

# Learning and Analyzing the Application of Digital Learning in Technology Enterprises

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## ABSTRACT

With the advent of the artificial intelligence era, it is an irresistible trend for enterprises to adopt digital learning instead of traditional corporate training methods. Digital learning plays an active role in the enterprise talent training strategy and brings good economic benefits to the enterprise. Digital teaching will produce complicated data. Learning and analysis technology is to use big data to quantitatively analyze learners' learning behaviors, provide evidence for learners' self-evaluation and corporate learning assessment, and also make decision-making and pre-judgment actions for decision makers. Provide data support. This paper introduces the study analysis, to explore its potential applications in enterprise digital learning, and learning challenges facing the analysis.

**Keywords:** Learning analytics, Learning analysis technique, Corporate e-learning

## 1. INTRODUCTION

Compared with new-style learning analysis methods, traditional education analysis methods lack reasonableness and diversity in the process of data collection, and the collection cycle is long, the data processing methods are limited, and the overall effect is not ideal. As companies establish a network learning platform similar to MOOC, it provides the possibility to learn and analyze technology under educational data. The study and analysis mean to study and test, and supplemented by the teaching process. The 2019 Horizon Report mentions analytical techniques in important technologies for education in the past year or less (Horizon report, 2019). With the continuous maturity of technologies such as the learning management system, it will eventually change the concerns that the learner's learning process cannot be tracked and the learning cannot be predicted. In the future enterprise education, collect the many learning data and behavioral data generated by

employees in the process of digital learning, and predict the learning outcomes of students through deep mining, and correct the student learning plan. By collecting learning feedback, we will continuously improve the education system, enhance learning results, and enhance corporate efficiency.

## 2. LEARNING ANALYSIS TECHNIQUE

The search and analysis technology was searched in the China Knowledge Network Periodical Database. It was found that the concept of learning and analysis developed earlier. After entering 2000, the number of related articles on learning analysis increased year by year. It is currently a relatively popular research area. As shown in Figure 1. After searching the learning analysis technology, the researchers found that the learning analysis and learning analysis technology had similar curve slopes in terms of post volume.

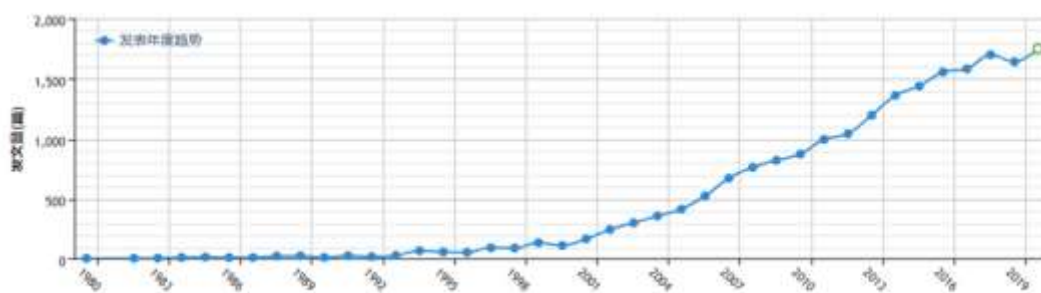


Figure 1 Learn to analyze the volume of posts

The first learning analysis conference in 2011 was held in Canada. The conference proposed that learning analysis technology is a series of data to collect, organize and analyze learners' learning process and learning environment to optimize teaching effects (Horizon report, 2011). The 2012 Horizon Report proposes that learning analysis techniques interpret and analyze the massive data of students (Horizon report, 2011), assess student learning progress, and predict future performance. Professor G.Siemens believes that using data and models to predict student learning, measuring students' current learning levels, identifying problems, and making predictions and recommendations for learning (G.Siemens, 2011). The American Higher Education Informatization Organization believes that learning analysis uses data model management to analyze learner learning levels and intervene (Horizon report, 2011). It is not difficult to find that these definitions not only have the definition of learning analysis technology, but also the way of learning and analyzing. It can be known from this that the learning analysis has the following characteristics.

