

THE EFFECT OF STOP MOTION VIDEO AS AN EXAMINATION MEDIA ON THE KNOWLEDGE AND SAFE BEHAVIOR OF PT. X METAL CASTING INDUSTRY WORKERS IN KLATEN

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ABSTRACT

The Effect of Stop Motion Video as An Examination Media on The Knowledge and Safe Behavior of PT. X Metal Casting Industry Workers in Klaten. A work accident is one of the risks that can occur in the metal casting industry. Workers' unsafe behavior is the primary cause of occupational accidents. The definition of unsafe behavior is any human behavior that can allow work accidents to occur to oneself or others. The preliminary study results found that 100% of workers had work accidents due to unsafe behavior, and out of 19 workers, 47.3% had insufficient knowledge about unsafe behavior. Counseling using video stop motion is one effort that can be used to overcome. This research aims to investigate the impact of counseling using video stop motion media on enhancing workers' knowledge and safety practices in the metal casting industry. This type of research is a quasi-experiment with a pre-test, post-test, and control group. The experimental group consisted of the workers in the finishing section, while the control group consisted of the workers in the induction section. The Wilcoxon test analysis reveals a significant difference in knowledge and behavior values between the pre-test and post-test, resulting from the use of video stop motion media. Media. The Mann-Whitney test showed a significant difference in the mean value of differences in knowledge and behavior in the pre-test and post-test between the experimental and control groups with a significance value of 0.000 ($p < 0.05$). Video stop motion has the effect of increasing the value of knowledge and safe action among industry workers.

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INTRODUCTION

Heinrich posits that unsafe human behavior or actions, along with dangerous work environment conditions, are the primary causes of work accidents. According to Indonesian statistical data ⁽¹⁾, 80% of work accidents are caused by unsafe behavior and 20% by unsafe conditions. The definition of unsafe behavior (unsafe acts) is all human behavior that can allow accidents to occur to oneself or others ⁽²⁾. The International Labor Organization (ILO) states that the high number of work accidents is caused by human, occupational, and environmental factors ⁽³⁾. According to BPJS Employment, the number of work accidents that occur in 2022 will reach 265,334 cases. Meanwhile, according to the Central Java Province Manpower and Transmigration Service in 2021, there were 262 cases of work accidents in Central Java Province ⁽⁴⁾.

The metal casting industry is a manufacturing industry whose production process uses very high temperatures, which has an impact on workers. High temperatures that strike the human body can cause health problems and even death. If the potential dangers are not addressed immediately, they can negatively impact the health and safety of employees ⁽⁵⁾. The metal casting industry still requires human resources, so worker errors and carelessness may occur, causing work accidents ⁽⁶⁾. Researchers conducted a preliminary study in the PT.

Providing effort to reduce the number of work accidents is by providing occupational health and safety education to workers ⁽⁷⁾. This research modifies the counseling approach from previous studies that employed animated video media. Based on these shortcomings, researchers used stop-motion video media, which has the advantages of providing more in-depth content, more detailed material as required by workers, and the ability to be studied for longer. Stop Motion Video is used as a tool to convey health messages and safe behavior while working in the form of writing, images, and sound packaged using video ⁽⁸⁾.

Based on the description above, researchers are interested in conducting research that aims to determine the effect of stop-motion video on increasing knowledge and safe behavior, which is higher compared to the use of animation video media among PT X metal casting industry workers in Klaten.

MATERIALS AND RESEARCH METHODS

This type of research employs a quasi-experiment that includes a pre- and post-test, along with a control group design. This research was carried out in April 2023 at the metal casting industry PT X, Ceper District, Klaten Regency, Central Java. All male workers in the induction and finishing departments of the PT X Klaten metal casting industry are the population to be studied. The research sample was determined using the probability sampling technique with the random sampling method, so that 16 workers were obtained for each experimental group and control group. This research has received ethical approval from the Yogyakarta Ministry of Health Polytechnic Health Research Committee with letter number No. DP.04.03/e-KEPK.1/603/2023.

In this study, primary data was collected from tests and observations. During the research, questionnaires were used to measure knowledge and checklists were used to measure changes in worker behavior. Data analysis was carried out both descriptively and analytically. Statistical tests are used.

The Wilcoxon test is used to compare the differences between the pre-test and post-test means. Then, to determine the value of the difference in improvement between the two groups, the Mann-Whitney test was used.

RESEARCH RESULTS AND DISCUSSION

The respondents of this research were workers from the PT X.

