Exploring the Application and Thinking of PBL Model in Medical Genetics Teaching

Zuo Xiang

Qujing Medical College, 655000, China

Keywords: PBL; Genetics; Comprehensive Quality

Abstract: With the rapid development of science and technology and the penetration of cutting-edge science and high-tech in other fields into the medical field. PBL is a learning model based on constructivist learning theory, mainly for students' independent learning and cooperative learning. At the same time, it is a learning mode to solve practical problems. By mastering the knowledge in the process of finding a solution to the difficult problem, this not only acquires knowledge, but also promotes the improvement of the overall quality of the students. How to improve the teaching effect of medical genetics in the shortest time and mobilize their enthusiasm for learning. To varying degrees, students have improved their professional level and trained them to pay attention to and learn frontier life sciences. Better grasp of the frontier knowledge of disciplines, improve their competitiveness, comprehensive quality and ability. Make students think more openly and study more actively. It is conducive to the next step of clinical study and work, and better achieves the teaching purpose of medical genetics.

1. Introduction

With the rapid development of science and technology and the penetration of advanced science and high technology in other fields into the medical field. There are more and more clinical laboratory items, and the scope of experimental medicine is becoming wider and wider [1]. PBL teaching philosophy is to set learning in complex and meaningful problem situations and let students solve authentic problems through cooperation [2]. In this way, we can learn and master the scientific knowledge hidden behind the problem, and form the problem solving skills. In the process of learning, students also generally reflect that the content is dull and abstract, the structure and name are complex, and lack of logical reasoning [3]. Medical educators should not only be good at imparting knowledge, but also help students learn to study independently and pay attention to all-round quality education in the process of personnel training. Develop cross-century medical talents who are proficient in professionalism, innovative and pioneering [4]. In higher vocational colleges, medical genetics is a discipline in the transition from basic medicine to clinical medicine. The need to teach a wealth of basic theoretical knowledge also requires students to form certain clinical analysis skills. It is a course that medical college students must learn and master [5]. By mastering the knowledge in the process of finding a solution to the difficult problem, this not only acquires knowledge, but also promotes the improvement of the overall quality of the students.

Establishing a reasonable assessment system is the guarantee for the implementation of bilingual teaching. The current summative evaluation and process evaluation must be organically combined to form a good evaluation mechanism and guiding mechanism. For clinical medical students, the teaching focus of experimental diagnostics should be based on practical applications [6]. It is centered on the cultivation of comprehensive quality and comprehensive ability. The traditional medical education model is far from being able to adapt to the huge impact brought by new knowledge and technology in the information age. PBL is a learning model based on constructivist learning theory, mainly for students' independent learning and cooperative learning. At the same time, it is a learning mode to solve practical problems. It is characterized by breaking the boundaries of disciplines and learning around problems. The goal is to cultivate students'ability of innovation, acquiring knowledge actively and solving problems with knowledge [7]. In order to enable students to correctly understand and grasp the "bridge" role of experimental diagnostics, and

  DOI: 10.25236/iwedss.2019.225

learn how to play its "bridge" role in clinical medical practice [8]. How to improve the teaching effect of medical genetics in the shortest time, cultivate students' interest and mobilize their learning enthusiasm? It is a problem that we need to solve urgently.

2. Materials and Methods

The traditional experimental diagnostic teaching model is based on the “three major routines” of clinical testing, with few testing items, and its selection and combination are not very complicated. The PBL teaching mode is conducive to the cultivation of students' self-learning ability and the improvement of comprehensive quality, so that students can learn from active learning. It not only cultivates students' ability to analyze and solve problems, but also enhances their belief in medical career. Medical bilingual teaching examination methods should be flexible and diverse [9]. The student's academic scores should include assessments and examinations of learning attitudes, learning processes, mastery of skills, ability to deal with problems, and theoretical knowledge. It is easy for students to be familiar with, master and apply it to clinical practice, but the problem of cultivating practical application ability is not prominent. Medical genetics is not only a bridge between basic and clinical courses, but also the basis of clinical disciplines. It occupies an important position in the medical profession. PBL establishes learning objectives on a sound learning system. Students not only continuously acquire new knowledge and improve theoretical understanding through various forms, but also form learning skills to put forward, analyze and solve practical problems.

From the second term in the group path difference expression is much larger than the first term, it can be seen that the group path difference is much larger than the phase distance difference for a given galvanometer rotation angle. It tries to avoid harmful physiological and psychological effects on the tested objects. Make it easy to accept and cooperate, and prevent the appearance of artifacts. Free radicals will cause lipid peroxidation in cell membranes, leading to premature fatigue. The indexes in the excessive recovery period were all restored to above the conventional level. The anaerobic power before and after excessive recovery is shown in Table 1.

