

# The Effect of TikTok Usage on the Social Behavior of Generation Z Using Simple Linear Regression

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## Article Info

### Article history:

Received 2026-02-25

Revised 2026-04-08

Accepted 2026-04-10

### Keyword:

Tiktok,  
Generation Z,  
Social Behaviour,  
Simple Linear Regression.

## ABSTRACT

The rapid development of social media has significantly influenced the social interaction patterns of young people, particularly Generation Z. TikTok is one of the most widely used platforms that provides short video content supported by personalized recommendation algorithms. This study aims to analyze the effect of TikTok usage on the social behavior of Generation Z in Semarang Regency. This research employed a quantitative explanatory approach using a simple linear regression model. Data were collected through a structured questionnaire distributed to 45 Generation Z respondents who actively use TikTok, selected using purposive sampling. The TikTok usage variable was measured based on frequency of use, duration of access, and interaction with video content, while social behavior was measured through indicators such as interpersonal communication, social empathy, environmental awareness, and social interaction patterns. Prior to regression analysis, classical assumption tests including normality, linearity, and heteroscedasticity tests were conducted to ensure the validity of the model. The results indicate that TikTok usage has a positive and statistically significant effect on the social behavior of Generation Z, with a regression coefficient of 0.341 and a significance value of less than 0.05. The coefficient of determination ( $R^2$ ) value of 0.252 indicates that TikTok usage contributes 25.2% to variations in social behavior, while the remaining 74.8% is influenced by other factors outside the research model. These findings indicate that TikTok usage plays a role in shaping the social behavior patterns of Generation Z, particularly in communication and digital interaction.



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## I. INTRODUCTION

In this digital age, information and communication technology has developed rapidly and has brought about major changes in the patterns of social interaction, especially among young people such as Generation Z or Gen Z. One clear example of this development in information and communication technology is the increase in the use of social media as a means of communication, entertainment, storage of the latest information, and the formation of identity or self-image. Social media not only helps people exchange information, but it can also influence the values, attitudes, and social behavior of its users. Generation Z, who were born and raised amid advances in digital technology, are the group that most frequently uses social media in their daily lives.

With the rapid growth of social media applications today, TikTok has become one of the most popular and widely used applications among Gen Z. TikTok offers a variety of short video content supported by an intelligent system that is able to tailor content to the personal interests, habits, and preferences of its users. This creates a pattern of more frequent, repeated, and continuous use, which can even potentially lead to addiction. These characteristics make TikTok not only a medium for entertainment, but also a virtual social interaction space, a medium for shaping public opinion, and a vehicle for self-expression for its users. This aligns with Padilah's (2023) research, which shows that the intensity of TikTok usage has a fairly strong correlation with changes in the social behavior of adolescents, as indicated by a coefficient of determination value of 36.7% [1].

However, using the TikTok app is not always beneficial for its users. According to a number of studies, excessive and uncontrolled exposure to content on TikTok can affect communication styles, reduce social empathy, and encourage individualistic attitudes among users, especially the younger generation. Al-faris (2024) found that although TikTok use affects social behavior, this influence is not always statistically significant, indicating that other factors, such as social environment, cultural background, digital literacy level, and personal characteristics of users, also influence the relationship [2]. The results show that TikTok use's effect on social behavior is highly complex and variable and depends heavily on the social context and individual user's situation.

Generation Z is described as open, adaptive, and highly digitally connected. However, patterns of direct social interaction can be altered by the intensity of interaction in virtual spaces. In Muslimin's (2025) study, it was shown that the use of social media, including TikTok, contributed 23.3% to changes in adolescent social behavior, particularly in terms of interpersonal communication and social sensitivity [3]. This indicates that social media truly plays a role in determining the social behavior of Gen Z.

The social behavior of Generation Z in regencies such as Semarang Regency is interesting and important for further research in the local context. Semarang Regency has unique social and cultural characteristics. Traditional community values remain intact and are applied in daily life, and the younger generation is very familiar with and actively uses digital technology, especially social media. This encounter between traditional and digital cultures can influence how Generation Z interacts, communicates, and socializes. According to Gusri and Dwatra (2024), their research shows that the use of the TikTok application in non-urban areas can influence the social patterns of adolescents, both positively by increasing creativity and self-expression and negatively by changing social habits and norms [4]. Therefore, the unique and complex social dynamics resulting from this situation must be studied scientifically and comprehensively in order to be fully understood.

Previous studies have shown that the use of TikTok can influence the social behavior of adolescents, such as how they interact with others, their level of empathy, and their ability to control themselves on a daily basis. According to Mardalena and Michael (2023), the intensity of TikTok use can affect adolescents' communication patterns, making them more active on the internet and more likely to engage in consumptive behavior due to exposure to diverse and persuasive content [5]. On the other hand, Sari et al. (2025) explain that excessive use of TikTok can reduce the quality of direct social interaction, but it can also increase teenagers' courage and ability to express themselves, their creativity, and their opinions through digital media [6].

Although various studies have discussed the influence of TikTok use on the social behavior of adolescents and young people, most of these studies have been conducted in urban areas or in specific educational environments, such as schools

and colleges. Studies that specifically examine Generation Z at a more diverse regional level, particularly in Semarang Regency, are still very limited and rare. In addition, previous studies have shown differences in findings regarding the extent of TikTok's influence on social behavior, both strong and weak, as reflected in differences in significance levels and determination coefficient values. This condition indicates that the influence of TikTok on social behavior still needs to be further studied by considering the regional context and social characteristics of the local community. Therefore, this study aims to analyze the influence of TikTok social media use on the social behavior of Generation Z in Semarang Regency by considering the characteristics of the region and the social conditions of the local community.

