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Effect of gamified Zep Quiz on dance motivation: A quasi-experimental study

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ABSTRACT

Learning motivation among high school students in dance classes often declines, especially when assessments use traditional, monotonous methods. This study aims to investigate the impact of using the gamification-based digital assessment tool Zep Quiz on the learning motivation of eleventh-grade students in dance education. A quantitative approach using a quasi-experimental design with an unequal control group was employed, involving 72 eleventh-grade students at SMAN 5 Cimahi, comprising an experimental group (n = 36) and a control group (n = 36). Data were collected using a validated learning motivation questionnaire, supported by observation and interview data. Assumption tests confirmed the normality, homogeneity, and linearity of the data. ANCOVA results showed a significant group effect on post-test motivation after controlling for pre-test scores. The experimental group obtained a higher mean post-test score than the control group. These findings indicate that Zep Quiz effectively increases student motivation by increasing engagement and creating a more enjoyable learning experience. This study supports the integration of gamification-based digital assessment in dance learning.

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ABSTRAK

Motivasi belajar di kalangan murid SMA dalam kelas tari sering kali menurun, terutama saat penilaian menggunakan metode tradisional yang cenderung monoton dan kurang memotivasi. Penelitian ini bertujuan untuk menyelidiki dampak penggunaan alat penilaian digital berbasis gamifikasi Zep Quiz terhadap motivasi belajar murid kelas XI dalam pendidikan tari. Pendekatan kuantitatif dengan desain kuasi-eksperimental dengan kelompok kontrol tidak setara digunakan, melibatkan 72 murid kelas 11 di SMAN 5 Cimahi yang terdiri dari kelompok eksperimen (n = 36) dan kelompok kontrol (n = 36). Data dikumpulkan menggunakan kuesioner motivasi belajar yang telah divalidasi, serta didukung oleh data observasi dan wawancara. Uji asumsi mengonfirmasi normalitas, homogenitas, dan linearitas data. Hasil ANCOVA menunjukkan adanya pengaruh yang signifikan dari kelompok terhadap motivasi pasca-tes setelah mengontrol skor pra-tes. Kelompok eksperimen memperoleh skor rata-rata posttest yang lebih tinggi dibandingkan kelompok kontrol. Temuan ini menunjukkan bahwa Zep Quiz secara efektif meningkatkan motivasi murid dengan meningkatkan keterlibatan serta menciptakan pengalaman belajar yang lebih menyenangkan. Penelitian ini mendukung integrasi penilaian digital berbasis gamifikasi dalam pembelajaran tari.

Kata Kunci: *evaluasi pembelajaran; motivasi belajar; pembelajaran seni tari; Zep Quiz*

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INTRODUCTION

Learning motivation is a fundamental psychological determinant of academic engagement and success. It encompasses both internal drives and external incentives that sustain students' effort, perseverance, and desire to achieve learning objectives (Julyanti et al., 2021; Pratama & Meilani, 2019). Learning motivation is a drive that comes from within and outside the student to change their behavior, usually supported by indicators or elements. Learning motivation can be understood as both internal and external drives that foster students' enthusiasm, perseverance, and desire to achieve learning objectives (Aziza et al., 2025). In the context of high school dance education, motivation is particularly critical because the subject demands not only technical mastery of movement but also conceptual understanding, cultural appreciation, aesthetic expression, and creative engagement dimensions that are uniquely dependent on sustained affective investment (Ali et al., 2024; Ørbæk, 2021).

Despite its recognized importance, students' motivation to learn in high school dance classes remains suboptimal, particularly during assessment activities. A preliminary study conducted at SMAN 5 Cimahi in the 2025/2026 academic year revealed that approximately 65.3% of students reported feeling disengaged during conventional assessment activities, and only 28.7% actively participated voluntarily. Conventional assessments, predominantly written tests and direct oral questioning, are often perceived as monotonous and passive, and they fail to engage students meaningfully, resulting in diminished enthusiasm and participation (Badaruddin et al., 2023; Badaruddin & Firdaus, 2025; Prayoga & Sunaryo, 2024; Wang, 2024). Importantly, assessment is not merely a measurement tool; when designed interactively, it can simultaneously measure learning outcomes and stimulate motivation (Ramadhan et al., 2025).

