

Practice of New Employee Training Mode in School-enterprise Cooperative Enterprises based on "SPOC Method"

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Abstract. The higher vocational colleges are taken as the base for enterprise employee training to give full play to the educational advantages of colleges and universities, and the enterprises are taken as the subject to conduct joint training on enterprise employees through school-enterprise cooperation and apply the SPOC method in the teaching process to the training of enterprise employees so as to carry out mixed training teaching that combines SPOC method and classroom teaching. After the pilot implementation, it proves that this mode plays the value and significance of the new mode of school-enterprise cooperation with enterprises as the subject, and has positive significance to enterprise employee training in the information technology environment.

Keywords: SPOC mode; staff training; online platform.

1. Introduction

It is a crucial factor related to the long-term development of enterprises to improve the basic quality and professional skills of employees. As more and more enterprises are aware of this, the personnel departments of various enterprises have formulated multi-channel continuing education and retraining programs for employees. It is clearly stated in the "Outline of National Medium and Long-term Education Reforms and Development Program (2010-2020)" that regulations for running schools shall be formulated to promote school-enterprise cooperation and its institutionalization. This "Outline" makes school-enterprise cooperation become the core of modern vocational education system.

At present, there are mainly two ways for enterprises to train employees. One is to require employees to use network resources for online learning, and the other is to hire trainers to conduct on-site training for employees. Although there are rich resources and experience about these two traditional training modes, most of the results are not ideal. In order to better give play to the advantages of colleges and universities and make them play a supporting role in enterprise employee training, we design the training contents of enterprise employees according to the current SPOC mode popular in colleges and universities, combine the traditional two training methods and carry out training reform, which plays an important role in improving the training effect for enterprise employees.

2. Modern Educational Philosophy and its Application

In the era of knowledge economy explosion, Internet+ has broken the geographical restrictions at home and abroad, integrated global high-quality educational resources and greatly promoted the development of training. In the field of education, MOOC and online learning space-based OBE mode have emerged successively, and a more delicate course type SPOC mode is also being adopted by some top universities. SPOC (Small Private Online Course) is proposed by professor Armando Fox from University of California Berkeley, who also conducts an experiment in the school. Besides, Harvard University offers a course for teaching practice, the domestic universities such as Tsinghua University also make experiments on this mode in the course and the SPOC teaching application cases of various universities fully confirm the good effect of this kind of mixed learning mode.

In recent years, some enterprises have been carrying out MOOC training courses, which puts forward new ideas and requirements for the development of traditional training industry on the Internet. However, the number of students studying on the MOOC platform is large, and the huge

number of students affects the learning effect. SPOC learning mode is mainly aimed at particular small-scale groups, which realizes training through the learning materials, assessment and online interaction of the platform by virtue of the Internet so that training and learning can be conducted anywhere and anytime, greatly improving the efficiency of enterprise training. This learning mode applied to colleges and universities can be re-constructed and applied to enterprise employee training, which provides a better basis for transforming enterprise training management and the development of training services, improving the efficiency of enterprise training and achieving cross-border cooperation of enterprise training.

SPOC mode standardizes training contents to specific areas, making it easier for participants to guide practical activities through the training areas. SPOC mode is with a lower cost, but it can achieve greater benefits. This kind of innovative training mode can make the training of employees more professional and systematic when used in enterprises. SPOC mode also puts forward restrictive entry conditions for learners, who must meet the requirements in order to attend learning. We also make some improvement on this mode and set some conditions on the online learning platform, so that only eligible applicants can enter the platform for learning, and those who meet the requirements in the assessment can proceed to the next step of learning.

3. Establishment of Online Learning Platform

Various enterprises have a wide range of online training platforms for employees and abundant resources. The online learning platform we have designed and developed mainly covers four modules of system module, resource module, assessment module and video module.

3.1 System Module

System module, which mainly demonstrates the basic background of the implementation of this project, the project team members and composition, the system operation specification and process, the announcements and instructions of training unit's events and products, the query, statistics, update and management of company and personnel information in the system and the report of major events and policies of industry enterprises, which provides technical support and guarantee for the basic maintenance and upgrade of the whole platform system.

