

THE EFFECT OF CANVA-BASED INTERACTIVE VIDEO EDUCATION ON ELEMENTARY SCHOOL CHILDREN'S KNOWLEDGE OF BASIC HANDWASHING NEEDS

Dina Mariska Oktaviani¹, Anita Agustina², Kristina Yuniarti³, Muhammad Ra'uf⁴, Evy Noorhasanah⁵

^{1,2,3,4,5} Universitas Muhammadiyah Banjarmasin, South Kalimantan, Indonesia

Abstract

Background: Handwashing with soap (HWS) is a simple yet essential practice for preventing the transmission of infectious diseases. Elementary school children's knowledge regarding the definition, benefits, critical times, and six steps of HWS needs to be strengthened. **Objective:** This study aimed to analyze the effect of Canva-based interactive video education on elementary school children's knowledge of basic handwashing needs at SDN Teluk Dalam 3 Banjarmasin. **Methods:** This study employed a pre-experimental design with a one-group pretest-posttest approach. The sample consisted of 48 fifth-grade students selected using total sampling. Knowledge was measured using a 20-item questionnaire administered before and after the intervention. HWS practices were assessed using a six-step checklist as supporting data. Data were analyzed using the Wilcoxon Signed-Rank Test at a significance level of $\alpha = 0.05$. **Results:** Before the educational intervention, 44 students (91.7%) had a low level of knowledge, while 4 students (8.3%) had a moderate level of knowledge. After the intervention, 47 students (97.7%) had a good level of knowledge, while 1 student (2.3%) had a moderate level of knowledge. The mean knowledge score increased from 27.50 to 98.13, with $Z = -6.055$ and $p = 0.000$. The mean HWS practice score increased from 3.04 to 6.00. **Conclusion:** Canva-based interactive video education had a significant effect on improving elementary school students' knowledge and supported their ability to practice proper handwashing with soap.

Keywords: Canva; Elementary School Children; Handwashing with Soap; Interactive Video; Knowledge

Background

Handwashing with soap (HWS) is a simple, affordable, and feasible disease-prevention measure that can be implemented in school settings. Systematic reviews have shown that handwashing with soap interventions can reduce the risk of diarrhea in children and help prevent acute respiratory infections. [18,11] The World Health Organization (WHO) and UNICEF also recognize hand hygiene as an important component of public health because its benefits are directly related to the prevention of infectious diseases in homes, schools, and public spaces. [19]

In Indonesia, diarrhea remains a health problem associated with environmental conditions and hygiene behaviors. The 2023 Indonesia Health Survey reported a prevalence of diarrhea based on diagnosis or symptoms of approximately 4.3% across all age groups. This condition indicates that handwashing with soap (HWS)

practices still need to be strengthened, particularly among elementary school children who actively interact with others and may be exposed to microorganisms through their hands. [5]

Knowledge serves as a foundation for the development of health behaviors. Children need to understand the definition, benefits, critical times, and sequence of handwashing with soap (HWS) before they can practice it correctly and consistently. During the elementary school years, children are generally at the concrete operational stage of cognitive development. Materials presented through visual elements, sounds, concrete examples, and sequential steps are more easily understood than verbal explanations alone. [9]

Interactive digital media can increase student engagement and facilitate the delivery of health messages in a more engaging manner. Canva enables educational materials to be

presented through text, images, animations, illustrations, and voice narration. This approach is consistent with the Cognitive Theory of Multimedia Learning, which explains that learning is more effective when visual and verbal information are processed in an integrated manner. [7] Research on digital media has also indicated that interactive approaches can enhance health literacy and students' learning outcomes. [6]

A preliminary study conducted at SDN Teluk Dalam 3 Banjarmasin involving 10 students showed that handwashing facilities were available; however, some students were not yet able to correctly identify the critical times and six steps of handwashing with soap (HWS). Previous studies have demonstrated the benefits of video as a medium for handwashing education, but the use of Canva-based interactive videos incorporated into a game-based website in the context of basic personal hygiene needs remains limited. Therefore, this study aimed to analyze the effect of Canva-based interactive video education on the knowledge of fifth-grade students regarding the basic need for handwashing with soap.

