The Impact of Flipped Learning on Cognitive Adaptability and Educational Motivation of Male Students during the Coronavirus Epidemic

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Extended Abstract

Aim

The outbreak of contagious diseases, such as the coronavirus pandemic, has led to a shift in teaching methods towards remote learning, serving as an alternative to face-to-face classes. Online education has gained prominence during the pandemic, aiming to enhance student motivation and participation, and reduce dropout rates, as distance learning may become a significant aspect of our future. One effective strategy in this context is the flipped classroom learning method. This study aimed to investigate the flipped learning method's influence on male students' cognitive flexibility, cognition, and academic motivation during the coronavirus epidemic.

Methodology

This study employed a practical quasi-experimental design with a pre-test and post-test approach, including a control group. The target population consisted of all fifth-grade male students in Shahreza City during the academic year 2020-2021. A boys' primary school was selected randomly, and 40 students were chosen through the availability sampling method. The students were then randomly divided into two groups comprising 20 participants. The experimental group received ten training sessions using pre-prepared online training materials, while the control group received traditional instruction. Data collection involved administering Harter's Academic Motivation Scale (HEMS) and Dennis and Vanderwaal's Cognitive Flexibility Scale (CFI) as pre-tests and post-tests to all participants in both groups.

Findings

The collected data were analyzed using covariance analysis with IBM SPSS software (version 26). The results of the covariance analysis demonstrated that the flipped learning method significantly enhanced cognitive flexibility and academic motivation among students in the experimental group compared to the control group in the post-test ($p<0.05$).

Conclusion

The results of this research underscore the significant impact of the flipped learning method on enhancing students' educational motivation. The average scores of the experimental group in the post-test showed an increase. Furthermore, while the mean scores of the experimental group exhibited growth in the post-test concerning cognitive flexibility, the increase was even more pronounced in the academic motivation variable. A possible explanation for the effectiveness of the flipped learning method on students' cognitive flexibility lies in the role of academic motivation, particularly metacognition, which prevents repetitions and fosters a desire for meaningful contributions in terms of sustained attention. When students engage in the reverse learning method, they reflect on their and others' behavior, enabling them to approach assignments more intelligently and purposefully. As a result, the flipped learning approach significantly improves students' cognitive flexibility. Besides being influenced by motivational beliefs, the flipped learning method can also impact students' impressions when the necessary conditions are established. Students trained using this method consistently review their performance in employing cognitive strategies while completing homework.They assess their performance against predetermined goals, constantly striving to achieve them. Consequently, the flipped learning method can be employed to enhance students' cognitive flexibility and academic motivation in schools and educational institutions, particularly during the coronavirus epidemic, through online education.

Keywords: Cognitive Flexibility, Educational Motivation, Flipped Learning.