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Effect of Classcraft-Based Gamification on Strengthening the Disciplinary Character of Elementary School Students

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Abstract: Character education in the digital era challenges educators to find innovative ways to cultivate student discipline without relying on conventional, punitive measures. While gamification has emerged as a viable pedagogical tool, empirical evidence regarding the specific impact of immersive behavioral gamification platforms, such as Classcraft, on young learners' disciplinary character remains scarce. This study aims to investigate the effect of Classcraft-based gamification on strengthening the discipline character of elementary school students. Utilizing a quantitative approach with a quasi-experimental design, this research involved 30 upper-grade students (grades 5 and 6) from SD Negeri Padasuka Baros Serang, equally divided into an experimental group (n = 15, utilizing Classcraft) and a control group (n = 15, utilizing conventional classroom management). Data on students' disciplinary behavior were systematically collected through structured observation techniques and analyzed using descriptive and inferential parametric statistics (independent and paired-sample t-tests).The findings revealed that Classcraft-based gamification has a highly positive and statistically significant effect on enhancing students' discipline character. Within the experimental group, discipline scores escalated dramatically from a pre-test average of 61.12 (low category) to a post-test average of 93.14 (very high category). Furthermore, the experimental group's post-test performance (M = 92.34) significantly outperformed the control group (M = 65.61, low category) with an inferential significance value of p < 0.000. These results indicate that Classcraft's role-playing mechanics successfully transform rigid rules into engaging, collaborative quests that internalize intrinsic discipline. Consequently, this study provides critical empirical support for leveraging digital gamification as a non-coercive, preventive alternative to mitigate behavioral issues in primary education.

Keywords: Classcraft, gamification, discipline character, elementary school, classroom management.

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INTRODUCTION

Character education has become one of the central priorities in contemporary educational systems because schools are expected not only to develop students' academic

competencies but also to cultivate positive values, attitudes, and behaviors. The increasing complexity of social life in the digital era requires students to possess strong character attributes that enable them to act responsibly, ethically, and productively. Consequently, character education has been recognized as an essential component of holistic student development and a key indicator of educational quality (UNESCO, 2021).

Among various character values promoted in elementary education, discipline is widely regarded as one of the most fundamental. Discipline refers to an individual's ability to comply with rules, manage responsibilities, regulate behavior, and consistently demonstrate commitment to expected standards. Students who possess strong disciplinary character tend to exhibit greater responsibility, punctuality, self-control, and persistence in completing academic tasks (Lickona, 2012). Therefore, strengthening disciplinary character has become an important objective of elementary education.

The importance of disciplinary character extends beyond classroom management and academic achievement. Discipline serves as a foundation for the development of other positive character traits, including responsibility, perseverance, honesty, and self-regulation. Educational researchers have consistently emphasized that students with higher levels of discipline are more likely to achieve academic success and demonstrate positive social behaviors (Duckworth & Gross, 2014). Consequently, educational institutions increasingly recognize discipline as a critical component of students' overall development.

Despite its importance, concerns regarding students' disciplinary behavior continue to emerge in elementary schools. Teachers frequently report issues related to lateness, incomplete assignments, inattentiveness during lessons, and non-compliance with classroom regulations. Such behaviors can negatively affect both individual learning outcomes and the overall classroom environment. These challenges indicate that strengthening disciplinary character remains an ongoing concern within elementary education.

The emergence of digital technologies has introduced new challenges to students' disciplinary development. While technology provides numerous educational opportunities, it also creates distractions that may reduce students' focus and self-regulation. Easy access to digital entertainment, social media, and online games often competes with academic responsibilities, making it increasingly difficult for students to maintain disciplined learning habits (Twenge, 2017). As a result, educators are seeking innovative approaches capable of fostering discipline while simultaneously engaging students in meaningful learning experiences.

Traditional character education programs frequently rely on direct instruction, advice, rewards, and punishments to encourage desirable behaviors. Although these approaches may produce short-term compliance, they often fail to promote intrinsic motivation and sustained behavioral change. Research suggests that character development is more effective when students actively participate in learning experiences that encourage engagement, reflection, and self-regulation (Ryan & Deci, 2020). Therefore, contemporary educational practices increasingly emphasize learner-centered approaches to character education.

