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Exploration on blended teaching of physiological experiment based on virtual simulation experiment and rain classroom

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The prevalence of COVID-19 has brought great changes to medical education in colleges and universities. Online teaching has inevitably penetrated into all parts of teaching and learning. Under the background of educational informatization, it is necessary to perform medical experimental teaching reform by building an informational and diversified blended experimental teaching classroom. Combined virtual simulation experiment platform in our university and intelligent teaching tools of rain classroom, we tried to explore the blended teaching mode of physiological experiment both online and offline. Before class (online preview), teachers release learning task list and dubbing PowerPoint through rain classroom, and students preview the courseware and complete the virtual simulation experiment online to make a good prepare for classroom learning. According to the feedback of rain classroom teaching data, teachers could timely adjust the classroom teaching program. In class (flipped classroom), teachers organize rain classroom test, group discussion, real animal experiment operation, bullet screen interaction between teachers and students, and make a summary. After class (online report and evaluation), students submit and teachers correct the experimental report through the rain classroom, and teachers evaluate students' learning effect and teachers' teaching effect by integrating online and offline teaching data. The students receiving blended teaching think that virtual simulation experiment is interesting and helpful for understanding the experimental principal and methods so that they can fulfil the animal experiment operation well. At the same time, they think rain classroom makes their teachers and various learning resources available at any time, facilitates their learning process and promotes their learning effect. According to the evaluation of the scale and examination, the autonomous learning ability and experimental test scores of students receiving blended teaching are significantly higher than those receiving traditional teaching. Therefore, the combination of virtual simulation experiment and rain classroom can not only realize "online experiment" without time and space constraints, but also create more free communication environment between teachers and students. It perfectly makes up for the shortcomings of traditional teaching and is a practice of the "student-centered" teaching reform. The practice and exploration of the blended teaching mode provide a solution to the dilemma of experimental teaching during the epidemic of COVID-19, and provide a new strategy for the experimental teaching reform in the post epidemic era.

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