

## THE EFFECT OF GAMIFICATION LEARNING ON STUDENT MOTIVATION AND LEARNING OUTCOMES

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### Abstrak

Kemajuan teknologi digital menuntut diterapkannya strategi pembelajaran yang inovatif agar dapat meningkatkan motivasi serta capaian hasil belajar mahasiswa. Salah satu strategi yang telah banyak dikembangkan ialah pembelajaran gamifikasi, yaitu pendekatan yang mengintegrasikan unsur-unsur permainan ke dalam kegiatan pembelajaran. Penelitian ini bertujuan untuk mengkaji pengaruh pembelajaran gamifikasi terhadap motivasi dan hasil belajar mahasiswa Program Studi Bisnis *Digital* pada mata kuliah *Digital Marketing*. Penelitian menggunakan pendekatan kuantitatif dengan metode quasi experiment melalui rancangan *Pretest–Posttest Control Group Design*. Jumlah sampel sebanyak 60 mahasiswa, yang dibagi menjadi kelompok eksperimen dan kelompok kontrol dengan teknik *cluster random sampling*. Instrumen penelitian meliputi kuesioner motivasi belajar yang disusun berdasarkan ARCS *Motivation Model* serta tes hasil belajar. Analisis data dilakukan menggunakan statistik deskriptif, uji normalitas, uji homogenitas, uji beda rata-rata berpasangan, uji beda rata-rata tidak berpasangan, serta ukuran efek (*Cohen's d*). Hasil penelitian menunjukkan bahwa pembelajaran gamifikasi memberikan pengaruh yang positif dan signifikan terhadap motivasi belajar maupun hasil belajar mahasiswa ( $p < 0,05$ ). Kelompok eksperimen mengalami peningkatan motivasi dan hasil belajar yang lebih tinggi dibandingkan kelompok kontrol, dengan nilai ukuran efek berada pada kategori sangat besar. Oleh karena itu, pembelajaran gamifikasi terbukti efektif dalam meningkatkan motivasi dan hasil belajar mahasiswa pada pembelajaran *Digital Marketing*.

**Kata kunci:** Gamifikasi; Motivasi Belajar; Hasil Belajar; Pemasaran Digital; Pendidikan Tinggi.

### Abstract

The advancement of digital technology demands the implementation of innovative learning strategies to improve student motivation and learning outcomes. One strategy that has been widely developed is gamification learning, an approach that integrates game elements into learning activities. This study aims to examine the effect of gamification learning on the motivation and learning outcomes of students in the Digital Business Study Program in the Digital Marketing course. The study used a quantitative approach with a quasi-experimental method through a *Pretest–Posttest Control Group Design*. The sample size was 60 students, who were divided into an experimental group and a control group using a cluster random sampling technique. The research instruments included a learning motivation questionnaire

compiled based on the ARCS Motivation Model and a learning outcome test. Data analysis was carried out using descriptive statistics, normality tests, homogeneity tests, paired mean difference tests, unpaired mean difference tests, and effect sizes (Cohen's *d*). The results showed that gamification learning had a positive and significant effect on student motivation and learning outcomes ( $p < 0.05$ ). The experimental group experienced a higher increase in motivation and learning outcomes than the control group, with the effect size value being in the very large category. Therefore, gamification learning has proven effective in increasing student motivation and learning outcomes in Digital Marketing learning.

**Keywords:** Gamification; Learning Motivation; Learning Outcomes; Digital Marketing; Higher Education.

## **Introduction**

The rise of digital technology has brought about considerable changes in teaching techniques at universities. These improvements inspire instructors to employ more innovative, interactive, and student-centered teaching practices to improve the quality of the learning process and outcomes. Traditional teaching approaches, which still rely on lectures, can hinder students from actively engaged in the learning process. This condition relates to low learning motivation, limited participation in lectures, and inadequate academic accomplishment (Govindarajoo, 2022). Therefore, learning methods are needed that can offer engaging learning experiences and also stimulate active student participation.