The rapid advancement of digital technology has transformed assessment practices, shifting from conventional methods toward interactive, web-based platforms that facilitate real-time feedback, gamification, and dynamic student engagement (Badaruddin et al., 2025; Makalalag & Ainiyah, 2024; Yulianti et al., 2025). Gamification, defined as the application of game-design elements in non-game contexts, has emerged as a particularly effective strategy for enhancing motivation by introducing elements such as points, leaderboards, avatars, and badges, thereby creating enjoyable and challenging learning environments (Zafar et al., 2022). Zep Quiz, a web-based assessment platform, integrates these gamification elements with interactive quiz features and visually engaging interfaces, offering a promising tool to transform assessment from a passive, anxiety-inducing event into an active, motivating experience.

Several prior studies have established the efficacy of gamification-based digital assessment in improving motivation to learn. Zep Quiz has been shown to significantly increase students' enthusiasm for learning mathematics (Kulsum et al., 2025), while Quizizz has been reported to enhance motivation in Arabic language instruction (Makalalag & Ainiyah, 2024). Similarly, Wordwall has been found to improve student engagement in social studies (Pamungkas et al., 2021), and the motivational benefits of Quizizz across multiple subjects have been confirmed (Maghfiroh & Muttaqin, 2025). However, these studies predominantly focused on academic subjects such as mathematics, languages, and social sciences, with limited

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attention to arts education. Dance education, which emphasizes the development of psychomotor skills, aesthetic expression, and cultural engagement, has unique pedagogical characteristics that can influence how gamification affects motivation to learn (Mikaresti & Mansyur, 2022; Nengsih & Dilfa, 2025).

A critical gap thus exists in the literature: no study has specifically examined the effect of Zep Quiz, a gamification-based assessment tool, on students' motivation in high school dance education. Given the unique characteristics of dance as a subject and the documented motivational decline associated with conventional assessment, there is a compelling need to investigate whether gamification-based digital assessment can effectively enhance motivation in this specific context. Addressing this gap is significant not only for dance pedagogy but also for the broader discourse on innovative assessment strategies in arts education.

LITERATURE REVIEW

Learning Motivation

In educational activities, motivation can be described as the fundamental driving force within an individual that leads to learning endeavors, ensuring the persistence of these activities and guiding them, so that the objectives sought by the learner can be fulfilled (Manik et al., 2024). According to Kamus Besar Bahasa Indonesia (KBBI) (see: https://kbbi.kemendikdasmen.go.id/), motivation is an impulse or effort that encourages an individual or a group to take action to achieve certain goals. Learning motivation refers to the internal driving forces within a student that encourage learning activities, sustain them, and provide direction for learning to achieve learning objectives (Manik et al., 2024). Various factors can influence learning motivation, such as the desire to succeed, the need to learn, future expectations, engaging learning activities, and a conducive learning environment (Bunda & Nirwana, 2024).

Therefore, one way to increase students' motivation to learn is to provide engaging, interactive learning assessments. One external component that can influence students' motivation to learn in this study is the Zep Quiz-based learning assessment. It is hoped that the use of this interactive and engaging assessment tool can increase students' interest and attention in lessons, thereby enhancing their motivation to learn (Ateş & Köroğlu, 2024). This study will focus on learning motivation theory to explain how using Zep Quiz as a learning assessment can influence students' motivation to learn dance. This motivation is demonstrated by perseverance, tenacity, interest, independence, and a desire to succeed.

Constructivism Theory

Constructivism is a learning theory that posits that individuals can actively construct knowledge and understanding through interactions grounded in past experiences (Taber, 2024). This theory emphasizes the central role of learners in the learning process, shifting the focus from a passive to an active approach. Within the constructivist framework, learning becomes a flexible process in which students are not merely passive recipients of information but actively engaged in learning (Handoyo & Ani, 2025). Consequently, constructivism

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emphasizes learning experiences that foster discussion and collaboration, thereby enhancing students' understanding and intellectual development. This constructivist theory relates to the use of Zep Quiz as a learning medium to enhance motivation in dance education. Within this constructivist framework, students are active individuals who construct their own knowledge through experience, social interaction, and direct engagement in the learning process. The use of Zep Quiz can provide students with experiences that encourage them to participate more actively in the learning process (Lathifah et al., 2024).