Table 1 Data of various indicators during the excess recovery period

	Before resuming training	After resumption of training
Vital capacity (ml)	3514	3551
Hemoglobin (g)	10.2	10.6
Anaerobic work (kgm)	369	382

The teaching contents of anatomy are not all suitable for PBL teaching. Teachers should seriously study textbooks, strengthen the vertical and horizontal links of disciplines, and design appropriate problems. Design questions should stimulate students' interest. Medical genetics, as a basic discipline with strong specialty, is abstract and difficult to understand. If we do not pay attention to mobilizing students' learning participation and enthusiasm in the teaching process, students will probably give up the course because it is difficult to understand. Nowadays, with the rapid development of medical science and biological technology, new means and methods are emerging and applied to clinical laboratory examination. At the same time, students get a sense of achievement and improve their interest in learning. This not only exerts the subjective learning initiative of the students, but also enhances their collectivist concept, and also organically combines the theoretical knowledge and clinical practice of the students. Experimental Diagnostics Traditional experimental teaching emphasizes the study of experimental methods, principles, and operational skills, and plays an important role in cultivating students' practical ability and understanding of theoretical knowledge and memory. Due to the limitations of the school hours, the analysis of the influencing factors and the analysis of the results was also caused. These are the key points that clinical medical students need to be truly familiar with.

The system separately performs denoising, correction processing, and target enhancement

processing on a frame-by-frame basis. Quickly adapt to the immediate heart rate needs after exercise, reducing the time required for recovery after exercise. The time of the subject immediately after the experiment was restored to the resting heart rate, as shown in Figure 1.

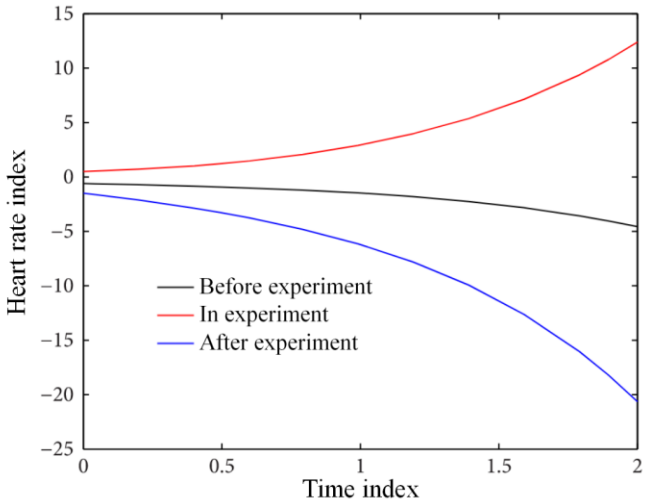

Fig.1. Relationship between immediate heart rate and recovery to resting heart rate before and after the experiment

3. Result Analysis and Discussion

The design and presentation of the problem is the key to the implementation of the PBL teaching model. The teacher's design level of the problem directly affects the student's learning effect. Not all teaching content and every classroom teaching are suitable for PBL. The esoteric theory is easier to understand, enhance students' interest in learning, and stimulate students' love of this course. Cultivating students' ability to analyze and solve problems is an important issue facing the majority of teachers. Medical genetics is an important professional basic course for medical students, and it is an important part of cultivating the knowledge structure and ability of medical professionals [10]. The collection and pre-analytical quality control of specimens to be tested in clinical medical practice is usually performed by clinicians and nurses. Therefore, experimental teaching of experimental diagnostics must reform the traditional practice of heavy experimentation, light impact factors and quality control. In the teaching of medical genetics, the traditional teaching mode is used in the chapter of genetic theory. Selectively use PBL teaching mode in typical clinical genetic cases to learn from each other's strengths and weaknesses. Reasonable arrangement of teaching hours can improve students' performance and interest in learning. It is not only helpful to promote the construction of bilingual teaching in other specialties of medical laboratory, but also provides a strong basis for the construction of bilingual teaching in the whole medical field.

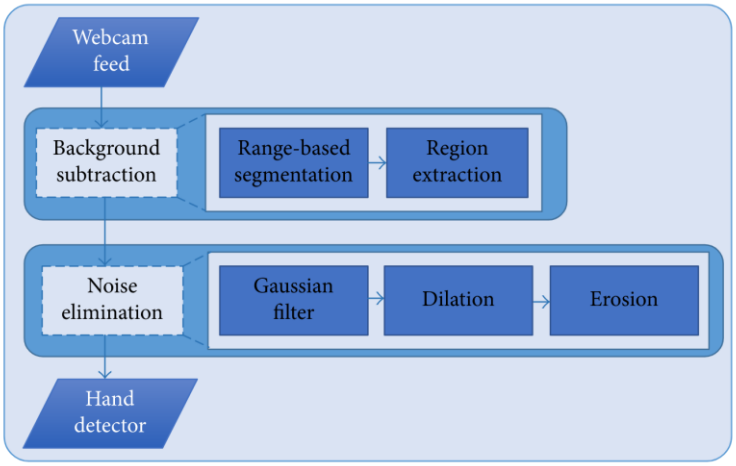

Fig.2. Manual test procedure

Template is constantly updated in the process of video sequence processing. It can transmit the buffered image data without pause to the image data stream processing module for processing. It improves the speed of image preprocessing, thus improving the overall performance of the system. When the frame rate is high, the athletes move from separation to complete occlusion, or from complete occlusion to re-separation. Manual detection method can be used for partial occlusion. Figure 2 is a manual detection program for image processing.