(1) Diversified data sources. Referring to the learning platform such as MOOC, the current learner's learning data mainly includes informal learning such as participation in learning time, personal space, participation in discussions, and participation in traditional forms such as quizzes and submissions. The data acquisition needs to be highly informatized, with many types and comprehensive coverage.

(2) Modern tools. Data is collected, classified, explored, and analyzed using modern technology, and analysis results are generated according to procedures, and feedback is timely. Traditional analysis tools have a single function, multiple operation processes, inconvenient switching between tools, weak integration capabilities, and labor-intensive use. Future-oriented learning analysis tools need the advantages of simple interface, convenient operation, reasonable design, powerful functions, and high compatibility.

(3) Visualization of the analysis results. The purpose of learning analysis is to improve, intuitively and visually analyze the results of the analysis, to provide an intuitive understanding of the learner's learning situation, and to provide decision-making basis for corporate education decision-makers.

(4) For decision makers and learners. Learning and analyzing direct service objects are decision makers and learners. The results presented can help students improve their learning efficiency. They can help decision makers analyze the learning benefits of enterprises and make timely countermeasures.

### **3. THE VALUE AND CHARACTERISTICS OF ENTERPRISE DIGITAL LEARNING**

Almost all of the top 500 companies in the world have their own training system - "Enterprise University". The construction of "enterprise universities" has received much

attention in the development of these enterprises. At present, digital learning of enterprises mainly has the following characteristics.

(1) Centered on learners. When one forgets the knowledge of school, the rest is education. The digital learning objects of enterprises are all adult learners. The learning methods are diverse, the learning content is not limited, and the learning time is not fixed. It requires the learners to have strong autonomy. At the same time, diversified courses and subdivided knowledge enable employees to learn individually, increase their interest in learning, and improve their learning and practical abilities. Strong learning ability enhances the learner's competitiveness and can help learners grow up quickly. To improve the effectiveness of corporate education (Li,K.D. 2001).

(2) Learning is practical. Enterprise digital learning emphasizes the application of learning, and it is necessary to apply the knowledge learned to work, to generate benefits, and to reflect the value of enterprise education. Decision makers will make more reliable judgments for the development of enterprises based on the benefits of corporate education.

(3) Learners have multiple identities. The digital learning method allows learners to no longer be limited to traditional teacher-student roles. Learners can also become innovators and communicators of knowledge, stimulate learners' interest in learning, and promote learners' transition from passive to active learning, saving business education costs.

(4) Lifelong learning. Enterprise digital learning is part of continuing education, meeting the learning needs of learners to study anywhere, anytime, and providing strong support for employees' lifelong education.

### **4. APPLICATION OF LEARNING ANALYSIS TECHNOLOGY IN ENTERPRISE DIGITAL LEARNING**

(1) Measure, collect, and analyze learners' learning behaviors and data. At present, education data mining is mainly divided into five categories: Clustering (Clustering, outlier analysis); Relationship mining (Association Rules Mining, Sequential Pattern Mining, Social Network Analysis); Prediction (Decision tree, Timing Analysis, Regression Analysis); Upward analysis and visualization; text mining, etc. (Romero,C,& Ventura, S. 2007). Data collection sources include: classroom learning data, distance learning data, digital management data, and scientific research database data.

(2) Provide data basis for learners to self-examine and decision makers to optimize teaching. Learning analysis technology is a kind of data analysis technology, which is different from the traditional data analysis and processing methods. Learning analysis technology has a clear purpose for the processing of data, and is real-time and dynamic (Hu,Y.l.2016). The learning analysis tool can quantify the student's entire learning process behavior or academic performance as a visual result, which is convenient for the

learner to self-assess. Learning analysis technology also provides lecturers and managers with timely data on the dynamic changes of enterprise learning. By counting the content searched on the webpage, the frequency of interactions in the website, and the changes in the final assessment results, we can find that everyone is generally concerned about hot content and learning. What problems exist and how the effectiveness of learning.