Joyful Learning

Joyful learning is engaging, empowering, and enjoyable learning about meaningful content in a safe and supportive environment. Therefore, joyful learning refers to enjoyable learning in an educational context. This state is achieved when individuals derive joy and satisfaction from the learning process. As for the characteristics of Joyful Learning, students begin to actively engage in activities or experiences, feel comfortable, and demonstrate curiosity (Feriyanto & Anjariyah, 2024).

Joyful Learning in the use of Zep Quiz to enhance students' motivation can be likened to an emotional bridge, making them feel that the learning assessment process is not a source of pressure or stress but rather a fun learning activity (Saputri et al., 2021). In this study, the concept of Joyful Learning was realized through the use of Zep Quiz as a learning assessment tool because it creates a fun, interactive, and engaging atmosphere. Zep Quiz is a gamified learning assessment tool that helps students feel safe, unpressured, and more enthusiastic while learning.

Evaluation of Interactive Media-Based Learning

Interactive learning media in this assessment activity serve as tools that help create a more engaging and enjoyable learning process and encourage student participation (Rosyiddin et al., 2023; Sugihartini et al., 2022). The use of media in education is expected to be readily accepted by students, as learning media themselves have the potential to capture students' interest and engagement in the learning process. Learning media in the learning process should be appropriately designed and aligned with learners' needs to convey students' perspectives on the presented material.

Interactive learning media is a form of communication that consists of several elements and can occur in two or more directions (Nengsih & Dilfa, 2025). Digital media can help increase students' engagement, interest, and desire to learn. Students can gain a more meaningful and less monotonous learning experience by using interactive components such as quizzes, gamification, and engaging visual displays (Khaira et al., 2023; Ningsih et al., 2025). This aligns with the ideas of constructivism and the joy of learning, which emphasize the importance of students actively participating in learning and creating a comfortable learning environment to increase their desire to learn.

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Dance Education in High School

Dance education in high school should ideally be developed in an active, creative, and student-centered manner through activities involving exploration, improvisation, and movement composition. The application of exploratory methods and movement improvisation has been shown to enhance movement experience and awareness and to develop various levels of student creativity, including expressive, technical, and inventive creativity (Andranica et al., 2026; Pratiwi et al., 2022). In classroom practice, teachers can design lessons that provide space for students to observe their environment, express feelings through movement, explore everyday and natural movements, and then improvise them into dance sequences, thereby enhancing imagination, creativity, and learning outcomes (Pratiwi et al., 2022).

Such a learning approach aligns with the active, creative, effective, and enjoyable learning (PAKEM) principles and the Merdeka Curriculum, which emphasize direct student engagement, a joyful learning atmosphere, and the development of personal potential through arts and cultural activities (Defani & Wirdati, 2023; Lubis et al., 2025). Thus, dance in high school serves not only as a means of mastering movement techniques but also as a medium for self-expression, cultural appreciation, and the formation of students' self-identity (Diasworo & Hanif, 2025). Students are guided to enhance their aesthetic sensitivity and creative abilities within the context of local and national culture through processes of exploration, improvisation, and movement composition (Mikaresti & Mansyur, 2022).

This is based on the 2013 Curriculum and the Merdeka Curriculum, both of which emphasize active, contextual, and student-centered learning. Both curricula encourage students to experience, reflect on, and create works of art independently and collaboratively (Agustia & Erawati, 2024; Musdalifa et al., 2025; Rohmatika, 2023). The use of Zep Quiz as a learning assessment tool at the high school level is an innovation aimed at creating a more engaging and interactive learning experience in dance education. The gamification elements in Zep Quiz can increase student engagement in assessments, aligning with the creative and dynamic nature of dance education.

Zep Quiz-based digital assessment

Digital assessment using Zep Quiz can serve as a motivator, transforming monotonous assessments into a more engaging, interactive, and enjoyable learning experience. In the context of creative and expressive dance education, this tool acts as a bridge between the digital world, which is closely integrated into students' lives, and classroom learning activities. Research shows that the implementation of Zep Quiz gamification-based digital formative assessment can increase student engagement, motivation, and enthusiasm through game elements such as points and leaderboards, while providing instant feedback that makes the evaluation process feel engaging rather than stressful (Azizah et al., 2024; Gumilar & Logayah, 2026; Istiqomah et al., 2025; Windarti et al., 2025).

