

Analysis of Fragmented Learning Features under the New Media Environment

Peng Wenxiu

College of computer science, Yangtze University
Jingzhou, China

Abstract. With the rapid development of the new media technology throughout the world, smart phones, tablets, laptops and other kinds of media constantly appear in people's learning activities. Depending on the internal intervention and external support of new media technology, a new learning style called fragmented learning emerges. Beginning with the definition of new media and fragmented learning, this article points out that with the fragmentation of time and space, media and information produce distributed learning behavior, which is apt to form thought fragments. Meanwhile, scattered thinking model is easy to produce distributed learning behavior. One is mutually affected and promoted by the other one. New media meets the general condition of fragmented learning for learners. From what ever perspective including time and space, media and information, thinking and behavior, fragmented learning shows different features from traditional collective learning. As a new learning style, fragmented learning under the new media environment has brought opportunities and challenges for learners. We need more research on how to maximize the value of fragmented learning, so as to improve the quality and efficiency of learning.

Keywords: Fragmented Learning; Fragmentation; New Media; Feature; Mobile Learning

1. Introduction

According to ITU (2015), there are about seven billion mobile users in the world. In the year 2000, there were only 738 million users. Today, 3.2 billion users are

using the Internet. From 2000 to 2015, the popularizing rate of the Internet users increased almost 7 times, it increased to 43% of the world's population from 6.5%. (e.g. Figure 1) The number of mobile-cellular telephone subscriptions and mobile broadband subscription are increasing at an alarming rate.

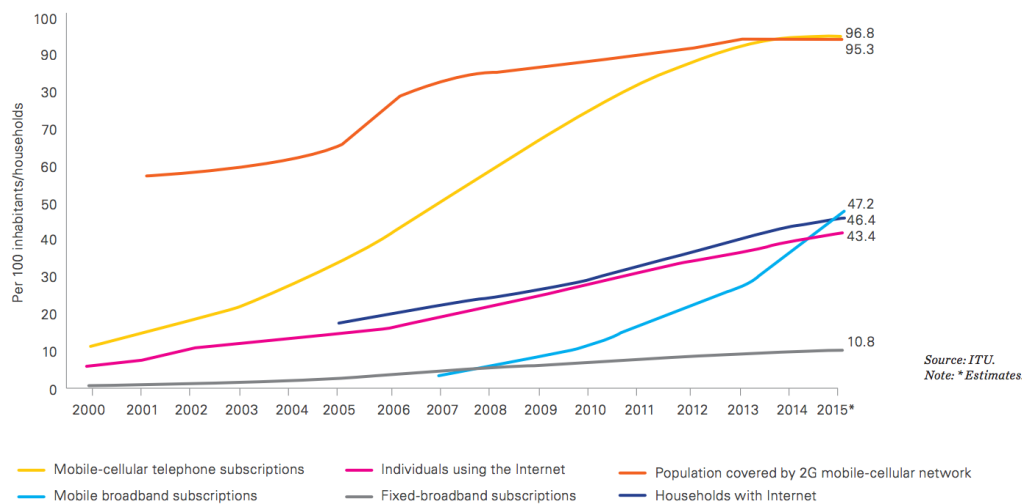


Figure 1: The ICT Development Situation from 2000 to 2015 (CNBeta.com, 2015)

With the popularity of network terminals and mobile terminals, the new media provide effective technical support for people. With the new media, people can learn anytime and anywhere. Depending on the internal intervention and external support of the new media technology, a new learning style called fragmented learning emerges.

In dormitory, classroom, playground or dining-room, we can see students learning and communicating anywhere. The new media technology provides opportunities for ubiquitous learning. As a result of the new media like smart phones, tablets, laptops, people's learning styles have changed a lot, which are becoming much easier and more efficient. Based on the above there is need to introduce the new media and the fragmented learning. Besides that, we must fully grasp the features of new media and fragmented learning, in order to improve the quality and efficiency of learning.