Based on this research gap, this study needs to be conducted to determine the extent to which the use of TikTok social media influences the social behavior of Generation Z in Semarang Regency. The results of this study are expected to increase understanding and enrich scientific studies in the field of communication and social behavior, as well as provide practical benefits for parents, educators, and related parties in developing and implementing digital literacy strategies that are more appropriate, effective, and in line with the characteristics of Generation Z.

## II. METHOD

This chapter systematically describes the research methods used to achieve the research objectives, starting from the research approach and design, determination of the location and research subjects, sampling techniques, variable determination and operational definitions, to data collection and analysis techniques. The selection of research methods was made with careful consideration and tailored to the characteristics of the research problem, namely to examine the influence of TikTok social media use on the social behavior of Generation Z, so that the approach used was able to produce research findings that were objective, measurable, and scientifically accountable through the application of quantitative methods.

### A. Research Approach

This study uses a quantitative approach with an explanatory research design, which aims to explain the causal relationship between the variables of TikTok social media use and the social behavior of Generation Z through numerical data measurement and statistical analysis. This approach was used because it is considered capable of presenting objective and quantitatively measurable analysis results in assessing the influence of social media use on changes in social behavior, as is widely used in various digital social studies that examine the role of new media on generational behavior [7]. The explanatory design allows researchers to not only describe phenomena, but also empirically test the strength and direction of influence between variables [8].

### B. Research Location and Subject

This research was conducted in Semarang Regency, with the research subject being Generation Z who actively use the TikTok application. The research location was selected based on the characteristics of the region, which has many rural areas that are experiencing an increase in social media use, particularly TikTok, thus creating a unique social dynamic between traditional values and modern digital culture [9]. The research subjects were selected because Generation Z is the age group that is most adaptive to digital technology and has a high level of engagement in the use of short video-based social media platforms [10].

### C. Population and Sample

The population in this study was all Generation Z individuals residing in Semarang Regency who actively use the TikTok application. Given the large population and limited research resources, purposive sampling was used, which is a sampling technique based on specific criteria relevant to the research objectives [11]. The sample criteria in this study are as follows.

- Belong to the Generation Z age range
- Reside in Semarang Regency
- Regularly use the TikTok application in their daily activities

This technique is considered capable of producing respondents who match the characteristics of the research so that the data obtained can describe the phenomenon being studied more accurately [12].

### D. Variables and Operational Definitions

This study uses two main variables, namely independent variables and dependent variables. The independent variable in this study measures the use of TikTok social media, which is measured based on the intensity of TikTok social media use, the length of time spent accessing it, and the level of user interaction with the video content watched. Meanwhile, the dependent variable measures the social behavior of Generation Z towards the use of TikTok social media, which includes several aspects of interpersonal communication, social empathy, concern for the social environment, and mindset when interacting with others. These variables were determined based on previous research showing that the use of TikTok social media has an influence on changes in communication patterns and social interactions among young people [13].

### E. Data Collection Instruments and Techniques

The research instrument used was a closed questionnaire compiled based on indicators for each research variable, namely the use of TikTok social media and the social behavior of Generation Z. The questionnaire was designed to obtain structured data that could be easily analyzed quantitatively.

The questionnaire uses a five-point Likert scale to measure respondents' level of agreement with the statements provided in a measurable and systematic manner. The use of the Likert scale is considered effective for measuring the attitudes and social behavior of social media users, especially among

adolescent and young adult respondents [14]. Data collection techniques were carried out by distributing questionnaires to respondents who met the research criteria. In addition, a literature study was conducted to strengthen the theoretical basis and support the analysis and discussion of the research results.

### F. Validity Test

Validity testing was conducted to determine the extent to which each item in the questionnaire was able to accurately measure the research variables. Validity testing in this study used the Pearson Product Moment Correlation method by correlating the score of each item with the total variable score. The validity testing criteria were carried out by comparing the calculated  $r$  value with the table  $r$  value at a significance level of 0.05. The question item was declared valid if the calculated  $r$  value was greater than the table  $r$  value (calculated  $r >$  table  $r$ ). Conversely, if the calculated  $r$  value was smaller than the table  $r$  value, the question item was declared invalid and was not used in further analysis. This validity test was conducted on all items in the questions on TikTok usage and Generation Z social behavior variables obtained from the questionnaire distributed to respondents.

### G. Reliability Test

This validity test was conducted on all items in the questions on TikTok usage and Generation Z social behavior variables obtained from the questionnaire distributed to respondents. Reliability testing in this study used Cronbach's Alpha method. A variable is considered reliable if the Cronbach's Alpha value is greater than 0.70. If the Cronbach's Alpha value is less than 0.70, the instrument is considered to have a low level of reliability and the questionnaire items need to be revised. Reliability testing was conducted on all questionnaire items that had been validated in the validity testing stage. The results of this reliability testing showed that the instruments used in the study had a good level of consistency, making them suitable for use in simple linear regression analysis.

