



## The Influence of Android-Based Digital Comics on the Social Skills to Prevent the Covid-19 Through Student Social Interaction

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**Abstract.** This study aims to determine the effect of digital comic media, including self-awareness comics and self-regulation comics, on the social skills of elementary school students. This study used a quantitative approach with an ex post facto design involving 180 students selected through a purposive sampling technique. Data were analyzed using classical assumption testing and multiple linear regression analysis. The study results show that digital comic media based on Android, which contains material on self-awareness and self-regulation, positively and significantly improved students' social skills in the context of self-management about the prevention of Covid-19 in the daily social environment of the school. Self-awareness and self-regulation content as part of social skills presented in an Android-based digital comic version become students' daily reading to implement health protocols at school. Self-awareness and self-regulation comics can raise sensitivity to students' self-introspection in recognizing feelings converted into positive behaviors and managing themselves in synergy with the learning environment, interacting and making decisions independently to solve their internal problems.

**Keywords:** Digital Comics, Self Awareness, Self Regulation, Social Skills, Covid-19

## INTRODUCTION

*Corona Virofsease* 2019 (COVID-19) has become an interesting issue investigated by health, social, technology, economics, education, and others. Numerous studies about Covid-19 have been carried out which aim to find out a vaccine that can tackle the infection of Covid-19, prevent the spread of Covid-19, and investigate the impacts caused by the Covid-19 disaster (Van Bavel et al., 2020; Lewnard & Lo, 2020; Alon et al., 2020; Xu et al., 2020; Anderson et al., 2020).

Nowadays, the Covid-19 pandemic has ended, and it has entered the endemic phase. However, we should always be ready to face a similar disaster. Indonesian government tried various ways to handle and prevent the spread of the virus. The government set it as a national disaster as stated in the President Decree No. 11 of 2020, the Society Health Emergency Decision o Covid 19, and President Decree No. 12 of 2020 About the Non-natural Disaster Decision of Covid-19 Spread. Various methods they implemented significantly reduce the spread of

the virus. Darom The Task Force for Accelerating the Handling of Covid-19 shows that the cases of patients infected by Covid-19 in Indonesia reached 773 on May 30, 2020. Although it continuously increased, the number of patients who could recover improved significantly as it reached 7,015. The government did not only focus on curing the patients positive for Covid-19, but it was also concerned about the preventive action. One of the strategies implemented by the government to prevent the spread of the virus was by instructing the societies to apply physical distancing including the policies of Work From Home (WFH) and School from Home (SFH). Social and Physical Distancing concepts were proven to reduce the spread of Covid-19 (Greenstone & Nigam, 2020; Jarvis et al., 2020; Courtemanche et al., 2020).

However, another problem emerging was that the government could not apply the regulations of Work From Home (WFH) and School From Home (SFH) for a long period because it brought many negative impacts on various life sectors, including the economy and education. Thus, the government planned to shift to the new normal life. It was to live peacefully with the virus by continuing to apply the health protocol thus, children could go back to school, and workers could work like before

The next problem was related to the readiness of the societies with a new policy, especially the children who potentially did not really understand the health protocol to prevent the spread of Covid 19. They still needed guidance from the parents and teachers, but unfortunately, it was impossible to control the kids all the time. Thus children have a bigger potential to be infected by the virus when they should go back to school. The leader of the Indonesian Pediatrician Association (IDAI) mentioned that children had a high risk of being infected by the Covid-19, especially when they did not get strict supervision from their parents.

One of the solutions was to teach parents who hold a big responsibility at home by using an android-based e-comic application. The application is a part of the initial research of the development of life skill education-based *Mobile Smart Parenting Teacher* (MSPT). So far, most parents have relied on their children's education in school thus, few of them involved in their learning activities. However, in the pandemic era, parents should involve in children's learning activities and collaborate with teachers for the effectiveness of the learning. Android-based e-

comic application integrated with MSPT was crucial to help parents with children in elementary school to teach them various life skills related to the prevention of the spread of Covid-19, for example, how children know and understand the food they were going to consume, how they should interact at school in the pandemic era, what they should do after going back from school, and what types of games they could play which had no potential to spread the Covid 19.

Social skills are the ability to interact with other people so that communication can be effective. Social skill is as important as academic skill. Children have to balance both. Thus they are crucial to be taught and applied early at home. Social skill is a part of life skill that should be possessed in the 21st century consisting of ten skills, including creative thinking, critical thinking, metacognitive thinking, communication, collaboration, information literacy, digital literacy, citizenship, work and career, and individual and social responsibility skills (Binkley, 2012; Trilling & Fadel, 2009).

Social skill values related to the digital comic investigated in the study were self-awareness and self-regulation. Both values presented in the e-comic are believed to potentially build students' social skills. Self-awareness refers to the positive response to being aware of obeying the covid-19 prevention protocol, like being aware of using personal eating tools and not exchanging them with other students, wearing a mask, and frequently washing hands.