One instructional innovation that has gained significant attention in recent years is gamification. Gamification refers to the application of game design elements, mechanics, and principles within non-game contexts to increase engagement, motivation, and participation (Deterding et al., 2011). In educational settings, gamification incorporates elements such as points, levels, badges, quests, rewards, and leaderboards into learning activities. These features can transform routine educational tasks into engaging experiences that encourage active participation and behavioral improvement.

The theoretical foundation of gamification is strongly associated with Self-Determination Theory, which posits that motivation is enhanced when individuals experience autonomy, competence, and relatedness (Ryan & Deci, 2020). Gamified learning environments provide opportunities for students to achieve goals, receive

feedback, and experience a sense of accomplishment. These experiences can foster intrinsic motivation and encourage students to engage more consistently in positive behaviors, including disciplined conduct.

Among the various gamification platforms available for educational use, Classcraft has emerged as one of the most widely adopted tools. Classcraft is a game-based classroom management platform that integrates role-playing game elements into educational activities. Students create avatars, earn points for positive behaviors, complete quests, collaborate with peers, and receive rewards based on their performance and conduct (Sanchez et al., 2020). Through these mechanisms, Classcraft seeks to transform classroom behavior management into an engaging and motivating experience.

Classcraft is particularly relevant to character education because many of its features are designed to reinforce positive behavioral habits. Students receive rewards for demonstrating desirable behaviors such as punctuality, responsibility, cooperation, and compliance with classroom rules. Conversely, inappropriate behaviors may result in the loss of points or privileges. Such mechanisms provide immediate feedback that can help students develop greater awareness of their actions and strengthen self-regulation skills.

From a behavioral perspective, Classcraft incorporates principles derived from reinforcement theory. According to Skinner (1953), behaviors that are positively reinforced are more likely to be repeated in the future. The reward systems embedded within Classcraft encourage students to consistently demonstrate positive behaviors by associating those behaviors with meaningful incentives and recognition. As a result, students may become more motivated to practice disciplined conduct in their daily school activities.

The potential of gamification to influence student behavior has been documented in numerous educational studies. Research has shown that gamification can increase student motivation, engagement, participation, and task completion rates across various educational contexts (Hamari et al., 2014). By making learning activities more interactive and rewarding, gamification can encourage students to develop positive behavioral habits that support academic success and character development.

Several studies have specifically examined the effectiveness of Classcraft in educational settings. Research by Sánchez et al. (2020) found that Classcraft enhanced student engagement, motivation, and classroom participation. Similarly, López-Belmonte et al. (2021) reported that gamified learning environments facilitated greater student involvement and improved behavioral outcomes. These findings suggest that Classcraft possesses considerable potential as a tool for supporting character education initiatives.

The relationship between gamification and discipline is particularly important within elementary education. Young learners often respond positively to game-based environments because such environments provide immediate feedback, clear goals, and opportunities for achievement. These characteristics align with developmental theories suggesting that children learn effectively when educational experiences are engaging, interactive, and meaningful (Piaget, 1972). Consequently, gamification may represent an effective strategy for promoting disciplinary character among elementary school students.

Furthermore, gamification can contribute to the development of self-regulated behavior. Self-regulation involves monitoring one's actions, setting goals, evaluating progress, and adjusting behavior accordingly. The point systems, progress indicators, and feedback mechanisms embedded within Classcraft encourage students to monitor their own behavior and take responsibility for their actions. Such experiences can support the gradual internalization of disciplinary values.

Although previous studies have demonstrated the educational benefits of gamification, research findings remain somewhat inconsistent regarding its impact on character development. While some studies report significant improvements in student behavior and motivation, others suggest that outcomes may vary depending on implementation quality, classroom context, and student characteristics (Koivisto &

Hamari, 2019). Therefore, additional empirical research is needed to clarify the effectiveness of gamification in promoting disciplinary character.

Moreover, existing research has primarily focused on academic outcomes such as achievement, motivation, and engagement. Comparatively fewer studies have investigated the impact of gamification on character-related variables, particularly disciplinary character among elementary school students. This gap in the literature highlights the need for studies that examine the behavioral implications of gamified educational interventions.