Table 1. Recapitulation of Respondent Characteristics

Characteristics	Experiment	Control	Amount	%
Gender				
a. Man	16	16	32	100
Age				
a. 20-26	3	3	6	18.75
b. 27-33	4	6	10	31.25
c. 34-40	5	4	9	28.12
d. 41-47	2	1	3	9.37
e. 48-54	1	1	2	6.25
f. 55-61	1	1	2	6.25
Amount	16	16	32	100

Level of education				
a. JUNIOR HIGH SCHOOL	3	4	7	21.88
b. SMA/SMK	13	12	25	78.12
Amount	16	16	32	100

There was a total of 32 respondents. All respondents were male. The age group of the research subjects in both the experimental and control groups was predominantly 27-33 years old, with 10 people (31.25%). The educational level of research subjects from both the experimental and control groups was mostly high school/vocational school education, with a total of 25 people (78.12%).

Understanding and Conducting Stop Motion Videos Before and After Experimental and control groups

Table 2 displays the distribution of differences in knowledge and behavior values. Experimental and Control Groups

Variable	Group	Pre		Post		Difference	
		Mean	SD	Mean	SD	Mean	SD
Knowledge	Experime	10.44	1,094	14.25	0.856	3.81	0.75
	Control	10.25	1,000	11.88	0.885	1.63	1,088
Behavior	Experim	5.44	1,315	9.31	1,195	3.88	0.719
	Control	3.88	1,025	5.38	0.885	1.50	0.73

The mean post-test knowledge score in the experimental group was 14.25, higher than the pre-test, namely 10.44. The mean post-test knowledge score in the control group was 11.88, which was also higher than the pre-test, which was 10.25. Apart from that, Table 2 shows that the mean post-test behavior score in the experimental group is 9.31, higher than the pre-test, namely 5.44. The mean post-test behavior score in the control group was 5.38, which was also higher than the pre-test, which was 3.88

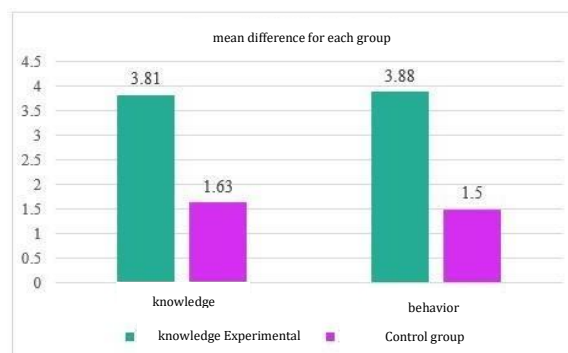


Figure 1. A graph of the average difference in knowledge and behavior values for each group

Figure 1 depicts the average difference in knowledge scores for each group. It can be seen that the average difference in knowledge scores for stop-motion video media is higher than for animation video media. Apart from that, the average difference in behavior scores for stop-motion video media is higher compared to animation video media.

The study examines the impact of Stop Motion Video Media on the differences in knowledge and behavior between the Experimental Group and the Control Group.

The results of the Mann-Whitney test on the knowledge variable show a p-value < 0.000. Apart from that, the results of the Mann-Whitney test on the experimental and control group action variables also showed a p-value < 0.000.

Table 3. Mann-Whitney Test Results of Differences in Knowledge and Behavior Values in the Experimental and Control Groups

Variable	Group	Pre		Post		Difference		Sig. (P-value)
		Mean	SD	Mean	SD	Mean	SD	
Knowledge	Experiment	10.44	1,094	14.25	0.856	3.81	0.75	0,000
	Control	10.25	1,000	11.88	0.885	1.63	1,088	
Behavior	Experiment	5.44	1,315	9.31	1,195	3.88	0.719	0,000
	Control	3.88	1,025	5.38	0.885	1.50	0.73	

The Mann-Whitney test on the knowledge and behavior variables shows that H_0 is not supported and H_a is supported. This means that there is a significant difference between the experimental group's knowledge scores and behavior scores after treatment compared to the control group. Thus, the increase in knowledge and behavior in the experimental group was greater than in the control group.

The study examines the impact of Stop Motion Video Media on the safety knowledge of workers in the PT X Metal Casting Industry in Klaten.

