

H5P Lumi's Impact on Students' Motivation, Critical Thinking and Concept Mastery

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ABSTRACT

This study examined the effect of H5P Lumi Education interactive videos on Grade VII students' learning motivation, critical thinking skills, and concept mastery in English language learning at SMP XYZ Tangerang Selatan. A quantitative quasi-experimental design involved one experimental class of 34 students and one control class of 35 students selected through purposive sampling. Data were collected using questionnaires, pretests, and posttests, then analyzed with the Mann-Whitney test and N-gain analysis. The findings showed no significant differences in motivation ($p = 0.309$), critical thinking ($p = 0.289$), or concept mastery ($p = 0.112$). N-gain scores for the control and experimental groups were 0.26 and 0.15 for motivation, 0.43 and 0.56 for critical thinking, and 0.33 and 0.39 for concept mastery. H5P Lumi Education was selected because it offers a freely accessible, teacher-friendly platform for building interactive multimedia content, yet its effectiveness for English language learning at the junior high school level remains underexamined, as prior studies on H5P have largely focused on vocational or higher-education settings; this study addresses that gap. Thus, H5P Lumi Education did not significantly improve the three measured outcomes among students.

Keywords: *Concept Mastery, Critical Thinking, Interactive Media, H5P Lumi Education, Motivation*

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INTRODUCTION

Education plays an important role in developing students' foreign language skills, particularly in English lessons. With advances in information technology, students now have easy and quick access to various online English learning resources. Through the internet, they can access e-books, scientific journals, and videos and audio in English (Haryadi et al., 2023). English is one of the subjects that plays an important role in the learning process at the junior high school level. Junior high school students are expected to possess foreign language skills at Phase D, in which learners can use English texts – whether spoken, written, or visual – as a means of interacting and communicating in various contexts, both formal and informal (Emilia et al., 2025).

There are still problems in English language learning in Indonesia. A report by Antara News dated November 28, 2023, stated that research showed the English proficiency level of the Indonesian population remained low. This is reinforced by data from the EF English Proficiency Index (EF EPI) 2023, which ranked Indonesia 79th out of 113 countries. A common problem frequently found in English learning is that students have difficulty mastering concepts, for example, mastering grammatical structure. Previous research had confirmed that one of the factors contributing to junior high school students' difficulties in English lessons was a lack of understanding of English pronunciation, limited vocabulary, and poor comprehension of English grammatical structure (Husni & Saputri, 2023). This lack of understanding reflected an inadequate mastery of the concepts of the material. Good concept mastery drives and reflects good learning outcomes and helps build sound knowledge (Hara et al., 2023). Based on the results of a simple present tense quiz related to understanding the

concept of simple present tense, 62.86% (22 students) achieved learning outcomes between 70 and 100, while 37.14% (13 students) achieved learning outcomes below 70.

Reading skills are also a problem in classroom learning. Reading skills are closely related to critical thinking abilities such as understanding, analyzing, synthesizing, and drawing conclusions from information in a text. Based on the results of a diagnostic test given to 35 students, some students had difficulty understanding, identifying detailed information, interpreting meaning, and drawing conclusions from the content of the text. Twenty-two students (62.86%) achieved diagnostic test results in critical thinking skills within the range of 70 to 100, while 13 students (37.14%) achieved diagnostic test results in critical thinking skills below 70.

In addition to concept mastery and critical thinking skills, learning motivation in the classroom is also a problem in the learning process. A high level of learning motivation encourages students to be more enthusiastic in participating in the learning process, while low motivation tends to reduce students' enthusiasm and interest in learning (Syachtiyani & Trisnawati, 2021). Based on the researcher's observations, teachers lacked variety in providing interactive learning media. Teachers only provided material in the form of presentation slides and student worksheets, resulting in less-than-optimal student engagement in learning activities.