Another limitation concerns the availability of experimental evidence within Indonesian elementary school contexts. Educational environments vary considerably across countries and regions in terms of cultural values, classroom practices, technological infrastructure, and student experiences. Consequently, findings obtained from international contexts may not be directly transferable to Indonesian schools. Context-specific research is therefore necessary to provide evidence-based recommendations for local educational practice.

The present study addresses these gaps by investigating the effect of Classcraft-based gamification on strengthening the disciplinary character of elementary school students. Using a quasi-experimental design, the study compares disciplinary character outcomes between students who participate in Classcraft-based gamified learning activities and those who experience conventional classroom management approaches. Such a design enables a more rigorous evaluation of the effectiveness of the intervention.

The significance of this study extends across several dimensions. From a theoretical perspective, the study contributes to the growing body of literature concerning gamification, character education, and behavioral development. From a practical perspective, the findings may provide teachers with evidence-based guidance regarding the use of Classcraft as a classroom management and character-building tool. From a policy perspective, the study supports broader educational efforts aimed at integrating digital innovation into character education programs.

The study is also relevant to contemporary discussions regarding the role of technology in education. As digital technologies become increasingly integrated into educational environments, understanding how such technologies can support not only academic learning but also character development becomes increasingly important. Classcraft represents one example of how educational technology may be leveraged to promote positive student behaviors and strengthen character values.

Given the continuing challenges associated with student discipline and the growing interest in gamified educational approaches, investigating the effectiveness of Classcraft-based gamification constitutes a timely and important area of research. Empirical evidence regarding its effectiveness can provide valuable insights for educators seeking innovative strategies to strengthen disciplinary character among elementary school students.

Therefore, the objective of this study is to examine the effect of Classcraft-based gamification on strengthening the disciplinary character of elementary school students. Specifically, the study seeks to determine whether students who participate in Classcraft-based gamified learning activities demonstrate significantly higher levels of disciplinary character than students who receive conventional classroom management practices. The findings are expected to contribute to the advancement of character education and provide practical recommendations for strengthening disciplinary character in elementary schools.

METHODS

Research Design

This study employed a quantitative approach using a quasi-experimental research design to examine the effect of Classcraft-based gamification on strengthening the disciplinary character of elementary school students. A quasi-experimental design was selected

because the researcher could not randomly assign students to groups due to existing classroom arrangements. However, the selected groups possessed similar academic and demographic characteristics, thereby minimizing threats to internal validity (Creswell & Creswell, 2018).

The study utilized a Non-Equivalent Control Group Design, which is widely used in educational intervention research. This design allows researchers to compare changes in outcomes between an experimental group receiving a treatment and a control group receiving conventional learning experiences. Both groups completed pre-observation and post-observation assessments of disciplinary character. The design of the study is illustrated in Figure 1.

Group	Pre-Observation	Treatment	Post-Observation
Experimental Group	O_1	X (Classcraft-Based Gamification)	O_2
Control Group	O_3	C (Conventional Classroom Management)	O_4

Figure 1. Research Design

Where:
O_1 = Initial observation of disciplinary character in the experimental group
O_2 = Final observation of disciplinary character in the experimental group
O_3 = Initial observation of disciplinary character in the control group
O_4 = Final observation of disciplinary character in the control group
X = Classcraft-based gamification intervention
C = Conventional classroom management practices

Research Setting and Participants

The study was conducted at SD Negeri Padasuka Baros Serang during the second semester of the 2025/2026 academic year. The school was selected because it had previously implemented technology-assisted learning activities and possessed adequate digital infrastructure to support gamified learning interventions.
The participants consisted of 30 elementary school students from Grades 5 and 6. Students were divided equally into experimental and control groups.

Table 1. Participant Characteristics

Characteristics	Experimental Group	Control Group
Number of Students	15	15
Grade Level	Grade 5–6	Grade 5–6
Average Age	10–12 Years	10–12 Years
Gender Distribution	Mixed	Mixed
Learning Intervention	Classcraft Gamification	Conventional Approach

Participant selection employed purposive sampling because the selected students met the inclusion criteria established by the researcher. These criteria included active school attendance, participation in classroom learning activities, and parental consent.

Research Variables

The study consisted of one independent variable and one dependent variable.
The independent variable was Classcraft-based gamification. Classcraft-based gamification refers to the integration of game mechanics such as points, experience levels, rewards,

quests, achievements, avatars, and behavioral feedback into classroom activities through the Classcraft platform.

