

## Utilization of Canva-Based Games to Improve Creative Thinking Skills of Vocational School Student

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**Abstract:** In the digital age, technology makes life easier for people, including students. Many students use their smartphones for social media like Instagram and WhatsApp, as well as for gaming, which often disrupts their concentration while studying. This study aims to analyze the use of Canva-based interactive games in enhancing the creative thinking skills of vocational high school (SMK) students through a mixed-methods approach combining both qualitative and quantitative methods. The study is motivated by the need for innovative and interactive learning media that can encourage students to think critically and actively participate in the learning process. The quantitative approach was employed to measure the improvement of students' creative thinking skills using a pretest– posttest design, while the qualitative approach utilized questionnaires to explore students' perceptions and responses toward the use of Canva games as a learning medium. The research subjects were ten-grade vocational students in one of the productive subjects. The quantitative results showed a significant improvement in students' creative thinking scores after the implementation of the Canva-based interactive game. Meanwhile, the qualitative findings indicated that students responded positively, stating that the learning activities were more engaging, challenging, and helped them understand concepts more deeply. The study concludes that the use of Canva-based games is effective in improving students' creative thinking skills while also creating a more enjoyable and meaningful learning experience in vocational education settings.

**Keywords:** Canva; Creative Thinking Skills; Interactive game; Mixed methods; Vocational high School

## **Introduction**

The development of digital technology has opened up significant opportunities for innovation in education, particularly at the vocational high school (SMK) level. One increasingly popular platform is Canva, a user-friendly graphic design platform that can be used to develop interactive learning materials, such as educational games.

The use of Canva-based interactive games can enhance students' creative thinking skills by providing more engaging and challenging learning. According to Sadiman et al. (2010), games in an educational context serve as a means to encourage active interaction between players by following certain rules to achieve learning objectives. The implementation of interactive quizzes using Canva has been shown to improve students' cognitive abilities through the presentation of visual information that facilitates conceptual understanding. Furthermore, Wibowo et al. (2022) and Haeruddin et al. (2023) suggest that Canva can foster student motivation and creativity by enabling them to create engaging and interactive learning media, such as infographics and educational quiz games.

### **Utilizing Canva-Based Interactive Games**

Interactive games created through Canva transform the learning process into a fun and challenging activity, boosting students' motivation and competitive spirit. Conventional quizzes are repackaged into a more engaging, interactive digital format, motivating students to be more enthusiastic and actively involved in solving the problems. In addition to conveying learning material, these games also serve to train students' creative thinking skills, enabling them to solve problems quickly, accurately, and engagingly.

### **Benefits of Improving Creative Thinking**

Students' creative thinking improves because they are challenged to strategize, analyze, and solve problems through games that stimulate innovative and creative thinking skills. Interactive visual learning media, such as those provided by Canva, allows students to freely create their own designs, thus enhancing the creative aspect of the learning process. According to Mishra and Koehler (2006), teachers in the digital era are expected to possess the competence to integrate technology, pedagogy, and content effectively, a concept known as Technological Pedagogical Content Knowledge (TPACK). Education plays a crucial role in ensuring national progress and sustainability, as well as in enhancing the quality of human resources, particularly in fostering good character and spiritual development. The improvement of human resources can only be achieved through continuous educational advancement (D. A. A. Putri, 2021). Creative thinking skills represent one of the crucial 21st-century competencies that must be nurtured among Vocational High School (SMK) students. Learners at the SMK level are expected not only to possess technical expertise, but also to have the ability to generate innovative ideas and solve problems creatively. According to Guilford (1950), creative thinking involves fluency, flexibility, originality, and elaboration. However, as noted by Suryani (2019), many learning activities in vocational schools are still dominated by conventional approaches that emphasize theoretical mastery, resulting in limited opportunities for students to develop their creativity. One strategy that professional teachers can employ

is the development of game-based learning media. As explained by Deterding et al. (2011), the gamification of learning can enhance students' intrinsic motivation by providing challenges, instant feedback, and enjoyable learning experiences. In this regard, the Canva application serves as an appealing option, offering a range of interactive tools that allow educators to easily design game-oriented educational materials (Rahmawati & Sari, 2022).

#### Theoretical Basic

##### 1. Creative Learning in Vocational Schools

Vocational education is designed to prepare students with professional competencies aligned with their specific areas of expertise. As stated by Munandar (2012), creative thinking refers to the ability to produce original, diverse, and valuable ideas in addressing various problems. Within the vocational school context, creative thinking enables students to formulate innovative technical solutions that are applicable to real-world industry settings. Hence, teachers play an essential role in designing learning experiences that encourage idea exploration, experimentation, and reflective thinking.