Gamification, with features such as points, badges, avatars, and leaderboards, has generally been shown to increase active participation and motivation, thereby transforming evaluation into a competitive yet enjoyable learning experience (Mahmubi & Homaidi, 2025; Pahlevi &

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Mulyati, 2025; Putra et al., 2024). The use of Zep Quiz also fosters a fun learning atmosphere, increases engagement, and helps students feel more confident and motivated to participate actively in learning (Hanum et al., 2025). Within the framework of motivation theory and gamification, these elements serve as triggers for intrinsic motivation: students feel challenged, enjoy the process, and view assessment as part of the learning experience rather than merely a stressful test (Anshori & Bashir, 2025; Nur et al., 2026). Thus, Zep Quiz-based digital assessment aligns with the nature of dance education, which is creative, dynamic, and oriented toward meaningful learning experiences.

METHODS

This study employed a quantitative approach and utilized a quasi-experimental design of the nonequivalent control group type. Two groups were involved: an experimental group that received the Zep Quiz-based gamification assessment intervention and a control group that underwent a non-gamified digital assessment using Google Forms. Both groups in **Table 1** completed a pretest and a posttest to measure changes in learning motivation before and after the intervention.

Table 1. Quasi-Experimental Research Design

Group	Pretest	Treatment	Posttest
Experimental	O^1	X	O^2
Control	O^3	X	O^4

Source: Research, 2026

The study was conducted at SMAN 5 Cimahi, Cimahi City, West Java, Indonesia, during the 2025/2026 academic year. The study was implemented in dance learning classes involving an experimental group and a control group. Data collection procedures, including pretest, treatment implementation using Zep Quiz-based gamification assessment, and posttest, were conducted in April 2026. The study was conducted at SMAN 5 Cimahi, Cimahi City, West Java, Indonesia, during the 2025/2026 academic year. The research population consisted of all eleventh-grade students enrolled in the cultural arts dance course.

The sample comprised 72 students selected through purposive sampling based on the following inclusion criteria: 1) enrolled in eleventh-grade dance class; 2) active students with complete attendance records; and 3) willingness to participate in the study. Classes, XI-3 (n=36) served as the experimental group and classes XI-1 (n= 36) as the control group. These classes were selected based on comparable baseline characteristics, as evidenced by similar pretest scores (M_experimental = 85.58; M_control = 85.31; t(70) = 0.13, p = .90).

The study was conducted in three phases. In the initial phase, a pretest was administered to assess students' baseline motivation to learn in both groups. During the intervention phase (spanning three learning sessions), the experimental group used Zep Quiz as the primary assessment tool, while the control group used Google Forms. In the final phase, a posttest was administered to both groups to assess changes in learning motivation following the intervention.

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Data were collected through four instruments: 1) a learning motivation questionnaire; 2) a structured observation sheet; 3) a semi-structured interview guide; and 4) documentation. The questionnaire was the primary quantitative instrument, based on five motivational indicators: 1) perseverance in learning; 2) resilience in the face of difficulties; 3) interest and attention; 4) achievement orientation; and 5) learning independence. The questionnaire items were rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Prior to data collection, the instrument underwent validity and reliability testing on a pilot group of 30 students outside the research sample. Consent validity was assessed by two expert judges (a dance education specialist and a measurement specialist); construct validity was assessed using Pearson product-moment correlation, with stems showing r calculated 2 tables (r table = 0.235, df = 28, a = 05) retained. Of the original 25 items, 21 were retained as valid (*r range* = 040- 0.75), while four items (P05, P15, P20, P25) were excluded due to invalid correlation values. Instrument reliability was assessed using Cronbach's alpha, yielding ɑ = .93, indicating high internal consistency.