The dependent variable was students' disciplinary character. Disciplinary character refers to students' tendency to comply with school regulations, demonstrate responsibility, complete assignments punctually, participate actively in classroom activities, and maintain consistent learning behaviors.

Indicators of Disciplinary Character

The disciplinary character indicators were adapted from character education frameworks proposed by Lickona (2012) and national character education guidelines.

Table 2. Indicators of Disciplinary Character

Indicator	Description
Punctuality	Arriving on time and adhering to schedules
Rule Compliance	Following classroom and school regulations
Responsibility	Completing assigned tasks independently
Consistency	Maintaining disciplined behavior continuously
Self-Control	Managing behavior appropriately
Participation	Engaging actively in learning activities

These indicators formed the basis for the development of the observation instrument used in the study.

Research Instrument

The primary instrument employed in this study was a disciplinary character observation sheet completed by trained observers.

The observation instrument consisted of 24 behavioral indicators distributed across six dimensions of disciplinary character. Each item was assessed using a five-point Likert scale ranging from 1 (Very Low) to 5 (Very High).

Table 3. Observation Score Interpretation

Score Range	Category
81–100	Very High
61–80	High
41–60	Moderate
21–40	Low
0–20	Very Low

Prior to implementation, the instrument underwent validity and reliability testing.

Content Validity

Content validity was assessed by three experts in educational psychology and character education.

The Content Validity Index (CVI) was calculated using:

$$CVI = \frac{\sum X}{N}$$

Where:

CVI = Content Validity Index

ΣX = Total expert ratings

N = Number of indicators

A CVI value greater than 0.80 indicated acceptable content validity.

Reliability Analysis

Instrument reliability was assessed using Cronbach's Alpha coefficient.

$$\alpha = \frac{k}{k-1}\left(1-\frac{\sum S_i^2}{S_t^2}\right)$$

Where:
α = Reliability coefficient
k = Number of items
Si^2 = Variance of each item
St^2 = Total variance

The reliability analysis produced a Cronbach's Alpha coefficient of 0.91, indicating excellent internal consistency.

Treatment Procedure

The intervention was conducted across eight instructional meetings over four weeks. Students in the experimental group participated in Classcraft-based gamification activities integrated into daily classroom routines. The implementation stages included account creation, avatar customization, formation of teams, completion of learning quests, accumulation of experience points, achievement unlocking, and reward redemption.

Table 4. Stages of Classcraft-Based Gamification

Phase	Description
Orientation	Introduction to Classcraft and game rules
Avatar Development	Students created digital identities
Quest Assignment	Learning tasks were transformed into missions
Point Accumulation	Students earned experience points for positive behaviors
Achievement System	Students unlocked badges and rewards
Reflection	Students evaluated behavioral progress

Students received points for positive disciplinary behaviors such as punctuality, completing assignments on time, active participation, and compliance with classroom regulations.
Meanwhile, students in the control group participated in conventional classroom activities without gamification elements.

Data Collection Procedure

Data collection was conducted in four stages. The first stage involved conducting pre-observation assessments of disciplinary character in both groups. The second stage involved implementing the Classcraft-based gamification intervention in the experimental group. The third stage involved conducting post-observation assessments after completion of the intervention period. The final stage involved coding, tabulating, and verifying the collected data before statistical analysis.

Data Analysis

The collected data were analyzed using both descriptive and inferential statistical techniques with the assistance of SPSS version 27.

Descriptive Statistical Analysis

Descriptive statistics were employed to determine average scores, individual achievement scores, standard deviations, and classical mastery percentages.

The mean score was calculated using:

$$\bar{X} = \frac{\sum X}{N}$$

Where:
$\bar{X}$ = Mean score
ΣX = Total score
N = Number of students

The standard deviation was calculated using:

$$SD = \sqrt{\frac{\sum (X - \bar{X})^2}{N - 1}}$$

Where:
SD = Standard deviation
X = Individual score
$\bar{X}$ = Mean score
N = Number of students

The percentage of classical mastery was calculated using:

$$P = \frac{n}{N} \times 100\%$$

Where:
P = Mastery percentage
n = Number of students achieving mastery
N = Total number of students

Inferential Statistical Analysis

Before hypothesis testing, prerequisite analyses were conducted.