3.2 Resource Module

Resource module, where the training syllabus and curriculum system are compiled according to the needs of different students by referring to the industry and enterprise training specification, and the training PPT and video resources are also developed to get knowledge, skills, standards and attitudes expanded with the improvement of vocational ability as the core. The contents are purposefully divided into different plates and the training resources are constantly updated.

3.3 Assessment Module

Assessment module, which closely centers on the training syllabus and industry standards and combines with video data and curriculum system to develop assessment modules such as intensive training, mock test, random test, formal test, my wrong questions and answer records. Through three examinations, the learning status of students in the SPOC mode and the direction to be made up are constantly verified.

3.4 Video Module

Video module, where the trainer carries out on-site practical operation, the information is transmitted to the cloud for storage or release in real time through the terminal and the trainees watch or simulate through the client to achieve the effect of guidance for practical operation. It can not only reduce the on-site learning cost of learners, but also achieve playback and fixed-point watching, which is more conducive to improving the practical ability.

3.5 Situational Module

Situational learning module, which is closely integrated with the video module and learners can enter into this module through online watching and completing the interaction questions of trainers. Different learning programs will be formulated according to different students and situations. For example, corresponding learning contents can be submitted according to the maintenance model of students regarding the installation of the same timing chain. The trainers will give the corresponding grade through the comprehensive test and evaluation of the video materials sent back by the trainees.

The network platform can automatically record the learning time, learning contents and learning effect of students conveniently by means of multivariate data. The high-performance architecture based on memory caching technology can greatly improve the anti-concurrency ability and solve the problem of large number of trainees combining with the multi-server optimization deployment. In addition, in the learning process, it can realize game-based and interactive learning through interesting teaching designs like task level design, reward points and other strategies so as to increase students' initiative to participate in training.

4. SPOC Mode-based Enterprise Employee Training Process

In the enterprise employee training, the trainees are all employees of the company or people waiting for employment, so that the time and place for training are difficult to guarantee, and the knowledge structure and professional level of the training personnel are also uneven. In addition, the learning initiative is not strong and there is also a large number of people who need to participate in the training, all of which are unavoidable problems. Thus, these factors should be fully considered when SPOC mode is designed. In combination with the SPOC mode in student teaching engineering at ordinary times, we take SPOC idea as the guidance and action training as the orientation to advocate independent learning and highlight ability cultivation when developing the training mode for professional and technical staff. This organizational mode is mainly used in the skill operation training and systematic and professional training programs are carried out aiming at the training contents and requirements.

The training is divided into three stages, that is, online self-learning of knowledge points, online learning of live practice and learning in real work environment.

The first stage: online self-learning of knowledge points. Trainers develop and complete presentations, training handouts, standardized practical training instructions and examination questions, and upload these resources to SPOC platform. Qualified students (selected by the enterprise) can register first, and then log in the platform for online self-study after being approved. Modular learning contents allow students to use fragmented time to complete learning, which can effectively shorten the training cycle and improve efficiency. Online independent learning is mainly divided into online learning, online examination and online assessment these three modules, all of which can be completed on the network platform.

The second stage: online learning of live practice. Only the learners who have passed the exam of the first stage can carry out the second stage of learning. The trainers carry out practical operation drills, use modern media technology to establish DT data system and set up a small online video system at the terminal through SPOC platform. The learners can conduct real-time access and watching through the client to establish an information interactive environment between trainers and students as well as students and students. All information will be automatically saved in the SPOC platform system for students to learn and watch at any time. When the live training reaches a certain stage and the regulated period is completed, all participants will be assessed by video questions and answers.

The third stage: independent learning in real work environment. Only the learners who have passed the assessment in the second stage can carry out the third stage of learning. The trainers combine with the trainees of different positions to guide the learning tasks on site in the training base. Learners shall complete their own training tasks according to the training contents of the first two stages within the

specified time, participate in the on-site assessment organized by the enterprise and ultimately be determined whether they have passed the third stage of learning.

