Chapter 9
Research on Position-Oriented Guidance Teaching Mode of Computer Assembly and Maintenance

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Abstract This paper mainly explicates the application of the teaching mode of "Position-oriented Guidance" in the course of Computer Assembly and Maintenance, in the hope of achieving the following purposes: in respect of teaching method, it can not only meet the requirement of enterprises and society for technical personnel on professional positions but also meet the need of improving students' abilities of assembling and maintaining computers; in respect of teaching mode, it can realize actual integration of students and enterprises as well as course and working tasks. Besides, it is more accordant with the feature and discipline of vocational education, and higher efficiency and timeliness will be obtained.

Keywords Computer assembly and maintenance · Position-oriented guidance · Teaching mode · Working tasks

9.1 Introduction

With the rapid development of information technology, technical ability of assembling and maintaining of hardware and software of computer has been an essential requirement for employment of graduates majoring computer or relevant subjects [1]. Meanwhile, course of Computer Assembly and Maintenance, as a specialized basic course of computer-related majors, has been offered in higher vocational colleges, but many problems in practical teaching remain to be solved.

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Researches on teaching mode of the course Computer Assembly and Maintenance only regard it as a course alone but ignore the special link between the course and working tasks on professional positions, misleading many people to attend the class for the sole purpose of acquiring knowledge on hardware [2].

Though many teachers have applied advanced multi-media technology to teaching, most of them are still teaching students with the lecturing method. Due to this fact, some students learn the course simply as a theoretical one instead of as a kind of technical ability. Therefore they fail to act on the theories in terms of technical ability and practical operation, and they do not know what to do when encountering with specific problems related to computer assembly, system installation, and trouble shooting, and so on. Thus the lecturing method cannot be claimed as a student-centered teaching, and it cannot fully mobilize students' initiative of learning. Hence the course offered fails to work in improving students' learning literacy.

Through the tracking survey of the employment of graduates (graduated from our college) of computer-related majors in recent years, I have founded that it takes most of the graduates engaged in related work of maintaining hardware and software several months to adapt themselves to the positions on the initial working stage instead of being competent at the jobs quickly. Such problems can be attributed to the following reasons: first, college students do not know about the corresponding working tasks with the course; second, the course knowledge is out of line with the corresponding positions or working tasks. It follows that the previous teaching modes are no longer suitable for teaching students nowadays. In addition, the employers are increasingly hoping that the new employees can directly participate in the routine work of the enterprises without being trained upon employment.

Hereby we must substitute the teaching mode of "position-oriented guidance" and "ability as standard" for the traditional one of "knowledge as standard", enabling students to pursue knowledge with interest and acquire knowledge at simulated positions. While improving students' technical abilities in the integrated teaching of "learning in practice" and "practicing while learning", we should also enhance their theoretical knowledge to a higher level, enabling themselves to meet the needs of enterprises and social development.

9.2 Thought of Research on the Course

9.2.1 Advantages and Disadvantages of Traditional Teaching Mode and German's Mode of Vocational Education

Traditional teaching mode can lay solid theoretical foundation and it has a relatively strong ability of sustainable development, but there is little chance for professional learning and practicing, far from meeting the requirement of employment for working ability. On the contrast, German's mode of vocational

education can analyze professional working tasks, and process of working and learning integrates with each other so that students can directly take up the occupation without long-term adaptation after graduation. However, the pertinence to positions is too strong and positions transfer ability is relatively weak.

In the process of teaching this course, we should reform the traditional teaching mode, draw lessons from German's mode of vocational education, and draw upon the essence of the two modes. First, relevant technical experts could be retained in enterprises as part-time teachers. Process of working and process of learning should be connected with students' abilities, and the target of cultivating students' occupational ability and quality should penetrate the whole process of teaching. Second, teaching shall be conducted in accordance with the practice-oriented principle. Actual position and typical working tasks should be set as the goal of study to form a teaching model of "positions and tasks oriented guidance".

9.2.2 Formulate Course System in Accordance with Idea of "Position-Oriented Guidance"

In accordance with teaching mode of "position-oriented guidance", basic laws of cultivating students' vocational abilities and actual working tasks and process, typical significance of occupation and positions should be analyzed, and working tasks with the property of learning should be scientifically designed to define the typical working process with complete structure in employment and to further specify typical working tasks.

Related teaching content should be integrated into the four teaching situations corresponding with positions. They are respectively computer disassembly and assembly, computer selection and configuration, computer system installation backups and optimization allocation and computer maintenance. We should also organize our content of course in line with the general cognitive rules of students: know about computer, select and purchase computer, assemble computer, configure computer, install software, optimize computer, utilize computer, and finally maintain computer. In this way, it not only dovetails the knowledge learned in class and positions but also enables students to achieve a better understanding and experience of positions corresponding with the course.

