

Development Research of E-learning in Chinese Enterprises

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Abstract - E-learning in Chinese enterprises is developed very rapidly. With sustained enhancement of lifelong learning in China, e-learning will be the main form of lifelong learning in the future. This paper analyzed the enterprise e-learning from motivation, characteristics, influence factors and challenges based on thorough investigation on e-learning of thirty enterprises in China.

Index Terms - e-learning, enterprise, lifelong learning

1. Introduction

E-learning plays a more important role in enterprise training and the application proportion is increasing. To understand the development status and trend of e-learning in Chinese enterprise, the author carried out deep empirical research on e-learning of thirty enterprises in China in 2012. The research results showed that, e-learning occupies a higher and higher proportion in entire training, which is more than 50% for more than half enterprises or even up to 80% in some enterprises. In addition, from 2007 to 2011, growth rate of employee's annual average e-learning time is 27%; growth rate of employees engaged in annual e-learning is 65%.[1]

To further analyze the situations of e-learning in Chinese enterprises, the paper will analyze the enterprise motivation to implement e-learning, characteristics of enterprise e-learning, influence factors and challenges of e-learning development based on investigation data.

2. Enterprise motivation to implement e-learning

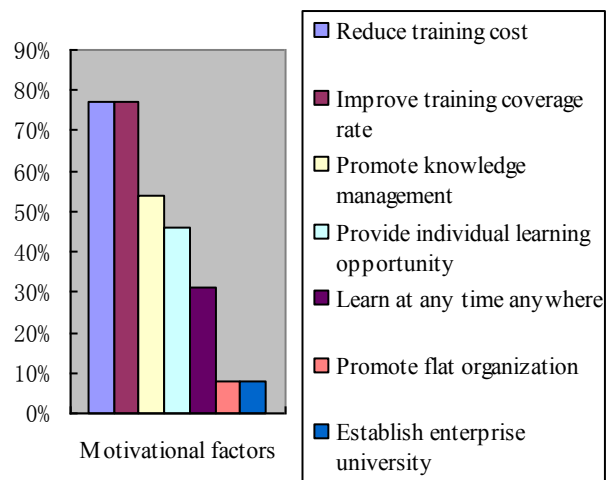
The investigation showed that, e-learning is relatively successful for four categories of industries and enterprises in China where e-learning is widely used and generally welcomed by the employees. The first category is the telecommunications, insurance and banking industry, typically including China Telecom, China Industrial and Commercial Bank, China PingAn Institute of Finance. The common features of such industries are large employee population and multiple branches across the country. Implementation of e-learning has obvious advantages: saving the money and effectively improving the learning coverage of employees. The second category is high-tech enterprises with Ruijie Networks and Huawei as the representative. On the one hand, high-tech change and development speed is very fast and employees need to continuously track and learn the emerging technologies; therefore, enterprises of such category have more urgent learning requirements and motivation than other common industries and enterprises. On the other hand, the investigation showed that, employee average age of high-tech enterprises are younger whose mastery level on information technologies is higher, and they have stronger awareness in

online e-learning. The third category is the foreign-owned enterprises, typically including Ericsson, Motorola, Siemens and Novo Nordisk. E-learning system of foreign-owned enterprises is directly imported from foreign headquarters, without establishing new learning system in China. Due to cultural reason of foreign enterprises, these enterprises have a strong motivation to learn. The fourth category is the airline industry. E-learning is particularly suitable for the airline flight attendants because they fly to various places fluently, especially adopting mobile learning approach. In the future, mobile learning maybe firstly goes through rapid development in airline industry. [1]

Industry e-learning will be an important development trend. Many enterprises in upstream and downstream industry chain or many enterprises in the same industry co-establish industry enterprise university or industry enterprise network for learning, which has the following two advantages: first, smaller enterprises form larger scale via alliance to reduce the cost of every enterprise, which is an effective selection; second, these enterprises could complement the knowledge, which could be reflected by the recently established China Communication Industry Enterprise University Association.

The investigation showed the enterprise motivation to implement e-learning, as shown in the table below, the vertical coordinate is the recognition proportion of motivational factors by investigated enterprises.[2]

Table 1: enterprise motivational factors to implement e-learning



1) Reduce training cost. The cost of centralized face learning for employees is relatively high, especially for the

enterprises with multiple branches across the country. E-learning approach will greatly save training cost. For example, China Industrial and Commercial Bank of China has 330,000 employees and almost 10,000 business halls in China. The cost of partially centralized face learning is relatively high, but e-learning approach will greatly reduce above cost. The research shows that, the e-learning cost is 1/6 to 1/3 of centralized face learning cost.

