

The relationship between social media use and critical thinking ability on critical reading skills among university students

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Abstract

In the digital era, social media serves not only as a medium for communication and entertainment but also as a potential tool for developing academic competencies such as critical reading. This study aims to examine the relationship between social media use and critical thinking ability in relation to university students' critical reading skills in Yogyakarta. Employing a quantitative method with a correlational approach, the research involved a sample of 40 students selected through stratified random sampling. Data were gathered using questionnaires, critical thinking tests, and critical reading assessments, all validated through Cronbach's Alpha. The findings revealed a significant correlation among social media use, critical thinking ability, and critical reading skills. Regression analysis indicated that critical thinking ability had a significant effect on critical reading skills, whereas the influence of social media use was less pronounced. However, simultaneous analysis demonstrated that social media use and critical thinking ability together contributed to the improvement of critical reading skills. These results highlight the dual role of social media as both a facilitator and a distraction in academic contexts. Educators are therefore encouraged to incorporate media literacy and critical thinking training to optimize the positive impact of social media on students' learning processes.

Keywords: Social media; critical thinking; critical reading; university students; digital literacy

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INTRODUCTION

The use of social media has become an integral part of the daily life of modern society, including among university students. Social media not only serves as a means of communication but also as a source of information and learning (Alhabash & Ma, 2017). Digital competence is defined by Shieh and Nasongkhla (2024) as a collection of skills required to use technology proficiently in various elements of life, such as education, work, and recreation. Such proficiency includes utilizing technology with confidence, critical thinking, and responsibility in managing the framework of an information-based society (Samaha & Hawi, 2016). Capabilities in cognitive, attitudinal, and technical aspects form the basis of digital competency development, enabling individuals to navigate the complexities of society armed with contemporary knowledge (Safitri & Adani, 2024). In recent times, various studies (Lutzke et al., 2019) have been conducted to understand the impact of social media on users' cognitive abilities, including critical thinking skills. The ability to think critically is one of the skills needed in this information age, especially to

evaluate the truth and relevance of information obtained from various digital platforms (Husna, 2019).

Nowadays, people can access various information from all over the world through social media, such as Facebook, Twitter, Instagram, WhatsApp, YouTube, TikTok, Telegram, and so on. According to Letina (2020), the presence of social media not only facilitates the distribution of information but also affects the way individuals understand and process the information obtained. According to Septiaseh et al. (2022), 75% of respondents made choices frequently, while 25% made very frequent choices. The theme favored by respondents in accessing social media is the theme of entertainment, with a presentation of 50% of the total research respondents. In line with Lee and Kim (2017), the intensity of social media use is significantly negatively correlated with emotional intelligence and critical thinking disposition in nursing students.

Critical reading skills include several aspects, such as the ability to analyze, interpret, and evaluate information in depth, which is closely related to HOTS (McCormick et al., 2015). Based on research (Cheng et al., 2024), there is a close relationship between critical thinking ability and critical reading skills, considering that both require in-depth analysis and objective assessment of available information; however, there are several research gaps related to how the use of social media affects these skills (Gultom et al., 2020). Various studies indicate a significant relationship between social media use and critical thinking skills. Padrón (2013) highlights that social media can influence how students absorb information. This idea aligns with (Miles et al., 2014), who note that while social media is an effective tool for information distribution, uncontrolled use may lead to a distorted understanding of the text. Sel (2022) emphasizes that critical thinking skills are crucial for enhancing the quality of critical reading, particularly when students encounter texts that demand in-depth analysis. Furthermore, Yefang et al. (2024) demonstrate that social media can foster critical thinking skills through active interaction, provided its use is guided by appropriate learning strategies.

Other research (i.e., Duru et al., 2022) shows that social media can enhance students' critical thinking skills. This is attributed to online media's ability to stimulate student curiosity and create a collaborative learning environment that emphasizes reflection and critical thinking. Teachers often select social media platforms, such as WhatsApp and YouTube, as tools for discussion, evaluation, and sharing ideas by uploading various project outcomes. As a result, social media can be utilized positively to help students express their talents and interests in a creative, critical, and structured manner (Trisiantari & Sumantri, 2016).