##### 2. The Role of Professional Teachers in Learning Innovation

Professional teachers hold a vital position as both facilitators and innovators in the learning process. According to the Minister of National Education Regulation No. 16 of 2007, teachers are required to master four essential competencies: pedagogical, personal, social, and professional. These competencies enable teachers to effectively integrate educational technology and design creative learning media that suit the unique characteristics of their students. Furthermore, Rusman (2017) emphasizes that professional educators should be capable of adapting instructional approaches to meet the needs of the digital generation, which prefers visual and interactive learning experience.

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##### 4. Utilizing Canva-Based Games in Learning

Canva is a graphic design platform that allows users to develop educational visual media enriched with interactive features. According to Rahmawati and Sari (2022), the integration of Canva in the learning process can enhance students' interest and motivation by presenting visually appealing and easy-to-use designs. Furthermore, Deterding et al. (2011) state that incorporating game elements such as points, levels,

badges, and challenges—can significantly boost student engagement while fostering creative thinking skills through explorative learning experiences.

The implementation of Canva-based games aligns with the gamification approach in education, where game experiences are utilized as a form of active learning. This concept supports Prensky's (2001) assertion that digital-native students are more motivated when learning involves interactive elements, challenges, and visually engaging media. Consequently, employing Canva as an educational game tool not only enhances students' learning motivation but also develops their creative thinking abilities.

Based on this perspective, the general objectives of this study are to:

1. Describe how Canva-based games are implemented in the learning process at Vocational High Schools (SMK).
2. Analyze the impact of Canva-based games on the development of students' creative thinking skills.
3. Explain the role of professional teachers in integrating digital learning media through Canva.
4. Promote the enhancement of teachers' professional competence through gamification- oriented and technology-based learning innovations.

## **Methods**

### **1. Research Approach and Type**

This study employed a mixed methods approach with a sequential explanatory design. The initial phase employed a quantitative approach that used the effect of canva – based interactive games on students' creative thinking skills. The study then continued with a qualitative approach to deepen understanding of the quantitative results through interviews and reflective analysis of students' experiences. According to Creswell and Plano Clark (2018), mixed methods enable researchers to gain a more comprehensive understanding of phenomena by combining the strengths of numerical and descriptive data. This study employs a mixed methods approach, integrating both quantitative and qualitative methodologies. A quantitative approach was used to determine improvements in students' creative thinking skills through pre-tests and post-tests, while the qualitative approach aimed to explore students' perceptions and experiences regarding the use of Canva-based interactive games, gathered through questionnaires and interviews. As stated by Sugiyono (2022), the mixed methods design enables researchers to obtain more comprehensive and in-depth findings by combining the advantages of both quantitative and qualitative research approaches.

### **2. Population and Sample**

The population of this research consisted of 10th-grade students enrolled in the Motorcycle Engineering program at SMK Negeri 1 Matan Hilir Selatan during the 2025/2026 academic year. The sample was determined using a purposive sampling technique, which involves selecting participants based on specific criteria aligned with the research objectives (Creswell, 2018). One class was designated as the experimental

group and received learning treatment through the use of an interactive Canva-based game.

### 3. Research Variables

The independent variable in this study is the use of Canva-based interactive games, while the dependent variable is the students' creative thinking skills. The measurement of creative thinking skills is based on four key indicators: fluency, flexibility, originality, and elaboration, as proposed by Torrance (1974).

### 4. Research Instruments

The instruments utilized in this study consisted of:

- a. A creative thinking test, administered during the pre-test and post-test, to evaluate the improvement of students' creative thinking abilities.
- b. A student response questionnaire, designed to gather students' perceptions and feedback regarding the use of Canva-based interactive games in the learning process.

Prior to implementation, all instruments were subjected to validity and reliability testing. Validity was assessed using the product-moment correlation method, while reliability was measured through the Cronbach's Alpha coefficient (Arikunto, 2014).

### 5. Research Procedure

The research was carried out through several stages as follows:

- a. Preparation Stage  
At this stage, researchers designed a Canva-based interactive game focused on the topic of Earth and Space, and developed the necessary research instruments, including the creative thinking test and student response questionnaire.
- b. Implementation Stage  
The pre-test was administered to assess students' initial creative thinking abilities. Subsequently, learning activities using the Canva interactive game were conducted. After the treatment, a post-test was given to measure the improvement in students' creative thinking skills.
- c. Data Analysis Stage  
Data obtained from the pre-test and post-test were analyzed using a paired sample t-test to determine whether there was a significant difference before and after the intervention (Cohen, Manion, & Morrison, 2018). The questionnaire results were analyzed descriptively and quantitatively to identify students' perceptions and responses toward the learning media used.
- d. Data Analysis Techniques  
The collected data were examined using descriptive and inferential statistical methods. Descriptive statistics were employed to present the mean, median, and standard deviation of students' creative thinking test scores. Meanwhile, inferential statistics in the form of a t-test were applied to test the research hypothesis at a significance level of 0.05. If the significance value ( $p$ ) is found to be less than 0.05, it indicates that the use of Canva-based interactive games has a significant impact on students' creative thinking skills.