2) Improve training coverage rate. Under traditional training method, 80% training funds are used for training of 20% personnel. Grass-roots employees have few training and learning opportunities. The application of e-learning approach will significantly change such situation, and the training coverage rate can be up to 100%, achieving training for all personnel. Marginal cost close to zero is the network economy characteristic: increase an employee does not increase the e-learning cost. Therefore, e-learning enables the learning opportunity of senior employees under traditional mode to transfer to the grassroots.

3) Promote knowledge management. Knowledge management is the enterprise core competitiveness. Traditional enterprise knowledge management uses paper as medium, but e-learning approach will significantly accelerate the collection, storage, conversion and transmission of enterprise knowledge.

4) Provide more individual learning opportunities for the employees. There are a lot of courses which can be selected in e-learning platform, and the employees could select the interested contents according to their individual needs, or select the courseware exciting for them. For example, China Telecom Academy has 6000-7000 electrons courseware currently and employees have quite large individual learning space.

5) Learn at any time anywhere. Learning at any time anywhere is the basic feature of e-learning, you can learn at any place outside the office or you can learn at fragmental time. Such feature provides many additional learning opportunities for employees, so that the employees could work and learn at the same time, achieving on-duty learning.

6) Promote flat organization. Organization flattening is the requirement of organization renovation and enterprise development trend in the future. Some traditional enterprises have severe level management; the consequence is management administration rather than specialization, too many information transfer procedures, resulting in low enterprise efficiency. E-learning provides communication opportunity between senior level and grassroots in the network, improving organization information transfer structure and promoting the generation of organization flattening.

7) Lay the foundation for establishing Enterprise University. Foreign research data shows that, more than 80% of international first top 500 enterprises set up Enterprise University. At present, China has set up 400 enterprise universities. E-learning is the necessary condition for establishing Enterprise University. Successful Enterprise University attaches great importance to enterprise e-learning.

3. Enterprise e-learning characteristics

Enterprise e-learning has duality: on one hand, it is identical with school e-learning and has common features of e-learning. On the other hand, it serves enterprise strategy and enterprise training, demonstrating its enterprise characteristics. By analyzing Institute of China Telecom e-learning, Tiens Group e-learning, China Post Group e-learning and other excellent learning project cases, characteristics of enterprise e-learning are mainly reflected in three aspects.[3]

The first level is the strategic level. First, the e-learning objectives should be identical with enterprise strategy. E-learning project deviating from enterprise strategy could not obtain the attention and support of enterprise executives. Therefore, the learning project should be closely integrated with enterprise strategy and enterprise business flow. Second, the e-learning promotion is connected with human resource policy. The connection between enterprise e-learning and human resource policy could inspire the employee learning and promote the popularity of e-learning by employees. For example, the connection between e-learning and employee performance assessment could promote the learning enthusiasm and initiative of employees. In addition, the attention degree and participation degree of executives are indispensable factor for enterprise e-learning at strategic level.

The second level is the tactical level of e-learning. First, the object analysis of e-learning project should be clear based on which scientific instructional design should be made. Object analysis is an important part of instructional design. Understanding the object characteristics and analyzing their demands have important significance for the design and organization of e-learning project. Second, e-learning requires a certain amount of excellent curriculum resources. In addition, good project organization and implementation are critical for success of e-learning project.

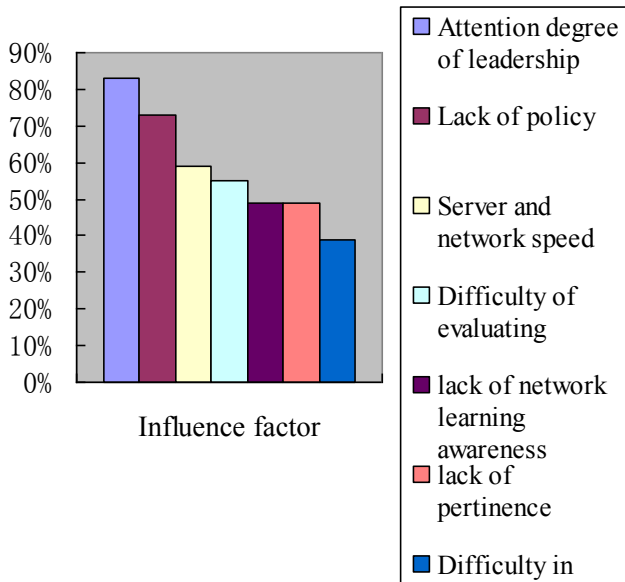
The third level is the effect level. Enterprise emphasizes the effects of e-learning, stresses that the learning could change employee behavior and ultimately improves the enterprise performance. In addition, e-learning also has an important role for enterprise knowledge precipitation and enterprise culture building. Enterprise could gradually precipitate rich knowledge via e-learning. For example, processing of e-learning forum topics, processing and finishing of network tasks of employees and preparation of teaching materials are effective methods. E-learning could promote the building of enterprise culture. In reverse, excellent enterprise culture could create good environment for e-learning.

