Discussion the Practice of PDCA Circulation in Teaching Management

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Abstract. PDCA circulation is a general model of management, also a scientific working procedure. The teaching and research section of computer public course used the PDCA circulation management pattern in each work, for example, realization of training objectives, teaching material construction, discussion on teaching methods and teaching devices, training of young teachers etc. They all received good results. At the same time, the paper also summarizes the eight steps to implement the PDCA circulation.

Introduction

The PDCA circulation is a scientific working procedure. The teaching and research section of computer public course used the PDCA circulation management pattern in each work, for example curriculum construction, teaching material construction, teaching research, teaching process management, training of young teachers, teaching methods, and teaching process discussion. They all received good results.

Interpretation of PDCA

PDCA circulation is a general model of management. It was put forward by the American Baer Laboratory of Dr. Walter A. Shewhart, and then re-excavated, propagated and used by Dr. W. Edwards. Deming who is a Quality Management Specialist of American. So it’s also called “Deming cycle”. Taking” plan, do, check and adjustment” the first letter is the PDCA. PDCA is in accordance with the order of quality management, and the cycle goes on and on.

There are four stages of the PDCA circulation. In order to improve the quality of teaching, it is necessary to make a plan (P), which includes not only the goals but also the measures to be taken. After planning, it is necessary to implement (D). The results of the execution should be checked in accordance with the plan (C), in order to see whether achieved the expected results and the desired objectives or not. Find out the problems and causes through the inspection and finally adjustment (A). We should promote the success of the experience, standardization, summed up the lessons of failure, and let the unresolved issues in the next PDCA circulation.

PDCA circulation has some characteristics. First, all levels of management have a PDCA circulation. It forms an organic whole, which is restricting each other, and complement each other. The upper level of circulation is the basis for the next, and the next level of circulation is the practicable and embodiment of the upper. Second, PDCA circulation is not running in place, but has a new target and content. It means that management has solved a number of problems after a single cycle, and the quality has improved. Third, adjustment is the key of the whole circulation. (See Fig1)
The Application of PDCA Circulation Management Mode in the Teaching and Research Section of Computer Public Course

Realization of Training Objectives

According to the overall plan of the school talent training goal, we have developed a non-computer professional training program of public courses and put into practice

Plan (P): Under the guidance of the overall training objectives, the teaching and research department has developed a computer public course training system. (See Fig 2)

This training system set up courses from different levels.

Do (D): After the training system has been developed, the teaching and research department has arranged and carried out teaching activities.

Check (C): In the process of carrying out the training plan, the teaching and research section organizes the teachers to inspect the teaching process and activities. The section has solicited opinions and suggestions from teachers, colleges and students on the implementation of training system. According to the results we found the following problems: the course of the Department was unable to meet the various needs of professional; and college students hope to open the computer basic courses which can help them to learn professional knowledge.
Adjustment (A): After the comments, we focus on the realization of training goal of applied talents, and train students to use computer technology to help solve the practical problems in the professional ability as the focus. We pay equal attention to theoretical and experimental; also construct the curriculum system of theoretical teaching and experimental teaching. We modify and improve the training program. This process is the end of the last phase of the work, but also the beginning of a new cycle.

**Teaching Material Construction**

Teaching material is a tool and navigation for students to learn.

Plan (P): In order to enable students to better learn computer courses, and according to the characteristics of independent college students, the teaching and research institute is around the development of the training objectives (to cultivate application-oriented talents) initially developed a teaching plan. The plan is to prepare a series of teaching materials. The materials set the thinking of “case teaching” in to the teaching and focus on training students' computer knowledge and skills.

Do (D): According to the teaching material construction plan, the teaching and research section organizes the teacher who has taught for a long time and has practical teaching experience. The material is according to the characteristics and training objectives of independent college students. The content of the teaching material is informative, the thought is clear, and the practicability and operability are highlighted. It has completed a series of teaching materials and experimental teaching materials.

Check (C): With the efforts of the teachers, the teaching materials are published in the prescribed time and used in teaching. In the course of teaching materials, teachers and students are invited to discuss and summarize the practicability of them. It is found from the summary that the computer knowledge is updated quickly, and the teaching materials should be revised to keep up with the development of the times.

Adjustment (A): According to everyone's opinion, “case teaching” is more suitable for cultivating students' practical ability. In order to keep up with the pace of the times, combined with the experience of teachers in the actual teaching, revision of the series of textbooks has been officially published. This adjustment process is the beginning of a new PDCA circulation model, but also a summary of the work of teaching materials.

**Discussion on Teaching Methods and Teaching Devices**

Plan (P): The rationalization of teaching methods and the diversification of teaching devices will promote the improvement of teaching quality and stimulate students' interest in learning. The teaching and research section each semester organizes the teacher to carry on the discussion of teaching method and teaching devices. Teachers are required to achieve four unified: unified teaching materials, unified teaching syllabus and teaching calendar, unified courseware (refer to electronic teaching plan), unified examination and scoring.

Do (D): The teaching and research section requires teachers to prepare lessons and teaching, educating and strictly enforce the four unified.

Check (C): The teaching and research section examines the teaching methods and teaching devices by means of listening to each other, observing the class and classroom investigation. We found that there are a lot of problems in the checking, for example the combination of computer theory and Practice, the combination of multimedia courseware and writing, centralized Teaching and individual coaching.

Adjustment (A): Based on the existing problems, we discuss the teaching method and teaching devices by listening, evaluation, communication, learning, etc... Teachers improve their understanding, improve the method, and improve the quality of teaching. The teaching and research section revise the syllabus and the teaching calendar, combing with the teaching objects (undergraduate and junior college, liberal arts and science) and the problems exposed in teaching.
Training of Young Teachers

Using the same PDCA management, the department train young teachers first, and then encourages young teachers to participate in the whole process of teaching activities (preparing lessons, trial lecture, visit a class and class evaluation). Teaching and research section has taken old helping green, and it helps improving the young teachers’ business level in practices.

Conclusion

According to the practice of using PDCA circulation management mode, the teaching and research section of computer public course summarizes the eight steps to implement the model.

Step one: analyze the current situation of teaching management and find out the existing problems;
Step two: analysis of causes and influencing factors;
Step three: identification of key influencing factors;
Step four: formulate measures, develop management plans and prospective effect;
Step five: carry out the plan and measure;
Step six: check validation and evaluation results;
Through the implementation of self-inspection, mutual inspection and other means, the results will be compared with the intended target, and carefully check the results of the implementation of the plan.
Step seven: sum up experience and set standards;
Deal with the variety of problems which are checked out. The right to be affirmed, summary writing and lay down a criterion.
Step eight: Handle legacy issues and reflect on the next cycle;
All the problems cannot be completely solved in only one PDCA circulation; the remaining problems will be automatically transferred to the next and go round and begin again, spiral rise.

The computer public class teaching and research section combined with the PDCA circulation management model, making the work can steadily rise. In the future work, the teaching and research section will further use the PDCA circulation model, making the work more standardized and reasonable. Computer public course teaching and research section will also face a new challenge to meet the new requirements, so that the teaching and research work to a new level.

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