The self-awareness aims to raise awareness among parents and students to do self-introspection on the learning activities at school by keeping using health masks. The awareness can be shown from the willingness to obey the rule without any force from others and to initiate some simple activities to prevent the spread of Covid 19.

Besides self-awareness, self-regulation is also discussed in this study. Self-regulation as a part of social skills is related to the ability to the self-management and self-planning in interacting with others. In the context of Covid-19 spread prevention, self-regulation is related to students' awareness to obey the rule to wear a mask, wash their hands, and other healthy acts to stop the spread of the virus, especially at school. The self-awareness concept is shown by habituating children /educating them to manage themselves, plan what they should do, and realize what they

have planned. Thus, someone with self-regulation will be more strict about obeying the health protocol at school or at home.

This study investigated the correlation between the digital comic, which presented self-awareness values, and the growth of students' self-awareness. It also investigated the correlation between digital comics containing self-regulation values and students' social skills. Lastly, it examined the simultaneous correlation between comics with self-awareness values and self-regulation values and the improvement of elementary school students' social skills. In this research, the digital comic is presented in the Android-based e-comic. Thus, the hypothesis built in this study were:

H1: There is a positive correlation between Self-Awareness E-Comic and students' social skills.

H2: There is a positive correlation between Self-Regulation E-Comic and students' social skills.

H3: There is a positive correlation between Self-Awareness E-Comic and Self-Regulation E-Comic and students' social skills.

## METHOD

It is a quantitative study with a survey method. The survey used data from the questionnaire as the main data. They were collected using a Likert scale with questions developed from the instrument rubric. There were 30 questions, 10 questions asked about self-awareness, ten questions asked about self-regulation, and ten questions asked about social skills.

The instruments were distributed online to 180 students studying in ten different schools consisting of 4 schools in Makassar city, 2 schools in Sidrap regency, 2 schools in Bone regency, and 2 schools in Bantaeng regency. Samples were selected purposively by considering the condition of the participants (Neolaka, 2016). In this context, we only invited students in class 6 who could read as samples.

The instrument was tested for its validity and reliability. The validity test used a bivariate person (Product Moment Person) with a significance level of 0,05. The reliability test was analyzed using Cronbach's Alpha formula. Multiple linear regression was used with the aid of SPSS version 26.

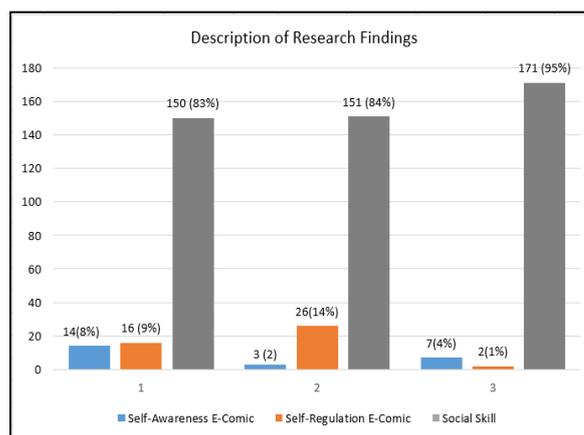
The multiple regression analysis used classic assumption, which requires the data to be

distributed normally and linearly. The hypothesis was tested using the t-test with a significance level of 0.05. The t-test was performed by: 1) comparing the t-count and t-table values and 2) comparing the probability value (sig) and alpha value ( $\alpha$ ).

## RESULTS AND DISCUSSION

### Results

Both Android-based E-comics (students' self-awareness and self-regulation) obtained scores in the high category, 83%, and 84%, respectively. The scores show that both values have an important role in building students' social skills. It is indicated by the scores of students' skills which are high (95%). The description of the three variables (self-awareness e-comic, self-regulation e-comic, and social skill) is shown in the following figure:



**Figure 1.** Description of Research Findings

Figure 1 shows that both e-comic were well understood by students and brought a positive impact on the improvement of life skills. Students' good understanding of life skill values shows that the e-comic presents life skill values that ease the knowledge transfer to elementary school students.

To fulfill the classic assumption of the regression equation, we carried out multicollinearity and normality tests. The Multicollinearity test aimed to examine if the variables were correlated to each other. If the variables were correlated with each other, the regression equation is not good for the independent variable in predicting the dependent variable. A good regression equation is if both variables do not show linear correlation. One of the indicators is if the tolerance value is higher

than 0.10 (>0.10) and the Variance Inflation Factor (VIF) is not bigger than 10 (<10). If the value of VIF is below 10, there is multicollinearity between independent variables in the regression mode. The normality test aimed to know if in the regression model, the residual variable has a normal distribution. A good regression equation is if the data is normally distributed. One of the methods to detect the normality of the data is the use of the Kolmogorov-Smirnov (K-S) test. Data is normally distributed if the significance level is higher than 0.05.