4. Influence factors of enterprise e-learning development

The research finds that, the e-learning development maturity of every specific enterprise is different. The development of enterprise e-learning is closely relevant with attention degree of enterprise senior leadership. The research shows the influence factors restricting enterprise e-learning development, as shown in the table below; the vertical

coordinate is the recognition proportion of motivational factors by investigated enterprises.[2]

Table 2: Influence factors of enterprise e-learning development



1) Attention degree of leadership. Most enterprises believe that the attention degree of leadership is critical factor for enterprise e-learning development. The inspection finds that, in the investigated cases, one obvious and inevitable feature of excellent enterprise e-learning project is the high degree of attention and support from the leadership.

2) Lack of policy in combination with human resource performance assessment. If the employee learning could be combined with human resource management policy, if the learning could be connected with performance assessment, the enthusiasm of employees participating in the learning will be improved. Therefore, enterprise training department should keep close support and cooperation relationship with enterprise human resource management department.

3) The server and network speed. E-learning needs server and network, so the server performance is critical. If the server login is slow or e-learning server responds slowly, the employees will gradually lose interest in learning. E-learning should be based on a certain hardware conditions.

4) Employees are lack of e-learning awareness. There are many possible reasons. On one hand, the employees are used to face training and lack of e-learning awareness. On the other hand, employees do not master high degree of information technologies, so the proficiency in computer and network restricts the way of e-learning. Therefore, it is necessary to take some supervisory policies at early promotion of e-learning.

5) Courseware is lack of pertinence, with rigid form. Adult has very strong learning objectives. If the courseware contents could not meet the practical requirements of employees nor solve the practical problems of employees, the courseware is lack of pertinence, resulting in lack of learning

interest. In addition, the form of some courseware is rigid, lack of case support and interaction, resulting in fatigue during the learning process.

6) Difficulty in cooperation with business department. Generally speaking, the enterprise e-learning project should be proposed by business department, organized and implemented by e-learning department. The effects of project implementation should be feedback to business department. Therefore, the project should be highly cooperated by two or more departments. The improvement degree of cooperation mode and mechanism crossing the departments will affect the development of enterprise e-learning.

7) Difficulty in evaluating e-learning effects. This factor directly affects the leadership attention degree and later investment. Enterprise attaches importance to investment returns and the enterprise hopes to gain expected returns for every investment. However, the enterprise performance could not be improved only by independent learning factors; it is difficult to evaluate the learning returns in details, especially the evaluation on e-learning returns.

Return on investment (ROI) is often the most convincing data to evaluate e-learning effects. ROI is the ratio of income and investment; the ROI of e-learning can be calculated in narrow and broad two ways. Narrow calculation method means the ratio between the cost of face learning and the cost of e-learning under the condition of achieving the same effects, which is commonly used in the calculation due to its simplicity. The calculation of broad ROI calculation is relatively complicated, indicating the improvement of enterprise performance and economical increase by e-learning. The difficulty of broad ROI calculation is that, enterprise economical growth is the comprehensive result of multiple factors and it is difficult to separate the independent e-learning factor. But the broad ROI calculation for some ideal e-learning project is relatively easy. As to the e-learning project for note teller, the customer quantity of the note teller in unit time is increased and the complaint ratio is reduced after learning; while the increase of entertained customers and reduce of complaint ratio could be measured by economical value, thus calculating standard broad ROI. At present, broad ROI of e-learning is about 300%-600%. For example, the ROI of note teller network training project in China Industrial and Commercial Bank in 2010 is 508%. [4]

5. Facing challenges

Enterprise e-learning is developed rapidly because the enterprise attaches great attention to talent training, but the future development is also facing some challenges. Some challenges are from the employees: how to enable the employees to change from passive learning to active learning during e-learning process; some challenges are from the e-learning workers, generally human resource development workers: how to apply WEB2.0 design concept to e-learning, making e-learning more social and interesting; some challenges are from organization needs, how to integrate e-

learning and organization knowledge management, making e-learning become organization knowledge source. [5]

1) Employees: how to change from passive learning to active learning

One challenge faced by enterprise e-learning is how to change the employees' learning from passive learning to active learning. Judging from basic investigation situations, e-learning of most enterprises are motivated by the policy, as passive learning type. For example, some enterprises specify the hours of e-learning, required courses and examination with specified quantity of e-learning, which are all passive learning type. At the first stage of enterprise e-learning development, it is necessary to implement passive learning and promote the employees to form e-learning awareness via system design. For example, Beijing Cadre Education Network specifies that, cadres above bureau-level and department-level in Beijing must learn 40 hours every year. Even through such policy provision is too rigid, it is necessary at the promotion stage of e-learning. Some enterprises combine e-learning with occupation path and job competence as an inner learning driving force, which is improved further in the form. For example, Education Department of China Industrial and Commercial Bank combines e-learning with employee's occupation path. During the employee's occupation path, every further step requires corresponding professional qualification which could be obtained via e-learning and passing network examination. The validity period of qualification certificate is two years, thus ensuring that employees could continuously update the knowledge and learn. It is worth to share experiences of some foreign companies, such as Motorola University and Ericsson Academy which are really active learning based on the enterprise culture-that is, knowledge sharing. Therefore, e-learning is closely related to enterprise culture. Sharing and open enterprise culture will promote the development of e-learning; in reverse, narrow and conservative enterprise culture will be the barrier for development of e-learning.

