

A Study on the Impact of SPOC-FCM Teaching Model on Student Learning Engagement and Academic Performance in University Biochemistry Courses

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Abstract:

Introduction: With the rapid advancement of information technology and the continuous evolution of educational philosophies, blended learning has emerged as a significant trend in higher education reform. SPOCs, leveraging flexible scheduling and personalized learning support, have become a vital tool for enhancing student initiative and engagement. As educational technology progresses, the flipped classroom model is also increasingly becoming a key direction in higher education curriculum reform.

Methods: This study employed a quasi-experimental design with veterinary medicine students from a university in Jilin, China as participants. It evaluated whether SPOCFCM significantly enhances student engagement and academic performance in biochemistry courses. The experimental group employed the SPOC-FCM teaching approach, while the control group utilized traditional teaching methods. Data were analyzed using SPSS 27.0.

Results: (1) The SPOC-FCM teaching method significantly enhances learning engagement among students in the experimental group ($P < 0.01$). (2) The SPOC-FCM teaching method significantly improved the academic performance of students in the experimental group ($P < 0.05$).

Conclusion: The SPOC-FCM teaching model, when applied to a biochemistry course at a university in Jilin Province, significantly enhances student engagement and markedly improves academic performance compared to traditional teaching methods.

Keywords:

SPOC, Flipped Classroom, Biochemistry, Learning Engagement, Academic Performance.