The observation sheet measured five behavioral manifestations of learning motivation (enthusiasm, engagement, perseverance, attentiveness, and participation) on a four-point rubric scale, with total scores standardized to 100. The semi-structured interview guide explored students' subjective experiences regarding the perceived advantages, challenges, and motivational impact of both assessment tools. Data analysis proceeded in three stages. First, descriptive statistics (mean, standard deviation, minimum, maximum) were computed for pretest and posttest scores in both groups. Second, prerequisite tests for ANCOVA were conducted:

1. Normality testing using the Shapiro-Wilk test (appropriate for n 50 per group criterion: Sig. 05)
2. homogeneity of variance testing using Levene's test (criterion: Sig>05)
3. linearity testing using the F-test for linearity between pretest and posttest scores (criterion: Deviation from Linearity Sig. 05)
4. homogeneity of regression slopes testing (interaction of Group Pretest; criterion: Sig> .05, confirming ANCOVA assumption integrity).

The primary hypothesis was tested using one-way ANCOVA with posttest motivation as the dependent variable, pretest motivation as the covariate, and group (experimental vs. control) as the fixed factor. Effect size was quantified using partial n2 and interpreted according to Cohen's convention (small: .01; medium: .06; large: .14). All statistical analyses were conducted using SPSS version 26.

RESULTS AND DISCUSSION

Pre-Intervention Context and Baseline Learning Motivation

Prior to the intervention, leaching assessments at SMAN 5 Cimahi were conducted exclusively through conventional methods, including written tests and direct oral questioning. These methods were perceived by students as monotonous and unengaging, resulting in observable passivity and low participation during evaluation activities. Digital media integration in dance

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education at this school was minimal. These contextual conditions provided empirical justification for introducing a more interactive and motivating assessment approach.

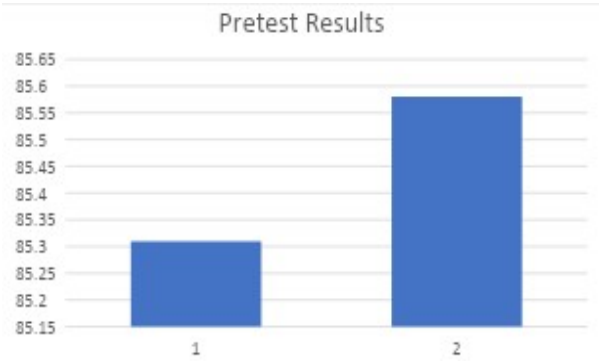

Figure 1. Pretest Results: Control and Experimental Class
Source: Research, 2026

Pretest results in **Figure 1** confirmed comparable baseline levels of learning motivation between the two groups. The control group recorded a mean pretest score of 85.31, while the experimental group recorded a mean of 85.58. Both groups fell within the moderate motivation category, with a negligible initial difference of 0.27 points. These comparable baseline scores satisfied the equivalence assumption for quasi-experimental comparison.

Descriptive Statistics: Pretest and Posttest Results

Table 2. Descriptive Statistics of Learning Motivation Scores

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Pretest Control	36	65	103	85.31	10.545	111.190
Posttest Control	36	69	105	87.28	8.821	77.806
Pretest Experiments	36	62	105	85.58	10.974	120.421
Posttest Control	36	80	105	94.53	6.236	38.885
Valid N (listwise)	36					

Source: Research, 2026

As shown in **Table 2**, the control group demonstrated a modest increase from pretest (Mean = 85.31) to posttest (Mean = 87.28). representing a gain of 1.97 points. By contrast, the experimental group showed a substantially larger increase from pretest (Mean = 85.58) to posttest (Mean = 94.53), representing a gain of 8.95 points. This preliminary comparison suggests a notably stronger motivational effect in the experimental group; however, statistical testing was required to confirm significance while controlling for initial differences. This study applies a quantitative research model with a quasi-experimental design to determine how using the *Zep Quiz* website affects students' motivation to learn dance.

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In this study, two groups, the experimental class and the control class, were used in the nonequivalent control group design. The experimental class used *the Zep Quiz website* for learning evaluation, while the control class used standard evaluation methods. Pretests and posttests were administered to each group to assess initial conditions and changes in students' motivation to learn. The effect of *Zep Quiz* on students' learning motivation was measured more accurately by analyzing the research data using ANCOVA, with pretest scores as a covariate.