Results of the multicollinearity and normality test are presented in the table 1.

**Table 1.** Results of the Multicolonierity Test

Variables	Tolerance	VIF
Self-Awareness E-Comic	0.421	2.377
Self-Regulation E-Comic	0.421	2.377

Table 1 shows the results of the multicollinearity test, indicating that the tolerance values of both independent variables (Self-Awareness E-Comic) and Self-Regulation E-Comic) are not below 0.10, (0.421>0.10), meaning that there is no correlation between Self-

Awareness E-Comic and Self-Regulation E-Comic higher than 95%. The variables of Self-Awareness E-Comic and Self-Regulation E-Comic have VIF scores below 10 (2.377<10). It means that the correlation between the independent variables (Self-Awareness E-Comic are Self-Regulation E-Comic) is orthogonal, or the correlation value is null.

The normality test using the statistical Kolmogorov-Smirnov (K-S) test was performed with the assumption that data are normally distributed if the significance value is higher than 0.05 (>0.05). Results of the Kolmogorov-Smirnov (K-S) test are shown in Table 2.

**Table 2.** Results of the Normality Test

	Kolmogorov-Smirnov		
	Statistics	df	Sig.
Social Skills	0.566	180	0.944

Table 2 shows that the dependent variable (social skill) is normally distributed with a significance value higher than 0.05 (0,944>0.05). The normality assumption can be used as the initial assumption that data forming regression equation is good in predicting the independent variable toward the dependent variable. Results of the hypothesis test (H1; H2; and H3) are presented in Table 3.

**Table 3.** Model of Regression Equation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.552	.889		0.741	.000
	Self-Awareness E-Comic	.331	.029	.656	11,401	.000
	Self-Regulation E-Comic	.159	.035	.257	4.475	.000

Table 3 shows the score of constant coefficient a (b<sub>0</sub>) = 0.552, (b<sub>1</sub>) = 0.331, and (b<sub>2</sub>) = 0.159, and the correlation coefficient of each variable. If the value is inserted into the regression equation, the model is presented below: Y = a + b<sub>1</sub>X<sub>1</sub> + b<sub>2</sub>X<sub>2</sub>. And can be written as below: Y = 0.552 + 0.331X<sub>1</sub> + 0.159X<sub>2</sub>.

The regression equation is further interpreted that the value of a constant coefficient = 0.551, indicating that the understanding of Self-Awareness and self-regulation through E-Comic does not bring change (constant). Thus the social skills of elementary school students are in 0.552 points. The regression coefficient value (b<sub>1x</sub>) is 0.331, implying that if the Self-Awareness E-

Comic increases by 1 point, the elementary school students' social skill also increases by 0.331 points. It suggests that parents and teachers should always educate students to read the e-comic to prevent the spread of Covid-19 because the comic contains social skills about how to act, behave, and regulate ourselves in obeying the health protocol at school and at home. It can be said that the regression equation is strong enough to predict the social skill variable.

Also, the regression coefficient value (b<sub>2x</sub>) = 0.159 indicates that if the understanding of Self-Regulation E-Comic increases by 1 point, the elementary school students' social skill also increases by 0.159 points. It implies that teachers,

parents, and students should always read the Self-Regulation E-Comic, which presents how to make a good plan to behave healthily at school and at home and how to obey and commit to behaving healthily at school. The regression equation is quite strong to predict the students; social skill variable.

Then, to identify whether the Self-Awareness E-Comic and Self-Regulation E-Comic significantly influences elementary school students' social skills, we used a regression significance test with the F test formula (ANOVA). Results of F test are summarized in Table 4.

Table 4. Summary of F test (ANOVA) results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.314	2	60.157	270.615	.000 <sup>b</sup>
	Residual	39.347	177	.222		
	Total	159.661	179			

Results of F test in Table 2 show that the value of the F-count is 270,615, which is bigger than the  $F_{Table}$  (3,06) with the probability value of (Sig) 0,000. The value of  $F_{count}$  shows that the F test probability = 0.000 is smaller (<) than 0,05; thus the  $H_0$  is refused. It means that the hypothesis stating that there is a significant influence of Self-Awareness E-Comic and Self-Regulation E-Comic on elementary school students' social skills is accepted.

Comic increase the student's social skills, and they simultaneously increase the social skills of elementary school students.

