Development creative thinking through digital citizenship activities for grade 6 students, The Demonstration School Suan Sunandha Rajabhat University

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Abstract

The objectives of this research were (1) to develop creative thinking through digital citizenship activities for grade 6 students which had efficiency according to the criteria, (2) to compare academic achievement and (3) to study attitude towards learning through digital citizenship activities. The sample group of this research was 33 grade 6 students chosen by purposive sampling. The research tools consisted of an academic achievement test, satisfaction questionnaire. The data was analyzed by using the average ($\bar{X}$), standard deviation (S.D.), t-test for dependent samples and level of significance (p value).

The results of this research indicated that 1) the academic success of students after learning with promote creative thinking through digital citizenship activities was higher than before the treatment at the statistically significant.05 level. 2) the efficiency of teaching with the IKEAS Model was 78.11/88.48 according to the efficiency criterion of 80/80, and 3) attitude with learning through digital citizenship activities was very high ($\bar{X}$ = 4.91, S.D.= 0.08).

Keywords: IKEAS Model, Learning Achievement, creative thinking, Digital Citizenship

1. Introduction

In the 21st century, education systems are increasingly shaped by rapid digital transformation. In Thailand, the National Education Plan (2017–2036), aligned with the Sustainable Development Goals (SDGs), emphasizes Transforming Education to Fit in the Digital Era by developing learners with essential competencies such as creativity, critical thinking, communication skills, and responsible digital engagement. These priorities reflect the national agenda for sustainable development through digital innovation.

Digital technologies have become integral to students' daily lives, enabling fast access to information and communication through online platforms. However, such accessibility also presents challenges, including misinformation, superficial information processing, privacy risks, cyberbullying, and unethical online behavior. Many learners lack the critical skills necessary to evaluate information sources, respect intellectual property, and communicate responsibly. Consequently, digital citizenship education has emerged as a crucial educational priority, focusing on ethical awareness, digital safety, respectful communication, and informed participation in digital environments (Thai Media Fund, 2017).

Based on teaching experience in an upper primary digital citizenship course, the researcher identified persistent gaps in students' digital literacy, responsible technology use, and creative problem-solving skills. To address these challenges, this study proposes an instructional approach based on the IKEAS Model, designed to foster creativity, ethical awareness, data privacy protection, and critical judgment in online communication. Grounded in Guilford's (1950) theory of creativity, which conceptualizes creativity as multidirectional and process-oriented thinking, this study seeks to provide empirical evidence on effective pedagogical strategies for promoting creative and responsible digital citizenship among primary school students.

Research Objectives

1.To examine the effectiveness of learning management based on the IKEAS Model on the creativity of Grade 6 students.

2.To develop the creativity of Grade 6 students through learning activities based on the IKEAS Model.

3.To assess the learning attitudes of Grade 6 students toward learning through the IKEAS Model at the Demonstration School of SuanSunandha Rajabhat University.

1.1 Research Hypotheses

1.1.1 The creativity of Grade 6 students in the subject of Computational Science on the topic of Digital Citizenship, taught using the IKEAS Model, is significantly higher after instruction than before instruction.

1.1.2 Instructional activities based on the IKEAS Model (Inspiration, Knowledge, Exploration, Application, and Sharing) significantly enhance students' creativity.

1.1.3 Students demonstrate positive attitudes toward instructional activities implemented through the IKEAS Model in the subject of Computational Science at a high level

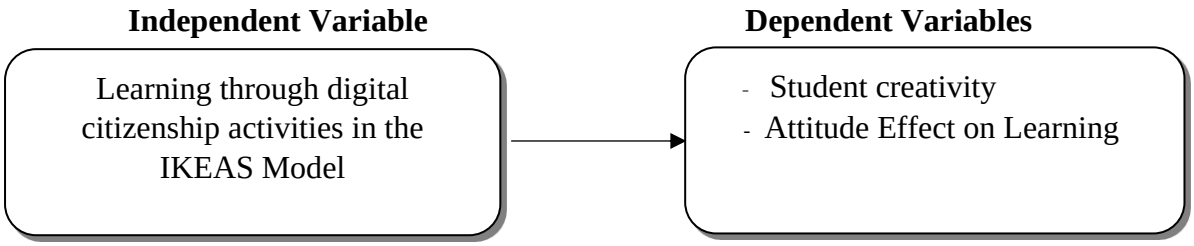
1.2 Conceptual Framework of the Research

Creativity is conceptualized based on Torrance's (1988) theory, which identifies creativity as comprising four core components: fluency, flexibility, originality, and elaboration. These components serve as the key indicators for assessing students' creativity in this study.

Interactive is an interactive medium that allows users to interact directly with what's in front of them. This creates participation and obtains various information through the effective use of text, image, video, and audio media between users and the program system, which helps to learn.