### H. Data Analysis Techniques

The data analysis technique used in this study is simple linear regression, which aims to identify the existence of influence and measure the magnitude of the influence of independent variables on dependent variables. This method was chosen because the study only involved one independent variable and one dependent variable, which made it possible to analyze the relationship between the two variables in a more specific, systematic, and measurable manner.

In this study, simple linear regression was used to analyze the effect of TikTok social media usage as an independent variable on the social behavior of Generation Z as a dependent variable. This analysis produced a regression equation model that describes the linear relationship between the two variables. The simple linear regression equation is formulated as follows.

$$Y = a + bX$$

Explanation:

Y = Social behavior of Generation Z

X = Use of TikTok social media

a = Constant

b = Regression coefficient

The value of the regression coefficient b shows the direction and level of influence of the variable of TikTok social media use on the social behavior of its users, where a positive coefficient value indicates a direct relationship, while a negative value indicates an inverse relationship between the two variables.

Before the regression model is used as the basis for drawing research conclusions, classical assumption testing is carried out to ensure that the regression model used meets the applicable statistical requirements. This classical assumption testing includes normality testing, linearity testing, and heteroscedasticity testing, each of which serves to assess the feasibility of the data and regression model before further analysis is carried out.

#### 1) Normality Test

A normality test is conducted to determine whether the residuals in the regression model have a distribution that follows a normal distribution. The normality test in this study was conducted using the Kolmogorov–Smirnov test, which is mathematically formulated as follows.

$$D = \max |F_o(x) - F_e(x)|$$

Explanation:

D = Kolmogorov–Smirnov statistical value

$F_o(x)$  = Empirical cumulative distribution function of residual data

$F_e(x)$  = Theoretical cumulative distribution function of normal distribution

Residual data is considered normally distributed if the significance value (Sig.) obtained from the Kolmogorov–Smirnov test is greater than 0.05. This condition indicates that the residual distribution does not deviate significantly from the normal distribution, thus fulfilling the assumption of normality in the regression model.

#### 2) Linearity Test

Linearity testing is used to examine the relationship between independent and dependent variables in a regression model, which will show a linear relationship. This test is important to ensure that the use of simple linear regression is appropriate, because non-linear relationships between variables can cause the analysis results to be inaccurate and potentially lead to errors in drawing conclusions. Linearity testing is performed through analysis of variance (ANOVA) by considering the Deviation from Linearity value, which is mathematically expressed as follows.

$$F = \frac{MS_{dev}}{MS_{res}}$$

Explanation:

F = Linearity test statistical value

$MS_{dev}$  = Mean Square Deviation from Linearity

$MS_{res}$  = Mean Square Residual

The relationship between the independent variable and the dependent variable is considered to satisfy the linearity assumption if the significance value of Deviation from

Linearity is greater than 0.05, indicating that there is no significant deviation from the linear relationship.

#### 3) Heteroscedasticity Test

The heteroscedasticity test is conducted to identify whether or not there are differences in residual variance at various levels of independent variable values in the regression model. A regression model that meets good statistical criteria requires the residual variance to be constant or homogeneous. In this study, the heteroscedasticity test was performed using the Glejser test, which is mathematically expressed as follows.

$$|e_i| = a + bX_i$$

Explanation:

$|e_i|$  = Absolute value of residual

a = Constant

b = Regression coefficient

$X_i$  = Independent variable

The regression model is said to be free from heteroscedasticity if the significance value of the regression coefficient is greater than 0.05, indicating that the independent variable does not have a significant effect on the absolute value of the residual.

#### 4) t-test

The t-test is used to test the significance of the effect of independent variables on dependent variables partially in a regression model. This test aims to determine whether the variable of TikTok usage has a significant effect on the social behavior of Generation Z. Mathematically, the t-test is formulated as follows.

$$t = \frac{b}{S_b}$$

Explanation:

t = t-test statistical value

b = Regression coefficient

$S_b$  = Standard error of the regression coefficient

The test criteria are determined by comparing the significance value (Sig.) with a significance level of 0.05. If Sig. < 0.05, then the alternative hypothesis is accepted, meaning that the independent variable has a significant effect on the dependent variable.

#### 5) Coefficient of Determination

The coefficient of determination is used to assess the extent to which independent variables explain changes or variations in dependent variables in a regression model. The contribution of independent variables is usually expressed as  $R^2$  and can be calculated using the following equation.

$$R^2 = \frac{SSR}{SST}$$

Explanation:

$R^2$  = Coefficient of determination

SSR = Sum of Squares Regression (sum of squares regression)

SST = Total Sum of Squares (total sum of squares)

The  $R^2$  value ranges from 0 to 1, where the closer it is to 1, the greater the ability of the independent variable to explain changes that occur in the dependent variable. Conversely, the

remaining variation that cannot be explained by the independent variable reflects the influence of other factors that are not included in the research model.

**III. RESULT AND DISCUSSION**

This chapter presents the results of data processing and analysis obtained from the research questionnaire distributed online. In addition, this chapter also discusses research findings in accordance with the objectives and methods used. The presentation of results is structured, starting from the research data description process to the application of the analysis methods used. Data analysis was conducted quantitatively using a simple linear regression method to determine the effect of TikTok social media use on the social behavior of Generation Z in Semarang Regency. Before testing the hypothesis, a classical assumption test was first conducted to ensure.