2) Worker: how to apply WEB2.0 design concept to e-learning

WEB 2.0 is the combination of blog, wiki and sns application technologies, but more important is the concept. This concept is share, cooperation and popularity. WEB2.0 has the following characteristics: first, as the common developer, the "user participation" is an important principle of Web 2.0; user is not the passive information receiver any more but the network builder and content developer, and the user participation changes static network in Web 1.0 era into dynamic network. Second, collective wisdom is emphasized. Web 2.0 advocates collective wisdom and advocates collaborative work, believing network should provide platform for cooperative work, for example, the platform should support wiki which should be cooperated by many persons. Third, achieve social network. According to Six Degrees of Separation, every individual social circle could be continuously extended and eventually becomes a large network, then gradually evolving into Social Network.

Functions provided by Web 2.0 could be part of human social life and become an important tool to build social network. Web 2.0 encourages user participation and focuses on collective wisdom and constructivism learning theory, which is identical with advocating independent learning and focusing on collaborative learning.

Future enterprise e-learning is based on WEB 2.0 philosophy, which is commonly referred to as e-learning 2.0. Enterprise e-learning should fully encourage public participation to erupt its vitality. Otherwise, the management personnel can only act as the porter and place the purchased courseware into the platform; while employees lose participation initiative and enthusiasm, then it will become low level. The difference between enterprise e-learning 2.0 and enterprise e-learning 1.0 is that: first, platform function setting emphasizes interaction and facilitates public participation; encourage employees to create excellent courseware as to resources co-building. Second, emphasize active participation of the learners. E-learning 2.0 learning environment should provide more opportunities for the learners to participate in learning activities, and should suitable for different learning styles of different learners; should select learning method, learning tool and learning content according to learner's individual features; should transfer the learning control right to the learners; should design excellent learning activities and learning strategy so that every employee would like to participate in the learning actively as much as possible. Third, support collaborative learning. E-learning 2.0 learning environment should be able to support collaborative learning friendly, to provide communication and cooperation mechanism among learners and promote building of virtual community.

3) Organization: how to integrate e-learning and knowledge management

In the current information society, the internet will be the main carrier of the knowledge and one of the main sources creating knowledge. Public share and public creation become the main form especially under the WEB2.0 concept. Enterprise e-learning will be the most effective way and carrier to precipitate enterprise knowledge.

Knowledge management is the core of enterprise e-learning. Knowledge management provides new approach for the enterprise to achieve explicit knowledge and tacit knowledge. Knowledge management is to improve enterprise flexibility and innovation capacity using collective wisdom. In addition, knowledge management plays a critical role in improving enterprise work efficiency and avoiding adverse influences due to talent loss. E-learning is dynamic, and how to effectively accumulate the employees' learning during learning process is an important work. Knowledge management includes several aspects: establishing knowledge base; promoting knowledge exchange of employees; establishing internal environment respecting knowledge; managing the knowledge as an asset. On the other hand, it promotes the enterprise knowledge building. Courseware created by the employees, reflection and discussion of

employees at the forum, experience and summarization of employees in combination with work are an integral part of enterprise knowledge management system. [6]

China's national long-term education development plan clearly states to build China into a "lifelong learning society". Lifelong learning concept includes general learning, individual learning, learning at any time anywhere, which is very identical with characteristics of e-learning. E-learning will become the main form of lifelong learning. In summary, e-learning has great application prospects in enterprise training, and will become the main learning method of enterprise to improve human resources quality, promoting the generation of learning enterprises.

References

- [1] Wu Feng. Ten topics study of corporate e-learning development . Modern Distance Education Research, 2010 (3)
- [2] Business and Educational Research Center of Peking University. Corporate e-learning Research Report 2011
- [3] Wu Feng. New trend Study of Lifelong learning developments in the industry - corporate universities and corporate E-learning. China Distance Education, 2012 (3)
- [4] Xin Ding, etc. Survey and Analysis of enterprise e-learning. Open Education Research, 2008 (4)
- [5] Wu Feng, etc. Corporate e-learning case studies based on job skills certified. China Distance Education, 2011 (3)
- [6] Wu Feng. Development Analysis of U.S., South Korea, China Taiwan corporate e-learning and its enlightenment. China Distance Education, 2012 (8)