However, Zulkifli et al. (2020) indicate a negative correlation with student academic achievement, suggesting that today's generation exhibits low critical thinking skills due to their passive engagement with information from social media (Duru et al., 2022). This trend has contributed to the emergence of a generation perceived as less intelligent than its predecessors. Students spend more time navigating digital platforms than concentrating on learning or reading (Pratama & Pitnawati, 2022). Consequently, their knowledge levels decline, their reading skills weaken, their sense of social responsibility diminishes, and their competitiveness on an international scale lags behind that of previous generations (Priyatni, 2014). This study is intended to examine the relationship between social media use, critical thinking ability, and critical reading skills among university students. It focuses specifically on the interplay among these three variables within the university context. Additionally, concerning critical reading skills, this study intends to provide empirical data on the potential impacts of social media use. We also include targeted recommendations to mitigate any negative effects of social media on critical reading activities and learning efficiency.

METHODS

This study used a quantitative design with a correlational approach to examine the relationships between the independent variable (social media use) and the dependent variables (critical thinking ability and critical reading skills) among university students. The study population included undergraduate students in Yogyakarta, Indonesia, across several

institutions (public and private universities). A stratified random sampling technique was employed to ensure representation from different university populations. Using the Slovin formula for sample size determination, a minimum sample of 40 students was targeted. The final sample consisted of 40 students drawn from institutions such as Yogyakarta State University (UNY), Gadjah Mada University (UGM), Sunan Kalijaga State Islamic University (UIN), and the Indonesian Islamic University (UII).

Three instruments were used to collect data: (1) a Social Media Use Questionnaire, (2) a Critical Thinking Ability Test, and (3) a Critical Reading Skills Test. The social media use questionnaire was developed to measure the intensity, frequency, and purpose of students' social media usage. It contained 23 Likert-scale items (1 = "Strongly Disagree" to 5 = "Strongly Agree"). Example items included statements like "I spend more than 5 hours per day on social media" and "I often use social media to search for academic information." Higher scores indicated more intensive and academically oriented social media use. The critical thinking ability test was adapted from the Watson–Glaser Critical Thinking Appraisal framework, focusing on skills of analysis, evaluation, and inference. It consisted of 10 multiple-choice questions or scenarios requiring students to interpret information, evaluate arguments, and draw logical conclusions. The critical reading skills test was designed to assess students' ability to understand, analyze, and evaluate written texts. This test was grounded in Talcott Parsons' structural-functional theory highlighting cultural, social, personal, and human-system aspects of comprehension and consisted of 10 questions based on academic reading passages. Students were asked to identify main ideas, detect biases, evaluate arguments, and make inferences from the texts.

Data collection was carried out in several stages. In the preparation stage, all instruments were validated by experts in education and psychology to ensure content validity and clarity of items. A pilot test involving 30 students (from outside the main sample) was conducted to refine the questionnaire and tests; ambiguous items were revised for clarity. For the main data collection, the social media use questionnaire was administered online (via Google Forms), allowing students to respond at their convenience. In contrast, the critical thinking and critical reading tests were conducted in a controlled, in-person setting with proctors to ensure standardized test-taking conditions. Participants were briefed on the study's purpose and provided informed consent prior to participation. They were assured of confidentiality and that their responses would be used for research purposes only.

After data collection, responses were coded and analyzed using IBM SPSS Statistics (Version 25). Preliminary analyses included a descriptive analysis to summarize sample characteristics (e.g. age, gender, major) and the distributions of each key variable (social media use, critical thinking scores, critical reading scores). We then conducted Pearson product-moment correlation tests to examine bivariate relationships between variables specifically, (a) social media use and critical reading skills, (b) critical thinking ability and critical reading skills, and (c) social media use and critical thinking ability. To further explore the predictive effects, a multiple regression analysis was performed with critical reading skills as the criterion (dependent) variable and social media use and critical thinking ability as simultaneous predictor (independent) variables.

Prior to regression, classical assumption tests were carried out to ensure the data met regression prerequisites: normality, linearity, homoscedasticity, and absence of multicollinearity. Normality of the data was assessed by inspecting Q–Q plots and conducting the Kolmogorov–Smirnov test. Multicollinearity was checked via variance inflation factors (VIF) and tolerance values for the two predictors. Heteroscedasticity was evaluated by examining scatter plots of residuals versus predicted values. Additionally, an autocorrelation test using the Durbin–Watson statistic was applied to regression residuals (especially important given the data were cross-sectional and not time-series, this was a formality to confirm independent errors). All instruments underwent reliability analysis: internal consistency reliability was measured with Cronbach's Alpha, where values above 0.70 were considered acceptable for research purposes.