*A. Data Collection Instruments and Techniques*

The research instrument used in this study was an online questionnaire designed using two research variables, namely variable X in the form of TikTok application usage as an independent variable and variable Y in the form of Generation Z social behavior as a dependent variable. The questionnaire was designed to collect quantitative data in a systematic manner so that it could be analyzed using statistical analysis in accordance with the research objectives. Variable X was measured using several indicators, such as the intensity of application use, the length of time spent accessing the TikTok application per day, and the level of user interaction with video content on the TikTok application. On the other hand, variable Y was measured using several indicators, such as interpersonal communication, social empathy, concern for the social environment, and patterns of interaction in daily life. Each indicator was described in the questionnaire questions, as follows.

The questionnaire used in this study was designed based on two main research variables, namely TikTok application usage as the independent variable and the social behavior of Generation Z as the dependent variable. Each variable is measured using several indicators that are translated into questionnaire statements. The detailed list of questionnaire questions and their corresponding indicators is presented in Table I.

TABLE I  
QUESTIONNAIRE QUESTIONS AND VARIABLES

The Impact of TikTok		Frequency					Mean
No.	Questions	STD	D	N	A	SA	
<i>Using the TikTok App</i>							
1.	Saya menggunakan aplikasi TikTok setiap hari	1	0	2	11	31	4,58

2.	Saya menghabiskan waktu lebih dari 1 jam per hari untuk menonton TikTok	1	0	1	16	27	4,51
3.	TikTok sering saya gunakan saat waktu luang	1	0	1	13	30	4,58
4.	Saya sering menonton konten TikTok hingga lupa waktu	1	2	6	24	12	3,98
5.	TikTok menjadi salah satu aplikasi yang paling sering saya akses	1	0	3	16	25	4,42

<i>Social Behavior of Generation Z</i>							
1.	Penggunaan TikTok memengaruhi cara saya berinteraksi dengan orang lain	0	10	26	9	0	2,98
2.	Konten TikTok memengaruhi gaya berbicara atau perilaku saya sehari-hari	6	8	20	11	0	2,80
3.	Saya lebih sering berkomunikasi secara digital dibandingkan tatap muka	5	14	23	2	1	2,56
4.	TikTok mengganggu konsentrasi saya saat belajar atau mengerjakan tugas	2	7	27	8	1	2,98
5.	Saya sering membuka TikTok saat jam kuliah atau belajar	9	9	16	7	4	2,73

6.	Penggunaan TikTok menyebabkan penurunan fokus akademik saya	1	8	18	14	4	3,27
7.	Saya merasa sulit berhenti menggunakan TikTok meskipun ingin berhenti	1	5	18	16	5	3,42
8.	Saya merasa gelisah jika tidak membuka TikTok dalam waktu lama	5	18	19	3	0	2,44
9.	TikTok memengaruhi suasana hati saya (senang, cemas, atau stres)	1	1	8	17	18	4,11
10.	Penggunaan TikTok mengurangi produktivitas saya sehari-hari	1	7	21	15	1	3,18
11.	Saya sering menunda pekerjaan karena menonton TikTok	1	5	27	11	1	3,13
12.	TikTok memengaruhi pengelolaan waktu saya	1	6	17	20	1	3,31
13.	Secara keseluruhan, penggunaan TikTok berpengaruh terhadap perilaku saya sebagai generasi muda	1	5	1	24	14	2,80

The questionnaire was designed using a Likert scale to measure respondents' answers and their averages, so that the data would be structured and easy to analyze. To measure respondents' perceptions and levels of agreement with each statement, this study used a five-point Likert scale. This scale allows respondents to express their opinions in a structured

manner ranging from strong disagreement to strong agreement. The Likert scale used in this study is presented in Table II.

TABLE II  
LIKERT SCALE

Scale	Description
1	Strongly Disagree (STD)
2	Disagree (D)
3	Neutral (N)
4	Agree (A)
5	Strongly Agree (SA)

How to measure variables in TikTok social media usage based on predetermined indicators, namely the intensity of TikTok usage, length of access time, and user interaction with videos on TikTok. Meanwhile, Generation Z social behavior variables can be measured using several aspects, such as interpersonal communication, social empathy, concern for the social environment, and patterns of interaction in daily life [1].

The research data was collected using a research questionnaire distributed to Generation Z respondents residing in Semarang Regency who frequently use the TikTok application in their daily lives. The questionnaire was distributed online to respondents who met the criteria and voluntarily filled out the questionnaire truthfully in accordance with the sample determination stage that had been carried out previously. During the data collection process, incomplete responses or those that did not meet the research criteria were deleted, ensuring that the data used was valid and suitable for analysis. After the questionnaire was distributed, the responses obtained from respondents were recorded and organized in tabular form. This table shows the raw questionnaire responses provided by respondents before the data were converted into numerical values for statistical analysis. The summary of the respondents' answers is presented in Table III.