IKEAS Model Focus on developing learners' skills and knowledge through a well-structured process. It is divided into 5 main stages: Inspiration, brainstorming about social problems encountered by the media that can be solved, using digital creatively, Knowledge, and developing skills to create knowledge. Exploration Appropriate content and tools Experiment with simple application problem-solving and creative thinking skills, and Sharing to develop communication skills, collaboration, and listening to the opinions of others

Figure1: Research Conceptual Framework



1.3 Research Questions

1.3.1 To what extent are the IKEAS Model activities effective in developing creative thinking among Grade 6 students?

1.3.2 Do students who learn through digital citizenship activities based on the IKEAS Model demonstrate significantly higher levels of creative thinking after the intervention than before it?

1.3.3 The IKEAS Model activities are effective in developing the creativity of Grade 6 students. How?

2. Research Methodology

This research is a quasi- experimental research with a One Group Pretest- Posttest Design model with pre- and post- experimental measurements. Using statistics, data analysis uses percentages, mean scores, and standard deviations (S.D.). Determine the performance of the E1/E2 instrument according to the 80/80 criteria and the hypothesis test statistics with the t-test for dependent Samples

2.1 Population and Sample

Population

2.1.1 Population: Grade 6 students, academic year 2025, Demonstration School of Suan Sunanda Rajabhat University 99 people

2.1.2 The sample for this study comprised 33 Grade 6 students from the 2025 academic year at the Demonstration School of Suan Sunandha Rajabhat University. The participants were selected using purposive sampling.

Variables studied The variables used in this research are:

1. Initial variable: Learning management with the IKEAS Model Additional Courses: Computational Science

2. Variables based on students' academic creativity and the effect of attitudes towards learning

2.2 Research tools

2.2.1 Prepare 20 Torrance Tests of Creative Thinking.

2.2.2 Attitude Assessment Questionnaire Estimate 5 levels according to the Likert Scale (2000 : 90-98) by defining the range into 5 levels

instructional Process Based on the IKEAS Model

2.3 Research Instruments

The research instruments were developed by the researcher and consisted of the following components:

2.3.1 A pre-test and post-test designed for measure students' digital citizenship and creativity before and after instruction. The creativity assessment was adapted from the Torrance Tests of Creative Thinking (TTCT).

2.3.2 Learning activities structured according to the IKEAS Model (Inspiration, Knowledge, Exploration, Application, and Sharing) to systematically promote creativity and digital citizenship competencies.

Creation of the tool by the researcher

This study employed a research-based instructional design to develop and evaluate digital citizenship learning through the IKEAS Model. The researcher constructed assessment tools to measure digital citizenship competencies before and after instruction, integrating the Torrance Tests of Creative Thinking to assess learners' creative thinking development. The instructional process was structured around the IKEAS framework, emphasizing both cognitive and practical engagement.

The learning process began with **Inspiration (I)**, motivating students to recognize the relevance of digital citizenship in their daily lives through guided discussions and reflective questioning. In the **Knowledge (K)** phase, students learned safe and ethical social media practices, with a strong focus on personal rights, privacy protection, and responsible online behavior. The **Exploration (E)** stage emphasized hands-on participation, where learners collaboratively engaged in digital creation activities, including creatively designing posters using the Canva platform. In the **Application (A)** phase, students applied their knowledge through curated digital learning resources, reinforcing safe digital practices and computational thinking skills. Finally, the **Share (S)** stage encouraged learners to present their work and exchange knowledge with peers via online platforms such as Padlet, promoting collaborative learning and digital communication skills.

2.4. Data Collection

was conducted systematically through multiple methods. Students completed creativity and digital citizenship quizzes before and after instruction, participated in interactive digital learning activities, and underwent progress assessments every two weeks for a total of four sessions. Learning outcomes were recorded and analyzed using the IKEAS Model evaluation framework to determine instructional efficiency (E1/E2). The results provided empirical evidence of improved creative thinking, responsible digital behavior, and effective learning management aligned with international digital citizenship standards.

3. Data Analysis

The data were analyzed using appropriate statistical methods. The quality and instructional alignment of the IKEAS Model were evaluated using descriptive statistics, including

percentage, mean, and standard deviation (S.D.) and the effectiveness of the learning activities was determined by calculating the E1 / E2 efficiency index, based on the established standard criterion of E1/E2 ≥ 80/80.

4. Results

4.1 This research Creativity learning management through digital citizenship activities with the IKEAS Model Creativity by comparing the average scores. Before and after classes It was found that the creativity test before and after the experiment Digital Citizenship with the IKEAS Model of Grade 6 Students The average score was 3.79 and 9.21 respectively. It was found that the students' post-school test scores were significantly higher than before the class

4.2 The effectiveness of learning management through digital citizenship activities using the IKEAS Model, as assessed by in-process and post-instruction evaluations, among Grade 6 students at the Demonstration School of Suan Sunandha Rajabhat University was 78.11/88.48 according to the established efficiency criterion.