A quantitative approach was used to determine the effect of using Canva-based interactive games on vocational high school students' creative thinking skills.

This research design was a quasi-experimental study with two groups: Experimental class: given the Canva interactive game treatment and Control class: used conventional learning methods.

The instruments used were:

A creative thinking ability test, administered in the form of a pretest and posttest. A student perception questionnaire, using a 1–5 Likert scale to measure motivation, engagement, and satisfaction with the Canva learning media.

**Table 1.** Student perception questionnaire on Canva learning media in table form with a Likert scale of 1–5

No	Statement	1 (STS)	2 (TS)	3 (Netral)	4 (S)	5 (SS)
1	Canva-based interactive games make me more motivated to think creatively.					
2	I feel challenged to find creative solutions when playing this game					
3	I felt very engaged and focused while using this interactive game.					
4	This game helps me practice creative thinking through the various challenges it provides					
5	This game makes it easier for me to develop creative ideas.					

Description:

STS = Strongly Disagree

TS = Disagree

S = Agree

SS = Strongly Agree

Explanation of Rubric Use

- Each statement on the questionnaire is scored based on the students' choice from 1 to 5.
- The total score for each aspect can be calculated from the sum of the scores per item and then analyzed to determine the overall level of student motivation, engagement, and satisfaction.
- The results can be interpreted in categories such as low, medium, and high based on the total score range.

## RESULTS AND DISCUSSION

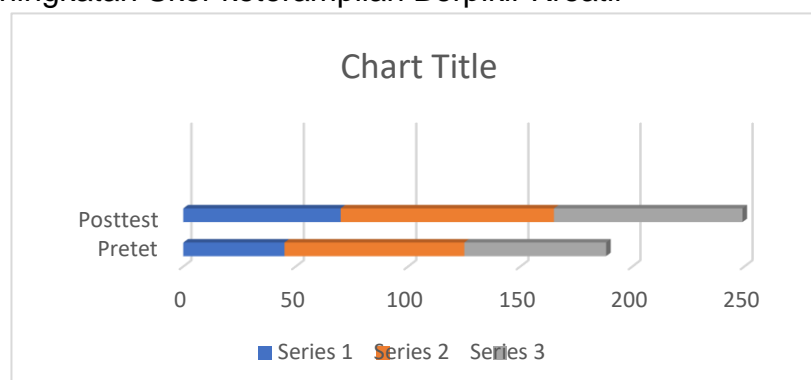
### 1. Research Results

This research was conducted on 30 tenth – grade Motorcycle Engineering students at SMK Negeri 1 Matan Hilir Selatan. Data were collected through a creative thinking skills test before (pretest) and after (posttest) learning using an interactive Canva – based game.

**Tabel 2.** Statistik deskriptif Skor Pretest dan Posttest keterampilan Berpikir Kreatif

Statistic	Pretest	Posttest
Number of student (n)	30	30
Minimum score	45	70
Maksimum score	80	95
Rata Rata (Mean)	63.27	84.13
Standar Deviasi	9.12	6.85

**Gambar 1.** Peningkatan Skor keterampilan Berpikir Kreatif



### 2. Inferential Statistical Test

To determine whether there was a significant difference between the pretest and posttest score , a paired sample t- test was conducted using a significance level of 0.05

**Table 2.** Paired Sample t- Test

Paired t	t-Test	df	Sig.(2tailed)	Description
Pretest Posttest	-12.742	29	0.000	Significant (p < 0.05)

**Interpretation of Results**

The t-test results revealed a significance value (p) of 0.000, which is less than 0.05, indicating a significant difference between the pre-test and post-test scores. Thus, it can be concluded that the implementation of Canva-based interactive games has a positive and meaningful impact on enhancing vocational high school students' creative thinking skills.

