



## Effectiveness of Socialization Through PowerPoint Media to Understanding Nutrition of Adolescents

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### ABSTRACTS

The purpose of this study is explaining how the effectiveness of socialization through PowerPoint media and to describe the effect of socialization on adolescent knowledge about adolescent nutrition fulfillment. Fulfillment of nutrition is something important in adolescence because at this time the physical growth of humans is very rapid, therefore knowledge and fulfillment of nutrition in adolescents is very necessary for optimal human growth. The method used in this research is a quantitative approach with an experimental research design. The results socialization generally has a positive impact on increasing the understanding of the employees of the Village of Employees towards the fulfillment of adolescent nutrition, which is seen by the increase in knowledge seen from the increased average value of the pre-test and post-test. However, this increase is not significant and is considered ineffective with the N-Gain calculation. One of the causes of the ineffectiveness of socialization is the limited time and the display on PowerPoint is less attractive and monotonous. This research is expected to be a reference for the preparation of optimal socialization with the selection of media and its design as well as increasing public understanding of the fulfillment of adolescent nutrition.

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## 1. INTRODUCTION

Nutrition is an important need for humans. Nutrition is a component that must exist in the human body functions for the process of physical growth and development, the nervous system, brain, and the level of reasoning and human intelligence (Vyanti *et al.*, 2022). Nutritious food is called a balanced food because it can meet the needs and health of the human body including carbohydrates, proteins, fats, vitamins, and minerals (Andriyani, 2019). Along with this those humans need to eat and drink every day, but in practice, not a few of them ignore breakfast which causes the fulfillment of energy needs in the body to be not optimal and can even hamper human daily activities (Triwinarni *et al.*, 2017). With nutritious food, humans can strive for resilience in survival and maintain the level of life by the realization of physical facilities to support and optimally develop the human psyche (Aliyah, 2022).

Very rapid human development occurs when adolescents are growing and changing in terms of physical, psychological, and social life (Putri & Nurwianti, 2018). This can be seen from the quality of the environment inhabited by the teenager. So preventive efforts in solving problems by the environment are psychological preparations are mature. They can distinguish and choose which ones are good and which are bad for themselves (Putra & Rahmawati, 2021). Adolescence is also said to be an important period in human life because it affects a person's attitudes and behavior as well as physically and psychologically (Fatmawaty, 2017).

Learning media is one of the supporting factors in the development of education which serves as a tool to convey material (Parnabhakti & Puspaningtyas, 2020). In this case, the media is used as a tool in conveying material about the importance of fulfilling nutrition in adolescents. PowerPoint is one of the media for conveying information which includes several aspects including text, visuals, and videos (Damayanti & Qohar, 2019). PowerPoint is used to visualize an object. PowerPoint is a program specifically conveys in the form of a presentation which has advantages such as being able to be displayed attractively, stimulating knowledge, and can be stored for any time (Hamzah, 2019).

Based on research conducted by Darwis and Suryani (2017), related to nutritional problems in adolescents, many are found in overweight or obese and this problem is an epidemic problem throughout the world (Darwis & Suryani, 2017). In line with this, research conducted by Fauzi (2012), the nutritional behavior of the community appears to be less following the General Guidelines for Balanced Nutrition (PUGS). This is due to the lack of health information and awareness to maintain a healthy lifestyle (Fauzi, 2012). Strengthened by the results of research conducted by Ryhmayanti and Yasin (2018) on the analysis of energy and macronutrients in the breakfast menu on the nutritional status of adolescents, around 50% of late adolescents (17-20 years) skip breakfast, 89% of adolescents consider breakfast important, but only 60% who regularly have breakfast. Breakfast contributes 15-30% to meet daily calorie needs. There are 26.1% of Indonesian children only consume beverages (water, tea, or milk) and around 44.6% do not eat breakfast. Statistical results 88.9% of adolescents consume less energy, 93% of adolescents consume fewer carbohydrates, 53.2% of adolescents consume less protein, and 76% of adolescents consume less fat than breakfast needs (Ruhmayanti & Yasin, 2018).

Different from previous research, in this study, we tried to explain how the effectiveness and what aspects the influence in increasing understanding through PowerPoint media on adolescent nutrition fulfillment materials. This study aims to explain how the effectiveness of socialization through PowerPoint media and describe the effect of socialization on adolescent knowledge about adolescent nutrition fulfillment.

## 2. METHODS

In this study, we used a quantitative approach with an experimental research design. experimental research design where the purpose of this design is to see the consequences of treatment using a pretest and posttest, in which there was treatment, namely socialization or education regarding the fulfillment of adolescent nutrition. Before and after education, there was an increase in knowledge in adolescents.