Normality Test

The Shapiro–Wilk test was used because the sample size was below 50 participants.

$$W = \frac{\left(\sum_{i=1}^{n} a_i \, x_{(i)}\right)^2}{\sum_{i=1}^{n} (x_i - \bar{x})^2}$$

Data were considered normally distributed when Sig. > 0.05.

Homogeneity Test

Variance homogeneity was tested using Levene's Test.

$$W = \frac{(N-k)}{(k-1)} \cdot \frac{\sum_{i=1}^{k} N_i \, (Z_{i.} - Z_{..})^2}{\sum_{i=1}^{k} \sum_{j=1}^{N_i} (Z_{ij} - Z_{i.})^2}$$

The data were considered homogeneous if Sig. > 0.05.

Paired Sample t-Test

The paired sample t-test was used to determine differences between pre-observation and post-observation scores within the same group.

$$t = \frac{\bar{D}}{S_D/\sqrt{n}}$$

Where:
t = Paired sample t statistic
$\bar{D}$ = Mean difference score
SD = Standard deviation of differences
n = Number of paired observations

Independent Sample t-Test

The independent sample t-test was conducted to compare post-observation scores between the experimental and control groups.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{S_p\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where the pooled standard deviation was calculated using:

$$S_p = \sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}}$$

The null hypothesis was rejected when the significance value was less than 0.05.
Effect Size Analysis

To determine the magnitude of the treatment effect, Cohen's d effect size was calculated:

$$d = \frac{\bar{X}_1 - \bar{X}_2}{S_p}$$

According to Cohen (1988), effect sizes of 0.20, 0.50, and 0.80 represent small, medium, and large effects, respectively. Through these analytical procedures, the study systematically evaluated whether Classcraft-based gamification significantly strengthened the disciplinary character of elementary school students.

RESULTS

This study aimed to examine the effect of Classcraft-based gamification on strengthening the disciplinary character of elementary school students. The analysis was conducted using descriptive and inferential statistical techniques. Descriptive statistical analysis was employed to describe the development of students' disciplinary character before and after the intervention, while inferential statistical analysis was conducted to test the significance of the observed differences. Prior to hypothesis testing, prerequisite analyses consisting of normality and homogeneity tests were performed to ensure that the assumptions for parametric statistical testing were fulfilled.

Descriptive Statistical Analysis

Descriptive statistical analysis was conducted to evaluate students' disciplinary character based on average scores, standard deviations, minimum and maximum scores, and percentages of learning mastery. The analysis was intended to provide a comprehensive overview of students' disciplinary character development following the implementation of Classcraft-based gamification.

Table 5. Descriptive Statistics of Students' Disciplinary Character Scores

Group	Test	N	Mean	SD	Minimum	Maximum	Mastery (%)
Experimental	Pre-test	15	61.12	10.41	45	79	33.33
Experimental	Post-test	15	93.14	4.26	86	100	93.33
Control	Pre-test	15	60.75	10.87	43	78	26.67
Control	Post-test	15	65.61	8.12	51	82	53.33

Table 5 presents the descriptive statistical results of students' disciplinary character scores in both the experimental and control groups. The findings reveal that the two groups demonstrated relatively similar levels of disciplinary character before the intervention. The experimental group obtained an average pre-test score of 61.12, while the control group obtained an average score of 60.75.

The small difference between the two groups at the pre-test stage indicates that students possessed relatively equivalent disciplinary character levels before the treatment was administered. Such equivalence is important because it strengthens the internal validity of the study and increases confidence that any differences observed after the intervention can be attributed to the treatment rather than pre-existing conditions.

The standard deviation values observed during the pre-test phase further support this interpretation. The experimental group obtained a standard deviation of 10.41, while the control group recorded a standard deviation of 10.87. These values indicate that the distribution of disciplinary character scores was relatively similar across both groups before the intervention.

Following the implementation of Classcraft-based gamification, substantial improvements were observed in the experimental group. The average disciplinary character score increased from 61.12 to 93.14. This increase of 32.02 points indicates a considerable improvement in students' disciplinary behavior after participating in the gamified learning environment.

The improvement observed in the experimental group was substantially larger than that observed in the control group. Students in the control group demonstrated only a modest increase in their average disciplinary character score, from 60.75 to 65.61. The gain of 4.86 points suggests that conventional classroom management practices produced limited improvements in students' disciplinary character.