2. New Media

2.1 What Is New Media

The new media is always closely linked to the Internet and digital devices. Common examples of new media include websites such as online newspapers, blogs, wikis, video games, and social media. A defining characteristic of new media is dialogue. Unlike any of past technologies, new media is grounded on an interactive community (Brandon, 2011).

Besides this, most technologies described as new media are digital. New media does not include analog television programs, feature films, magazines, books, or paper-based publications, unless they contain technologies that enable digital interactivity (Lev, 2003). For example, the Wikipedia is combining Internet accessible digital text, images and video with web-links. Those who can access the site can edit most of its articles (Alec, 2011).

2.2 Features of New Media

Features of the new media can be summarized in the following aspects:

(1) Digital

As mentioned above, most technologies described as new media are digital. Through a full range of digital process, all of the information is converted into the binary encoding, and then we can use digital process technologies for production, storage and transmission of information.

(2) Interactive

What is "interactive"? Judging from the literal meaning, it refers to some kind of direct action to bring immediate consequences, namely it is with instant feedback. Also there is a transfer under the relationship, if this relationship is bidirectional, you can call it the "interactive". In learning activities under new media environment, learners can interact with the media and information, they are no longer just the receivers of information, but also the disseminator of information.

(3) Personalized

Based on the learners' habits, new media can provide learners with a variety of personalize information service. For example, the learners can use new media to search information, process information and deliver information, so this is a two-way communication system based on personalized learners.

(4) Integrated

The Internet breaks through the oneness of traditional media, and it realizes the integration of text, image, sound, video, audio, etc. Compared with traditional media such as printed newspapers and analog broadcast, the forms of new media are many and varied. They integrate all sorts of receiving terminals, transmission channels and information form together, so that learners can learn with any new media terminals anywhere.

(5) Popular

Referring to the new media, we have to talk about the mobile phone. As mentioned above, in the worldwide today, more and more people are using mobile phones. Initially, people use phones just for calling, but now, with the development of mobile technology, function of mobile phones is more diversified, we use mobile phones surfing the Internet, learning, communicating and so on. In spite of this, the price of mobile phones is not high, so it is acceptable for mass consumption capacity.

On the other hand, by using the new media, people can access to learning resources at a low cost, maybe they don't have to pay high tuition fees as in the traditional learning mode. At the same time, all kinds of new media terminals are much smaller and easy to carry, which can provide essential support for fragmented learning under new media environment.

3. Fragmented Learning

How to implement fragmented learning effectively, network education and mobile learning break through the limitation of time and place, so it is necessary to talk about the mobile learning. UNESCO (2011) reported pilot projects conducted in Pakistan, Mongolia, Mozambique, Kenya and other countries. The reports showed that mobile phones can play a positive role in providing distance education service, improving literacy rate of women and girls, arousing enthusiasm of students' learning, improving communication between school management and teachers and so on. Mohamad (2012), Echeverria (2011) and other scholars agree that, mobile learning can create situational learning experience, timely feed back learning content, stimulate learning motivation, reduce students' cognitive load, enhance interaction between teachers and students, extend students' communication range and greatly support collaborative learning.

Referring to the fragmented learning, people pay more attention to the fragmentation of knowledge, and they mainly emphasize using fragmented knowledge for individual learning and organizational learning. (Daniel, 1993; Jane & Jaideep, 2001) However, we can understand this concept from a broader perspective. Professor Zhu Zhiting (2010) points out that learning fragmentation begins from information fragmentation in greater degree, and then leads to fragmentation of knowledge, time, space, media, relation, thinking, experience, etc.

Based on the research mentioned above, the fragmented learning can be defined as below. Learners in social life can learn knowledge in a fragmented way with various media anytime and anywhere, so as to enhance knowledge and improve skills, we can call this learning style "fragmented learning". This definition can be further explained from the figure below. (e.g. Figure 2) With fragmentation of time and space, media and information produce distributed learning behavior, which is apt to form thought fragments. Meanwhile, scattered thinking model is easy to produce distributed learning behavior. One is mutually affected and promoted by the other one.