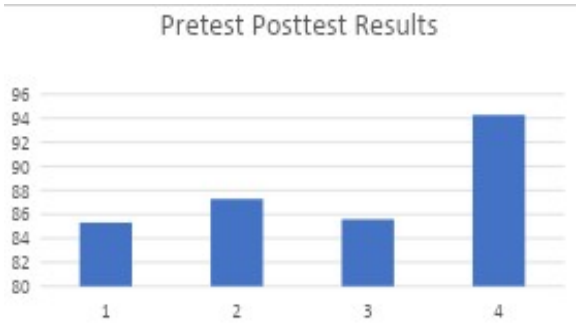

Figure 2. Graph of Pretest Posttest Control & Experimental Group
Source: Research, 2026

From **Figure 2**, it is evident that the starting scores of the control class differ from those of the experimental class; the control class has a slightly lower score. The initial score for the control class was 85.31, whereas the experimental class's score was 85.58. The score difference between the control and experimental classes amounts to just 0.27 points. After evaluating student performance on the Zep Quiz and Google Forms, the final exam results showed an overall improvement. However, the experimental group demonstrated a greater improvement than the control group. The control group's average score reached 87.278 while the experimental group's average score jumped to 94.54. This indicates that implementing Zep Quiz had a greater impact on students' motivation to learn dance. This increase in motivation to learn is also reflected in the table below.

Design and Features of the Zep Quiz Assessment Tool

The Zep Quiz assessment tool used in this study was specifically designed and configured to align with the eleventh-grade dance curriculum at SMAN 5 Cimahi. Assessment questions were developed to cover key conceptual and appreciation components of the dance subject matter and were then integrated into the Zep Quiz platforms. The platform features several gamification elements:

1. Interactive multiple-choice and matching quizzes with visual media
2. Virtual avatar customization for personalized student identity
3. Real-time point accumulation and score display
4. Competitive leaderboard showing class standings
5. Achievement badges for performance milestones
6. Visually engaging animated interfaces. These elements were designed to transform the traditionally passive and anxiety-inducing assessment experience into an active, enjoyable, and motivating activity.

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Implementation of the Zep Quiz Intervention

The Zep Quiz intervention was implemented across three dance learning sessions in the experimental class. Prior to the first assessment session, the researcher provided a brief orientation on accessing and navigating the Zep Quiz platform via a QR code. Students accessed the platform on their personal devices and participated independently. During the assessment sessions, students exhibited notably higher levels of enthusiasm, focus, and active engagement than at the pre-intervention baseline.

The gamification elements, particularly the leaderboard and avatar features, generated visible excitement and a sense of friendly competition. In the control class, Google Forms was used as the non-gamified digital assessment tool across the same three sessions, maintaining comparable digital access without gamification elements. There is a difference between the posttest results of the experimental class, which used the gamified Zep Quiz platform, and the control class, which used the non-gamified Google Forms platform. The following are the post-test results after implementing the assessment tools in the two classes.

Prerequisite Test for ANCOVA

Table 3. Results of Prerequisite Test for ANCOVA

Test	Statistic	Sig.	Conclusion
Normality - Control Posttest (Shapiro-Wilk)	.980	.739	Normal distribution
Normality - Experimental Posttest (Shapiro-Wilk)	.977	.657	Normal distribution
Homogeneity of Variance (Levene's Test)	F = 3.240	.076	Homogeneous variances
Linearity (F-Test: Pretest-Posttest Experimental)	F = 1.026	.531	Significant linear
Linearity (F-Test: Pretest-Posttest Control)	F = .685	.785	Significant linear
Homogeneity of Regression Slopes (Group x Pretest)	F = .590	.445	Assumption met - slopes are equal

Source: Research, 2026

All four ANCOVA assumptions were satisfied in **Table 3**: (a) data were normally distributed in both groups based on the results of the normality test (all Shapiro-Wilk p-values > 0.05); (b) group variances were homogeneus (Levene's F = 3.240, sig. 0.76 > 0.05); (c) a significant linear relationship existed between the pretest covariate and posttest dependent variable, as evidenced by the significance values for Deviation from Linearity in both the experimental group (p = 0.531 > 0.05) and the control group (p = 0.785 > 0.05); (d) the homogeneity of regression slopes was met, confirming that the relationship between pretest and posttest did not differ across groups (Group x Pre-test Interaction: F = 0.590, p = 0.445 > 0.05). These findings confirm that ANCOVA is appropriate for testing the research hypotheses.