A comparison of post-test means demonstrates a clear advantage for the experimental group. Students who participated in Classcraft-based gamification achieved an average disciplinary character score of 93.14, whereas students in the control group achieved an average score of only 65.61.

The findings indicate that students exposed to Classcraft-based gamification demonstrated stronger disciplinary character than students who experienced conventional classroom management approaches. This difference provides preliminary evidence regarding the effectiveness of the intervention.

The analysis of score dispersion provides additional insights into student development. In the experimental group, the standard deviation decreased substantially from 10.41 during the pre-test to 4.26 during the post-test.

The decrease in standard deviation indicates that students' disciplinary character scores became more homogeneous after the intervention. In other words, disciplinary improvements were experienced not only by high-performing students but also by students who initially demonstrated lower levels of discipline. In contrast, the control group obtained a post-test standard deviation of 8.12. Although this value is lower than the pre-test standard deviation, it remains substantially higher than the standard deviation observed in the experimental group.

The smaller standard deviation observed in the experimental group suggests that Classcraft-based gamification promoted more consistent behavioral improvements among

students. This finding indicates that the intervention was capable of supporting disciplinary development across a diverse range of learners.

The analysis of learning mastery percentages provides further evidence regarding the effectiveness of the intervention. Prior to treatment, only 33.33% of students in the experimental group achieved the desired level of disciplinary character.

Following the intervention, the mastery percentage increased dramatically to 93.33%. This result indicates that nearly all students successfully attained the expected disciplinary character standards.

The control group also demonstrated improvement in mastery percentage. However, the increase was considerably smaller. The mastery percentage increased from 26.67% to only 53.33%. The difference between the mastery percentages of the two groups reached approximately 40 percentage points. This substantial gap indicates that Classcraft-based gamification was considerably more effective than conventional approaches in promoting disciplinary character development.

The findings also suggest that gamification not only improved average performance but also increased the proportion of students who successfully achieved the targeted character outcomes. The substantial increase in mastery percentage observed in the experimental group indicates that the intervention supported widespread behavioral improvement rather than benefiting only a limited number of students. Moreover, the combination of higher average scores and lower standard deviations suggests that the intervention facilitated both effectiveness and equity in disciplinary character development.

The descriptive statistical findings consistently indicate that Classcraft-based gamification produced positive outcomes in strengthening elementary school students' disciplinary character. The descriptive analysis therefore provides initial empirical support for the effectiveness of gamification as a character education strategy within elementary school settings.

Prerequisite Test Results

Before conducting hypothesis testing, normality and homogeneity tests were performed to determine whether the assumptions required for parametric statistical procedures were satisfied.

Normality Test

Table 6. Shapiro–Wilk Normality Test Results

Group	Test	Statistic	Sig.
Experimental	Pre-test	0.961	0.284
Experimental	Post-test	0.955	0.173
Control	Pre-test	0.968	0.391
Control	Post-test	0.963	0.268

The results of the Shapiro–Wilk normality test indicate that all significance values exceeded the alpha level of 0.05. The experimental group obtained significance values of 0.284 and 0.173 for the pre-test and post-test, respectively. Similarly, the control group obtained significance values of 0.391 and 0.268 for the pre-test and post-test.

Because all significance values were greater than 0.05, the data were considered normally distributed.

The fulfillment of the normality assumption indicates that the distribution of disciplinary character scores did not significantly deviate from a normal distribution.

Therefore, the use of parametric statistical techniques was considered appropriate for subsequent analyses.

Homogeneity Test

Table 7. Levene's Test of Homogeneity

Variable	Levene Statistic	Sig.
Post-test Scores	0.621	0.437

The results of Levene's Test indicate a significance value of 0.437. Since the obtained significance value exceeded the alpha level of 0.05, the variances of the two groups were considered homogeneous. This finding indicates that both groups originated from populations with similar variance characteristics.

The fulfillment of the homogeneity assumption further supports the appropriateness of using independent sample t-tests to compare post-test scores between groups.

Because both prerequisite assumptions were satisfied, hypothesis testing could proceed using parametric statistical procedures.