TABLE III  
RESPONDENTS

No.	Respondents	X1	X2	...	Y16	Y17	Y18
1.	A	S	S		S	S	S
2.	U	S	S		S	TS	TS
3.	N	N	S		N	S	S
4.	D	SS	SS		S	S	S
5.	A	SS	SS		N	N	S
6.	T	S	S		S	S	TS
7.	N	SS	SS		N	TS	S
8.	A	SS	SS		TS	TS	SS
9.	A	SS	SS		N	N	SS
10.	A	SS	SS		N	N	SS
...							
41.	M	SS	SS		N	TS	S
42.	A	SS	S		TS	N	SS

43.	D	S	SS		TS	TS	SS
44.	I	S	SS		N	N	S
45.	S	SS	S		S	S	S

After collecting the questionnaire responses, the qualitative answers were converted into numerical values based on the Likert scale in order to facilitate quantitative analysis. This conversion process allows the data to be processed using statistical methods such as regression analysis. The numerical representation of the questionnaire data is shown in Figure 1. The following data was obtained from questionnaires that have been processed or converted into numerical values or numbers.

Respondent	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
2	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
5	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
6	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
7	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
17	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
18	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
20	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
21	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
22	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
23	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
24	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
25	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
26	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
27	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
28	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
29	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
30	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
31	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
32	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
33	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
34	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
35	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
36	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
37	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57
38	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
39	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
40	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
41	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61
42	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62
43	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
44	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
45	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65

Figure 1. Questionnaire Results (Numerical)

**B. Classical Assumption Test**

The classical assumption test is conducted before performing a simple linear regression test with the aim of ensuring that the data and regression method meet statistical requirements so as to obtain accurate analysis results. The classical assumption test includes a normality test, linearity test, and heteroscedasticity test.

1) Normality test

A normality test is performed to ensure that the residuals in the regression model follow a normal distribution, which is an important prerequisite in regression analysis. In this study, normality testing was performed using the Shapiro–Wilk test and the Kolmogorov–Smirnov test. The Shapiro–Wilk test results showed a statistical value of 0.981 with a p-value of 0.649, while the Kolmogorov–Smirnov test results produced a significance value above 0.05. A p-value greater than the significance threshold of 0.05 indicates that the null hypothesis is not rejected, so the residuals can be said to be normally distributed. Thus, it can be concluded that the regression model does not violate the assumption of residual normality. To ensure that the regression model meets the classical assumption requirements, a normality test was conducted on the residual data. One of the statistical methods used in this study is the Shapiro–Wilk test, which evaluates whether the residuals follow a normal distribution. The results of the Shapiro–Wilk test are presented in Figure 2.

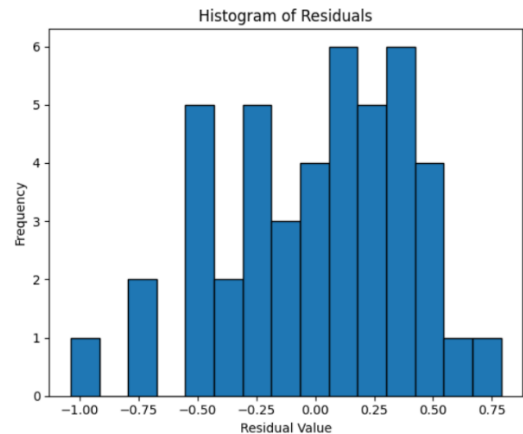


Figure 2. Shapiro–Wilk Test Results

This conclusion is reinforced by the results of examining the histogram and Q–Q plot of residuals. The histogram shows a relatively symmetrical distribution pattern resembling a bell curve, with residual values centered around zero. In addition, the Q–Q plot shows residual points that tend to follow a diagonal line with very small deviations, especially in the middle of the distribution. These results indicate that the residual distribution is close to a normal distribution, so the assumption of normality can be considered fulfilled and the regression model is suitable for further analysis. In addition to statistical testing, the normality of residuals was also examined visually using a Q–Q plot. This graphical method compares the distribution of residual data with a theoretical normal distribution. The Q–Q plot of the residuals is shown in Figure 3.

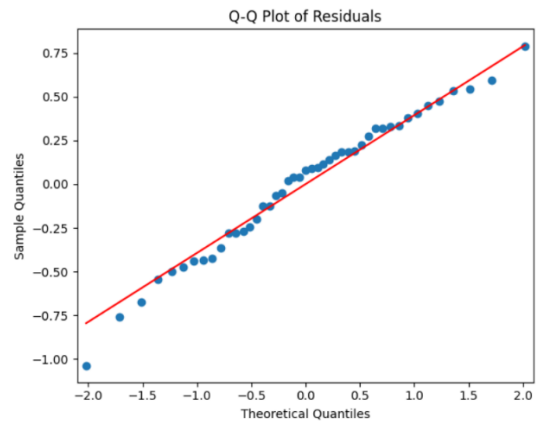


Figure 3. Q–Q Plot of Residuals

2) Linearity Test

Based on the results of visual analysis through a scatter plot between the independent variable (X) and the dependent variable (Y), there appears to be a linear relationship, where an increase in the value of variable X is followed by an increase in the value of variable Y. The data points are scattered around a straight line and do not show a clear curved pattern or nonlinear relationship. A scatter plot analysis was conducted to visually examine the relationship between the independent variable (TikTok usage) and the dependent variable (social behavior of Generation Z). This visualization

helps determine whether the relationship between the variables tends to follow a linear pattern. The scatter plot of the variables is presented in Figure 4. This distribution pattern indicates that the relationship between the two variables can be approximated by a linear model.