4.3 The results of the attitude assessment indicated that students who participated in digital citizenship activities using the IKEAS Model demonstrated responsible and safe use of technology. The students showed high levels of interest and enthusiasm in receiving information, were able to develop creative uses of technology, and acted as positive role models for others. Overall, the attitude assessment revealed a high mean score (M = 4.91, SD = 0.08).

5. Conclusion

This study demonstrates that media and social media literacy, when systematically integrated with digital citizenship learning activities, plays a critical role in strengthening learners' cognitive, creative, and ethical capacities in the digital era. The findings from higher education research at Suan Sunanda Rajabhat University indicate that students possess a high level of media literacy utilization in social media contexts ($\bar{X}$ = 4.23, S.D. = 0.46). This reflects their strong ability to critically analyze online content, recognize digital risks, and engage responsibly with social media. Such competencies function as a form of digital self-immunity, enabling learners to protect themselves from misinformation, online deception, and unethical digital practices.

In parallel, the experimental results from Grade 6 students at the Suan Sunanda Rajabhat University Demonstration School further confirm the effectiveness of digital citizenship activities implemented through the IKEAS Model. The significant improvement in post-test scores (M = 9.21) compared to pre-test scores (M = 3.79) highlights a marked enhancement in creative thinking skills. These outcomes align closely with UNESCO's digital citizenship framework, which emphasizes creativity, ethical engagement, and responsible participation in digital environments. Moreover, the efficiency of the learning management process (78.11/88.48) demonstrates that the IKEAS Model provides a structured and effective approach to fostering creative learning through digital citizenship.

Additionally, the analysis of students' learning attitudes reveals a very positive disposition toward the responsible and safe use of digital technology. Students not only developed awareness of ethical digital behavior but also demonstrated readiness to apply these principles in daily life, positioning themselves as positive digital role models within their learning communities. This attitudinal development underscores the importance of integrating affective

and behavioral dimensions into digital citizenship education, rather than focusing solely on technical skills.

In conclusion, the integration of media literacy and creative digital citizenship learning across educational levels provides a comprehensive pathway for developing informed, creative, and responsible digital citizens. The evidence from both higher and basic education contexts suggests that well-designed digital citizenship curricula can effectively enhance learning achievement, attitudes, and self-protective digital competencies. These findings offer valuable implications for curriculum development, instructional design, and educational policy, supporting the advancement of sustainable digital citizenship education in alignment with international standards.

Suggestion

1. Teaching Development through Digital Citizenship Activities with the IKEAS Model and Other Courses In the Demonstration School of Suan Sunanda Rajabhat University. Creating learning activities that promote positive behaviors necessary to live kindly and respectfully for each other. to benefit learners even more.

2. Activities can be organized in the form of the IKEAS Model with other grade levels. Apply knowledge in real life to become a quality and socially responsible digital citizen to be used appropriately in daily life

Acknowledgment

This research owes its success to the contributions of many people. Most appreciations go to those experts for their advice and also to Suan Sunandha Rajabhat University for their valuing this research and funding support. Special thanks also go to participating teachers at Demonstration School of Suan Sunandha Rajabhat University for their questionnaire responses. Utilization of the current research results will be ensured.

References

Dtac. (2021). *Internet safety curriculum: Digital citizenship education aims to help children become safe, responsible, and confident digital citizens through appropriate and ethical use of digital technology*. Retrieved July 21, 2024, from https: / / digiworld-th.theparentzone.co.uk/library/

Eric, S., Robert, H., Stephen, F., & Pamela, M. (2017). An investigation of the state of creativity and critical thinking in engineering undergraduates. *Creative Education, 8*(9), 1405–1419.

Guilford, J. P. (1950). Creativity. *American Psychologist, 5*(9), 444– 454. https://design4services.com/concepts/divergent-and-convergent-thinking/

Ministry of Education. (2017). *National education plan B.E. 2560–2579 (2017–2036)*. Bangkok, Thailand: Author.

Office of the National Economic and Social Development Council. (2022). *[National development report]*. Thailand.

Rajannagarindra Institute of Child and Adolescent Mental Health, Department of Mental Health. (2022). *Practical guidelines for the prevention and management of bullying in schools*. Thailand.

Telecommunications Consumer Protection Institute. (2019). *Consumer rights handbook in telecommunications services*. Thailand. Retrieved July 21, 2024, from https://tcp.nbtc.go.th

Thai Health Promotion Foundation. (n.d.). Retrieved from https://www.thaihealth.or.th/

Thai Media Fund. (2017). *Digital citizenship education for children and youth*. Bangkok, Thailand: Author.

Thai Media Fund for Children and Youth. (2019). *Cultivating knowledge and skills of digital citizenship to promote safe technology use among students*. Thailand.

Thairoongrojana, S. (2022). Social media literacy for promoting digital citizenship among university students. *Journal of Buddhist Education and Research (JBER), 7*(3), 156–168. Suan Sunandha Rajabhat University