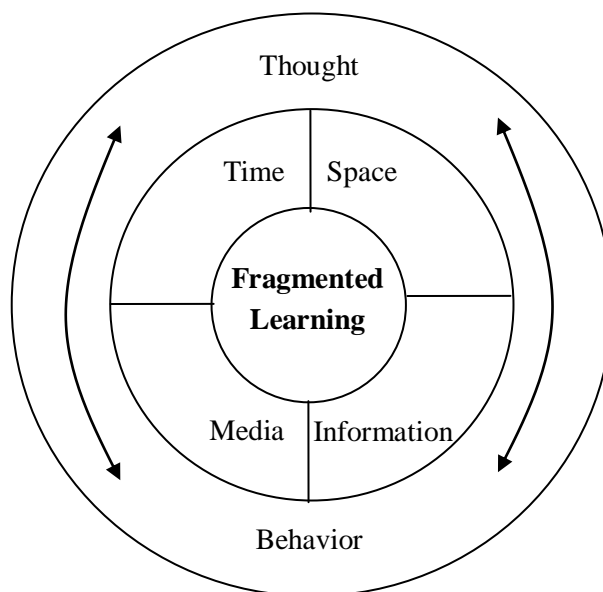


Figure 2: Fragmented Learning

4. Influence of New Media on Fragmented Learning

4.1. Internal Intervention

Under the technical intervention of new media, fragmented knowledge affects the learners' cognitive structure. Whether "learning from technology" or "learning with technology", technology brings both active intervention and passive intervention to learning process (Wang Mi, 2013). "The Shallows" (2010) shows how newly introduced technologies change the way people think, act and live. The book focuses on the detrimental influence of the Internet by investigating how hypertext has contributed to the fragmentation of knowledge. When we search the Web, for instance, the context of information can be easily ignored. "We don't see the trees," Carr writes. "We see twigs and leaves." (Lehrer, & Jonah, 2010)

"Hyperlinks" can make people get more information. However, many people find they forget the initial searching aim when they are clicking from one link to another link. After frequently clicks, attention will overload and become fragmented. So, hyperlinks do bring a fragmented way of browsing and reading. It is easy to "mutilate" people's attention to fragmentation and disrupt its order and purpose.

4.2. External support

In the era of fragmentation, constant emergences of new media technologies and tools promote the fragmentation of learning environment, and provide abundant and various learning environment for people in a fast-paced living mode. New media eliminate the restrictions of time and space, and provide digital resources environment and broad learning space through integration.

Development of network technology, mobile technology and communication technology greatly shorten the distance between people and information, people and people, information and information. Especially with the promotion of pervasive computing and ubiquitous network, all the information resources are in the cloud, which make information resources present fragmentation.

Through diversified media terminals, people can learn anytime and anywhere. For example, people can participate in the network learning community to realize diversified learning whenever they need. In short, new media technologies promote fragmented learning environment, in which people can realize the fragmented learning anytime and anywhere using fragmentation learning resources.

5. Analysis of Fragmented Learning Features

5.1. Time and Space

With the progress of society and development of technology, the social competition is becoming much more intense, people have to constantly transform among learning, working and living environment almost every day, in this way, the time is broken into pieces of fragments, and we call it fragments of time. As an individual unit, such short time can not support people accomplish a systematic learning activity, but as a whole, if all the fragments of time accumulate, the amount would be enormous. Therefore, college students and city workers can use smart phones or tablets to acquire information with fragments of time, in order to achieve the growth of knowledge and improvement of skills. We can learn not only at any time, but at any space, as on the bus to work, or in bed 20 minutes before sleep, we can learn at will, so as to improve the flexibility of learning. In fragmented learning mode, we are no longer subjected to time and space limit.

5.2. Media and Information

With the rapid development of media technology, media are becoming diverse and mini, so learners can choose and use media with more freedom and personalization. In addition, because of the learners' shorter attention span, the selection and usage of new media will be much wider.

Quantity of media and information are increasing a lot. In fragmented learning, information is no longer complete, systematic and fixed. As the fragmentation of time and space, and the widespread application of intelligent learning terminal, learning information is becoming piecemeal, nonlinear, and flexible. In this way, using various new media, learners can independently obtain information which is mainly provided by teachers as in the traditional collective learning activities.