(3) Provide a reference for enterprises to achieve personalized teaching. The level of enterprise employees and the knowledge reserve are very different. Each learner has his knowledge structure and learning style. In the traditional enterprise centralized face-to-face classroom learning activities, the lecturer can complete the learning feature analysis according to the performance and observation of the learner to determine the teaching content and plan. In the online learning environment, learning behavior and performance can only understand the learner's learning characteristics and performance by analyzing the learner's data in the learning behavior, and promote the enterprise to understand the learner's personality. At present, many studies have begun to pay attention to the design and development of personalized learning in the network environment, such as adaptive learning systems. Learning analysis aims to enable teachers to use advanced technologies such as data mining and artificial intelligence to enhance the deep understanding of teaching and learning according to the needs and abilities of different students, and to provide individualized teaching for each student.

## **5. THE CHALLENGES OF LEARNING ANALYSIS TECHNOLOGY**

(1) Information security (Li, 2016). Learning the application of analytical techniques will not leave the issue of privacy leaks. Learning data sources for analytical techniques, including learner learning time, academic performance, learning changes, etc. Exploring this data not only captures the user's learning information, but also violates privacy. Therefore, in the process of enterprise learning system optimization, data mining and data protection should be synchronized, the supervision mechanism should be strengthened, and data should be used reasonably.

(2) Data application value. Digital learning by enterprises can produce complicated data. Due to the current evaluation system and technical level, the data utilization rate is low, the data collection method is not reasonable, and the data integration under the offline line is difficult. Therefore, enterprises need to constantly improve the learning system, improve data utilization, open up the offline channel, improve data circulation efficiency, improve data analysis level, digest data and apply it to practice. Efforts to integrate and optimize and upgrade to an enterprise knowledge management system, realize multi-platform interoperability of user data, truly meet the needs of employees' mobile learning, and achieve lifelong learning.

(3) Data quality. The quality of enterprise learner data collection is closely related to the results. Complex and high-dimensional data is generated throughout the education process, which requires highly efficient calculations. At the same time, the long data collection process may produce problems such as the authenticity of the data, and it is necessary to consider the update and maintenance of knowledge when designing the data analysis system.

(4) Input and cost-effectiveness (Feng,Zhang ,& Li,2014). "Ten years of trees, a hundred years of tree people" - policy makers have to face the problem of long investment cycle and low rate of return for corporate education. Establishing a learning platform or purchasing a learning system requires huge human, material and financial resources to maintain and operate. At present, some enterprise universities actively explore the development model. In the end, whether learning analysis technology can make the enterprise education department make accurate decisions in the era of digital learning, self-reliance, and realize the transformation from huge financial transfusion to self-hematopoietic, which has positive significance for enterprise development.

(5) Rooted in corporate culture (Zhang,2009). The achievement of a company depends on the basic philosophy and spirit it conveys. Corporate training and education are not only about providing learning knowledge, but more importantly, letting employees understand the company's purpose and values. This is another challenge for enterprises to use learning analysis technology to optimize the digital learning style of enterprises, enhance employee culture, identity and belonging, enhance corporate culture and enhance corporate competitiveness.

## **6. CONCLUSION**

Enterprise digital learning is the eternal theme of enterprise talent training. The use of learning analysis technology has a far-reaching impact on mining the invisible value of enterprise digital learning, helping employees to complete the knowledge structure, improving the enterprise talent training mechanism, and improving the overall competitiveness of enterprises. With the continuous maturity of learning and analysis technology, the value of enterprise digital learning is more and more obvious, providing technical potential for China's enterprise transformation and transformation, industrial upgrading, and playing an active role in building a learning enterprise and a learning society.

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