Hypothesis Testing

Paired Sample t-Test

Table 8. Paired Sample t-Test Results

Group	Mean Difference	t	df	Sig. (2-tailed)
Experimental	32.02	18.564	14	0.000
Control	4.86	3.927	14	0.000

The paired sample t-test results reveal significant differences between pre-test and post-test scores in both groups. For the experimental group, the significance value was 0.000, which was lower than the alpha level of 0.05. This finding indicates that the implementation of Classcraft-based gamification significantly improved students' disciplinary character.

The mean difference of 32.02 points further demonstrates the substantial magnitude of the observed improvement. The control group also demonstrated a statistically significant improvement, with a significance value of 0.001.

However, the magnitude of improvement observed in the control group was considerably smaller than that observed in the experimental group.

The comparison of mean differences clearly indicates that Classcraft-based gamification generated substantially greater disciplinary character gains.

Independent Sample t-Test

Table 9. Independent Sample t-Test Results

Variable	Mean Difference	t	df	Sig. (2-tailed)
Post-test Scores	27.53	11.247	28	0.000

The independent sample t-test was conducted to compare post-test disciplinary character scores between the experimental and control groups.

The analysis produced a significance value of 0.000, which was substantially lower than the alpha level of 0.05. Therefore, the null hypothesis was rejected.

The findings indicate that a statistically significant difference existed between students who participated in Classcraft-based gamification and those who received conventional classroom management. Students in the experimental group achieved significantly higher disciplinary character scores than students in the control group. These results confirm that Classcraft-based gamification had a positive and significant effect on strengthening elementary school students' disciplinary character.

The inferential statistical findings therefore corroborate the results obtained through descriptive statistical analysis. Both descriptive and inferential analyses consistently demonstrate the effectiveness of Classcraft-based gamification in promoting disciplinary character development among elementary school students.

DISCUSSION

The findings of this study demonstrate that Classcraft-based gamification significantly strengthened the disciplinary character of elementary school students. Students who participated in the gamified learning environment achieved substantially higher disciplinary character scores than students who experienced conventional classroom management. These findings indicate that the integration of game mechanics into classroom activities can positively influence students' behavioral development.

One of the most important findings concerns the substantial increase in disciplinary character scores observed in the experimental group. The average score increased from 61.12 before treatment to 93.14 after treatment. This considerable improvement suggests that Classcraft-based gamification created learning conditions that encouraged students to consistently demonstrate disciplined behaviors.

The findings support the argument that gamification can function as an effective motivational strategy within educational settings. According to Deterding et al. (2011), gamification increases user engagement by incorporating elements commonly found in games, including rewards, challenges, feedback, and progression systems. These elements encourage sustained participation and positive behavioral change.

The significant improvement observed in this study may be explained by the motivational mechanisms embedded within Classcraft. Students were rewarded for demonstrating positive behaviors such as punctuality, responsibility, compliance with rules, and active participation. Such rewards likely increased students' willingness to engage in disciplined behavior.

The findings are consistent with Self-Determination Theory proposed by Ryan and Deci (2020), which emphasizes the importance of autonomy, competence, and relatedness in promoting intrinsic motivation. Classcraft provides opportunities for students to experience competence through achievement systems, autonomy through decision-making opportunities, and relatedness through collaborative team activities.

The substantial reduction in score dispersion observed in the experimental group represents another noteworthy finding. The standard deviation decreased from 10.41 to 4.26 following the intervention. This reduction suggests that disciplinary improvements were experienced by a broad range of students rather than being concentrated among a small subset of high-performing individuals. Consequently, Classcraft appears capable of supporting equitable character development across diverse learners.

The findings further indicate that gamification can create a classroom environment that promotes consistency in behavior. Students become aware that positive actions are continuously monitored and rewarded, encouraging them to maintain desirable behaviors over time. The dramatic increase in mastery percentage provides additional evidence regarding the effectiveness of the intervention. The mastery rate increased from 33.33% to 93.33%, indicating that nearly all students achieved the expected disciplinary standards.

This finding is particularly important because character education initiatives are most successful when they influence the majority of students rather than only a small

proportion. The high mastery percentage suggests that Classcraft-based gamification possesses strong practical value for classroom implementation. The findings align with research conducted by Hamari et al. (2014), who concluded that gamification frequently leads to improvements in motivation, engagement, and behavioral participation. The present study extends these findings by demonstrating positive effects specifically related to disciplinary character development. Similarly, Koivisto and Hamari (2019) reported that gamified systems can influence user behavior by providing clear goals, immediate feedback, and meaningful incentives. These mechanisms were also present within the Classcraft intervention employed in this study.

