The Application of the Mixed Teaching Mode of Core Curriculum in the Background of Information Technology

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Abstract. Purposes: Exploring the application of mixed teaching mode in the core course of Adult Nursing. Methods: Adult Nursing course was designed with the mixed teaching mode in the background of information technology, and applied to 51 students in the experimental class. After the course was finished, the online learning situation of the students was analyzed, and the results and evaluations of the course were compared with the control class. Results: The experimental class were significantly higher than those of the control class (t=2.873, P=0.006). Each item of students' evaluation of curriculum was significantly higher than that of control class (P<0.01). Conclusion: The application of mixed teaching mode in the background of information technology is an active impetus to the reform of educational idea, teacher's role, teaching method and teaching evaluation, which is of great practical significance to the reform of curriculum teaching.

'Supporting the modernization of our country with the modernization of education' is an important part of the education supply-side reform in China in recent years, and the 'Internet' has been mentioned 8 times in the 19th CPC National Congress report. We should encourage all walks of life to accelerate the modernization drive by using internet technology and information technology. Educational Informationization has become the Research focus of current Education and Teaching Reform. 'Adult Nursing' is the core curriculum of nursing, which is set according to the international advanced 'life cycle' model (that is, the period of mother and child, children, adolescents, adulthood, old age and so on). General 128 class hours, dividing into the third or fourth semester, the content of the integration of traditional internal medicine, surgery, gynecology, infectious diseases, oncology, dermatology and ENT nursing. It covers a wide range of subjects and is difficult to learn, so students' general interest is not high.

The mixed teaching mode, in a broad sense, refers to a strategy that synthetically applies different learning theories, different techniques and means, and different applications to implement teaching. At present, it mainly refers to the organic integration of two typical teaching forms: face-to-face classroom learning and online learning. The mixed teaching emphasizes on the application of appropriate technology to achieve the best teaching goal at the right time, which happen to have the same view with Bloom's idea and purpose of educational goal taxonomy[1].

In the course of Adult Nursing, our school tries to apply information technology to meet the needs of learners. With the help of computer platform and mobile phone app, combining traditional classroom teaching with online learning based on network to construct a mixed teaching mode[2], making the flipped classroom come true, and achieving better results, actively promoting the reform of education concepts and teacher's role, teaching methods and teaching evaluation. It is of great practical significance to the reform of curriculum teaching.

General Information
The subjects of this study were 51 (male 13, female 38) and 51 (male 14, female 37), aged 18~21 years, in grade 2016 nursing class X and Y, respectively, which are the learning stage of a professional courses. The two classes were parallel classes, and most of the previous courses were taught in the same time, place and teacher class. By pre-test, it was found that there was no significant difference in the performance and attitude of the two classes (P>0.05), which met the basic requirements of the study. Class X is selected as the experimental class and class Y as the control class, but the students are not informed of the experimental class and the control class.
Method

Course Design and Content

This course takes nursing profession standard, post competence as criterion, curriculum standard, takes typical work task as the foundation, extracts teaching content, takes the study project as the carrier, project-oriented, situational, case-oriented design teaching activity; According to the formation rule and working process of vocational ability, the teaching process is sequenced. It is integrated with students' cognitive level and nurse qualification examination syllabus, so as to make the curriculum close to professional posts, society and students.

This course is based on Web-based micro video (video duration is generally 3 to 10 minutes, the longest is not more than 15 minutes) as the main carrier and form of expression, including other related teaching digital resources, such as PPT, text, picture, audio, animation, virtual simulation, and related content of the guidance notice, test, topic discussion and other online teaching activities. It is convenient for learners to be ubiquitous, mobile, personalized learning. Adhering to the principle of 'while building, while using and while improving', the development of resources will be sustainable renewal. At the same time, promoting the opening and sharing of high-quality educational resources, the course is also aimed at a wide range of social interest enthusiasts, credits and certificates are available upon completion of the course.

The fragmentation of course resource into the 'particles' with 'knowledge point' and 'skill point' as the smallest unit, and then according to the study task, it is reconnected into project, modular and structured course. Each knowledge point or skill point is independent of each other, but has an internal connection, and some knowledge or skill points can be used in multiple projects[3].

Teacher Selection

This course requires teachers to be divided into 10 full-time teachers and 10 part-time teachers, all of whom are qualified teachers of double teachers, considering their professional titles and forming a reasonable echelon structure by age. Full-time teachers have bachelor's degree or above in nursing related major, solid nursing theory knowledge and strong professional skill, good teachers' ethics and lifelong learning ability, informational teaching ability, to be able to carry out curriculum teaching reform and scientific research, to accumulate not less than 6 months' practical experience in medical institution every five years, mainly to be responsible for curriculum development and teaching design, to be competent for theoretical teaching of adult nursing course and part of practical teaching; Part-time teachers mainly from hospitals or engaged in relevant medical institutions, with bachelor degree or above, Responsible Nurse or above title, with good ideological and political quality, professional ethics, solid nursing professional knowledge and rich clinical work experience, Mainly responsible for adult nursing courses training teaching, internship and practice arrangements, skills assessment and other Professional teaching tasks.