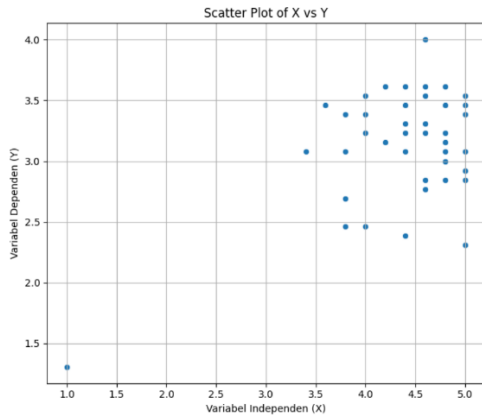


Figure 4. Scatter Plot of X vs Y

This finding is reinforced by the graph of residuals against predicted values (Residuals vs Fitted Values), which shows that the residuals are scattered randomly around the zero line without forming any particular pattern, such as a fan or curve pattern. The balanced distribution of residuals above and below the zero line indicates that there is no violation of the linearity assumption. To further evaluate the linearity assumption in the regression model, a residuals versus fitted values plot was analyzed. This plot helps identify whether residuals are randomly distributed around the regression line without forming a specific pattern. The residual distribution is illustrated in Figure 5.

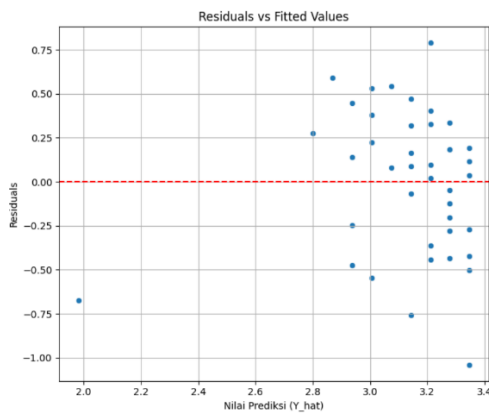


Figure 5. Residuals vs. Fitted Values

### 3) Heteroscedasticity Test

Based on the scatter plot between the independent variable (X) and the dependent variable (Y) accompanied by a regression line, it can be seen that the data points are scattered fairly evenly around the line. The data distribution does not show a pattern that gradually narrows or widens as the value of X increases, nor does it form a fan pattern, which is usually a sign of heteroscedasticity. This indicates that the relationship between variables X and Y tends to be stable and linear, with relatively consistent data variation across the

entire range of independent variable values. Therefore, from this graph, it can be concluded that there are no initial indications of heteroscedasticity in the regression model used. To examine the consistency of the relationship between the independent and dependent variables, a scatter plot accompanied by a regression line was generated. This visualization helps illustrate how the predicted regression line fits the observed data points. The scatter plot with the regression line is presented in Figure 6.

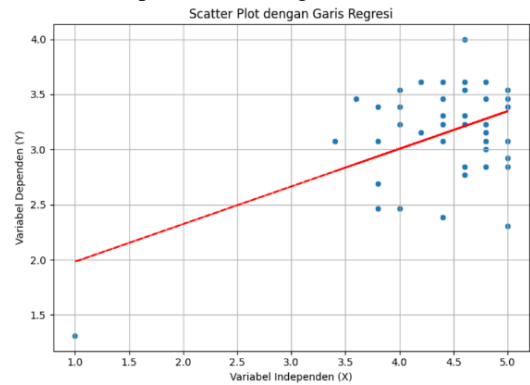


Figure 6. Scatter Plot with Regression Line

Furthermore, the residual histogram shows that the residual values are fairly evenly distributed and tend to be symmetrical around zero, with a relatively balanced number on the positive and negative sides. There is no accumulation of residuals at certain values or noticeable differences in the distribution between small and large residuals. This distribution pattern indicates that the residuals have stable variation and do not change significantly. Therefore, the residual histogram indicates that the assumption of homoscedasticity in the regression model can be fulfilled, so the model is considered suitable for use in further analysis. A residual histogram was generated to observe the distribution pattern of residual values produced by the regression model. This visualization provides additional insight into whether the residuals are symmetrically distributed around zero. The residual histogram is shown in Figure 7.

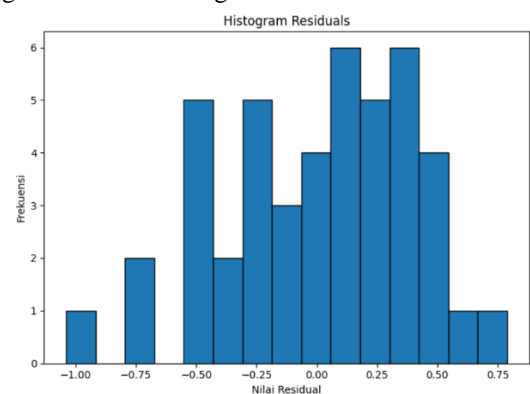


Figure 7. Residual Histogram

Furthermore, based on the residual Q-Q plot, the residual points appear to follow a diagonal line with relatively small deviations. This indicates that the residuals are normally distributed and do not show extreme patterns at the tails of the

distribution. This stable and consistent residual distribution also supports the absence of significant differences in residual variance at a given prediction level. Another graphical evaluation of residual normality was performed using a Q-Q plot. This plot compares the ordered residual values with the expected values from a normal distribution. The Q-Q plot of the residuals is presented in Figure 8.

