, especially for seamless learning space, is still in the start stage [17].

V. Application Research of Mobile Social Networking in Seamless Learning Space

On the other hand, the research on seamless learning space is mainly concentrated in the aspects of theoretical research and technical feasibility, for example, the learning cognitive laws (M. Sharples, The Open University, UK) [8], the structural model and key technologies of seamless learning space (Kinshuk, Athabasca University, Canada) [6], and learning resource organization(Yu, Beijing Normal University, China) [1], etc. However, the research on the application of case-based innovation learning model is still in its infancy, moreover, the case studies mostly involve primary and secondary schools ("One-to-one" Mobile Learning in Classrooms, National Institute of Education, Singapore [2]; Research Issues and Applications of Context-Aware Ubiquitous Learning, National Taiwan University of Science and Technology, Taiwan [1]; Application Model of Handheld Online Learning System into Subject Teaching, Beijing Normal University, China [1]), and are relatively rare in the constructing of seamless learning space at university.

In the value of application, the enhancement of mobile social networking on learning is mainly reflected by the following three aspects [18]: cultivating social network and learning community; enhancing learner-centered creativity and sharing; decentralization and autonomy of the information.

Based on the medium of mobile social networking, the relationship between teaching and learning is no longer confined to the interaction between learners and digital contents, but tends to form a personalized and social learning environment composed of learners, teachers, experts, and context-based learning contents. Learner-centered and learner participation make learning space based on the mobile social networking become a platform used for the aggregation, creation, sharing and maintenance of individual knowledge of learners.

From the point of view that technology enhanced learning, the characteristics of mobile social networking provide full media functions and strong technical support for constructing the "context" of sustainable seamless learning space and conducting effective "learning design". Meanwhile, the natural support of various mobile devices on mobile social networking also provides powerful hardware support for ubiquitous learning. It should be specially explained that, with the deepening of the concept of "Cloud", any terminal with display screen can serve as a "PC" in "Cloud". Network is everywhere (ubiquitous and seamless), with human activities at the centre, and whether devices are mobile or not make no difference. The future form of Internet is naturally "mobile".

It is forward-looking to construct the sustainable seamless learning space model applied to mobile learning at colleges and universities by means of key technologies such as mobile social networking and "Cloud Service".

VI. Conclusion

Consequently, making full use of mobile social networking and constituting a sustainable seamless learning space of mobile learning for colleges and universities have positive significance in either creating smart city, letting common citizens enjoy convenient, efficient and latest learning technique, and popularizing the concept of lifelong learning, or in easing the conflict between teaching and learning, motivating the initiative, and improving the quality of learning.

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