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概念图策略在生理学教学实践中的应用

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摘要 目的:探讨概念图策略在高职护理专业生理学教学实践中的效果。**方法:**随机抽取 57 名学生作为实验组,54 名学生作为对照组;实验组施行概念图策略教学法,对照组则采用传统教学法。分别比较两组学生的单元测验成绩和期末考试成绩,并于全部课程结束后进行问卷调查,分析调查结果。**结果:**实验组学生的单元测试成绩和期末考试成绩均明显高于对照组学生,差异具有统计学意义($P<0.05$);实验组 94.34% 的学生认为教学能够提高学习主动性,而对照组为 64.81%;实验组 84.21% 的学生认为教学有助于提升对课程内容的理解,而对照组为 64.11%;实验组 87.72% 的学生认为教学促进师生互动,而对照组为 38.89%;实验组 84.21% 的学生认为教学可增强团队合作精神,而对照组为 57.41%。实验组的调查结果明显优于对照组,差异具有统计学意义($P<0.05$)。**结论:**将概念图策略引入高职护理专业的生理学课程教学实践中,能够更好的帮助学生掌握生理学的理论体系,提升教学质量,提高学生的专业知识水平。

关键词:概念图;高职护理专业;生理学课程;教学实践

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"Concept Map" in Physiology Teaching

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ABSTRACT Objective: To discuss the effects of concept map on the practice of teaching physiology in nursing major of higher vocational school. **Methods:** Fifty-seven students were randomly selected to be the experimental group, and another 54 students were randomly defined as the control group. Students in the experimental group were performed by the teaching strategy of concept map, while the students in the control group were taught by the conventional teaching method. Then the scores of unit tests and final exam that conducted by students were compared, and the results of a questionnaire survey after completing the whole course were compared and analyzed between two groups. **Results:** The unit test scores and the final examination scores of the experimental group were higher than those in the control group with statistically significant differences ($P<0.05$); 94.34% students in the experimental group believed that teaching should help to improve the learning initiative, while the students in the control group account for 64.81%; 84.21% students in the experimental group suggested that teaching could enhance the understanding of the content for curriculum, while the students in the control group account for 64.11%; 87.72% students in the experimental group indicated that teaching would stimulate the interaction of teachers and students, while the students in the control group account for 38.89%; 84.21% students in the experimental group admitted that teaching might encourage the spirit of teamwork, while the students in the control group account for 57.41%. The investigation result of the experimental group was better than that of the control group with statistically significant differences ($P<0.05$). **Conclusion:** The teaching strategy of concept map for physiology that brought in the higher vocational school for nursing major could help to master the physiological theory, improve the teaching quality and promote the professional qualification.

Key words: Concept map; Higher vocational education; Nursing major; Physiology; Teaching practice

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前言

生理学(Physiology)是高职护理专业的重要基础课程之一,对生理学进行系统的学习能够使护理专业的学生了解正常人体的机能,为日后学习病理学、外科护理学、内科护理学等专业

课程打下扎实的理论基础^[1-2]。由于高职护理专业的学制较短,导致护理专业的课时安排不充足。而生理学的概念较多,系统性、理论性较强,教学人员往往由于课时的限制而无法对每个知识点进行深刻而透彻的讲解,这就容易造成学生对知识点的理解出现偏差。另外,学生往往是被动的吸收知识,缺乏学习的主动能动性,只能依靠死记硬背来应付考试,结果可想而知,不尽如人意,影响了学生的前途^[3-5]。从 2011 年起,我教研室在护理专业的生理学教学中引入了概念图进行教学,并与传统教学方法进行比较,取得了一定的效果,现报告如下。

1 对象与方法

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1.1 实验对象

随机抽取我院 2012 级护理专业 3 班学生 57 人作为实验组,另抽取 2012 级护理专业 6 班学生 54 人作为对照组。两组学生均为女生,比较实验组和对照组的高考入学成绩和生理学的基础课程 - 人体解剖学的成绩,两组学生高考入学成绩和人体解剖学成绩差异均无统计学意义($P<0.05$),说明实验组和对照组学生学习生理学基础基本一致。实验组学生采用概念图教学,对照组学生采用传统方式教学。两组学生所用的教材和实验设备相同,并由同一位教师进行授课。