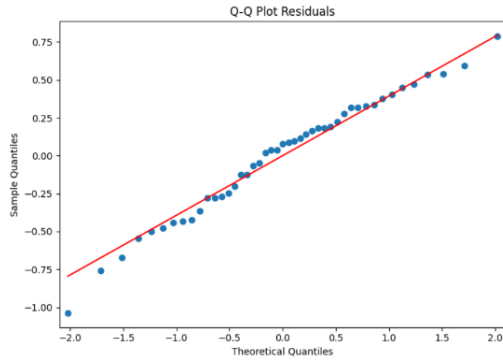


Figure 8. Q-Q Plot Residuals

In the residuals vs. fitted values plot, the residuals appear to be randomly scattered around the zero line without forming any particular pattern, such as a fan shape or other systematic pattern. The relatively even distribution of residuals across the entire range of predicted values indicates that the residual variance is constant. Thus, it can be concluded that there are no indications. To detect potential heteroscedasticity in the regression model, a residuals versus fitted values plot was analyzed. This plot allows researchers to observe whether the variance of residuals remains constant across predicted values. The results of this visualization are shown in Figure 9.

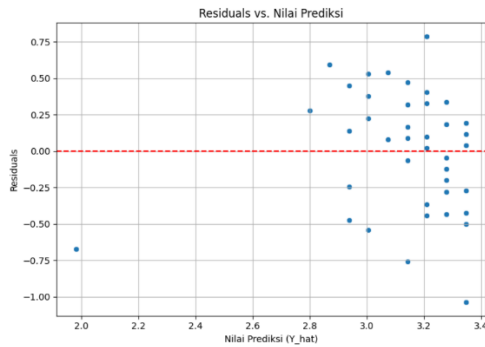


Figure 9. Residuals vs. Fitted Values

C. Simple Linear Regression Test Results

Based on the results of data processing using simple linear regression analysis, an overview of the relationship and influence of TikTok social media usage on the social behavior of Generation Z in Semarang Regency was obtained. After verifying that the classical assumptions were satisfied, a simple linear regression analysis was performed using the Ordinary Least Squares (OLS) method. This analysis aims to determine the magnitude and significance of the effect of TikTok usage on the social behavior of Generation Z. The regression output generated from the analysis is presented in Figure 10.

OLS Regression Results						
Dep. Variable:	Y	R-squared:	0.252			
Model:	OLS	Adj. R-squared:	0.234			
Method:	Least Squares	F-statistic:	14.46			
Date:	Tue, 13 Jan 2026	Prob (F-statistic):	0.000446			
Time:	06:07:08	Log-Likelihood:	-21.882			
No. Observations:	45	AIC:	47.76			
Df Residuals:	43	BIC:	51.38			
Df Model:	1					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
Intercept	1.6404	0.401	4.094	0.000	0.832	2.448
X	0.3414	0.090	3.803	0.000	0.160	0.522
Omnibus:	1.504	Durbin-Watson:	1.812			
Prob(Omnibus):	0.471	Jarque-Bera (JB):	1.401			
Skew:	-0.408	Prob(JB):	0.496			
Kurtosis:	2.712	Cond. No.	31.3			

Figure 10. OLS Regression Result

The following is an explanation of the OLS Regression Result from the simple linear regression model.

1) Regression Model Specifications

Simple linear regression analysis was conducted in this study to determine the effect of independent variables (X) on dependent variables (Y) using the Ordinary Least Squares (OLS) method. A total of 45 observations were analyzed. A simple linear regression model was chosen because it was in line with the research and aimed to discuss the relationship between one independent variable and one dependent variable. Using this model, the relationship between variables can be explained in greater depth and is easier to understand.

2) Regression Parameter Estimation

The parameter estimation results produced a simple linear regression equation, namely  $Y = 1.6404 + 0.3414X$ . The constant value of 1.6404 indicates the value of Y when the variable X is zero. Meanwhile, the regression coefficient X of 0.3414 indicates that every one-unit increase in the variable X will increase the value of Y by 0.3414 units, assuming that other factors outside the model are considered constant.

3) Model Suitability Test (F-test)

The model suitability test was conducted to assess whether the regression model used was appropriate and could be applied as a whole. The F test results show an F-statistic value of 14.46 with a significance value of 0.000446, which is less than 0.05. Thus, it can be concluded that the regression model constructed is simultaneously significant, so that the X variables collectively influence the Y variable.

4) Coefficient of Determination (R<sup>2</sup>)

The coefficient of determination is used to measure the ability of independent variables to explain the variation in dependent variables. An R-squared value of 0.252 indicates that variable X is able to explain 25.2% of the variation in variable Y, while the remaining 74.8% is explained by other variables outside the model. The Adjusted R-squared value of 0.234, which is close to R-squared, indicates that the model is quite stable.

5) t-test (Partial)

A partial significance test was conducted to determine the individual effect of variable X on variable Y. The t-test results show a t-value of 3.803 with a probability value of 0.000, which is less than 0.05. Thus, it can be concluded that variable

X has a positive and significant effect on variable Y, so the research hypothesis can be accepted.

#### 6) Confidence Interval Analysis of the Coefficient

A 95% confidence interval analysis of the regression coefficient of variable X shows that the coefficient value is in the range of 0.160 to 0.522. Since this range does not exceed zero, it can be concluded that variable X has a real and consistent effect on variable Y. This finding is in line with and further strengthens the t-test results, which show a statistically significant effect.