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ANCOVA Results - Hypothesis Testing

Table 4. ANCOVA Results: Effect of Zep Quiz on Learning Motivation

Tests of Between-Subjects Effects						
Dependent Variable: Posttest Motivasi						
Source	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**	**Partial Eta Squared**
Corrected Model	1275.433[a]	2	637.717	11.719	.000	.254
Intercept	5936.459	1	5936.459	109.089	.000	.613
Pretest	329.308	1	329.308	6.051	.016	.081
Kelompok	931.409	1	931.409	17.116	.000	.199
Error	3754.886	69	54.419			
Total	599989.000	72				
Corrected Total	5030.319	71				
a. R Squared = .254 (Adjusted R Squared = .232)						

Source: Research, 2026

ANCOVA results in **Table 4** confirmed a statistically significant effect of group on posttest learning motivation after controlling for pretest scores, $F(1, 69) = 17.116$, $p < .001$, partial $\eta 2 = .199$. This effect size indicates that group membership (Zcp Quiz vs. Google Forms) accounted for approximately 19.9% of the variance in posttest motivation scores, exceeding the threshold for a large effect ($\eta 2 = 14$) according to Cohen's convention. The adjusted posttest mean for the experimental group ($M = 94.53$) was significantly higher than that of the control group ($M = 87.28$), confirming the hypothesis that Zep Quiz-based gamification assessment significantly enhances dance learning motivation compared to a non-gamified digital assessment.

Observational Data

Table 5. Observation Results

No	Learning Motivation Indicator	Score	Category
1	Enthusiasm	98,6	Very High
2	Active Participation	97,2	Very High
3	Attention and Focus	97	Very High
4	Perseverance in task completion	97,8	Very High
5	Willingness to engage further	96,9	Very High
	Mean Scores	**97,5**	**Very High**

Source: Research, 2026

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Structured observation of student behavior during assessment sessions yielded a mean observation score of 97.5 (out of 100) for the experimental class across three sessions in **Table 5**, classified as Very High according to the observation rubric criteria (>90 = Very High; 75-89 = High; 50-74 = Moderate; <60=Low). Specifically, scores on the five observed behavioral indicators were: enthusiasm (98.6), active participation (97.2), attention and focus (97), perseverance in task completion (97.8), and willingness to repeat/engage further (96.9). By contrast, the control class recorded a mean observation score of 76.3, classified as High. Based on classroom observations, student motivation in the control group appeared to be the lowest, particularly in terms of enthusiasm and active participation. Students tended to show less enthusiasm and be less actively engaged during assessment activities than students in the experimental group. The results of this study indicate that assessments that do not incorporate a gamification approach are less effective in encouraging active engagement during the learning process.

Interview Data

Semi-structured interviews with six purposively selected students from the experimental class (three high-motivation and three moderate-motivation students) and the class teacher revealed consistent themes. Students reported that the avatar customization feature increased their sense of personal ownership in the assessment experience, while the leaderboard stimulated friendly competition that sustained engagement throughout the session. Several students noted a marked reduction in assessment anxiety compared to conventional written tests. One student stated that the quiz felt more like a game than a test, which reduced pressure while still motivating effort. The teacher observed that student participation rates during Zep Quiz sessions were notably higher than during conventional assessments, and that students appeared more willing to attempt challenging questions when scores were displayed in real time.

Discussion

The findings of this study provide robust evidence that Zep Quiz-based gamification assessment significantly enhances dance learning motivation among high school students, yielding a large practical effect (partial 2,199). This magnitude exceeds the findings of comparable gamification studies in other subjects; for instance, an effect size of .14 was reported for Zep Quiz in mathematics (Kulsum et al., 2025), while significant motivational improvements were found through Quizizz in Arabic language instruction, though without a reported effect size (Makalalag & Ainiyah, 2024). The larger effect observed in the current study may reflect the unique affinity between dance education's inherently expressive and social characteristics and the participatory, avatar-based, and visually stimulating features of Zep Quiz. This alignment appears to intensify motivational arousal beyond that typically observed in academic settings (Arufe-Giráldez et al., 2022).

