

The Effectiveness of Video “6 Steps Hands Wash” to Improve the Capability Hand Washing for Children with Intellectual Disability

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Abstrak: This study aims to determine the effectiveness of the “6 - step hand washing” video media to improve the ability to wash hands properly in children with intellectual disability. A student in grade 7th with mild intellectual disability participated in this A1 – B1 – A2 single subject study design. Subject obtained the mean level increased from 30.67 in the phase baseline – 1 (A1) to 54.5 in the intervention phase (B) and 59.33 in the phase baseline – 2 (A2). Changes in the data level experienced an increase in the score, namely from the phase baseline – 1 (A1) to the intervention phase (B) is increased by +18, while in the intervention phase (B) to the phase baseline – 2 (A2) is increased by +2. Data overlap in an analysis of the condition of 0%, which means the video media “hand washing 6 steps” to improve the ability to effectively wash hands properly on the child intellectual disability mild category. There is a need to replicate the study design to increase the external validity and generalization results. The strategies described in the present study may also be useful for special teachers who teach individual with intellectual disability to gain a proper hand washing skills in various context (e.g., home, schools, and public areas).

Keywords: video, hand washing, children with intellectual disability

INTRODUCTION

Health protocols are one of the important aspects that must be carried out during a pandemic like today. This health protocol effort continues to be socialized to all groups of people, one of which is individuals with intellectual disabilities. Individuals with intellectual disabilities (ID) have a higher chance of being exposed to viruses or bacteria, this is due to several reasons such as social conditions, physical health, and limitations in understanding or absorption of information (Grier and colleagues, 2020). Thus, it is necessary to do more treatment to provide knowledge about health protocols to individuals with ID.

In addition to having to keep wearing a mask when you are outside, one of the important things that also needs to be done is to wash your hands with soap properly. The aim is to give ID individuals the skills to wash their hands always with soap to remove germs and bacteria that are very harmful to the health of the body (DepKes RI, 2007). The activity of washing hands using soap is an action carried out by individuals by rubbing their hands and fingers which can be observed either directly or indirectly, and it is recommended to use soap and rinse with running water, the aim is to prevent individuals from germs, viruses, and diseases especially diseases of the gastrointestinal tract such as diarrhea and acute respiratory infections (Johan, 2018, Hariyadi, 2016, & Risnawaty, 2016).

Many children with intellectual disabilities who have not been able to do hand washing activities properly in special schools based on teachers report. Most teachers in schools use the direct demonstration method and the lecture method. This method is considered less effective because it is less interesting and the instructions that must be given by the teacher must be repeated (Parasyanti, 2020). The need for effective and interesting media to help increase knowledge and skills of hand washing in children with intellectual disabilities. The use of video media will be effective because it directs children’s attention to concentrate on the material being studied so that the learning process becomes interesting and videos can also describe a process accurately and can be seen repeatedly (Arsyad, 2011). The media will also be a representation of the model and the teacher, parent or researcher only as the operator of the media.

In general, audio-visual media is effectively used to improve the hand washing ability of children without disabilities. Research on pre-school age children, the median value of children’s ability to wash their hands before using audio-visual media with the lowest score of 1 and the highest of 5 being the lowest score of 8 and the highest of 10 (Suryaningsih, 2018). Parasyanti’s research (2020) before being given health education on washing hands with soap with video media, there were 24 students (88.9%) in the poor category and after being given health education on washing hands with soap with video media, 25 students (92.6 %) with capable

category. Research by Iskandar, H. (2014) obtained p value = 0.0001 so H_a is accepted and H_o is rejected, then there is an effect of hand washing video media modelling on the ability to wash hands in grade 4 students. its effectiveness.

This study examines the effectiveness of the "6-step hand washing" video media on children with mild intellectual disabilities who have not been able to wash their hands properly. Children with mild intellectual disabilities are individuals who have intelligence below the average that affects their adaptive behavior, have the ability to develop in academic and non-academic fields (social adjustment, work ability, able to adapt to a wider environment, can be independent in society, able to do semi-skilled work, and simple work). The characteristics of children with mild intellectual disabilities are: 1) having poor motor skills, 2) lacking abstract and logical thinking skills, 3) being able to achieve high productivity when doing work with repeated exercises, 4) the highest level of intelligence is equivalent to a normal child aged 12 years, and 5) able to do semi-skilled work. Children with mild intellectual disabilities have limited ability to think but still have the potential to learn to take care of themselves, such as dressing, drinking, eating, maintaining cleanliness, and personal safety. Children with mild intellectual disabilities are able to show that they can be trained with simple skills (Nuryanti, 2008).

The ability to develop hand washing of children with intellectual disabilities can be improved using task analysis at least one or more of the prompts. According to Martin and Pear (2015) task analysis is the process of breaking a task into small steps to make it easier for children to train. Task analysis will make it easier for children to complete the given task because it has been divided into small tasks according to the child's abilities (Sudrajat and Rosida, 2013). According to Neitzel, J., & Wolery, M., (2009) teaching hand washing skills properly to children with intellectual disabilities by teachers or practitioners using at least one or more of the following prompts: a) gestures or gestures, b) verbal (eg: instructions, commands, questions, rules), c) visual (eg: pictures, objects), d) models (full, partial, can be verbal or motor), and e) physical assistance (full, partially).

Audio-visual media is a learning tool that displays sound and image impressions at once in one play through various digital-based application vehicles (Ashaver & Igyuve, 2013). Audio-visual media in learning are intended as materials that contain messages in the form of audio and visual that can stimulate the thoughts, feelings, attention, and willingness of students so that an effective and efficient learning process can occur that can be enjoyed with the senses of sight and hearing. According to Swank (2011), 40% of learning effectiveness was obtained by students from visual experience, 25% from auditory, 17% from tactile, 15% from various other organic sensations and 3% from smell sensations. It means that 65% of the information

or experience that students get is using audio-visual media.