Learning media is an important component in supporting the teaching and learning process in the classroom. Educators use learning media to improve students' conceptual understanding during the learning process (Nurhamidah et al., 2022; Suparlan, 2020). In the learning process, interactive video can be used as a form of supporting media. Interactive learning video is an audio-visual-based medium equipped with interactive elements used as a tool to convey information from teacher to student, thereby increasing students' learning motivation (Amalia & Agustina, 2022; Utami, 2025). Interactive learning videos can be created using H5P (HTML 5 Package). H5P can create and distribute interactive multimedia content such as presentations, quizzes, games, videos, and so on (Jamaluddin et al., 2023; Utami, 2025). Recent studies within the last five years have shown promising results from H5P-based interactive video across various educational levels. Wahyu et al. (2025) found that implementing H5P interactive video significantly strengthened vocational students' engagement, participation, and conceptual understanding when integrated with the Problem-Based Learning model. Similarly, Sukmawati et al. (2023) reported that H5P media combined with differentiated, project-based learning significantly improved university students' conceptual understanding in biology, while (Riani et al., 2024) demonstrated that interactive video meaningfully strengthened students' critical reasoning ability in support of the Pancasila Student Profile. At the elementary level, Aulia et al. (2025) found that interactive digital video was feasible, practical, and effective for honing fourth-grade students' critical thinking skills. However, these studies were mostly conducted with vocational, higher-education, or elementary-level learners, and none specifically examined H5P Lumi Education within junior high school English lessons. This gap motivates the present study, which uses H5P Lumi Education as an accessible, teacher-friendly platform for building interactive multimedia content to address students' motivation, critical thinking, and concept mastery in an English classroom setting. By using H5P Lumi Education interactive video, it is hoped that motivation, critical thinking ability, and concept mastery in the subject of English can be improved. In this study, the author analyzed the impact of H5P Lumi Education interactive video learning on learning motivation, critical thinking skills, and students' concept mastery.

METHOD

Research Design

This study used a quantitative research approach employing a quasi-experimental research method. The research design used in this study was a nonequivalent control group design. The nonequivalent control group design uses two different groups: one group receives treatment while the other serves as the control group, and the groups are not randomly

selected. A quasi-experimental design was selected instead of a true experimental design because the study was conducted in an existing school setting where students were already grouped into intact classes; random assignment of individual students to the control and experimental groups was therefore not feasible without disrupting regular class schedules and school administration. This design still allows for a treatment-control comparison while accommodating the practical constraints of a real classroom environment (Abraham & Supriyati, 2022).

Time, Place and Subject of the Research

Data for this study were collected at SMP XYZ, Tangerang Selatan. The research was conducted from March to April 2026. A total of 69 seventh-grade students at SMP XYZ served as the subjects of this study. The sample in this study was selected using the Purposive Sampling technique, a sampling method in which subjects, groups, or events are deliberately selected based on the researcher's judgment (Firmansyah & Dede, 2022; Maxwell, 2012). The first group, class VII B (35 students), served as the comparison class without treatment, while the second group, class VII C (34 students), served as the experimental group receiving treatment. The total number of male students in this study was 28, and the number of female students was 41.

Research Instruments

In this study, the instruments used were a questionnaire, a pretest and a posttest. Learning motivation variable is measured using a questionnaire with a 4-point Likert scale (1: Strongly Disagree, 2: Disagree, 3: Agree, and 4: Strongly Agree). The questionnaire consists of 20 questions. The score obtained is calculated by summing the scores of all 20 statement items, with a total maximum of 80 points. The questionnaire items were adapted from the questionnaire items of (Taguchi et al., 2009). The indicators of learning motivation in this study are having effort or endeavor, having proficiency goals in English, desire to act, and having an ideal self-image as a proficient second language (L2) user. Meanwhile, the critical thinking skills and concept mastery variables are measured through tests, namely a pretest and a posttest. The questions are in multiple-choice format and are identical for both tests. There are 20 items in total, with a maximum score of 20 points. For the pretest and post-test questions, the researcher adopted reading texts from various sources on the internet in accordance with the topic being discussed in class, namely Describing Things. Based on the reading texts, the researcher developed multiple-choice questions based on the indicators of critical thinking skills used in this study. The indicators of critical thinking skills in this study include the ability to analyse, interpret, evaluate, and synthesize. Meanwhile, for mastery concept the researcher adopted questions from various sources on the internet in accordance with the topic being discussed in class, namely simple present tense. The researcher selected questions tailored to the indicators of concept mastery used in this study. The indicators of concept mastery in this study include the ability to remember, understand, apply, analyze, and evaluate.