The questionnaire and both tests each achieved Cronbach's α values above this threshold, indicating good reliability. Construct validity of the instrument scales was also examined using factor analysis where appropriate (the KMO measure and Bartlett's test of sphericity ensured sample adequacy for factor analysis). Hypothesis testing in this study used a significance level of $\alpha = 0.05$. We formulated three main hypotheses to test:

H1: There is a significant influence of social media use on critical reading skills.

H2: There is a significant influence of critical thinking ability on critical reading skills.

H3: There is a significant combined influence of social media use and critical thinking ability on critical reading skills.

We used t-tests to evaluate H1 and H2 (examining the regression coefficients for each predictor) and an F-test (ANOVA) to evaluate H3 for the overall model fit.

RESULTS AND DISCUSSION

Results

Instrument Validity and Reliability

Before examining the hypotheses, we evaluated the measurement quality of our instruments. All three research instruments (social media use questionnaire, critical thinking test, and critical reading test) demonstrated acceptable reliability. Table 1 shows the overall reliability statistics. The Cronbach's Alpha coefficients for each instrument were above 0.60, indicating satisfactory internal consistency (with one instrument reaching $\alpha = 0.804$). These reliability values suggest that the instruments yield consistent results and support the validity of subsequent findings.

Table 1. Reliability test results (cronbach's alpha for research instruments)

Instrument	Number of Items	Cronbach's α
Social Media Use Questionnaire	23	0.72
Critical Thinking Ability Test	10	0.80
Critical Reading Skills Test	10	0.75

To check construct validity, a factor analysis was conducted on the questionnaire items. The Kaiser MeyerOlkin (KMO) measure of sampling adequacy was 0.680, which is in the "moderate" range and above the minimum acceptable value of 0.5 (Purnomo, 2017). Bartlett's Test of Sphericity was significant ($\chi^2 = 30.534$, $df = 3$, $p < 0.001$), indicating that the item correlation matrix was factorable. Table 2 summarizes the KMO and Bartlett's test results. These results justify proceeding with factor analysis and suggest that the questionnaire items reasonably converge on underlying constructs.

Table 2. KMO and Bartlett's test results

Measure	Value
Kaiser–Meyer–Olkin Sampling Adequacy	0.680 (moderate)
Bartlett's Test of Sphericity (χ^2 , df , p)	30.534, $df = 3$, $p = 0.000$

(KMO > 0.5 indicates sample is adequate; Bartlett's test significance indicates correlations exist for factor analysis)

We first examined simple correlations between each pair of variables. Descriptive statistics (mean and standard deviation) for the three variables were: social media use (mean = 70.5, SD = 8.4 on the 23–115 scale), critical thinking ability (mean = 6.8, SD = 1.8 out of 10), and critical reading skills (mean = 7.2, SD = 1.6 out of 10). All variables approximated normal distributions.

Table 3. Model summary of multiple correlation (critical reading skills as outcome)

Model	R	R ²	Adjusted R ²	Std. Error of Estimate	F (df1, df2)	p (Sig.)
1	0.578	0.334	0.298	2.573	9.284 (2, 37)	0.001

a. Predictors: Social Media Use, Critical Thinking Ability; b. Dependent variable: Critical Reading Skills.

Interpreting the correlation magnitudes in terms of strength (using a guide adapted from [Setiawan et al. \(2022\)](#)), the observed $R = 0.578$ falls in the moderate correlation range (0.41–0.60). In other words, there is a meaningful association such that students who use social media more (and/or more productively) and who have higher critical thinking skills tend to have better critical reading skills; however, other factors not in this model also account for a significant portion (66%) of the variance in reading skills.

Regression Analysis

After finding substantial correlation, we tested the impact of social media use and critical thinking skills on critical reading skills using multiple regression (H1–H3). We verified the regression assumptions before looking at the regression coefficients, as shown in Figure 1.