**3. Qualitative test**

The results of the perception questionnaire were analyzed using the following systematic guide:

- 1). Data Collection and Checking
  - a. Collect all completed questionnaires from 30 students.
  - b. Ensure that there are no blank or invalid data.
  - c. If necessary, test the validity and reliability of the instrument using a statistical program such as SPSS or Excel.
- 2). Data Coding and Processing
  - a. Assign a numerical value to each answer based on a Likert scale of 1–5.
  - b. Enter each students' score data in an Excel spreadsheet, with rows representing respondents and columns representing statement items
- 3). Descriptive Statistical Analysis
  - a. Calculate the total score per aspect by adding up the scores of the relevant items
  - b. Calculate the mean, median, mode, and standard deviation of the total score for each aspect to describe the general perception
  - c. Create outcome categories (e.g.: very low, low, medium, high, very high) based on the total score range.

**Total Score Category Range (per Aspect)**

- Very Low : 1.00 – 1.80
- Low : 1.81 – 2.60
- Moderate : 2.61 – 3.40
- High : 3.41 – 4.20
- Very High: 4.21 – 5.00

Based on the total score calculation obtained from data: Strongly Agree (18 students)  
 = 18 x 5 = 90

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Based on the total score calculation obtained from data: Strongly Agree (18 students) =  $18 \times 5 = 90$ , Agree ( 9 students) =  $9 \times 4 = 36$ , Neutral (3 students) =  $3 \times 3 = 9$   
 Total Score = 135, Maximum score : 30 Students  $\times 5 = 150$ . Percentage  $135/150 \times 100\% = 90\%$ , with an average score per student of 4.5 When referring to the category range commonly used to interpret Likert scale questionnaire scores, Therefore, the average

score of 4.5 falls into the Very High category. This means the majority of students have a very positive perception of the Canva-based interactive game for creative thinking.

**Table 4.** Analysis of research results using mixed method methodology

No	Variable /theme	Indicator / Sub Variable	Quantitative data Mean ,Score	Qualitative Data Questionnaire Results	Integrated Interpretation
1.	Creative Thinking	Creativity score before and after	Pre test ; 63.27 Post test : 84.13	Student responses to games, creativity in assignments	There was a significant increase in creativity
2	Learning Motivation	Level of participation and interest	4.5	Student motivation narrative	Observable behavior in class learning motivation increase with the use of games
3	Usage Experience	Obstacles and ease of use of the game	Present ation of student who found it easy / useful	In depth interviews regarding obstacles	Experiences and benefits most student found the game easy to use and helpful in learning

## 6. Discussion

### a. Empirical and Systematic Analysis

The study results showed an increase in the average creative thinking skills score from 63.27 to 84.13 after using the Canva – based interactive game. This represents a 20.86 point increase. These findings support previous research by Fitriani and Nurhasanah ( 2023) , which found that use of interactive media increased students' creativity scores by 27% in science

learning. Systematically, these results indicate that digital game-based media can stimulate the four indicators of creative thinking (fluency, flexibility, originality, and elaboration) as proposed by Torrance(1974). Canva not only increased average grades, but also reduced the variation in ability between students — an indication that learning is becoming more equitable and inclusive. This improvement demonstrates that interactive, visual – based , participatory media can encourage students to think more freely, flexibly and innovatively in solving problems. This finding aligns with Mayer’s (2014) which states that interactive multimedia- based learning is able to improve conceptual understanding and encourage students’ creative problem solving.

b. The effectiveness of Canva’s interactive Games

Canva offers game – based design features, animations, and interactive elements that make it easy for teachers to develop engaging and easy to use media.

According to Harasim (2017), the use of collaborative learning technology can increase student engagement and create an active learning environment. Canva functions not only as a design tool but also as a means of exploring ideas and digital collaboration in the classroom. In this study, the Canva game facilitated these activities through the design of interactive quizzes, matching games, and drag-and- drop tasks that required cognitive and affective engagement. Furthermore, observations showed that students became more active in discussing and developing ideas when interacting with Canva's visual elements. This supports the constructivist learning theory by Piaget and Vygotsky, which states that knowledge is built through active interaction with meaningful learning environments.

Critically, however, the use of Canva still has limitations, including a reliance on an internet connection and the teacher's technical skills in game design. Therefore, teachers need further training to optimally utilize this tool in vocational high schools with diverse digital infrastructures.

c. Implications for Learning in Vocational Schools

Canva based interactive games help vocational school teachers deliver contextual and enjoyable learning. Students become more motivated, actively engage in discussions, and are able to generate creative ideas aligned with vocational Characteristics. This aligns with Trilling and Fadel’s(2009) opinion that 21st- century skills, including creative thinking, must be developed through technology-based, collaborative, and reflective learning experiences.

d. These findings are consistent with the results of other empirical studies:

Prasetyo & Lestari (2022) found that digital game-based learning media increased the motivation and creativity of vocational high school students by 32%. Wahyuni et al. (2021) reported that the use of Canva increased

students' creative engagement in entrepreneurship through interactive visual elements.