Procedure

This study followed three main stages. In the preparation stage, the researcher conducted a literature review on H5P interactive video learning media, motivation, critical thinking skills, and concept mastery in English language learning; developed a learning scenario and H5P interactive video media for the experimental class while preparing a conventional approach for the control class; and prepared research instruments, including an English learning motivation questionnaire adapted from (Taguchi et al., 2009), a pretest and posttest for critical thinking skills in reading, and a pretest and posttest for mastery of the simple present tense concept. In the implementation stage, the treatment was carried out over two meetings delivered through classical (whole-class) instruction, the duration per meeting was 1 x 45 minutes. In the experimental class, the H5P Lumi Education interactive video on the topic of Describing Things and the simple present tense was displayed to the whole class, and learning proceeded through the H5P Lumi Education features of Interactive Video.

Students watched the video, responded to the embedded questions and quizzes as they appeared, and discussed the answers together with the teacher. In the control class, the same instructional time and the same material were provided through conventional teaching using presentation slides and student worksheets, without any interactive video component, so that the two groups differed only in the learning media used rather than in the content covered or the time allocated. Finally, in the final stage, the data from the questionnaires, pretests, and posttests were processed and analyzed, and the researcher drew conclusions based on the results of that analysis.

Data Analysis

The prerequisite tests in this study are the normality test and the homogeneity test. The normality test is used to determine whether the data distribution follows a normal distribution, which is a key assumption in many parametric statistical analysis techniques (Sari et al., 2024). Normality testing in this study used the Shapiro-Wilk test. The Shapiro-Wilk test is more appropriately applied to small to medium-sized samples (Sari et al., 2024). Meanwhile, the homogeneity test was conducted using Levene's Statistic. The Levene test offers high flexibility because it does not require a normal data distribution (Sari et al., 2024; Sari & Wijayanti, 2022).

The hypothesis test in this study used the Mann-Whitney test, since the data for the critical thinking skills and concept mastery variables were not normally distributed. The Mann-Whitney test was also used to measure the learning motivation variable, even though its data was normally distributed. In addition, an N-Gain test was also conducted to strengthen the results of the hypothesis test analysis.

FINDINGS AND DISCUSSION

Findings

In testing the hypotheses, the researcher conducted the Mann-Whitney test using SPSS 27, followed by the N-Gain test using Online Educational Tools to examine the N-Gain of each group. The following are the results of the Mann-Whitney and N-Gain tests for the variables of learning motivation, critical thinking skills, and concept mastery:

Learning Motivation

Tabel 1. Mann-Whitney Test for Leaning Motivation

	Mark
Mann-Whitney University	216,500
Wilcoxon W	447,500
Z	-1,017
Asymp . Sig. (2-tailed)	.309

Source: Processed data (2026)

The results of the non-parametric Mann-Whitney test showed a significance value (Asymp. Sig. 2-tailed) of 0.309 ($p > 0.05$). This value exceeded the 0.05 threshold, indicating that there was no statistically significant difference between the two classroom groups studied. Accordingly, the alternative hypothesis (H_1), which stated that a difference exists, is rejected, while the null hypothesis (H_0) is accepted.

Tabel 2. N-Gain Score for Leaning Motivation

Group	N-Gain Score	Categories
Control	0.26	Low
Experiment	0.15	Low

Source: Processed data (2026)

Based on the N-Gain calculations, the control class obtained a value of 0.26, which fell into the low category; likewise, the experimental class obtained an N-Gain of 0.15, which

was also categorized as low. This indicated that the treatment applied to the experimental class did not result in better learning motivation compared to the control class. However, it can be concluded that both the control class and the experimental class experienced a low increase in learning motivation.

Critical Thinking Skills

Tabel 3. Mann-Whitney Test for Critical Thinking Skills

	Mark
Mann-Whitney University	335,000
Wilcoxon W	800,000
Z	-1,059
Asymp . Sig. (2-tailed)	.289

Source: Processed data (2026)

Based on the results of the non-parametric Mann-Whitney test, the significance value (Asymp. Sig. 2-tailed) obtained was 0.289 ($p > 0.05$). This indicates that there is no significant difference between the two classroom groups studied. Accordingly, the alternative hypothesis (H_1), which states that a difference exists, is rejected, while the null hypothesis (H_0) is accepted. This non-significant result indicated that the treatment given had not been able to produce a statistically meaningful difference in the observed variable.