The positive effects observed may also be explained through behavioral reinforcement theory. Skinner (1953) argued that behaviors followed by positive consequences are more likely to be repeated. Within Classcraft, desirable behaviors resulted in rewards such as experience points, achievements, and status progression. The immediate nature of the feedback provided through Classcraft may have strengthened the association between positive behavior and rewarding outcomes. Such reinforcement processes likely contributed to the development of more consistent disciplinary habits.

Another important aspect concerns students' active involvement in monitoring their own behavior. Through progress indicators and performance dashboards, students were able to track their achievements and evaluate their own behavioral development. This process aligns with theories of self-regulated learning, which emphasize the importance of self-monitoring and self-evaluation in promoting positive behavioral outcomes (Zimmerman, 2002).

The collaborative nature of Classcraft may also have contributed to the observed improvements. Students worked within teams and shared collective responsibilities for achieving goals. Such collaborative structures encourage peer accountability and mutual support, which can reinforce positive behavioral norms within the classroom community.

The findings additionally support previous research conducted by Sánchez et al. (2020), who reported that Classcraft enhances student engagement and classroom participation. The present study extends this literature by demonstrating that Classcraft can also contribute to character development outcomes.

The observed differences between the experimental and control groups highlight the limitations of conventional classroom management approaches. While the control group demonstrated some improvement, the magnitude of change was substantially smaller than that observed in the experimental group.

This finding suggests that traditional disciplinary approaches may be less effective in sustaining student motivation and behavioral engagement compared with gamified interventions. From a pedagogical perspective, the results indicate that technology-enhanced character education can complement existing classroom management practices. Rather than replacing traditional approaches, gamification may serve as an additional strategy for reinforcing positive behaviors.

The study also contributes to contemporary discussions regarding the educational use of digital technologies. While technology is often criticized for contributing to behavioral problems among young learners, the findings demonstrate that appropriately designed digital tools can support positive character development. The results are particularly relevant within elementary education because younger learners tend to respond positively to interactive and game-based experiences. Such environments align with developmental characteristics that emphasize exploration, achievement, and immediate feedback. From a practical standpoint, teachers may consider integrating Classcraft-based gamification into classroom routines as a means of strengthening disciplinary character. The platform offers a structured yet engaging approach to behavior management that may increase student participation and commitment.

School administrators may also benefit from these findings when developing character education programs. Gamification can provide an innovative framework for fostering positive behavioral habits while simultaneously increasing student engagement.

Although the findings are encouraging, certain limitations should be acknowledged. The study involved a relatively small sample from a single school, which may limit the generalizability of the findings.

Future studies should involve larger samples and multiple educational settings to provide broader evidence regarding the effectiveness of Classcraft-based gamification. Future research may also examine the long-term sustainability of disciplinary improvements and explore the effects of gamification on other character dimensions such as responsibility, honesty, cooperation, and perseverance.

The findings consistently indicate that Classcraft-based gamification constitutes an effective strategy for strengthening elementary school students' disciplinary character. Through the integration of motivational game elements, immediate feedback systems, behavioral reinforcement mechanisms, and collaborative learning experiences, the intervention successfully promoted meaningful improvements in students' disciplinary behavior and contributed to the achievement of character education objectives within elementary school contexts.

CONCLUSION

This study concludes that Classcraft-based gamification had a positive and statistically significant effect on strengthening the disciplinary character of elementary school students. Students who participated in the gamified learning environment demonstrated higher disciplinary character scores, lower score variability, and greater mastery percentages than students who experienced conventional classroom management approaches. The findings suggest that integrating game elements such as points, rewards, achievements, and progress monitoring into classroom activities can support the development of disciplined behavior by increasing student engagement and motivation. Within the context of this study, Classcraft-based gamification appears to be a promising alternative for supporting character education, particularly in strengthening disciplinary character among elementary school students. Nevertheless, the findings should be interpreted in light of the study's scope and sample characteristics, and further research involving larger and more diverse educational settings is recommended to provide broader evidence regarding the effectiveness and sustainability of gamification-based character education interventions.

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