Thus, it can be concluded that Self-Awareness E-Comic and Self-Regulation E-

Then, to identify the effective contribution of Self-Awareness E-Comic and Self-Regulation E-Comic to elementary school students' social skills, we should first identify the value of the determination coefficient of Self-Awareness E-Comic and Self-Regulation E-Comic on students' social skills as presented in Table 5

Table 5. Summary of Determination Calculation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.868 <sup>a</sup>	.754	.751	.471

Based on Table 5 above, the value of  $R_{count}$  = 0,868 at  $\alpha$  0,05 at N = 180, and the value of determination coefficient ( $R^2$ ) = 0,754 or 75,1%. The test shows that around 75,1% of the social skill of elementary school students can be determined by Self-Awareness E-Comic and Self-Regulation E-Comic. The Android-based life skill education media: Self-Awareness E-Comic and Self-Regulation E-Comic strongly influence students' social skills, while the rest (24,9%) is influenced by other factors not investigated in this study. The factors include attitude and character, creativity, and digital literacy.

Regulation E-Comic. The dependent variable, students' social skills, is a part of life skills. In this part, the discussion focuses on aspects related to the research findings: 1) Self-Awareness E-Comic improves students' social skills, 2) Self-Regulation E-Comic improves students' social skills, and 3) Self-Awareness E-Comic and Self-Regulation E-Comic simultaneously improve the social skill of elementary school students.

**Discussion**

The discussion focuses on two independent variables: Self-Awareness E-Comic and Self-

We compared the present findings and earlier theories and interpreted the possible implications. The discussion focus on the influences of two independent variables: Self-Awareness and self-regulation E-Comics as independent variables and students' social skill as the dependent variable.

Analysis and hypothesis tests show that the hypothesis proposed in this study is accepted. There is a significant influence between Self-Awareness E-Comic and the improvement of the social skill of elementary school students, there is a significant influence between Self-Regulation E-Comic and the improvement of the social skill of elementary school students, and there is a positive and significant simultaneous influence of Self-Awareness E-Comic and Self-Regulation E-Comic on the improvement of the social skill of elementary school students. The regression analysis shows that around 75.4% of the elementary school students' social skill is determined by the factors of Self-Awareness E-Comic and Self-Regulation E-Comic.

The current findings support the theory of Helwida et al., (2021) dan Kirchoff, (2021) that variables like self-concept, collaboration, self-awareness, self-regulation, and coping skills as parts of life skill values that can form the personality when someone learns to interact and socialize in the communities.

Some references explain that social skill is influenced by individual factors like self-concept, empathy, motivation, education and is also stimulated by the environment that later form personalities. As a part of life skills, social skill is capital to life peacefully, be disciplined, communicative and responsible, and respect others (Mugo, 2018 dan Behera, 2020). as elementary school students are experiencing rapid language development, they will absorb communication patterns in the environment including their home and school. Elementary school students need effective literacy media to prepare themselves to engage in heterogenous social life thus they can learn to be disciplined, responsible, and have good self-awareness and self-regulation. Thus, once Covid-19 has totally disappeared, they can keep obeying the health protocol.

Related to that, we need to develop a media that can educate the elementary school students as the group resistant to being infected by the virus and it has been implemented in this study. The media is packed in a digital comic (e-comic) presenting a simple conversation which is practical and easy to understand by elementary school students. The conversation is narrated in the comic story representing the real life of elementary school students at home and at school. The conversation focuses on how to interact in the school environment with a good self-awareness and self regulation. Healthy

interaction is by the use of masks in public rooms, in crowd at school, washing hands, using personal eating and drinking tools, bringing a spare mask and giving it to a friend who does not bring a mask. All of them are packed in a simple conversation in a comic using simple language that is easy to understand. According to (Harmawati et al., 2020; Reis et al., 2021), the strength of a comic is that it is interesting and represents the cognitive development stages of elementary school students, and it can stimulate their curiosity. The use of digital comics as a learning medium to deliver information is effective in educating students (Sukmanasa et al., 2017; Enteria & Casumpang, 2019; Taufiq et al., 2020; Dwiasih & Agung, 2021). Elementary school students generally really like the illustration in the e-comic, so they will be motivated and entertained to know further about the content of the comic (Ntobuo et al., 2018).

It leads to the significant influence of Self-Awareness E-Comic and Self-Regulation E-Comic on the improvement of students' social skill because they are easy to understand the educative messages in the e-comic and it is practical to be applied in the real life. Therefore, changing behavior, besides needs time, also needs media. E-comic is selected as the media as it is proper with the characteristics of elementary school students, thus the messages presented in the e-comic are easy to be delivered. In general, elementary school students enjoy illustration in the e-comic thus, they will be curious to read it further (Ntobuo et al., 2018).

## CONCLUSIONS AND SUGGESTIONS

Based on the findings presented above, we concluded that there is a significant influence of Self-Awareness E-Comic and Self-Regulation E-Comic on the improvement of students' social skills. Thus, teachers and parents are suggested to continuously educate students through the e-comic media that can be accessed freely in the play store.

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