The PBL teaching model requires that the role of the teacher be transformed from a traditional instructor to a leader and facilitator in the process of acquiring students' knowledge. Not only do teachers are required to prepare for the difficulties and priorities of the courses they teach, but they also require teachers to have profound knowledge. In the teaching of medical genetics, because the PBL model is directly from how to solve practical problems to organize teaching. The learning of knowledge is implicit in the process of solving problems. The PBL teaching method is adopted to guide students to strengthen the study of the influencing factors and quality control of the experiment, so as to avoid large laboratory test errors or even low-level errors in future work. Due to the high requirement of PBL teaching, there are some problems to be solved urgently with the current teaching conditions, teachers and students' quality. Students have not yet entered clinical practice and cannot carry out related divergent thinking. It is a critical moment for them to need a "bridge" to guide them. As the problem settings are common cases of hereditary diseases, students are very interested. Almost all the students have made serious preparations and actively spoke and participated in discussions in class. In the course of teaching, we select all the key chapters which are closely related to clinical diseases. Using real cases of hereditary diseases in clinical work, skillfully design guiding problems.

4. Conclusion

With the deepening of teaching reform, the PBL teaching mode has been integrated into the teaching of medical genetics and achieved good results. We will further improve and update the PBL teaching mode, and gradually increase the proportion of PBL teaching. Further improve the comprehensive quality of teachers and strengthen every link of PBL teaching implementation. The introduction of PBL teaching method in experimental diagnostics experiment teaching can improve the students' attention to the experimental influencing factors. It is helpful for the cultivation of comprehensive analysis ability and clinical thinking ability. To varying degrees, students have improved their professional level and trained them to pay attention to and learn frontier life sciences. Better grasp the frontier knowledge of the discipline and improve its own competitiveness, comprehensive quality and ability. Under the existing conditions, it is possible to gradually transition from the traditional teaching mode to the PBL teaching mode. It is hoped that this teaching mode will be widely used in medical genetics teaching at different levels in the future. Patiently guide students, increase their interest in learning, and change their attitude towards learning. Make students' thinking more open and learn more proactive. It will help its next clinical study and work, and better achieve the teaching purpose of medical genetics.

References

[1] Tan A Y, Blumenfeld J, Michaeel A, et al. Autosomal dominant polycystic kidney disease caused by somatic and germline mosaicism [J]. Clinical Genetics, 2015, 87(4):373-377.

[2] Vu-Han T L, Frühwald, Michael C, Hasselblatt M, et al. Identifying molecular markers for the sensitive detection of residual atypical teratoid rhabdoid tumor cells [J]. Cancer Genetics, 2014, 207(9):390-397.

[3] Spasovski V, Tosic N, Nikcevic G, et al. The influence of novel transcriptional regulatory element in intron 14 on the expression of Janus kinase 2 gene in myeloproliferative neoplasms [J]. Journal of Applied Genetics, 2013, 54(1):21-26.

[4] Gold J E, Zalusky R, Louis-Charles A, et al. T-cell chronic lymphocytic leukemia. Unusual

morphologic, phenotypic, and karyotypic features in association with light chain amyloidosis [J]. Cancer, 1992, 70(1):86-93.

[5] Patel K. Plasmablastic Lymphoma: 28 Patient Single Institution Experience [J]. Blood, 2013, 122:4310-4310.

[6] Harris R A, Nagy-Szakal D, Kellermayer R. Human metastable epiallele candidates link to common disorders [J]. Epigenetics, 2013, 8(2):157-163.

[7] Durham C O, Fowler T, Kennedy S. Teaching Dual-Process Diagnostic Reasoning to Doctor of Nursing Practice Students: Problem-Based Learning and the Illness Script [J]. Journal of Nursing Education, 2014, 53(11):646-650.

[8] Yeong L C, Oon O K. Imaging of musculoskeletal lymphoma [J]. Cancer Imaging, 2013, 13(4):448-457.

[9] Miranda Soares M P, Barchuk A R, Quirino SimÕes, Ana Carolina, et al. Genes involved in thoracic exoskeleton formation during the pupal-to-adult molt in a social insect model, Apis mellifera [J]. BMC Genomics, 2013, 14(1):576-576.

[10] Neurath A R, Strick N, Sproul P. Search for hepatitis B virus cell receptors reveals binding sites for interleukin 6 on the virus envelope protein [J]. Journal of Experimental Medicine, 2013, 175(2):461-469.