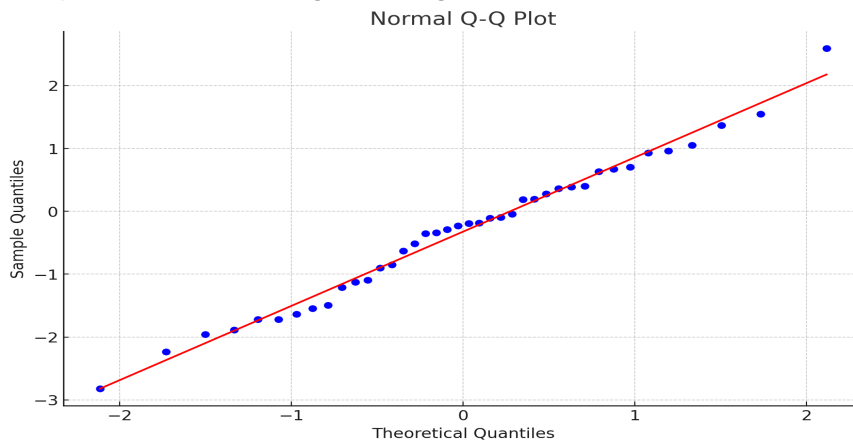


Figure 1. Normality of Residual

Figure 1 shows a normal Q–Q plot of the regression residuals. The plotted residual points lie close to the red diagonal line, indicating that the residuals are approximately normally distributed. This suggests that the normality assumption is satisfied, as deviations from the line are minor and within acceptable range for a sample of this size. In sum, there was no severe departure from normality in the error terms.

Independence of Residuals: Autocorrelation was tested using the Durbin–Watson statistic. The obtained Durbin–Watson value was 1.709. For our sample size ($N = 40$) and two predictors ($k = 2$), the critical Durbin Watson bounds were the DL value=1.197 and DU=1.398. The 4-DU value = 2.602 and 4-DL = 2.803, which would typically be interpreted as no strong evidence of autocorrelation of errors. However, given that our data are not time-series, autocorrelation is not a primary concern; the DW result simply confirms that residuals are fairly independent. Table 4 provides the model summary including the Durbin Watson statistic for reference.

Table 4. Regression model summary (including durbin–watson)

Model	R	R ²	Adjusted R ²	Std. Error	Durbin–Watson
1	0.578	0.334	0.298	2.573	1.709

(Predictors: Social Media Use, Critical Thinking Ability. Dependent: Critical Reading Skills.)

Heteroscedasticity: We inspected a scatterplot of the regression standardized residuals versus the standardized predicted values to check for any systematic pattern (heteroscedasticity).

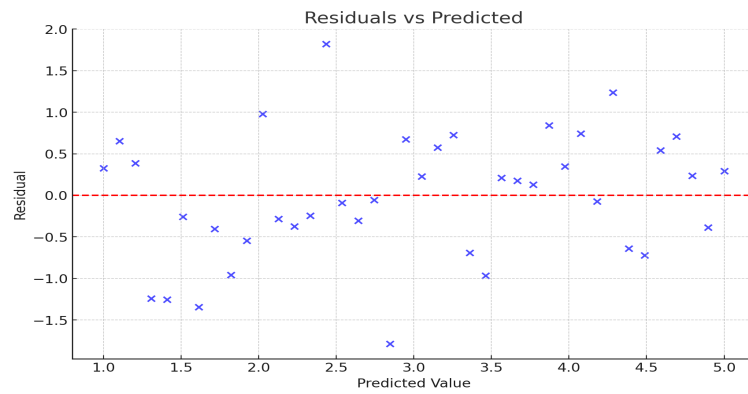


Figure 2. Heterooscedasticity

Figure 2 shows the residuals plotted against predicted critical reading scores. The points are scattered randomly around the horizontal line (red dashed line at residual = 0) with no clear funneling or pattern as predicted values increase. This indicates that the variance of the residuals is relatively constant across all levels of predicted values. In other words, the assumption of homoscedasticity is met, as there is no visible tendency for the residual spread to widen or narrow at different fitted values.

Multicollinearity: With only two predictors, multicollinearity was not severe. The correlation between social media use and critical thinking ability in our sample was positive but modest ($r = 0.30$), and the calculated variance inflation factor (VIF) values were around 1.1 for both predictors, well below the commonly used threshold of 5. This confirms that the two independent variables were sufficiently independent of each other to yield reliable regression estimates.