The Implementation of Curriculum Teaching

Then, taking the nursing of diabetic patients as an example, the implementation process of online and offline is introduced in detail.

Online Courses

1 Teachers Issue Guidance Notice, Students Self-Study Core Resources

Teachers combine the time and content of the offline (traditional) teaching plan and issue a week's notice of guidance in advance, mainly including the contents, objectives, key points, and difficulties to be learned in the next week. You need to watch in advance the '7. 2 Diabetes Care' node on the course platform, including watching the short video about OGTT, blood glucose monitoring technology, and the use of insulin pens, and reading the latest and color, graphic 'New 7 points of Diabetes Health' material published by the China Health Education Center, and completing quiz questions. The learning platform will record all students' online learning behaviors, including when to browse the video, materials, quiz questions, etc. As well as the number of visits, self-test questions answer results statistics. Students are reminded to take notes on the mobile or
computer side of the platform or to create a new topic in the 'discussion' area for teachers or other students to answer online or bring this question into class. It is important to note that when writing announcements, teachers try to use students' familiar and encouraging sentences to arouse interest in learning and make people look forward to it.

2 Teachers Supervise the Learning Process, Students Interact, Test and Evaluate with Each Other

Increasing the supervision of the learning process is also the biggest difference between the previous excellent course. A large number of online autonomous learning is not to say that leave students alone. Teachers can know the students' learning progress, attitude and effect at any time by 'Statistics', 'notice', 'discussion' and 'management', issuing notice to students when problems are found timely. Teachers and students both can post and respond to discussion topics, to learn from each other. Students are required to complete their homework in time and to evaluate each other's work.

Offline Course

1 Students Put Forward Learning Difficulties, Teachers Explain Key Difficulties

After a large amount of online learning in the early stages, the students entered the classroom with harvest, joy, and some doubts and couldn't wait. In class, students were asked to exchange their learning experiences, share their learning gains, and then combine the statistical results of pre-class quiz questions. Found that many students have mastered a lot of relatively basic, simple knowledge, which cannot be lectured or less in the classroom. At this time, especially to guide students to raise the difficulties encountered in the learning process and unsolved problems, The teacher's explanation in the classroom focuses on the student's doubts and the key points and difficulties. For example, some students suggested 'the difference between type 1 diabetes and type 2 diabetes', and 'the type, time and adverse reactions of oral hypoglycemic drugs', complications nursing and so on. Because the learning goal is clear, students listen more carefully and efficiency. Teachers should also analyze, sum up the students' general problems of personality into regular universal knowledge, and guide students to solve the problems in ways and means at the same time.

2 The student team displays the achievement, the teacher comment and conclusion

The teacher arranges the team assignment in advance and consciously develops the team cooperation. For example, typical cases of diabetes are given in the team assignment, which can reproduce and consolidate relevant knowledge of diseases, and create some clinical situations to guide students to deal with and communicate with others flexibly. In class, students will present the achievements in groups, such as PPT report, role play, scenario simulation, and actual practice and so on. After each group is shown, other groups will raise questions or doubts. Teachers review the advantages and disadvantages, supplement the missing points, and indicate the direction of our next effort.

Effect Evaluation

Online Learning Situation

This paper mainly evaluates the students' online learning through the functions of 'statistics', 'chapter visits', 'discussion numbers', 'average progress of learning', 'times of resource utilization' and so on.

Course Achievement

This paper mainly collects the course scores of experimental classes and control classes and compares them. The test paper is composed of intelligent test papers from the course question bank. Teachers and students are not aware of the test paper before the examination, and the test are the same type, quantity and difficulty.

Evaluation of the Curriculum

A self-made questionnaire was used to describe the teaching evaluation of the students after the completion of the course [4]. The evaluation include eight items with ratings ranging from 'strongly agree(5 points)' to 'strongly disagree(1 point)'. The evaluation scores of the experimental class and
the control class were evaluated anonymously and compared. At the same time, referring to the first page of the curriculum platform ‘course evaluation’ area.

Statistical Method

The original data use Excel to establish database. For the students' natural situation comparison, the statistical inference of the qualitative data between the experimental class and the control class adopts rate, and the statistical inference of the quantitative data adopts the $\bar{x} \pm s$. $x^2$ test was used for statistical inference of qualitative data, and T test was used for quantitative data, which comparing the evaluation of the course between the experimental class and the control class used by SPSS 19.0.

Effect

Online Learning

Since the opening of the course platform, the number of chapter visits has reached to 11705, the number of discussions has reached to 386, the average progress of study has been 90%, and the number of times of use of resources has been 469. Students have obviously increased their time devoted to study.

Course Achievement

The two classes were given a full score of 100 at the same time. The results were recorded in Excel form and compared with SPSS 19.0. As in Table 1.