Gamification is one approach that is emerging in the realm of education. Gamification is the process of incorporating game elements—such as points, badges, leaderboards, challenges, prizes, and feedback—into an educational setting without changing the main learning goals. Increasing students' intrinsic and extrinsic motivation and motivating them to actively engage in every learning activity is the aim of including these game features (Su & Cheng, 2015). Gamification not only makes learning enjoyable, but it also makes learning more important by encouraging healthy competition, teamwork, and acknowledging students' accomplishments.

According to theory, learning motivation is a psychological component that significantly influences academic achievement. Students that are highly motivated are more likely to be focused, persistent, and to work more on their academic assignments, which may result in greater learning results. On the other hand, low learning motivation is frequently linked to low attendance rates, low competence accomplishment, and little student involvement in the learning process (Finn & Zimmer, 2012). Enhancing learning motivation is therefore a crucial factor to take into account when creating instructional tactics at universities.

Numerous earlier research have demonstrated that gamification has a beneficial impact on learning. According to some research, gamification can improve student-teacher relationships, boost learning motivation, and make learning more pleasurable. Because students are motivated to finish each learning task progressively through an established incentive system, other research also demonstrates that gamification enhances learning results (Syed Khuzzan et al., 2021). Nevertheless, the majority of current research concentrates on how gamification affects a specific variable, such learning motivation or learning outcomes independently. Additionally, the majority of current research is done at the elementary and secondary school levels or concentrates only on the usage of certain gamification software without examining how gamified learning affects university students' emotional and cognitive

elements.

Research on the efficacy of gamified learning in concurrently enhancing student motivation and learning outcomes is still lacking, according to the literature study. Because learning motivation and learning outcomes are interconnected elements that impact the effectiveness of the educational process, research that integrates these two factors is crucial (Eom & Ashill, 2018). The efficacy of gamification implementation may be assessed more thoroughly and a more complete picture of its contribution to the quality of education at universities can be obtained by looking at both elements at the same time. The uniqueness of this research lies in examining the impact of gamified learning on student learning motivation and academic outcomes simultaneously in a higher education setting. This research not only focuses on increasing learning motivation as an affective factor but also assesses learning outcomes as a measure of academic competency achievement, thus providing more comprehensive empirical evidence on the effectiveness of gamified learning.

In light of this, the study topics include whether gamified learning influences students' motivation to learn, how gamified learning affects students' learning outcomes, and if gamified learning implementation may successfully raise student motivation and learning outcomes. The research hypothesis, which is based on these questions, asserts that gamified learning significantly and favorably affects student learning outcomes and motivation.

This study aims to examine how gamified learning affects student motivation, assess how gamified learning affects student learning outcomes, and gather empirical data about how well gamified learning enhances student motivation and learning outcomes in higher education. It is intended that the results of this study can serve as a reference in establishing novel learning techniques that can improve the quality of the learning process and promote the accomplishment of optimal student learning outcomes.

## Methods

This study used a pretest-posttest control group design using a quantitative, quasi-experimental methodology. The impact of gamified learning on student learning motivation and learning results both before and after the therapy was examined using this design. While the control group received traditional instruction, the experimental group received gamification-based instruction. Tables 1 presents the research design.

**Tables 1. Research Design**

| Group      | Pretest        | Treatment | Posttest       |
|------------|----------------|-----------|----------------|
| Experiment | O <sub>1</sub> | X         | O <sub>2</sub> |
| Control    | O <sub>3</sub> | -         | O <sub>4</sub> |

Description: X = gamification learning.

Gamified learning is the study's independent variable, while student learning motivation and learning results are its dependent factors. All students enrolled in the Digital Business Study Program who were enrolled in the Digital Marketing course during the even semester of the 2025–2026 academic year made up the study population. Two classes of thirty students each were produced by using a cluster random sampling technique. 60 students made up the total sample size, which was split into an experimental group and a control group.