Method

Design, Setting, and Study Period

This study employed a pre-experimental design with a one-group pretest-posttest approach. Measurements were conducted before the intervention (O1), followed by educational intervention through a Canva-based interactive video (X), and then post-intervention measurements (O2). The study was conducted on June 23, 2026, at SDN Teluk Dalam 3 Banjarmasin.

Population and Sample

The study population consisted of all 48 fifth-grade students at SDN Teluk Dalam 3 Banjarmasin from two classes. Total sampling was employed; therefore, the entire population was included as the study sample. The respondents were 10–11 years old.

Table 1. Characteristics of Respondents by Age (N = 48)

Age	n	%
10 years	33	68.8
11 years	15	31.3
Total	48	100.0

Research Instruments

The primary instrument was a handwashing with soap (HWS) knowledge questionnaire adapted from Oktafiana (2024). The questionnaire consisted of 20 multiple-choice questions covering four indicators: definition, benefits, critical times, and steps of handwashing with soap (HWS). Correct answers were assigned a score of 1, while incorrect answers were assigned a score of 0. Scores of 16–20 were categorized as good, 11–15 as moderate, and ≤ 10 as poor. The researchers adjusted the wording to make it suitable for elementary school children without changing the indicators; however, validity and reliability testing was not repeated after the adjustment.

A six-step handwashing with soap (HWS) observational checklist was used as supporting data. Each correctly performed step was assigned a score of 1, while an incorrectly performed or omitted step was assigned a score of 0. Practice scores ranged from 0 to 6.

Intervention Procedure

Students completed the pretest for approximately 10–15 minutes, followed by a handwashing with soap (HWS) practice session for baseline observation. The educational intervention was delivered for approximately 25–30 minutes using a Canva-based interactive video containing materials on the definition, benefits, critical times, and six steps of handwashing with soap (HWS). The educational media can be accessed through the following link: <https://dinahandwashkids.com/>.

After the intervention, students completed the posttest using the same questions and repeated the six-step handwashing with soap (HWS) practice for the final observation.

Data Analysis and Ethical Considerations

Data were analyzed using univariate analysis, including frequency distributions, percentages, means, and standard deviations. The Shapiro–Wilk test indicated that the pretest and posttest data were not normally distributed; therefore, differences in scores were analyzed using the Wilcoxon Signed-Rank Test with a significance level of $\alpha = 0.05$.

The study received ethical approval from the Ethics Committee of Universitas Muhammadiyah Banjarmasin, under approval

number 345/UMB/KE/VI/2026, dated June 15, 2026. Parental/guardian consent was obtained, and the confidentiality of respondents was maintained throughout the study.

Results and Discussion

Results

Knowledge Before and After the Educational Intervention

The pretest results showed that the students' initial knowledge was still low. A total of 44 students (91.7%) were categorized as having poor knowledge, 4 students (8.3%) had moderate knowledge, and none were categorized as having good knowledge. Following the educational intervention, the distribution changed substantially. A total of 47 students (97.7%) were categorized as having good knowledge, 1 student (2.3%) had moderate knowledge, and none had poor knowledge.

Table 2. HWS Knowledge Levels Before and After the Educational Intervention (N = 48)

Category	Pre n	Pre %	Post n	Post %
Good	0	0.0	47	97.7
Moderate	4	8.3	1	2.3
Poor	44	91.7	0	0.0
Total	48	100.0	48	100.0

Effect of the Educational Intervention on Knowledge

The mean knowledge score increased from 27.50 ± 16.177 at pretest to 98.13 ± 5.322 at posttest. The Wilcoxon Signed-Rank Test yielded $Z = -6.055$ with $p = 0.000$. These results indicate a statistically significant difference in knowledge scores before and after the intervention.