#### 7) Residual Normality Test

The residual normality test is conducted to ensure that the errors in the regression model are normally distributed. Based on the Omnibus test probability value of 0.471 and the Jarque-Bera value of 0.496, which are greater than 0.05, as well as the skewness and kurtosis values that are close to the ideal values, it can be concluded that the model residuals are normally distributed and the normality assumption is fulfilled.

#### 8) Residual Autocorrelation Test

The autocorrelation test in this study was conducted using the Durbin-Watson statistic to determine whether there was a relationship between the residuals. The test results showed a Durbin-Watson value of 1.812, which is close to 2, so it can be concluded that the regression model used did not contain autocorrelation problems. Thus, the model residuals can be considered independent of each other.

#### 9) Model Condition Evaluation

Based on the analysis results, the Condition Number value of 31.3 indicates that the regression model is still in a normal numerical condition. This value shows that there are no significant problems related to the stability of the calculations or the accuracy of the regression coefficient estimates. In addition, because the model uses only one independent variable, this model does not have the potential for multicollinearity. Therefore, it can be concluded that the regression model constructed is stable and the coefficient estimation results can be used reliably in the analysis process.

#### 10) Regression Coefficient

To further illustrate the estimated parameters obtained from the regression model, the regression coefficient values are visualized in graphical form. This visualization highlights the intercept value and the regression coefficient of the independent variable in influencing the dependent variable. The regression coefficient results are shown in Figure 11.

```
Koefisien Regresi:
Intercept  1.640427
X          0.341370
dtype: float64
```

Figure 11. Regression Coefficient

Based on the calculation results, the intercept value obtained is 1.640427 and the regression coefficient of variable X is 0.341370. The intercept value describes the estimated value of variable Y when variable X is at zero, while the regression coefficient X shows that every one-unit increase in variable X will be followed by an increase in the value of Y by 0.341370 units. This study was then used as a basis for

drawing research conclusions, calculating the predicted value of Y at a certain level of X, and as a reference in applying a simple linear regression model in further analysis and research.

#### 11) Discussion

The results of this study show that the use of TikTok has a positive and significant effect on the social behavior of Generation Z. These findings are in line with previous research indicating that social media platforms are capable of influencing communication styles and patterns of interaction among young people. The short-video content and algorithm-based recommendation system implemented by TikTok encourage users to engage frequently with the platform, which can indirectly shape their daily communication behavior.

Nevertheless, the coefficient of determination ( $R^2$ ) value of 0.252 demonstrates that TikTok usage only explains a moderate proportion of the variation in social behavior. This means that the social behavior of Generation Z is also affected by various other factors, including family environment, peer influence, educational background, and levels of digital literacy. Consequently, TikTok usage should be considered as one of several factors contributing to social behavior rather than the primary determining factor.

Furthermore, although TikTok offers opportunities for creativity, self-expression, and digital interaction, excessive use may lead to certain negative impacts such as reduced direct social interaction, decreased focus during academic activities, and lower productivity. These results are consistent with earlier studies suggesting that overuse of social media can negatively influence concentration and real-life social participation.

Therefore, maintaining a balanced and responsible approach to social media usage is important, especially for Generation Z who are highly exposed to digital platforms. In this regard, educational institutions and families also have a crucial role in encouraging digital literacy and fostering healthy social media usage habits.

#### 12) Research Limitations

This study has several limitations that need to be taken into account when interpreting the findings. First, the number of respondents involved in this research was relatively small, with only 45 participants, which may restrict the extent to which the results can be generalized to a wider population. Second, the research focused on only one independent variable, namely TikTok usage, even though social behavior can be influenced by many other factors such as family background, peer interactions, and cultural influences.

In addition, the data collection process relied on self-reported questionnaires, which may potentially lead to response bias or social desirability bias from the participants. Therefore, future research is suggested to involve a larger number of participants and incorporate additional variables so that a more comprehensive understanding of social behavior in the digital era can be achieved.

#### IV. CONCLUSION

Research data was collected through a closed questionnaire distributed to Generation Z in Bandung District who actively use the TikTok application. The questionnaire was distributed directly and online to respondents who met the research criteria. All statements were compiled using a five-point Likert scale to capture respondents' experiences and views regarding TikTok use and daily social interactions in a measurable and systematic manner.

The use of TikTok social media was measured through indicators of frequency of use, daily access duration, and level of interaction with content, while the social behavior of Generation Z was measured through aspects of interpersonal communication, social empathy, concern for the surrounding environment, and patterns of social interaction. The data recapitulation results show that the majority of respondents use TikTok intensively and make it part of their daily digital activities. Meanwhile, respondents' answers on the social behavior variable showed variation, especially in the aspects of direct communication and social awareness, indicating the potential influence of TikTok use on Generation Z's social behavior and forming the basis for regression analysis in the next stage.

The results of this study indicate that TikTok usage has a positive and statistically significant influence on the social behavior of Generation Z in Bandung District. The regression analysis shows that the usage intensity of TikTok contributes to variations in social interaction patterns among respondents. However, the coefficient of determination indicates that other factors outside the model also play a significant role in shaping social behavior. Therefore, although TikTok provides opportunities for digital communication and creativity, its usage should be balanced to avoid potential negative impacts such as reduced direct social interaction and decreased productivity. Future research is recommended to involve larger sample sizes and include additional variables in order to better explain social behavior dynamics in the digital era.

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