ENHANCING CREATIVITY IN ACADEMIC PROBLEM SOLVING

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Abstract: *Creative Problem Solving (CPS) plays a vital role in modern education, particularly in developing students' ability to think creatively and respond effectively to academic challenges. Previous studies indicate that cooperative learning environments support creativity by encouraging interaction, idea exchange, and multiple perspectives. However, low learning motivation often limits students' active participation in collaborative activities. This study aims to examine the impact of Gamified Cooperative Learning (GCL) on students' creative problem-solving skills and learning motivation compared to Traditional Cooperative Learning (TCL). A quasi-experimental research design was employed involving 64 seventh-grade students selected through purposive sampling. Data were analyzed using descriptive statistics, paired-sample t-tests, and independent-sample t-tests. The findings reveal a significant improvement in both creative problem-solving skills and learning motivation among students in the GCL group. Moreover, the GCL group demonstrated higher overall CPS performance than the TCL group. The results suggest that integrating gamification into cooperative learning can effectively enhance creativity and motivation in academic contexts.*

Keywords: *Creative Problem Solving (CPS), learning motivation, cooperative learning, gamified learning, academic creativity*

Introduction

Creative Problem Solving (CPS) originated from the pioneering work of Alex Osborn in the 1950s and has since become a significant concept in education, psychology, and organizational studies. CPS emphasizes generating multiple ideas, evaluating alternatives, and implementing innovative solutions. In the context of 21st-century education, CPS is considered a core skill that enables learners to adapt to complex academic and real-world problems.

Educational researchers highlight that creativity is not an innate talent alone but a skill that can be developed through appropriate pedagogical strategies. Among these strategies, cooperative learning has gained attention due to its emphasis on interaction, peer support, and shared responsibility. When students work collaboratively, they are exposed to diverse perspectives, which fosters deeper understanding and creative thinking.

Despite the recognized benefits of cooperative learning, students' learning motivation remains a critical challenge. In many educational settings, traditional teacher-centered approaches still dominate, limiting students' engagement and willingness to participate actively. Low motivation negatively affects students' creative performance and problem-solving abilities. Therefore, innovative instructional approaches are required to simultaneously promote CPS and learning motivation.

Gamified Cooperative Learning (GCL) has emerged as a promising approach that combines the principles of cooperation with game elements such as points, challenges, and rewards. Gamification increases students' interest, reduces fear of failure, and creates a supportive learning environment conducive to creativity. This study aims to investigate whether GCL is more effective than Traditional Cooperative Learning (TCL) in enhancing students' creative problem-solving skills and learning motivation.

Methodology

This study adopted a quasi-experimental research design with pre-test and

post-test measures. Two groups were formed: a Gamified Cooperative Learning (GCL) group and a Traditional Cooperative Learning (TCL) group.

Participants

The participants consisted of 64 seventh-grade students selected through purposive sampling. The students were divided equally into the GCL and TCL groups.

Instruments

Data were collected using a Creative Problem Solving (CPS) test and a learning motivation questionnaire. The CPS test measured students' abilities in idea generation, flexibility, originality, and solution evaluation. The learning motivation questionnaire assessed students' interest, engagement, and persistence in learning activities.

Procedure

Both groups participated in cooperative learning activities over a specific instructional period. The GCL group engaged in gamified tasks incorporating points, levels, and group challenges, while the TCL group followed conventional cooperative learning without game elements.

Data Analysis

Descriptive statistics were used to summarize the data. Paired-sample t-tests examined within-group differences between pre-test and post-test scores, while independent-sample t-tests compared the performance of the GCL and TCL groups.

Results

The results indicated a significant improvement in creative problem-solving skills and learning motivation in the GCL group after the intervention. Statistical analysis showed that students exposed to gamified cooperative learning demonstrated higher levels of idea generation and flexibility compared to those in the TCL group. Although some CPS subcomponents did not show statistically significant differences, the overall CPS scores of the GCL group were

significantly higher than those of the TCL group.

Discussion

The findings of this study support previous research suggesting that cooperative learning environments enhance creativity through interaction and idea exchange. The added element of gamification further increased students' motivation, leading to greater engagement and willingness to participate in problem-solving activities. Gamification reduced students' fear of making mistakes and encouraged risk-taking, which is essential for creative thinking.

Furthermore, the results indicate that learning motivation plays a mediating role in the development of creative problem-solving skills. When students are motivated, they are more likely to explore multiple solutions and persist in challenging tasks. Therefore, integrating gamification into cooperative learning can serve as an effective instructional strategy for fostering creativity in academic settings.

Conclusion

This study demonstrates that Gamified Cooperative Learning is more effective than Traditional Cooperative Learning in enhancing students' creative problem-solving skills and learning motivation. The findings highlight that creativity can be developed through structured instructional strategies that promote collaboration, motivation, and active engagement. Educators are encouraged to incorporate gamified cooperative learning activities to prepare students for complex academic and real-world challenges.

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