Table 3. Results of the Wilcoxon Signed-Rank Test for HWS Knowledge Scores

Measurement	N	Mean $\pm$ SD	Z	p-value
Pretest	48	27.50 ± 16.177	-6.055	0.000
Posttest	48	98.13 ± 5.322		

Handwashing with Soap Practice

The observational data showed an improvement in practical skills. Before the educational intervention, practice scores ranged from 2–4, with a mean score of 3.04. After the intervention, all students achieved a score of 6, with a mean score of 6.00. These findings indicate

that the improvement in knowledge was accompanied by the students' ability to perform all six steps of handwashing with soap (HWS) correctly.

Table 4. HWS Practice Scores Before and After the Educational Intervention

Measurement	Mean	Score Range	Description
Before the intervention	3.04	2-4	Incomplete
All six steps performed correctly	6.00	6-6	All six steps performed correctly

Discussion

The low baseline level of knowledge indicates that the availability of handwashing facilities does not automatically translate into an adequate understanding of proper handwashing procedures. Students still require structured information presented in accordance with their cognitive development. At the concrete operational stage, visual demonstrations of movements and direct examples can help children understand the sequence of actions that need to be performed [9].

The increase in knowledge scores following the intervention indicates that Canva-based interactive videos were effective in delivering handwashing with soap (HWS) education. The combination of text, images, animations, motion illustrations, and audio narration helps students select, organize, and integrate information. This mechanism is consistent with the Cognitive Theory of Multimedia Learning, which emphasizes the simultaneous use of visual and verbal channels to facilitate understanding [7].

These findings are consistent with Wilandika et al. [17], who reported an increase in students' knowledge following video-based handwashing education. Toar et al. [16] also found that video and movement-based educational media were effective in improving elementary school students' knowledge of handwashing with soap (HWS). Rahayu et al. [10] demonstrated that educational videos improved knowledge and handwashing with soap (HWS) skills, while Tasya [15] reported the effectiveness of video-based health education in improving hand hygiene knowledge among elementary school children.

The improvement in practical skills from

a mean score of 3.04 to 6.00 indicates that the educational media not only supported the cognitive domain but also helped students imitate the movements in the correct sequence. This finding is consistent with Sidabutar et al. [12] and Supriatna [14], who demonstrated that visual-based health education can improve handwashing skills. From the perspective of Virginia Henderson's basic needs theory, personal hygiene is a basic need that should be fulfilled independently. Adequate knowledge can serve as a foundation for children to maintain personal hygiene through handwashing with soap (HWS) [3].

This study employed a one-group pretest-posttest design without a control group; therefore, the influence of factors outside the intervention could not be completely eliminated. The posttest was administered immediately after the educational intervention, so long-term knowledge retention could not be determined. The sample was limited to a single school and consisted of 48 respondents. In addition, the adapted questionnaire underwent wording adjustments without repeated validity and reliability testing in this study.

Conclusion

Canva-based interactive video education had a significant effect on improving fifth-grade students' knowledge regarding the basic need for handwashing with soap (HWS) at SDN Teluk Dalam 3 Banjarmasin. The mean knowledge score increased from 27.50 to 98.13, and the Wilcoxon test yielded $Z = -6.055$ with $p = 0.000$. HWS practices also improved, with the mean score increasing from 3.04 to 6.00. This medium can be used as an engaging alternative for health education that is appropriate for the learning characteristics of elementary school children.

Schools can utilize Canva-based interactive videos as a medium for HWS education on a regular basis. Community nurses can develop similar media for promoting health among school-aged children. Future studies should employ a control group, larger samples, follow-up measurements to assess knowledge retention, and repeated validity and reliability testing of the instrument after modification.