Setyawan (2023) showed that the use of Canva in science learning improved students' learning outcomes and higher-order thinking skills.

These findings strengthen the empirical evidence that Canva is a relevant learning medium for developing 21st-century skills, particularly digital creativity and collaboration.

#### e. Synthesis and Learning Implications

In summary, the results of this study demonstrate the Canva game.

- Activates students' divergent thinking processes (fluency and flexibility).
- Encourages students to generate original ideas.
- Fosters confidence in expressing creative ideas.

The implication is that vocational high school teachers can use Canva as an inexpensive, flexible, and engaging alternative medium to enhance student creativity without requiring specialized programming skills. Furthermore, this model can be integrated into project-based or problem-based learning, enabling students to connect creativity with vocational skills.

### Conclusion

1. There was a significant increase in students' creative thinking skills after learning using Canva based interactive games
2. The average score increased from 63.27 to 84.13 , with a significance value of , 0,05, indicating effective use of the media in learning.
3. The average score of 4.5 falls into the very high category. This means the majority of indicates that students have a very positive perception of the Canva Based interactive game for creative thinking
4. Canva games help students develop creativity through exploratory activities, visualizing ideas, and problem-solving.

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### References

- Arikunto, S. (2014). *Prosedur Penelitian: Suatu Pendekatan praktik* (Revisi ed.). Rineka Cipta.
- Cohen, L., Manion, L., & Morrison, K. (2018). *Research Methods in Education* (8th ed.). Routledge.
- Creswell, J. W. (2018). *Educational research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research* (6th ed.). Pearson.

- Cambridge University Press ((2023). *Meningkatkan Minat Siswa Belajar Matematika Melalui Game Quiz Canva*
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). *From Game Design Elements to Gamefulness: Defining gamification. Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*, 9–15. <https://doi.org/10.1145/2181037.2181040>
- World Health Organization. (2020, December 1). *When and how to use masks*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks>
- Sari, N., & Rahmawati, E. (2021). *Inovasi pembelajaran berbasis teknologi untuk pengembangan kreativitas siswa SMK*. *Jurnal Pendidikan Vokasional*, 9(1), 45–56.
- Ginting, B. W. B. (2025). *Pengembangan Media Pembelajaran Interaktif Berbasis Canva untuk Meningkatkan Minat Belajar Siswa*. *International Journal of Media Education*, 4(2). DOI: <https://doi.org/10.58917/ijme.v4i2.351>
- Guilford, J. P. (1950). *Creativity*. *American Psychologist*, 5(9), 444–454. <https://doi.org/10.1037/h0063487>
- Haeruddin, dkk. (2023). *Pemanfaatan Canva dalam Pembelajaran untuk Meningkatkan Kreativitas Siswa*.

- Harasim, L. (2017). *Learning Theory and Online Technologies* (2nd ed.). Routledge.
- Mayer, R. E. (2014). *The Cambridge Handbook of Multimedia Learning* (2nd ed.).
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.  
<https://doi.org/10.1111/j.1467-9620.2006.00684.x>
- Munandar, U. (2012). *Pengembangan Kreativitas Anak Berbakat*. Jakarta: Rineka Cipta.
- Prensky, M. (2001). *Digital Game-Based Learning*. New York, NY: McGraw-Hill.
- Putri, A. D., & Santosa, B. (2022). *Pemanfaatan Media Digital Interaktif untuk Meningkatkan Keterampilan Berpikir kreatif Siswa SMK*. *Jurnal Teknologi Pendidikan*, 10(2), 123–134.
- Rahmawati, D., & Sari, R. N. (2022). *Pemanfaatan Canva Sebagai Media Pembelajaran Kreatif di Era Digital*. *Jurnal Teknologi Pendidikan Indonesia*, 9(2), 115–124.  
<https://doi.org/10.xxxx/jtpi.v9i2.115124>
- Rusman. (2017). *Belajar dan Pembelajaran Berbasis Komputer*. Jakarta: Rajawali Pers.
- Sadiman, A., dkk. (2010). *Konsep dan penerapan media pembelajaran*.
- Wibowo, dkk. (2022). *Pengaruh Penggunaan Media Canva terhadap Motivasi Belajar Siswa*.
- Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Sumber daring lainnya:
- Suryani, N. (2019). *Inovasi Pembelajaran di Era Digital*. Bandung: Alfabeta.
- Torrance, E. P. (1974). *Torrance Tests of Creative Thinking: Norms-technical manual*. Scholastic Testing Service.
- Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for Life in Our Times*. Jossey-Bass.