Eight sessions were used to provide the therapy. Throughout the learning process, the

experimental group used a gamified method that included a point system, badges, leaderboards, challenges, objectives, prizes, and direct feedback, among other game aspects. Conventional education was provided to the control group through lectures, presentations, Q&A sessions, and group discussions. A learning outcome exam and a learning motivation questionnaire made up the study tools. The five indications of Keller's ARCS Motivation Model—attention, relevance, confidence, satisfaction, and engagement—were the basis for the creation of the learning motivation questionnaire. Twenty items on a five-point Likert scale, with 1 denoting "strongly disagree" and 5 denoting "strongly agree," made up the instrument. A 30-item multiple-choice objective exam encompassing topics in digital marketing, search engine optimization (SEO), content marketing, social media marketing, digital advertising, e-commerce, and digital strategy analysis was used to assess learning results. The number of right responses was used to produce learning outcome scores, which were then transformed to a scale of 0–100.

Before being used in the main study, all instruments were pre-tested on 30 students outside the study sample to determine their validity and reliability. The content validity test showed an Aiken's V of 0.92, indicating a very high level of validity. Furthermore, the reliability test showed a Cronbach's alpha coefficient of 0.931 for the learning motivation questionnaire and 0.907 for the learning outcome test, thus declaring all instruments valid and reliable for use in the study.

Data analysis was performed using IBM SPSS Statistics version 26. The analysis stages included descriptive statistics to describe the characteristics of the data, normality tests using Shapiro–Wilk, homogeneity of variance tests using Levene's Test, paired sample t-tests to analyze differences in scores before and after treatment in each group, and independent sample t-tests to compare the results between the experimental group and the control group. In addition, the magnitude of the effect of the implementation of gamification learning was analyzed using Cohen's d (effect size). All statistical tests were performed at a significance level of  $\alpha = 0.05$ .

## Results and Discussion

### Research Results

**Tables 2. Descriptive Statistics of Learning Motivation**

| Group      | N  | Pretest (Mean $\pm$ SD) | Posttest (Mean $\pm$ SD) | Improvement |
|------------|----|-------------------------|--------------------------|-------------|
| Experiment | 30 | 71.80 $\pm$ 6.42        | 87.23 $\pm$ 5.14         | 15.43       |
| Control    | 30 | 72.13 $\pm$ 6.28        | 78.10 $\pm$ 5.93         | 5.97        |

The average student learning motivation rose in both groups, as Tables 2 demonstrates. The experimental group had a gain of 15.43 points, whereas the control group only rose by 5.97 points.

**Tables 3. Descriptive Statistics of Learning Outcomes**

| Group | N | Pretest (Mean $\pm$ SD) | Posttest (Mean $\pm$ SD) | Improvement |
|-------|---|-------------------------|--------------------------|-------------|
|-------|---|-------------------------|--------------------------|-------------|

|            |    |              |              |       |
|------------|----|--------------|--------------|-------|
| Experiment | 30 | 60.90 ± 8.57 | 86.70 ± 5.26 | 25.80 |
| Control    | 30 | 61.43 ± 8.61 | 75.90 ± 6.80 | 14.47 |

Following the learning process, both groups' learning results increased, as Tables 3 demonstrates. Nonetheless, compared to the control group, the experimental group's progress was greater.

**Tables 4. Results of Normality Test (Shapiro–Wilk)**

| Variables                  | Group      | Statistics | Sig.  | Information |
|----------------------------|------------|------------|-------|-------------|
| Pretest Motivation         | Experiment | 0.965      | 0.344 | Normal      |
| Posttest Motivation        | Control    | 0.958      | 0.279 | Normal      |
| Pretest Motivation         | Experiment | 0.972      | 0.487 | Normal      |
| Posttest Motivation        | Control    | 0.961      | 0.326 | Normal      |
| Pretest Learning Outcomes  | Experiment | 0.949      | 0.194 | Normal      |
| Posttest Learning Outcomes | Control    | 0.956      | 0.287 | Normal      |
| Pretest Learning Outcomes  | Experiment | 0.969      | 0.418 | Normal      |
| Posttest Learning Outcomes | Control    | 0.967      | 0.391 | Normal      |

The data is regularly distributed since all significance values are higher than 0.05.