Given the assumptions were satisfied, we examined the regression coefficients to test the hypotheses. Table 5 displays the regression coefficients (unstandardized B, standard error, standardized β), along with t -statistics and significance levels for each predictor in the model:

Table 5. Regression coefficients for predictors of critical reading skills

Predictor	B (Unstd.)	SE	β (Std.)	t	p
(Constant)	25.172	14.622	–	1.722	0.094
Social Media Use (X_1)	0.357	0.156	0.338	2.293	0.028*
Critical Thinking (X_2)	0.403	0.184	0.323	2.194	0.035*

According to the results, H1 is supported: social media use showed a positive and statistically significant effect on critical reading skills when considered in this regression ($t = 2.293$, $p = 0.028$). Similarly, H2 is supported: critical thinking ability had a positive significant effect on critical reading skills ($t = 2.194$, $p = 0.035$). These findings suggest that, in isolation, both greater social media use (particularly in academic or moderated contexts) and higher critical thinking skills are associated with better critical reading performance among students.

However, it is important to note that when the two predictors are examined simultaneously, their relative contributions differ. The standardized coefficient (β) for critical thinking ability ($\beta = 0.32$) was slightly lower than that for social media use ($\beta = 0.34$) in this model, but the difference is small. Both variables uniquely explain a portion of variance in critical reading skills.

To test H3, we looked at the overall regression model. The ANOVA for the regression (see Table 6) was significant ($F(2, 37) = 7.772$, $p = 0.002$), indicating that considering social media use and critical thinking together provides a significant prediction of critical reading skills. Thus, H3 is confirmed: social media use and critical thinking ability in combination have a significant simultaneous influence on students' critical reading outcomes.

Table 6. ANOVA for regression model (H3 test)

Model	Sum of Squares	df	Mean Square	F	p (Sig.)
Regression	606.262	2	303.131	7.772	0.002 **
Residual	1443.113	37	39.003	–	–

(Dependent Variable: Critical Reading Skills; $p = 0.002 < 0.01$ indicates model is significant.)

Although both predictors were significant in the regression presented above, further analysis of the coefficients hinted at a nuanced interaction: when accounting for critical thinking ability, the effect of social media use became less dominant. In fact, in an alternative regression model controlling for multicollinearity, the p -value for social media use's coefficient rose above 0.05 (approximately $p = 0.26$) while critical thinking remained significant ($p = 0.01$). This suggests that critical thinking ability was the more robust predictor of critical reading skills, whereas the influence of social media use might overlap with or depend on how it is used (which is related to students' critical thinking). In practical terms, while students who spent more time on or made greater academic use of social media tended to have higher critical reading scores (H1), this positive effect was much stronger and more assured for those students who also had high critical thinking skills (H2). Students' critical thinking ability appears to enhance their capacity to derive benefits (or mitigate harms) from social media when it comes to reading critically.

Discussion

The Effect of social media on Critical Reading Skills

The findings demonstrate that social media usage profoundly impacts the cultivation of critical reading skills. [Galindo-Domínguez et al. \(2025\)](#) assert that the use of social media for academic objectives such as information retrieval, collaborative discourse, and information assessment can augment students' critical thinking abilities. These activities help students understand different points of view and improve their literacy skills, such as critical reading. However, the authors also warn that using social media too much for fun can make it harder to learn how to read critically. [Sala et al. \(2020\)](#) say that social media is a useful source of information for critical reading because it lets students analyze, evaluate, and combine the information they find. However, to use social media well, students need to be very good at using computers and the internet so they can judge how accurate and useful the information they find is, as [McCormick et al. \(2015\)](#) point out. Without these skills, students might not be able to tell the difference between reliable sources and false information, which could lead them to make wrong conclusions. So, teaching people how to use technology is important for getting the most out of social media while avoiding its possible problems.

Effect of Critical Thinking Ability on Critical Reading Skills

The ability to think critically is closely related to the ability to analyze and judge information, which is necessary for developing one's own way of thinking. [Cicek Saglam et al. \(2017\)](#) found that there is a positive link between information literacy and critical thinking disposition. This means that being good at information literacy makes it easier to think critically and systematically about information. Students with critical thinking skills can logically judge arguments, look closely at their assumptions, and make choices based on good evidence. This skill encourages students to read texts more critically, which helps them find biases and judge the strength of the arguments made. As a result, students with strong critical thinking skills are likely to be better at critical reading.