Tabel 4. N-Gain Score for Leaning Motivation

Group	N-Gain Score	Category
Control	0.43	Moderate
Experiment	0.56	Moderate

Source: Processed data (2026)

Based on the results of the N-Gain analysis, an increase in learning outcomes was observed in both groups within the moderate category, with values of 0.43 for the control class and 0.56 for the experimental class. This achievement indicates that the treatment applied to the experimental class produced a more significant improvement than that of the control class.

Concept Mastery

Tabel 5. Mann-Whitney Test for Concept Mastery

	Mark
Mann-Whitney University	305,000
Wilcoxon W	656,000
Z	-1,591
Asymp . Sig. (2-tailed)	.112

Source: Processed data (2026)

Based on the results of the non-parametric Mann-Whitney test, the significance value (Asymp. Sig. 2-tailed) obtained was 0.112 ($p > 0.05$). Accordingly, the alternative hypothesis (H_1), which states that a difference exists, is rejected, while the null hypothesis (H_0) is accepted. This non-significant result indicated that the treatment given had not been able to produce a statistically meaningful difference in the observed variable.

Tabel 6. N-Gain Score for Concept Mastery

Group	N-Gain Score	Category
Control (7B)	0.33	Moderate
Experiment (7C)	0.39	Moderate

Source: Processed data (2026)

The results of the N-Gain analysis show that the experimental class (0.39) exceeded the control class (0.33), with both groups falling into the moderate category. This also indicates a

positive increase in learning outcomes in both classes, although the improvement in the experimental class was slightly better than that in the control class. Taken together, these findings suggest that the H5P Lumi Education video treatment did not produce a statistically distinguishable advantage over conventional instruction on any of the three measured outcomes. Even so, the pattern across variables is not similar: for critical thinking and concept mastery, the experimental group showed a numerically larger gain than the control group, hinting at a modest, non-significant benefit that a longer or more intensively integrated treatment might eventually reveal. For learning motivation, by contrast, both groups showed a low increase, suggesting that the treatment was brief, two-meeting duration and classical delivery format were likely insufficient to meaningfully shift students' motivational orientation regardless of condition. These patterns point toward treatment duration, instructional integration, and delivery format, rather than the interactive video medium itself, as the more likely explanations for the non-significant results.

Discussion

H1: There Is a Difference in Students' Learning Motivation between the Control Group and the Experimental Group

The results of the Mann-Whitney test conducted on the learning motivation variable showed a significance value (Asymp. Sig. 2-tailed) of 0.309 ($p > 0.05$). This value was greater than 0.05, indicating that there was no difference between the control and experimental groups; therefore, H_0 was accepted and H_1 was rejected. In this case, the H5P interactive video learning treatment was not sufficiently effective in significantly increasing students' learning motivation.

This differed from the findings of [Prasetyo et al. \(2023\)](#), which showed that the use of interactive media had a significant impact on increasing the learning motivation of elementary school students, and that interactive media could be an effective tool for motivating students in the digital era. The difference from the results of this study was due to differences in the type of interactive media used (educational applications and game-based platforms) and the duration of treatment. This study used only a simple H5P interactive video learning media, with limited instruction over two meetings, delivered through classical (whole-class) learning.

In a Classroom Action Research (CAR) study, [Wahyu et al. \(2025\)](#) revealed that the implementation of H5P interactive video significantly strengthened the engagement and participation of vocational students. The use of H5P interactive video supported independent learning and collaboration and was integrated with the Problem-Based Learning (PBL) model. These results emphasized that the effectiveness of interactive media depends on the duration of treatment and instructional strategy, whereas this study involved no integration with a specific learning model and had a limited time duration. Furthermore, research by [Sudarmawanto, 2025](#) showed that the use of H5P media within the framework of an inductive learning model had a significant positive impact on students' motivation and sense of responsibility. This confirmed that the effectiveness of H5P media depends on its integration with pedagogical methods, whereas this study only presented H5P interactive video without any synergy with a learning model.

H2: There Is a Difference in Students' Critical Thinking Skills between the Control Group and the Experimental Group

The results of the Mann-Whitney test conducted on the Critical Thinking Skills variable show a significance value (Asymp. Sig. 2-tailed) of 0.289 ($p > 0.05$). This indicated that there was no significant difference between the two groups studied, namely the control and experimental groups; therefore, H_0 was accepted and H_1 was rejected. In this case, the H5P interactive video learning treatment was not sufficiently effective in significantly improving students' critical thinking skills.