According to the Mann-Whitney Test results, there was a significant difference between the knowledge scores of the experimental group and the control group. This shows that counseling using stop-motion video in this research is more effective than animation video media in increasing safety knowledge among PT X metal casting industry workers in Klaten. Previous research utilized animated videos to implement Good Manufacturing Practices (GMP). The counseling results demonstrate that the use of animation video media has an influence on GMP knowledge and practice⁽¹²⁾. However, this research found that animated videos, used as an outreach medium, had limited material content, primarily consisting of general explanations rather than in-depth details⁽¹³⁾. The experimental group's knowledge was increased through⁽¹³⁾. Increasing knowledge in the experimental group through.

We provide counseling in the form of a stop-motion video. eo. Stop-motion video is basically video. According to Notoatmodjo (2012), video is a type of audiovisual media that serves as a viewing and hearing aid, aiming to simultaneously stimulate the senses of the eyes and ears, thereby enhancing respondents' focus on the presented material.⁽¹¹⁾

Ginting's research (2022)⁽¹⁴⁾ explains that the use of audio-visual media regarding stunting prevention has an effect on increasing knowledge. The increase in knowledge value is also strengthened by Pradana's research (2019)⁽¹⁵⁾, which states that using videos has a significant effect on increasing farmers' knowledge about the use of personal protective equipment (PPE). The advantage of audio-visual media is that the messages conveyed are easy to understand and will influence learning outcomes in the cognitive, affective, and psychomotor domains⁽¹⁶⁾. Napitupulu et al.'s (2022) research on increasing knowledge about occupational safety and health (K3) using videos showed that there was an increase in K3 knowledge after counseling was carried out⁽¹⁷⁾.

The information content of the Stop Motion Video in this research is a combination of interesting images or photos, sentences that are easy to understand, audio and intonation

or sound emphasis that sounds clear, as well as language that is easy to understand, so that the material is easier to understand and accept ⁽¹⁸⁾.

The study examines the impact of Stop Motion Video Media on the safe behavior of workers in the PT X Metal Casting Industry in Klaten.

According to the Mann-Whitney Test results, there was a significant difference between the behavioral values of the experimental group and the control group. This shows that counseling using stop-motion video media is more effective than animation video media in improving safe behavior among PT X metal casting industry workers in Klaten.

Health promotion using audio-visual methods is considered more interesting because it contains both elements, namely hearing and seeing ⁽¹⁹⁾. Audio-visual media makes a huge contribution to changing people's behavior, especially in the aspects of information and persuasion ⁽²⁰⁾. Meanwhile, new media plays a significant role in stimulating forms and patterns of communication due to its unique properties that traditional media lack ⁽²¹⁾. In this research, Stop Motion Video Media is an outreach medium that falls under the audio-visual methods category and is considered a new medium.

Based on Budhi's research (2022), there are differences in increasing behavior using audio-visual media regarding clean and healthy living behavior (PHBS) ⁽²²⁾. The increase in worker behavior scores is reinforced by the results of Suyami's research (2023), which states that the use of audio-visual media is effective in improving worker behavior and preventing hypertension ⁽²³⁾. This research aligns with Nurochman's (2019) findings, demonstrating a significant difference between pre- and post-behavioral scores in the prevention and control of leptospirosis ⁽²⁴⁾. In her research, Fatmawati (2021) also used video as intervention material to increase compliance with using personal protective equipment (PPE). The findings revealed that the intervention influenced increasing compliance with the use of personal protective equipment ⁽²⁵⁾.

The choice of media using stop-motion video with audio-visual methods as a health education medium was well received by workers. This is since stop-motion video engages both the visual and auditory senses, ensuring optimal reception of the presented material ⁽²⁶⁾. The video presents its content in an attractive manner to ensure optimal reception.

Make the respondents interested and able to pay attention to the message or information conveyed, so that it can increase safe behavior among workers.

CONCLUSIONS AND RECOMMENDATIONS

Counseling using stop-motion video media can increase knowledge and safe behavior among PT X metal casting industry workers in Klaten, with a p-value <0.000. Counseling using animated video media can increase the knowledge and safe behavior of PT X metal casting industry workers in Klaten with a p-value <0.000. The use of stop-motion video media significantly differs from the use of animation video media in increasing knowledge scores and safe behavior among PT X metal casting industry workers in Klaten, with a p-value of less than 0.000.

The Manpower Service, District/City Health Service, and local Community Health Centers can maximize the use of Stop Motion Videos "Unsafe Behavior" as a preventive and promotional tool in implementing Occupational Safety and Health (K3), particularly in addressing unsafe behavior. This can be achieved by showing these videos to workers during counseling sessions, with the aim of preventing work-related accidents.

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