9.2.3 Provide More Opportunities of Visiting and Probation for Students in Class

The theoretical knowledge of computer assembly and maintenance is relatively abstract for students. If all the content of the course is organized to be lectured in class or laboratory, capital in the college will be insufficient due to rapid development of computer's components, and in my opinion, equipment in most of the labs in college

cannot ensure students to know and learn the latest products. What's more, lecture of the internal structure of computers and computer assembly easily turns components of computer into dull and tedious computer theories, and students can hardly grasp the knowledge. Therefore teachers can select one or two electronic technology squares based on local circumstances as students' "second class" and then guide the students to visit the latest electronic technology products. Students can observe technicians' work on computer configuration and maintenance on the spot, know about the workflow of technicians and feel the real atmosphere in the work-place. Hereby it can not only realize the actualization both of the place of teaching and place of working but also ensure the conformity of the content of course and content of work. What's more, it may also contribute to laying foundation for the follow-up knowledge of the course and students can get a deeper understanding of position.

9.2.4 Lay Emphasis on Students' Social Practice

Higher vocational colleges have been paying great attention to students' employment. The key issue of employment difficulties lies in students' comprehensive abilities or qualities, especially the practical ability, rather than the number of the employed graduates. Many employers hold the view that theoretical knowledge of students has basically reached the goal of professional cultivation but most of them have poor practical ability which cannot meet employers' requirement of taking up positions immediately without training. It follows that more and more attention are being paid to the practical ability of talents by employers and both society and colleges should place emphasize on and reinforce the cultivation of students' practical ability. Meanwhile, the goal of cultivating practical ability of computer assembly can be hardly attained by teaching in class alone and the only way is to participate in more practice. Thus teachers should, in the process of learning for students, encourage students to practice in computer-related enterprise or companies in holidays. In this way graduates can immediately take up positions, realizing the actual integration with positions. Besides, base of probation or starting business can be set up for college students taking the opportunity of the cooperation between college and computer-related work.

9.2.5 Teachers Should Conduct More Investigation
and Survey of Enterprises

Professional teachers should be organized to conduct investigation and survey in typical computer-related enterprises as more as possible. It has two effects: first, teachers can understand the operation, management, and development of technology of enterprise so as to effectively check the integration of the refined related projects of the course and the production activities of the corresponding position.

If there are any errors of the design of the content, arrangement of content can be adjusted at any time, ensuring no gap between content of the course and positions. Meanwhile, it can lay foundation for the establishment of the close relationship between professional teachers and enterprises; second, we should select excellent experts in the industry to instruct the web-delivery of curriculum.

9.2.6 Development of Teaching Resource

As the course has been orientated as a "position-oriented" teaching mode of taking "ability as standard", obviously traditional teaching materials are no longer suitable for our content of teaching. Original order mechanism of teaching materials can be broken if permitted. Through visit and investigation of enterprises and survey of core vocational skills required by industry of computer assembly and maintenance, directors or teachers of the course shall make analysis and summary, formulate the curse standard of higher vocational teaching and syllabus of ability test and finally divide the course into units. A position and ability-oriented textbook, keeping pace with latest development of technology of computer assembly, and highlighting cultivation of practical ability should be compiled.

9.2.7 Reform of Course Assessment

Traditional course assessment adopts the way of written test which only focuses on results instead of process. Actually it cannot effectively assess the project teaching and can hardly reflect how much knowledge students have grasped. Hereby a new course assessment and appraisal system should be specially established and the assessment should be divided into two stages. The first stage adopts the way of combining assessment of process and assessment of results, theoretical tests and practice. The second stage focuses on enhancing vocational ability of installing and maintaining hardware and software of computers. Vocational qualification certification, namely Computer Maintenance Technician (Intermediate) Certificate, is adopted in this stage, which fully reflects the advantage of teaching mode of "position-oriented guidance" when applied to class, realizes the combination of lessons and certificate and highlights the feature of specialized occupation, practicality, and openness of the course.

9.3 Conclusions

This paper has mainly conducted deeper research on application of the teaching mode of "position-oriented guidance" to the course Computer Assembly and Maintenance. Reform of teaching mode enables students to directly integrate into

enterprises and contents of the course directly integrate into working tasks, which is more accordant with feature and rules of vocational teaching and brings higher efficiency timeliness of teaching. At the same time, we can obtain a project teaching method that not only meets the need of enterprises and society for professional technicians but also can improve students' key ability of assembling and maintaining computers.

References

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