1.2 教学方法

对照组采用传统方式进行教学:授课教师在课前向学生布置所要学习的内容和预习纲要;上课时利用 PPT 等多媒体教学手段对授课内容进行讲解;授课结束后布置课后复习题。

实验组采用概念图策略进行教学,具体措施如下:①授课教师于课前引导学生对将要学习的内容进行预习,并找出未学习过的名词概念;②教师授课时利用概念图技术组织课堂教学,重点在于分析新概念与相关旧概念之间的关系,并针对某一题目指导学生绘制概念图;③把含义最广、最有包含性的概念放在图的顶端,然后将这个概念进行分解,以增加更多具体的概念,然后用线条把概念连接起来,并选择恰当的连接词注明,找出概念图上不同概念之间交叉的部分,标明连接线,将能够说明概念的具体例子写在旁边,最后形成完整的概念图;④学生完成概念图后,由授课教师对概念图进行点评并深入讲解此概念的含义;⑤对于内容较多的章节,可将学生分为几个小组来共同完成该章节的概念图设计^[9]。以血液生理学的概念图为例。

1.3 评价指标

1.3.1 客观评价指标 在学习完细胞基本功能和血液生理这两个章节后,实验组和对照组分别进行单元测试,在学期结束后进行期末测试,分别比较实验组和对照组学生的考试成绩。试卷由不参与实验组和对照组教学的教师出卷并进行批改。

1.3.2 主观评价指标 课程结束后设计问卷调查,问卷主要包括如下四个问题:教学方法是否能够提高学习主动性,是否能够提升对课程的理解,是否能够增强师生之间互动,是否能够增强学生团队合作精神。每个问题有两个选项,即,是或否。分别对实验组和对照组学生进行问卷调查,合计发放问卷 111

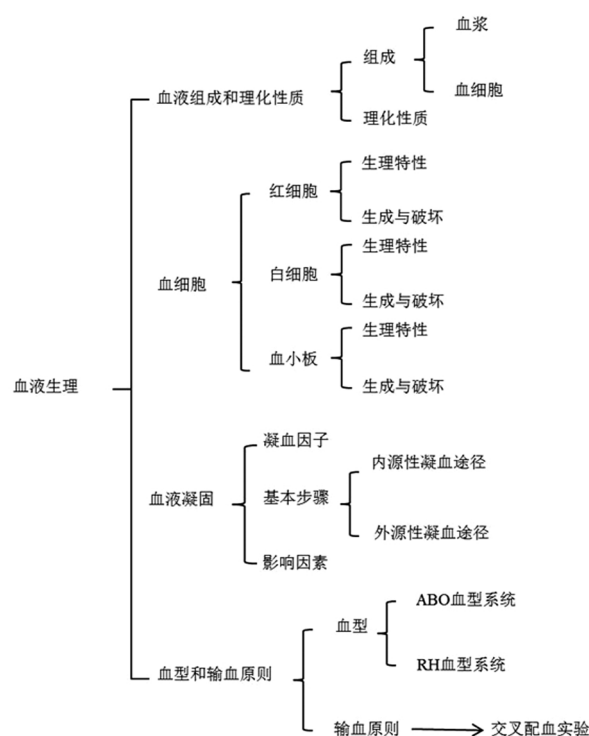


图 1 血液生理学概念图

Fig. 1 The concept map of blood biology

份,回收有效问卷 111 份。

1.4 统计学方法

实验所涉及的所有数据和问卷调查表采用 SPSS13.0 for Windows 软件系统进行统计分析,成绩采用标准方差分析,调查采用卡方检验,以 $P<0.05$ 为差异具有统计学意义。

2 结果

2.1 两组学生测试成绩比较

如表 1 所示,细胞基本功能的测试成绩:实验组为(78.43 ± 13.46),对照组为(72.19 ± 12.57);血液生理的测试成绩:实验组为(79.23 ± 14.21),对照组为(73.14 ± 11.97);期末考试的测试成绩:实验组为(83.53 ± 14.57),对照组为(77.64 ± 13.41)。实验组学生的成绩明显高于对照组学生,差异显著有统计学意义($P<0.05$)。