<table>
<thead>
<tr>
<th>Name</th>
<th>Number of people</th>
<th>fraction</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Class</td>
<td>51</td>
<td>79.94±1.13</td>
<td>2.873</td>
<td>0.006</td>
</tr>
<tr>
<td>Control Class</td>
<td>51</td>
<td>76.25±1.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The result shows that there is a statistical difference between the experimental class and the control class.

Evaluation of the Curriculum

A self-made questionnaire was used to evaluate the teaching of students anonymously after the completion of the course. The evaluation items include eight, as follows, with scores ranging from 'strongly agree (5 points)' to 'strongly disagree(1point). The score is as follows:

<table>
<thead>
<tr>
<th>Item</th>
<th>Experimental Class(n=51)</th>
<th>Control Class(n=51)</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with the teacher</td>
<td>4.86±0.06</td>
<td>4.65±0.08</td>
<td>3.065</td>
<td>0.004</td>
</tr>
<tr>
<td>Stimulate interest in learning</td>
<td>4.86±0.05</td>
<td>4.55±0.09</td>
<td>3.050</td>
<td>0.004</td>
</tr>
<tr>
<td>Abundant learning resources and expanding vision</td>
<td>4.43±0.07</td>
<td>4.10±0.06</td>
<td>4.299</td>
<td>0.000</td>
</tr>
<tr>
<td>Improved self-study ability</td>
<td>4.88±0.05</td>
<td>4.02±0.06</td>
<td>12.556</td>
<td>0.000</td>
</tr>
<tr>
<td>Learning is more convenient</td>
<td>4.84±0.05</td>
<td>4.12±0.05</td>
<td>10.507</td>
<td>0.000</td>
</tr>
<tr>
<td>Teachers and students, students communicate more fully</td>
<td>4.84±0.05</td>
<td>4.18±0.05</td>
<td>8.597</td>
<td>0.000</td>
</tr>
<tr>
<td>More comprehensive assessment method of curriculum</td>
<td>4.82±0.05</td>
<td>4.61±0.08</td>
<td>3.065</td>
<td>0.004</td>
</tr>
<tr>
<td>Developed the ability to think and solve problems independently</td>
<td>4.73±0.06</td>
<td>4.37±0.08</td>
<td>4.825</td>
<td>0.000</td>
</tr>
</tbody>
</table>

According to the table, each item was $P < 0.01$, which indicated that the evaluation of the course in the experimental class was significantly higher than that in the control class. At the same time, on
Discuss

It Improves the Students' Learning Effect

As mentioned earlier, Adult Nursing is a core curriculum for nursing professionals, which covers a wide range of subjects and is difficult to learn. There is a general lack of interest among students. The results of this study show that comparing with the traditional teaching, there are significant differences in the improvement of the course performance. In the evaluation of the course, the students in the experimental class generally think that the learning interest is improved, the acquisition of learning resources is more convenient, and the learning cost is reduced. You can learn anytime and anywhere, and fully use of scattered time.

Enhanced Communication and Interaction between Teachers and Students

Related studies show that the interaction between teachers and students and between students and students is an important indicator that affects the effect and satisfaction of teaching. The timely feedback of teachers and the full interaction between students have a great motivating effect on learners [5]. In the traditional classrooms, due to limited class time, more students and more content, the frequency of questioning and the time to answer questions to students in the classroom are limited. Many students do not dare to ask questions. It is difficult to get to know the students' ideas and knowledge in depth [6]. In the mixed teaching model, in addition to more time for questioning and interaction in the classroom. Online learning, through the 'discussion area' topic, teachers and students are free to create or reply to related topics. In addition, they can freely talk about topics in class group chat or private chat, enhance communication and promote effective interaction between teachers and students. In the evaluation of the curriculum, the students in the experimental class generally think that the students and teachers communicate more fully, which is significantly higher than that of the control class, which greatly improves the satisfaction of the teachers.

Enriching the Way of Assessment of Curriculum

In addition to offline final exams and class presentations, the course can also use online learning process records, such as signing in, watching course videos, participating in interactive class discussions, completing homework tests, and project team scores. Full-time teachers, part-time teachers, industry experts, parents and other students are invited to participate in the evaluation. A variety of assessment methods can more comprehensively and scientifically assess students' learning attitude, learning effect, guide the whole learning process of students, and facilitate students to understand each other' learning progress through visual examination records, and form 'catching up with each other' learning atmosphere, timely detection of problems, correct deviations.

Brief Summary

Compared with the traditional classroom teaching mode, the mixed teaching mode under the background of information technology promotes the deep integration of information technology and education and teaching, adapts actively to the learners' individualized development and diversified life-long learning needs, and keeps pace with the development of the times. To meet the teaching needs of teachers and students. At the same time, in the construction and application of the online course platform, teachers' information teaching ability is essential. At the same time, we should also realize that this mixed teaching mode requires teachers to pay a lot of 'hidden labor' and a series of innovative teaching management systems to ensure its smooth implementation, which is the direction of further reform and research in the future.
Acknowledgement

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References