Only the learners who have passed the training and stage-based assessment in all the three stages will be identified by enterprises to have passed the training and reached the enterprise training standards, so that they can be granted the course-completion certificate and enterprise certificate before being employed.

5. Application of SPOC Mode-based Enterprise Employee Training

In 2014, Chang' an Automobile Co., Ltd. signed a long-term school-enterprise cooperation agreement with Chongqing College of Electronic Engineering, and established the Chang' an Commercial Vehicle After-sales Maintenance Technician Training Base in the Intelligent Manufacturing and Automotive College to carry out the company's professional and technical personnel training work.

SPOC mode-based enterprise training was piloted by Chongqing College of Electronic Engineering in Chang' an Commercial Vehicle After-sales Maintenance Technician Training Project, centralized management of nearly 10,000 maintenance technicians in more than 2000 dealers affiliated to Chang 'an Group was carried out and more than 90 training sessions of maintenance personnel were conducted, which greatly promoted the improvement of enterprise training while improving the professional level of employees. The training project relies on SPOC mode to have established online learning, training management, online examination, knowledge management, questionnaire, query statistics, information management, system management subsystem, live teaching, student center, dynamic feedback and other functional modules. The training course caters for automobile maintenance technicians and the training project is highly operable. In the process of project training, all the elements required by SPOC were obtained and the characteristics of specialization, systematization, course modularization, online networking, miniaturization of training and strong limitation of training scope were achieved, which was unanimously praised by the target enterprises, successfully connected the training with college courses in an effective way, allowed the discrete course modules to form a DT data system on the platform and accelerated the data processing speed. This case pilot has achieved the expected effect and is very successful, which is conducive to the promotion of training in similar enterprises.

6. The Prospect of SPOC Mode in Enterprise Training

Based on the feedback of Chang' an employee and the statistical analysis on all aspects of trained personnel by the HR department, it is found that as long as employees adapt to this learning mode, both the learning completion rate and the training quality are constantly improving. It can also be seen that this kind of learning mode plays a good role for learners. The education work of vocational schools has been increasingly reflecting the professionalism and superiority of them in terms of the continuing education and training of professional skill talents. It can fully arouse the enthusiasm of continuing education subjects especially the professional and technical personnel in various industries to establish the training base, particularly the technical training base of enterprise employees in vocational colleges, where the rich resources and good professional basis of the colleges can be applied to intensify the training of enterprise employees in combination with the laws and characteristics of talent education in various industries.

The characteristics of the industry itself should be taken into consideration regarding the training of enterprise employees to promote the training of enterprise employees by applying the modern intelligent mode according to industry, grade and classification. New contents should also be developed continuously on SPOC network platform for the personnel of various specialties, types and levels. SPOC has realized the training mode of online independent learning, online learning of live practice and offline independent learning in real work environment. SPOC training mode can stimulate the learning interest of learners and provide them with a broader training communication

space and mobile learning platform, which has greatly promoted the development of the new mode of school-enterprise cooperation.

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References

- [1]. Kang Yeqin. An Analysis on SPOC: Post-MOOC Era of Online Education[J]. *Tsinghua Journal of Education*. Vol. 35 (2014) No.1, p. 86-93.
- [2]. Chen Ran, Yang Cheng, et al. New Blended Learning Mode Based on SPOC[J]. *Journal of Jiangsu Open University*, Vol. 26 (2015) No.2, p. 44-48.
- [3]. Liang Chi. Discussion on The New Mode of Continuing Education Service——Take the Practice of Several Universities in Zhejiang Province as an Example[J]. *Vocational & Technical Education Forum*, Vol. 30 (2016) No.1, p. 56-60.
- [4]. Bai Fengxiang, Guo Xiaoying, et al. A study of apply the teaching mode of SPOC into college curriculums[J]. *Journal of Yunnan University*, Vol. 36 (2014) No.2, p. 146-149.
- [5]. Jin Chunkui. On Blending Teaching Based on SPOC Platform [J]. *Journal of Jiangsu College of Engineering and Technology*, Vol. 16 (2016) No.2, p. 91-95.