### 2.1. Research subject

The research subjects were teenagers in Karyawangi, Parongpong, Indonesia. For the research sample, we distributed questionnaires to 20 teenagers with an age range of 10-19 years. The respondents were students at the 7th grade Junior High School level.

### 2.2 Research design analysis

Collecting data in this study was done by distributing questionnaires containing questions to test adolescents' understanding of adolescent nutritional needs. The instrument was in the form of questions listed on paper filled out by teenagers. The stages of data collection are (i) distributing pretest questionnaires; (ii) education about the fulfillment of adolescent nutrition through power point media, and (iii) distributing post-test questionnaires. In processing the data, the writer uses a quantitative approach. We made a question with a total of 20 items with the type of multiple-choice questions. The questions focused on knowledge about the fulfillment of adolescent nutrition, adolescent growth, and youth Integrated Healthcare Center.

#### 2.2.1 Gain value analysis

The gain value analysis test is one of the analytical tests for the science process and student learning outcomes using pretest and posttest. Gain itself is the difference value from the pretest and posttest results to see the quality of improving science process skills and learning outcomes focused on knowledge between before and after a learning process. To know the N-Gain. The posttest score itself is the score on the final test, the pretest is the score on the initial test, and the ideal score is the maximum score. From the results of these calculations, N-Gain is divided into several categories (Nismalasari *et al.*, 2016).

**Table 1.** Category N-Gain.

N-Gain Value	Category
$g > 0.70$	Tall
$0.30 \leq g \leq 0.70$	Currently
$g < 0.30$	Low

Based on **Table 1**, when the gain value is more than 0.7, it is categorized as high. When the gain value is 0.3 or 0.7 or between 0.3 and 0.7, it is called the medium category. And, when the gain value is less than 0.3 then it is in a low category.

Items measured the level of understanding regarding the fulfillment of adolescent nutrition consisting of 20 items are:

1. During puberty, teenagers generally do not like to be limited in their freedom to make a choice. This is because young people...
  - a. already have the emotional maturity
  - b. have a mature understanding
  - c. don't want to be treated like a child

- d. intellectual development is very fast
2. The following are characteristics of growth in adolescents:
  - a. growing concern
  - b. growing hair in certain parts
  - c. think far ahead
  - d. have a mature mind
3. Which of the following is included in the late adolescence phase...?
  - a. 10-13 years old
  - b. 14-16 years old
  - c. 19-22 years old
  - d. 17-19 years old
4. The characteristics of adolescents related to health care are...
  - a. start staying up unnecessarily
  - b. want to show his achievements
  - c. unstable emotions
  - d. want to be recognized
5. The following are the characteristics of adolescents related to psychology:
  - a. want to be free in making choices
  - b. starting to get addicted to drugs
  - c. lack of enthusiasm in life
  - d. want a healthy life
6. When there is a slowdown in growth, it means that we are in a phase of...
  - a. Prepubescence
  - b. Post pubescence
  - c. pubescence
  - d. Behavior change
7. Did you previously know about the youth Integrated Healthcare Center?
  - a. Yes
  - b. Not
8. From whom did you learn about the youth Integrated Healthcare Center?
  - a. Socialization
  - b. Internet
  - c. Public health center
  - d. Other
  - e. Never
9. The most correct statement regarding the youth Integrated Healthcare Center is...
  - a. Health-based youth activities to make teenagers careful in life
  - b. Health-based youth activities to monitor and involve youth in healthy life skills
  - c. Health-based youth activities to avoid the dangers of drugs
  - d. Health-based youth activities to know the importance of protecting the environment
10. The following is the most appropriate which includes the background of the existence of a youth Integrated Healthcare Center ...
  - a. Teenagers play with each other
  - b. The government's concern for the younger generation
  - c. A place to develop youth interests and talents
  - d. Accommodating youth to learn entrepreneurship
11. The following are the benefits of the youth Integrated Healthcare Center:
  - a. Get lots of friends