**Tables 5. Results of the Homogeneity Test (Levene's Test)**

| Variables           | F     | Sig.  | Information |
|---------------------|-------|-------|-------------|
| Motivation to learn | 0.181 | 0.672 | Homogeneous |
| Learning outcomes   | 0.291 | 0.591 | Homogeneous |

Because the significance value is higher than 0.05, the homogeneity test findings demonstrate that the variance of the two groups is homogenous.

**Tables 6. Paired Sample t-test results**

| Group      | Variables         | Mean Difference | t     | Sig.  | Information |
|------------|-------------------|-----------------|-------|-------|-------------|
| Experiment | Motivation        | 15.43           | 13.42 | 0,000 | Significant |
| Control    | Motivation        | 5.97            | 5.84  | 0,000 | Significant |
| Experiment | Learning outcomes | 25.80           | 19.37 | 0,000 | Significant |
| Control    | Learning outcomes | 14.47           |       | 0,000 | Significant |

Based on Tables 5. all significance values are less than 0.05 so there is a significant increase after learning in each group.

**Tables 7. Results of the Independent Sample t-test**

| Motivation to learn |       |                   |                  |                   |
|---------------------|-------|-------------------|------------------|-------------------|
| Group               | Mean  | Elementary School | t                | Sig.              |
| Experiment          | 87.27 | 5.14              | rowspan = 2 6.41 | rowspan = 2 0.000 |
| Control             | 78.10 | 5.93              |                  |                   |
|                     |       |                   |                  |                   |
| Learning outcomes   |       |                   |                  |                   |
| Group               | Mean  | Elementary School | t                | Sig.              |
| Experiment          | 86.70 | 5.26              | rowspan = 2 6.85 | rowspan = 2 0.000 |
| Control             | 75.90 | 6.80              |                  |                   |

The learning outcomes and learning motivation factors differed significantly between the experimental and control groups ( $p < 0.05$ ), according to the findings of the independent sample t-test.

**Table 8. Effect Size (Cohen's d)**

| <b>Variables</b>    | <b>Cohend's</b> | <b>Interpretation</b> |
|---------------------|-----------------|-----------------------|
| Motivation to learn | 1.59            | Very large            |
| Learning outcomes   | 1.74            | Very large            |

The use of gamified learning has a significant impact on student learning motivation and learning results, according to Cohen's d value.

Overall, the study's findings show that gamified learning outperforms traditional learning. Learning motivation increased by 15.43 points for the experimental group and only by 5.97 points for the control group. In terms of learning outcomes, the experimental group had a gain of 25.80 points, whereas the control group saw an increase of 14.47 points. With a significant value of  $p < 0.001$  and an effect size in the extremely wide range, parametric testing demonstrated that all study hypotheses were accepted. According to these results, gamification components including a point system, badges, leaderboards, challenges, missions, prizes, and feedback can enhance student learning motivation and learning outcomes more successfully than traditional teaching methods.

## Discussion

The results of the study indicate that gamified learning significantly impacted student learning motivation. This was demonstrated by the higher average learning motivation score in the

experimental group compared to the control group, and was further supported by the results of an independent sample t-test, which showed a significant difference between the two groups. These findings indicate that integrating gamification elements into the learning process can create a more engaging, interactive, and challenging learning experience, encouraging students to actively participate throughout the lecture.

The ARCS Motivation Model, created by Keller, (1987), provides an explanation for this rise in learning motivation. According to this concept, four key factors—attention, relevance, confidence, and satisfaction—have an impact on learning motivation. In this study, the use of a point system, badges, leaderboards, challenges, missions, rewards, and feedback was able to draw students' attention while they were learning (attention), make the material more relevant to their learning needs (relevance), boost students' self-confidence by gradually completing challenges (confidence), and provide satisfaction when they were acknowledged for their accomplishments (satisfaction). Students may participate in each learning activity with more excitement when these different components are combined to produce a more favorable learning environment.

