

GAME-BASED LEARNING TECHNOLOGY INTEGRATED COOPERATIVE LEARNING IN GEOGRAPHY IN JUNIOR HIGH SCHOOL

Ho-Yuan Chen, Daniel Chia-En Teng, & Tai-Fen Chen
Graduate Institute of Education, Tunghai University (Taiwan)

Abstract

This study aims to investigate the effect of integrating information technology into cooperative learning on the learning motivation and achievement of junior high school pupils in geography. The research method is quasi-experimental, and research is conducted with unequal groups prior to and following the test design. The researcher drew research samples from two classrooms of second-grade middle school students. These classes represented the experimental group and the control group, respectively. A seven-week educational experiment was conducted. The experimental group integrated cooperative learning teaching methods with information technology, while the control group used conventional narrative teaching methods. Using the Geography Learning Motivation Scale, the Geography Learning Achievement Test, and the Teaching Feedback Sheet as research instruments, descriptive statistical analysis, the independent sample t test, and the paired sample t test are employed to determine whether there is a statistically significant difference between learning motivation and learning achievement. The findings of the study are as follows:

Learning motivation: The experimental group is significantly superior to the control group ($p < .05$), confirming that the integration of information technology into collaborative learning can effectively enhance the learning motivation of geography.

Keywords: *Cooperative learning, information technology integrated instruction, geography.*

1. Background

In recent years, the promotion of information education in Taiwan has centered on the establishment of a nationwide online learning system, the balanced development and sharing of digital resources, and the establishment of a culture of perpetual digital learning (Zhang Zhikai and Cai Jiaying, 2014). It is anticipated that students can use information technology to promote learning, utilize information, and enrich their knowledge, and that teachers can use information technology to enhance their teaching. Information technology is no longer a specialized field in the society of the digital age; it has been integrated into our daily activities and has become a part of our lives (Ministry of Education, 2016). Changes in the external environment and available resources necessitate constant innovation and dissemination of teaching strategies. Education in the era of the Internet must foster in students the fundamental skills of independent thought and problem solving. In terms of the future, the advancement of science and technology has brought about changes in society, labor, and learning. Information technology's significance has become irreplaceable.

Over the course of nine years, one of the curriculum's goals has been to cultivate and enhance students' communication and teamwork skills. Communication and cooperation skills are now required by society, and through teaching and practicing cooperative learning, students acquire these skills through discussion, communication, sharing, and collaboration, thereby doubling the effectiveness of learning.

The 12-year national basic education program is based on the principles of spontaneity, interaction, mutual well-being, valuing students as learning subjects, transforming the teaching style of teachers and students, turning the student into a one-way passive listener, and teachers discussing the teaching model directly. Choose diverse and appropriate teaching methods and models based on teaching objectives, learning content, student interests, individual student differences, etc., inspire student learning motivation, enable students to become independent learners, explorers, and builders, and to learn and collaborate with one another. Explore the respective strengths, abilities, and accomplishments of each student through instructional activities (Chang, 2014).

In actual geography teaching, he himself faced many challenges, for example, in the interpretation of the concept of natural geography, only using verbal or abstract word symbols to express, some students are frequently like ducks listening to a thunderstorm - they have no understanding; when explaining foreign geography of the region, the textbook content is slightly outdated, the contents are primarily data-based; paper textbooks or maps are difficult to fully represent. Geography courses are therefore susceptible to making students feel abstract, difficult, and uninteresting, thereby impacting their learning motivation and outcomes. Today, as a result of the development of the Internet, teaching multimedia, and mobile media, the incorporation of information technology into the classroom and the use of digital teaching materials have become crucial innovations in education. Information technology is swiftly evolving and diverse, and enhancing students' information skills and knowledge is a constant educational objective.

In education across the globe, the integration of information technology into teaching has become a widespread trend. However, determining how instructors should use information technology to achieve their teaching objectives remains a formidable challenge. Under a decade of educational reform, teaching integration into information technology has transformed the interactive method of teaching among teachers in the classroom, and holds the learning-based, technology-based teaching philosophy, actively concerned with how information technology is integrated to allow students to gain meaningful learning, cultivate students' high-level thinking organization and problem-solving ability, and thus build knowledge.

Geography teachers can implement multimedia instruction, mobile learning, or computer-assisted instruction at the appropriate moment and according to the school's teaching environment and equipment. After incorporating information technology into geography education, it is hoped that a variety of geographic charts, photos, animations, videos, APPs, online learning platforms, and real-time information will be incorporated, so as to make geographic charts strive to bring out the old and bring forth the new, and to make course content and teaching materials specific and clear. Students are provided with a substantial, diverse, and meaningful spatial understanding through the use of vivid localized examples or current international events, so that the integration of information technology is closely coordinated with the course content. In this manner, the course content is vivid, engaging, specific, and refined, allowing students to study geography with greater interest and efficiency.

2. Methodology

This study is based on the experimental design of the eighth grade taught by the researchers as the study object. Before implementing the teaching experiment, experimental group and control group students on the basis of their past geographic learning experience to fill out the geographical learning motivation table, and the geographic scores of the first semester of the school year 2022 as a pre-score for the geological learning achievement test, and then conduct a seven-week teaching experiments. After the instruction experiment process, two groups conduct the geography learning Motivation Table, geographic Learning Achievement Test post-test, to explore the impact of teaching experience on the student's geographic study motivation and learning performance.

3. Research findings

Quantitative analysis shows that the overall score of geo-learning motivation measurement for the two groups of students did not differ significantly before the teaching experiment, and that the geo learning motivation of the experimental group was higher than that of the control group after the instruction experiment, with significant differences. The study group also improved significantly after the teachings experiment. In the different scores of the four scores, the study group scored higher than the pre-measurement, and the study team scored better than the controlling group. But only in the "related" scores scored significantly.

The analysis of the impact of geoscience teaching on students' learning motivation is divided into three parts, the experimental group and the control group first explore the motivation performance of students on geo-learning before the teaching experiment, then the study group analyzes the impact on their geo learning motivations after the implementation of information technology integration and cooperative learning, and finally investigate whether the motivations of two groups of students have significant differences after teaching the experiment.

4. Conclusion

In geo-learning motivation, the student's geographic learning motivation score was analyzed statistically, and the results showed that after the teaching experiment processing, students who accepted the integration of information technology into cooperative learning received a higher overall geographic motivation rating than students who received the traditional narrative teaching method, and there was a significant positive boost.

Further to analyze the four scores of the geographic learning motivation scale, you can learn that after implementing the teaching experiment processing, students who accept information technology to integrate cooperative learning in four scales - attracting attention, physical relevance, building confidence, feeling satisfied with higher individual scores than students who receive the traditional narrative teaching method, especially in the "physical related" this scale has a significant increase.

Students originally felt that the learning content of Chinese geography was strange, unfamiliar, less related to their own life experience, and the willingness to learn was lower; but after the implementation of information technology into cooperative learning, the abstract, distant Chinese geographical knowledge was transformed into concrete images and videos, while the members worked together to learn, so that students significantly felt the relevance of geography teaching and their own bodies, thereby enhancing the student's learning motivation.

References

- Chang, S.-J. (2014). Cooperative learning in groups: A hopeful project for transforming classroom teaching ecology. *Teacher and Mentor Monthly*, (559), 36-43.
- Ministry of Education. (2012). Significant issues in the Grade 1-9 Curriculum Guidelines for elementary and junior high schools (Information Education).