Bibliography

1. Alotaibi MS. Game-based learning in early childhood education: a systematic review and meta-analysis. *Front Psychol.* 2024;15. doi:10.3389/fpsyg.2024.1307881.
2. Creswell JW, Creswell JD. Research design: qualitative, quantitative, and mixed methods approaches. 5th ed. Thousand Oaks (CA): SAGE Publications; 2018.
3. Henderson V. The nature of nursing: reflections after 25 years. 2nd ed. New York: National League for Nursing Press; 1991.
4. Kementerian Kesehatan Republik Indonesia. 6 langkah mencuci tangan pakai sabun. Jakarta: Kementerian Kesehatan Republik Indonesia; 2020.
5. Kementerian Kesehatan Republik Indonesia. Profil Kesehatan Indonesia 2023. Jakarta: Kementerian Kesehatan Republik Indonesia; 2023.
6. Mancone S, Corrado S, Tosti B, Spica G, Diotaiuti P. Integrating digital and interactive approaches in adolescent health literacy: a comprehensive review. *Front Public Health.* 2024;12. doi:10.3389/fpubh.2024.1387874.
7. Mayer RE. The past, present, and future of the Cognitive Theory of Multimedia Learning. *Educ Psychol Rev.* 2024;36(1):8. doi:10.1007/s10648-023-09842-1.
8. Oktafiana R. Faktor-faktor yang berhubungan dengan kepatuhan pengunjung melakukan hand hygiene di RSUD Dr. H. Abdul Moeloek Provinsi Lampung [thesis]. Bandar Lampung: Politeknik Kesehatan Kemenkes Tanjungkarang; 2024.
9. Piaget J, Inhelder B. The psychology of the child. New York: Basic Books; 2008.
10. Rahayu NKW, Sudiadnyana IW, Hadi MC, Jana IW, Aryasih IGAM. Media video edukasi efektif meningkatkan pengetahuan dan keterampilan cuci tangan pakai sabun siswa sekolah dasar. *J Kesehat Lingkung.* 2025;15(1):25-28.
11. Ross I, Bick S, Ayieko P, Dreibelbis R, Wolf J, Freeman MC, et al. Effectiveness of handwashing with soap for preventing acute respiratory infections in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet.* 2023;401(10389):1681-1690. doi:10.1016/S0140-6736(23)00021-1.
12. Sidabutar S, Siringoringo Purba J, Dilham NN. Efektivitas pendidikan kesehatan terhadap perubahan perilaku cuci tangan pada anak sekolah dasar. *J Pengabdian Masyarakat Masyablum Minannas.* 2022;1(2):86-93.

13. Sugiyono. Metode penelitian kuantitatif, kualitatif, dan R&D. Bandung: Alfabeta; 2019.
14. Supriatna E. Pengaruh penggunaan media interaktif berbasis Canva dalam pembelajaran IPA terhadap kemampuan berpikir kritis siswa kelas VI SD. *Pendas J Ilm Pendidik Dasar*. 2025;10(1):881-887.
15. Tasya PITPI. Efektivitas pendidikan kesehatan menggunakan video terhadap pengetahuan hand hygiene pada anak sekolah dasar di SDN 147 Pekanbaru. *J Penelit Keperawatan Kontemporer*. 2026;6(2):226-236.
16. Toar J, Jamil J, Usuh EJ, Lengkong JSJ, Rotty VNJ. Peningkatan pengetahuan siswa sekolah dasar tentang cuci tangan pakai sabun menggunakan media video dan gerak lagu. *J Educatio FKIP Unma*. 2023;9(2):673-680.
17. Wilandika A, Harahap PS, Yusof S, Saad Z. Video edukasi tentang cuci tangan pada siswa sekolah dasar: dampak terhadap pengetahuan. *J Keperawatan Aisyiyah*. 2023;10(1):65-72.
18. Wolf J, Hubbard S, Brauer M, Ambelu A, Arnold BF, Bain R, et al. Effectiveness of interventions to improve drinking water, sanitation, and handwashing with soap on risk of diarrhoeal disease in children in low-income and middle-income settings: a systematic review and meta-analysis. *Lancet*. 2022;400(10345):48-59. doi:10.1016/S0140-6736(22)00937-0.
19. World Health Organization, UNICEF. New guidelines on community hand hygiene to help governments reduce the spread of infectious diseases. Geneva: World Health Organization; 2025.