This study demonstrates that gamified learning significantly affects student learning outcomes in addition to boosting learning motivation. The experimental group outperformed the control group on the posttest, suggesting that gamified learning enhances students' cognitive skills in addition to their emotional characteristics (Erlangga et al., 2023). This implies that students with strong learning motivation tend to be more engaged in studying, more diligent in completing tasks, and more readily absorb the content, thereby affecting higher learning outcomes. This study demonstrates that gamified learning significantly affects student learning outcomes in addition to boosting learning motivation. The experimental group outperformed the control group on the posttest, suggesting that gamified learning enhances students' cognitive skills in addition to their emotional characteristics (Erlangga et al., 2023). This suggests that students who are highly motivated to study are more likely to engage in active learning, complete assignments with diligence, and comprehend the subject matter more readily, all of which contribute to better learning outcomes.

Constructivist learning theory, which puts students at the center of the learning process, is consistent with these results. In gamified learning, students participate in problem-solving, decision-making, problem-solving, and problem-solving in addition to passively absorbing knowledge (Kassenkhan et al., 2025). Through meaningful learning experiences, these activities help students build their knowledge, which facilitates the understanding and retention of topics in long-term memory. Thus, compared to traditional, lecturer-centered learning, gamified learning can produce a more successful learning experience.

Numerous other research that show gamification can boost student motivation, engagement, and learning achievement corroborate the findings of this study. Numerous studies have found that including game aspects into instruction can boost student engagement because it makes them feel more challenged to meet pre-established learning objectives (Hamari et al., 2016). In addition to offering positive reinforcement, the gamification incentive system motivates students to sustain and even enhance their learning outcomes. As a consequence, the study's findings support the empirical proof that gamification is a successful teaching method for raising the standard of instruction in higher education.

The impact of gamification learning is not only statistically significant but also has substantial practical importance, according to the effect size study results, which fell into the very

big group. According to this research, gamification actually improves student engagement and learning results (Buckley & Doyle, 2016). The size of this impact suggests that gamification components can influence learning behavior more favorably than traditional methods. Pupils become more engaged in class discussions, more motivated to meet learning objectives, and more passionate about finishing homework.

The contribution of this study lies in simultaneously examining the effect of gamification learning on two aspects of learning: learning motivation and learning outcomes of students in the Digital Business Study Program. Unlike some previous studies that focused solely on a single variable or a specific educational level, this study provides a more comprehensive overview of the effectiveness of gamification in improving students' affective and cognitive abilities in higher education. The results of this study enrich the study of the implementation of gamified learning and provide empirical evidence that this strategy can be effectively applied in Digital Marketing courses.

Practically speaking, the study's findings suggest that instructors should create lesson plans that methodically incorporate gamification components in order to boost students' enthusiasm to engage in the learning process. A more engaging and competitive learning environment may be produced by the deliberate use of a points system, badges, leaderboards, challenges, prizes, and feedback. As a result, learning is focused on more than just imparting knowledge; it also boosts student interest and promotes the attainment of the best possible learning results. As a result, gamification may be employed as a pertinent, cutting-edge teaching method to aid in the evolution of higher education in the digital age.

## **Conclusion**

Based on the study's findings, it can be said that gamified learning significantly and favorably affects students' willingness to learn as well as their academic performance in the Digital Business Study Program. In comparison to traditional learning, the use of gamification components—such as a point system, badges, leaderboards, challenges, missions, incentives, and feedback—can boost student engagement during the learning process and enhance learning motivation and outcomes. The substantial effect size suggests that gamified learning has a considerable practical impact on raising the standard of instruction in higher education in addition to being statistically significant.

This research suggests that gamified learning may be employed as an innovative learning technique that supports student-centered learning in the digital era. However, this study is confined to one study program and one course, thus the results cannot be extensively applied. Therefore, more study is required incorporating a bigger sample size, across many disciplines, and integrating an artificial intelligence-based gamification platform or Learning Management System (LMS) to acquire a more comprehensive picture of gamification's usefulness.

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