- b. Equipping young people with healthy life skills
  - c. As a means of displaying self-achievement
  - d. Produce smart and high achievers
12. The most appropriate activity carried out at the youth Integrated Healthcare Center is...
- a. Carry out the practice of injecting
  - b. Doing a health check
  - c. Making community data
  - d. Filling out a medical history questionnaire
13. The following are strategies for youth Integrated Healthcare Center in fulfilling adolescent nutrition except...
- a. Organizing youth in fulfilling adolescent nutrition
  - b. Conducting outreach about nutrition
  - c. Checking the body temperature of teenagers
  - d. Providing vitamin intake for teenagers
14. The following include nutritional problems are...
- a. Regular diet
  - b. Breakfast habits
  - c. Obesity
  - d. Love the variety of food
15. The simple index of weight for height used to classify overweight and obesity is the definition of...
- a. ideal body index
  - b. Body mass index
  - c. Excellent body health index
  - d. Nutritional intake index
16. The impact of bad eating behavior is...
- a. Less active due to malnutrition
  - b. Often feel bored
  - c. Often feel lonely
  - d. Decreased enthusiasm for life
17. Included in the balanced nutrition guidelines are...
- a. Often eat side dishes
  - b. Always eat carbohydrate-rich foods
  - c. Limit consumption of sweet foods
  - d. Get used to eating spicy
18. What percentage of fat needs from total energy in adolescents?
- a. 35%
  - b. 10%
  - c. 25%
  - d. 20%
19. From whom did you find out about adolescent nutrition...
- a. Socialize now
  - b. Internet (social media)
  - c. Parent
  - d. Other
  - e. Never heard of
20. Have you met balanced nutrition...?
- a. Already

- b. Sometimes
- c. Never

### 3. RESULTS AND DISCUSSION

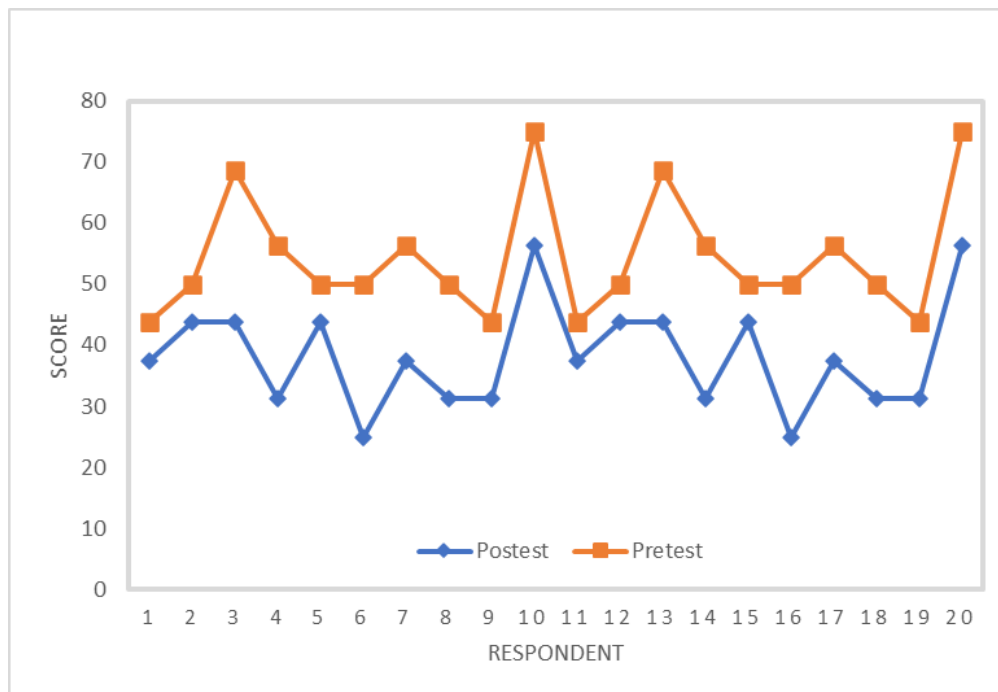
#### 3.1. N-Gain analysis of pretest and posttest results

**Table 2** is an analysis of the gain value. The gain value is an approximate measure function as a measure of the effectiveness of an activity, learning seeks to increase understanding of concepts. The information contained in the gain value is one way to get a limit on the importance of an attribute (Dinata *et al.*, 2020). Based on **Table 2**, the average N-Gain value of the 20 respondents is 0.27 or 27%. This means socialization using PowerPoint media on understanding the fulfillment of adolescent nutrition in Karyawangi is not effective. With a minimum N-Gain score of 0.10 (10%), and a maximum value of 0.45 (45%). According to **Table 2**, there is a change in the value of the pretest with the posttest, meaning there is a change in the respondent's understanding of the treatment. The treatment here is socialization using PowerPoint media. However, the change in understanding is not too significant. The same thing was revealed in the research by Nashiroh *et al.* (2020), in the category of gain effectiveness interpretation, if the N-Gain percentage is < 40%, it can be said as an ineffective category (Nashiroh *et al.*, 2020).