This differed from the study by [Wahyu et al. \(2025\)](#), which revealed that the implementation of H5P interactive video was able to significantly stimulate critical thinking ability and facilitate both independent and cooperative learning models, making the

integration of H5P into a PBL framework an effective strategy for optimizing the academic performance of vocational students. However, in this study, the learning process only presented H5P interactive video visuals accompanied by quizzes within them.

Furthermore, research by [Aulia et al. \(2025\)](#) showed that the effectiveness of interactive video media was measured through improvements in students' critical thinking ability, as evidenced by the difference between pretest and posttest scores of fourth-grade students at SDN 42 Kota Bima, and that the interactive video met the criteria of feasibility, practicality, and effectiveness in honing students' critical thinking skills. This confirmed that the effectiveness of the interactive video was measured solely by calculating the difference between pretest and posttest scores (a one-group pretest-posttest design), whereas in this study, the effectiveness of the interactive video was measured by examining the difference in mean scores between the control and experimental classes (a nonequivalent control group design).

Another study, by [Riani et al. \(2024\)](#) demonstrated that the use of interactive video had a meaningful impact on students' critical reasoning ability. The integration of technological tools (H5P interactive video) was shown to provide diverse learning experiences while also serving as an effective means of constructing students' critical reasoning in order to achieve the targets of the Pancasila Student Profile. The effectiveness of H5P interactive video is reflected in its function as a means of providing learning experiences, whereas in this study, the effectiveness of H5P interactive video was reflected in its role as a means of improving students' academic achievement.

H3: There Is a Difference in Students' Concept Mastery between the Control Group and the Experimental Group

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The results of the Mann-Whitney test conducted on the Simple Present Tense Concept Mastery variable show a significance value (Asymp. Sig. 2-tailed) of 0.305 ($p > 0.05$). This indicated that there was no significant difference between the two groups studied, namely the control and experimental groups; therefore, H_0 was accepted and H_1 was rejected. In this case, the H5P interactive video learning treatment was not sufficiently effective in significantly improving students' mastery of the Simple Present Tense concept. Several factors may have contributed to the limited impact of the H5P interactive video learning, such as students' academic ability and the material being taught. This could be seen from the mean posttest scores, with the control class scoring 88.9 and the experimental class scoring 84.2, indicating that the control class's mastery of the simple present tense concept was better than that of the experimental class.

In a two-cycle classroom action research study, [Wahyu et al. \(2025, 129\)](#) revealed that the use of H5P-based interactive video was shown to optimize vocational students' conceptual understanding. Through visual, auditory, and contextual stimulation, this medium facilitated independent and collaborative learning integrated into the Problem-Based Learning (PBL) model. These results emphasized that the effectiveness of interactive video depends on the duration of treatment and instructional strategy, whereas this study involved no integration with a learning model and had a limited time duration.

Furthermore, research by [Sukmawati et al. \(2023\)](#) showed that the implementation of the E-PjBL model integrated with differentiated learning and H5P media was shown to significantly improve students' conceptual understanding. This confirmed that the effectiveness of H5P media depends on students' learning needs and its integration with the Project-Based Learning (PjBL) model. Research by [Fitria & Susanto, 2022](#) showed that interactive video had a significant impact on fifth-grade elementary school students' mastery of science concepts, as reflected in a significant improvement in students' learning evaluation results. In science learning, teachers were required to have deep concept mastery and the ability to integrate surrounding environmental phenomena, with the use of interactive video serving to create a more engaging and meaningful learning experience for students. This

confirmed that the effectiveness of interactive video depends on instructional strategy. In this study, there was a lack of variation in instructional strategy.

CONCLUSIONS

In this study, H5P interactive video learning did not have a significant impact on students' learning motivation, critical thinking skills, or mastery of the Simple Present Tense concept. Rather than indicating a limitation of H5P itself, this finding suggests that a short, non-integrated, and classically delivered treatment may be insufficient to produce measurable advantages over conventional instruction, regardless of the engaging nature of the interactive content. The limited treatment duration, absence of integration with instructional models such as Problem-Based Learning (PBL) or Project-Based Learning (PJBL), and implementation through classical learning may have contributed to this result. Therefore, teachers should not consider H5P Lumi Education ineffective, but should embed interactive videos within deliberate instructional designs, such as PBL or PJBL, provide longer and repeated learning sessions, and integrate H5P individually through a Learning Management System (LMS) to maximize its potential effects.

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