5.3. Thought and Behavior

Due to the information explosion and wide application of the new media, the interaction between learners and information increases a lot. As a result, the learner's thinking becomes jumpy and transitory, and their attention is easy to transfer.

At the same time, the learners' behavior is becoming more diverse, optional. There is no doubt that learners' learning initiative is stronger, they use media and resources for learning and communicating as flexible as possible.

Based on the above analysis, these six features can be presented in the form of table more clearly. Meanwhile, we can compare the fragmented learning to collective learning from such six aspects, in order to understand it better. (e.g. Table 1)

Table 1: Comparison of Features of Fragmented Learning and Collective Learning

Features	Fragmented Learning	Collective Learning
Time	Fragmented, shorter, any time	Integrated, longer, usually prescribed by the school
Space	Any space such as classroom, dormitory, playground, dining-room, etc.	Usually in designated space such as classroom, reading room, laboratory, etc.
Media	Diverse, miniature, digital, networked. New media including laptops, tablets, smart phones and other digital media, network media, mobile media, etc.	Combination of traditional media and modern media. Blackboard, chalk, textbook, multimedia computer, projection, electronic whiteboard, network, etc.
Information	Piecemeal, nonlinear, flexible. Independently obtained by learners.	Complete, systematic, fixed. Mainly provided by teachers.
Thought	Thought is jumpy and transitory. Attention is easy to transfer.	Thought is coherent and lasting. Attention is easy to maintain.
Behavior	Diverse, optional, easy to transfer, with more initiative Learners use media and resources for learning and communicating as flexible as possible.	Single, organizational, continuous, with poor initiative. Collective Learning, also including cooperative learning, inquiry learning and other learning activities.

From what ever perspective including time and space, media and information, thinking and behavior, fragmented learning shows different features from traditional collective learning. However the fragmented learning and its features are inseparable from the influence of the new media environment.

6. Conclusion

With the rapid development of modern science and technology, new media is infiltrating into all social fields with unexpected speed. Whether in social education or school education, every media transformation provides a driving force for the development of education. TV media, computer media and network media have brought infinite opportunities and challenges to humans' learning activities. And now, under the new media environment, fragmented learning is becoming an important learning style for learners.

New media meets the general condition of fragmented learning for learners, and it provides an indispensable internal intervention and external support for fragmented learning. The fragmented learning happens anytime and anywhere, and influent people's learning and living.

On the one hand, the fragmented learning is based on the learners' independent consciousness. According to the different learning needs and learning situation, learners can achieve autonomous learning in a real sense. The fragmented learning can expand original fixed learning time and space, and increase learning opportunities for learners.

On the other hand, however, fragmented learning is not conducive to the logic and integrity of individual knowledge system, and it is not suitable for learners to complete complex learning task. In addition, fragmented learning can easily lead to learners' thinking cognitive structure fragmented and decentralized.

Considering the problems exist in fragmented learning and its influence to learners, researchers have to study how to maximize the value of fragmented learning.

(1) Design fragmented learning resources effectively

The effectiveness of learning content directly affects the effect and practical value of fragmented learning. Therefore, we need to provide effective learning resources to meet the needs of fragmented learning and enhance its value.

(2) Research the aggregation and orderliness of fragmented knowledge

To improve the value of resources utilization and effect of fragmented learning, there is need to implement aggregation and orderliness of resources. By providing orderly and logical resources, we can avoid the disadvantages brought by the fragmented learning and promote knowledge structure integrity for learners.

(3) Improve skills of individual learning management and knowledge management.

The value of isolated knowledge fragments is limited. We need to use effective learning tools to provide management method for fragmented learning, in order to promote individual knowledge management.

Fragmented learning under the new media environment has brought opportunities and challenges for learners. We need further research on how to develop its greater value. Fragmented learning is only one kind of learning style, it can serve as a supplement for other learning activities, all kinds of learning activities can complement each other, and service for learners together.

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