**Table 2.** Analysis of Pre-Test and Post-Test Gain Values.

No	Name	Score		N-Gain	Category
		Pre-Test	Post-Test		
1	R1	38	44	0.10	Low
2	R2	44	50	0.11	Low
3	R3	44	69	0.45	Currently
4	R4	31	56	0.36	Currently
5	R5	44	50	0.11	Low
6	R6	25	50	0.33	Currently
7	R7	38	56	0.29	Low
8	R8	31	50	0.28	Low
9	R9	31	44	0.19	Low
10	R10	56	75	0.43	Currently
11	R11	38	44	0.10	Low
12	R12	44	50	0.11	Low
13	R13	44	69	0.45	Currently
14	R14	31	56	0.36	Currently
15	R15	44	50	0.11	Low
16	R16	25	50	0.33	Currently
17	R17	38	56	0.29	Low
18	R18	31	50	0.28	Low
19	R19	31	44	0.19	Low
20	R20	56	75	0.43	Currently
<b>Average</b>		<b>38</b>	<b>54</b>	<b>0.27</b>	
<b>Min</b>		<b>25</b>	<b>44</b>	<b>0.10</b>	
<b>Max</b>		<b>56</b>	<b>75</b>	<b>0.45</b>	

**Figure 1** shows the results of the pretest and posttest for each question. Based on **Figure 1** there is a difference between the pretest and post-test scores, all respondents experienced an increase in understanding of each question, although it was not significant. This is because the media used is not effective for the youth of Karyawangi. However, socialization using PowerPoint media on understanding the fulfillment of adolescent nutrition in Karyawangi, Parongpong, Indonesia has a positive impact on increasing respondents' knowledge.



**Figure 1.** Pre-test and Post-test results curves.

**Table 3** describes the results of the t-Test: Paired Two Sample for Means analysis. The average value at the time of the pre-test was 38.15 from a total of 20 respondents. While the average value at the post-test was 54.93 from a total of 20 respondents with a variation value of 82.00841 and 97.9989, respectively. The analysis of increasing knowledge in the post-test can be done utilizing a t-test of the average of two paired samples. **Table 3** shows the calculated T value of -8.213 which is smaller than the T table which is 2.086. This means the post-test on the respondents increased but not significantly.

**Table 3.** t-Test: paired two samples for means

	<i>Pretest</i>	<i>Posttest</i>
mean	38.15	54.93
Variance	82.00841	97.9989
Observations	19	19
Pearson Correlation	0.687999	
Hypothesized Mean Difference	0	
df	18	
t Stat	-9.711551	
P(T<=t) one-tail	6.95. 10 <sup>-9</sup>	
t Critical one-tail	1.734064	
P(T<=t) two-tail	1.39. 10 <sup>-8</sup>	
t Critical two-tail	2.100922	

As for some of the causes of the ineffectiveness of socialization using PowerPoint media in increasing understanding about the fulfillment of adolescent nutrition, namely in terms of time constraints such as less effective learning when they have insufficient time (Irmada, *et al.*, 2020). The time provided during the socialization is very limited while the material contained in the PowerPoint has not been completed so the explanation must be accelerated. In addition, what can cause it to be less effective is the appearance is made less attractive in PowerPoint. In line with this, a study by Wulandari *et al.*, (2021) explained an unattractive and monotonous display makes the audience feel bored and even affects the increase in understanding. In addition, the situation in the room is not conducive. The elongated classroom with more than a hundred audience members and limited facilities made it less focused on listening to the socialization. A conducive classroom climate is also an important thing in the transfer of knowledge (Wuryandani *et al.*, 2014).

All the analyzes that have been carried out to determine the effectiveness of PowerPoint media in increasing the understanding of the nutritional needs of adolescents, it has a fairly positive impact on adolescents in Karyawangi, Parongpong, Indonesia. Although the results of the analysis using N-Gain and t-test showed it was less effective and there was an insignificant increase in understanding.

#### 4. CONCLUSION

This study aims to explain how the effectiveness of socialization using PowerPoint media in understanding the needs of adolescents in Karyawangi. In collecting the data we were looking for, we used a pre-test taking process, socialization using PowerPoint media, and post-test taking. The results there is an increase in knowledge seen from the average value increases from the pre-test and post-test from 38 to 54. The calculation of the level of effectiveness using N-Gain with an average result of 27% (N-Gain < 40%) means socialization using PowerPoint media on understanding the fulfillment of adolescent nutrition in Karyawangi is not effective. However, this socialization still has a positive impact on increasing the understanding of adolescents in Karyawangi.

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#### 6. AUTHORS' NOTE

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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