The significant motivational difference between groups can be explained theoretically by three converging frameworks. From the perspective of Self-Determination, the Zep Quiz addresses all three basic psychological needs underlying intrinsic motivation. The point-

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based feedback and leaderboard rankings satisfy the need for competence by providing immediate and transparent performance information. Avatar customization and self-paced quiz participation satisfy the need for autonomy by giving students a sense of personal control. The competitive social atmosphere generated during assessment satisfies the need for relatedness by embedding individual performance within a meaningful social context. This tripartite satisfaction of basic needs provides a mechanistic explanation for the substantial motivational gains observed in the experimental group (David & Weinstein, 2023).

The Joyful Learning theoretical framework (Bhakti et al., 2018) offers a complementary explanatory lens. The gamification components of Zep Quiz, including points, badges, animated interfaces, and a real-time leaderboard, stimulate positive emotional responses that transform the assessment context from one characterized by anxiety and passivity into one marked by enthusiasm and active engagement. The observational data corroborate this interpretation: the experimental class achieved a very high behavioral motivation score of 97.5, compared to the control class 76.3 (high), reflecting observable differences in enthusiasm, attentiveness, and voluntary engagement. Examining individual motivational indicators, the experimental group demonstrated notable gains across all five dimensions measured. The enthusiasm indicator showed the greatest relative improvement (Firman & Sandiarsa, 2024).

The interest and attention indicator also showed substantial improvement, driven by novel and engaging instructional contexts that can develop into sustained individual interest through repeated positive experiences. The independence indicator showed a relatively small increase; nonetheless, it improved carefully, suggesting that the self-paced nature of Zep Quiz participation encouraged students to take greater personal initiative in their assessment engagement. These per-indicator findings enrich the aggregate ANCOVA result by illuminating the specific motivational dimensions through which Zep Quiz exerts its effect (Temel & Cesur, 2024).

The interview and observational data triangulate and deepen the quantitative findings. Students' self-reports of reduced assessment anxiety and heightened personal investment, particularly through avatar identification and leaderboard monitoring, suggest that Zep Quiz effectively leverages both cognitive and affective motivational pathways. The teacher's observation of increased voluntary participation and higher willingness to attempt challenging items during Zep Quiz sessions further supports the argument that gamified assessment reshapes students' orientation toward evaluation tasks, shifting from avoidance to approach motivation. These qualitative patterns are consistent with previous research that found gamification increased active participation and enjoyment in learning across multiple educational contexts (Zafar et al., 2022).

The administration of assessments using Zep Quiz encountered technical difficulties, primarily due to unstable internet connections experienced by some students. This situation resulted in slower access to and completion of the quiz for those students compared to their classmates, although it did not disrupt the overall process. Nevertheless, differences in network quality can affect students’ confidence in participating in online assessments. This aligns with research findings highlighting the importance of reliable technological infrastructure, particularly internet connectivity, as a crucial factor for the effective

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implementation of digital learning and assessment (Haryanti et al., 2023; Maiba et al., 2023; Zou et al., 2025).

It is important to acknowledge several limitations of this study. First, the study was conducted at a single school with a relatively small sample size (n = 72), which limits the generalizability of the findings to other institutional, geographic, or demographic contexts. Second, the study's focus on learning motivation as the primary outcome variable does not allow conclusions about the effect of Zep Quiz on related constructs such as learning achievement, creativity, or psychomotor skill development in dance. Third, data collection relied primarily on self-report questionnaires and structured observation, both of which are subject to response bias and observer effects.

Fourth, while the homogeneity of regression slopes assumption was satisfied, the use of Google Forms itself is a digital tool, as the control condition means the comparison reflects the difference between gamified and non-gamified digital assessment, rather than digital versus conventional assessment. Future research should address these limitations by employing larger, more diverse samples; incorporating mixed-methods designs; and examining the effects of Zep Quiz on a broader range of learning outcomes across multiple school contexts and educational levels.

CONCLUSION

This study provides empirical evidence that the gamification-based Zep Quiz assessment significantly enhances high school students' motivation to learn dance, indicating a large practical effect. The experimental group demonstrated a substantially higher adjusted post-test motivation mean than the control group after controlling for initial differences. This effect was consistent across multiple data sources: questionnaire, observation, and interview, and across all five motivational indicators measured (perseverance, resilience, interest, achievement orientation, and learning independence).

AUTHOR'S NOTE

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