表 1 实验组和对照组学生的成绩比较

Table 1 Comparison of student achievement between the experiment and control group

Groups	Numbers	Cell functions	Blood physiology	Final Exam
Experiment	57	78.43 ± 13.46	79.23 ± 14.21	83.53 ± 14.57
Control	54	72.19 ± 12.57	73.14 ± 11.97	77.64 ± 13.41
t		2.52	2.44	2.21
P		<0.05	<0.05	<0.05

2.2 实验组和对照组问卷调查结果比较

调查结果如表 2 所示,实验组 94.34% 的学生认为教学能够提高学习主动性,而对照组为 64.81%;实验组 84.21% 的学生认为教学有助于提升对课程内容的理解,而对照组为 64.11%;

实验组 87.72% 的学生认为教学促进师生互动,而对照组为 38.89%;实验组 84.21% 的学生认为教学可增强团队合作精神,而对照组为 57.41%。实验组的调查结果明显优于对照组,差异显著具有统计学意义($P<0.05$)。

表 2 实验组和对对照组问卷调查结果比较 [n(%)]

Table 2 Comparison of questionnaire results between the experiment and control group [n(%)]

Groups	Numbers	Select	Improving learning initiative	Improving the understanding of course content	Enhancing teacher-student interaction	Strengthen team spirit
Experiment	57	Yes	54(94.34)	48(84.21)	50(87.72)	48(84.21)
		No	3(5.26)	9(15.79)	7(12.96)	9(15.79)
Control	54	Yes	35(64.81)	33(61.11)	21(38.89)	31(57.41)
		No	19(35.19)	21(38.89)	33(61.11)	23(42.59)
X ²			15.62	7.50	28.68	9.71
P			<0.05	<0.05	<0.05	<0.05

注:与对照组相比,*P<0.05。

Note:compared with the control group, *P<0.05.

3 讨论

概念图是一种用节点代表概念,用连线表示概念间关系的图示法学习策略^[7,9],最早由美国康奈尔大学 Novak 提出并且应用于教学中^[10,11]。学生是教学活动的主体,因此学生学习是否有积极性、主动性学习有成的关键因素之一。概念图能够有效的增强学生学习的主动性^[6]。概念图教学要求学生课前有针对性的对所学课程进行预习,找出未知的名词概念;在授课时学生要积极完成概念图,这就调动了学生的积极性与主观能动性^[12,13]。此外,概念图能够提高学生对课程内容的理解^[14]。学生通过绘制概念图掌握所学内容的整体知识框架,找到知识点之间的联系,掌握概念之间的逻辑关系,对已学习的知识更加清晰,对未学习的知识也获得一定启示,从而加深对课程的理解^[15,16]。第三,采用概念图教学能够有效增强师生之间的互动^[17]。以往的教学模式局限于教师在讲台上讲,学生在台下听,教师和学生之间的互动非常少。而概念图教学则需要教师点评学生完成的概念图,纠正学生的错误及缺点,学生也可以针对在绘制概念图的过程中遇到的问题向老师进行请教,从而增强了教师与学生的互动。更重要的是,引入概念图开展教学能够加强学生的团队合作精神^[18]。对于一个较大章节的概念图,需要学生以小组的形式进行完成,每个小组成员不仅需要有良好的分工合作,还要具备团队合作的精神,才能够更好的完成概念图的工作^[19,20]。

本次研究通过在高职护理专业生理学课程中引入概念图开展教学,并且与传统教学模式之间的优劣进行对比,结果表明,采用概念图教学的实验组学生的单元测试成绩和期末考试成绩均明显高于采用传统教学方式的对照组学生,且差异具有统计学意义(P<0.05)。通过对两组学生进行问卷调查,结果发现,实验组学生普遍认为概念图教学法能够提高学生学习主动性,提升对课程内容的理解,增强师生互动和团队合作精神。实验组学生关于以上四个方面的评价明显高于对照组,且差异具有统计学意义(P<0.05)。说明概念图教学法具有一定的教学实践意义。

4 结论

综上所述,在高职护理专业生理学课程中开展概念图教学

法,能够更好的帮助学生掌握生理学理论,提高教学质量,应在教学实践中得到推广。

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