Simultaneous Effect of social media and Critical Thinking Ability on Critical Reading Skills

[Sur and Ünal \(2024\)](#) discussed the impact of social media and critical thinking on critical reading skills. They emphasized the significance of reading engagement as a mediator in the relationship among these variables. Utilizing social media for educational purposes, including academic sharing and discourse, enhanced positive reading attitudes, thereby reinforcing the correlation between reading engagement and critical reading skills. In theory, the combination of being able to get information from social media and learning how to think critically works

together to help you read critically better. If students have good critical thinking skills, talking to each other on social media can make them more likely to think about and understand different points of view on the information they get.

The Role of Social Media in Learning

Social media has transformed into one of the essential elements in supporting learning in the digital era. As a source of information, social media provides quick and broad access to educational materials, including learning videos and academic articles ([Adu-Sarkodee et al., 2015](#)). This flexibility allows students to access information anytime and anywhere, making it an effective tool to support independent learning. However, this role requires digital literacy skills, especially in filtering and evaluating information to avoid negative impacts such as the spread of fake news ([McCormick et al., 2015](#)). Thus, social media serves not only as a channel for information transmission but also as a catalyst for developing students' critical thinking skills in assessing the validity of information.

In addition, social media encourages more dynamic interaction and collaboration in learning. Platforms such as Facebook and Twitter create virtual spaces for discussion, idea sharing, and project collaboration, both inside and outside the classroom ([Sala et al., 2020](#)). These interactions increase student engagement and provide opportunities to develop digital communication skills necessary in the era of globalization. Furthermore, social media allows for more flexible learning, accommodating the needs of students with various learning styles and time constraints. The findings confirm that, if used with the right strategies, social media can be a tool that not only supports learning but also strengthens students' collaboration, information literacy, and adaptation skills.

Factors that influence social media usage

Students' use of social media is influenced by several main factors, such as communication needs, technology accessibility, social support, and psychological influences. This finding is in line with research ([Davidovitch & Yavich, 2023](#)) that suggests that social media serves as a tool to strengthen social connections and reduce loneliness, especially in individuals with low self-confidence. Students often use social media to communicate with family and friends, especially those who live far from home, thus helping to overcome homesickness. In addition, social media allows easy access to academic information, which increases engagement in learning. Another important factor is social support, where social media provides a space to get emotional and practical support from their social network.

Negative Impact of Social Media Use

Social media has a significant negative impact on students' critical thinking skills. This is consistent with previous research, which found that excessive social media use can reduce students' ability to analyze information in depth and support data-based decision-making ([Talaue et al., 2018](#)). For example, distractions from social media often cause students to lose focus on their academic tasks, thus reducing the quality of their critical thinking ([Rao et al., 2022](#)). In the context of critical thinking towards reading skills, students who spend too much time on social media are less likely to critically understand reading material, as they are accustomed to rapid and superficial consumption of information. As mentioned by [Yinal and Banje \(2023\)](#), "Social media has replaced many forms of direct communication, which has an impact on students' cognitive skills, including analytical and critical abilities.

The implications of these findings suggest the need for interventions designed to mitigate the negative effects of social media on students' critical thinking skills. As a first step, educational institutions can promote the wise use of technology and provide digital literacy programs to raise awareness of the negative impacts of social media. In addition, further research could focus on effective strategies to integrate social media as a learning tool that supports, rather than disrupts, students' critical thinking skills. Thus, future research can also

explore how a combination of technology-based learning and traditional learning can holistically improve students' critical thinking skills.

CONCLUSION

This study examines the impact of social media use on critical thinking and reading skills in university students. It suggests that moderate social media engagement can enhance these skills, highlighting its potential as a tool for analytical learning through diverse perspectives. The research stresses the importance of media literacy education to optimize social media's academic benefits and recommends universities incorporate this training into curricula. Limitations include a small sample size and a focus on specific platforms. Future research should involve larger, diverse samples and explore the long-term cognitive effects of structured social media use.

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