One type of audio-visual media is video. According to Arief (2009) video as an audio-visual medium that displays motion, the message presented can be factual, or fictitious (such as a story), and can be educational or instructional depending on the material presented in the video. According to Arief (2009) video is able to save time, effort, and video recordings can be played over and over again. It means that teachers and parents can be more effective in teaching hand washing to children with intellectual disabilities, but teachers and parents are not able to teach it and become a model. So, another model is needed. The video "6 steps hand washing" is a medium as a representation of the model in which there are elementary school children who carry out hand washing activities properly. There is a step-by-step picture in the "6-step hand washing" video that can be stopped according to the part you want to observe longer. Videos can be prepared and recorded in advance, so that at the time of intervention the researcher can focus on the presentation. The video can be stopped in the middle to be observed carefully and set where to stop the movement of the image in other words the researcher only helps to repeat the video so that it enters the long term memory of children with intellectual disabilities.

The hand washing steps in the video "6 steps hand washing" are adapted based on how to wash hands properly according to the World Health Organization (WHO). Researchers developed and modified the video "6-step hand washing" according to the World Health Organization (WHO) by adjusting the characteristics of children with intellectual disabilities and task analysis. Task analysis will make it easier for children to complete the given task because it has been divided into small tasks according to the child's abilities (Sudrajat and Rosida, 2013). The steps for washing hands in the "6-step hand washing" video are: 1) wet both hands with water, 2) apply soap to hands before starting to wash hands, 3) rub both palms, 4) rub the back of the left hand, 5) rub the back of the right hand, 6) also the palm and between the fingers 7) lock both hands, 8) rub the left thumb in a circular motion, 9) the right thumb rub in a circular motion, 10) twist the tip of the right and left fingers, 11) rinse with running water, 12) dry completely.

Learning by using video to teach health protocols for children without ID has been proven to be effective and the use of the same media for ID children has not been widely studied. Audio visual media has been proven to be effective for academic and non-academic learning for children with mild intellectual disabilities, but its effectiveness has not been tested for learning to wash hands, so it needs to be researched. This study was conducted to determine the effectiveness of the video media "6 steps hand washing" to improve the ability to wash hands properly in children with mild intellectual disabilities.

METHOD

Study Design

The approach used in this study is a quantitative approach. This research method is experimental. The type of research used in this research is single subject research (SSR). The research design used in this study is the A – B – A design which has 3 phases, consisting of the baseline – 1 (A1), intervention (B), and baseline – 2 (A2) phases.

A – 1 (baseline – 1) is a description of an initial condition of the child's ability to wash hands before being given treatment or intervention. Measurements in phase A1 were carried out in three meetings until data stability was achieved with a duration of time that was adjusted to the needs and conditions of the child.

B (intervention) is a description of the child's ability to wash hands during repeated treatment or intervention by looking at the results when the intervention was given.

A – 2 (baseline – 2) is a repetition of the baseline – 1 condition as an evaluation after being given the treatment or intervention given to determine the effect. Measurements were made by measuring and collecting data on the ability to wash hands and see the influence on the ability of children to wash their hands. Measurements were carried out in three meetings with a duration of time that was adjusted to the needs and conditions of the child.

Participant

The participant was a student with mild intellectual disability in 7th grade in one of special school in Yogyakarta. The inclusion criteria for the study was lacking of participant's initial ability to wash hands based on the results of the baseline – 1 (A1) test.

Procedure

At intervention stage, the child is given treatment using the video media "6 steps hand washing". Measurements in the intervention phase were carried out for six meetings until data stability was achieved with a duration of time that was adjusted to the needs and conditions of the child. The procedure for implementing the video in this study were: 1) the child watched the video accompanied by the researcher, 2) the child watched and practiced the movements according to the hand washing sequence with the poster, the video was accompanied by the researcher, 3) the child watched and sang the jingle song according to the video accompanied by the researcher, 4) children practice hand washing with prompt assistance if needed accompanied by researchers.

The type of test used in this study is an action or performance test. The test instrument contains a list of activities that will be observed and recorded by researchers in order to determine the subject's ability to wash hands before and after being given treatment or intervention. The test instrument consists of fifteen

sub-variables based on task analysis. Task analysis will make it easier for the subject to complete the given task because it has been divided into small tasks according to their abilities and characteristics. Each sub-variable has a specific category and score to assess the ability to wash hands properly. The assessment used is in the form of a check list and rating scale. Next, scoring is done by giving a tick (✓) in the range of scores contained in the test sheet. Score 0 to 4 based on prompting if needed. Giving prompts or assistance will be given by researchers to research subjects if needed. The researcher will give a prompt according to the stages of the score criteria starting from a high score (gesture/cue) to a low score (model). The researcher will first give a prompt gesture to the subject, if the subject does not understand, the researcher will lower the grade to a verbal prompt, and if the subject's verbal prompt does not understand, the researcher will provide a model prompt. Development of an instrument grid based on how to wash hands properly according to the World Health Organization (WHO). Researchers developed and modified hand washing instruments according to WHO which were modified by researchers by adjusting the conditions of the research subjects.

Researchers developed and modified hand washing instruments according to the World Health Organization (WHO) by adjusting the conditions of the research subjects. The first modification was carried out on the sub-variable of opening the water faucet and washing both hands to go to the sink/faucet or hand washing place, opening the water faucet, and wetting both hands with water. The second modification was carried out on the sub-variable using soap to using bar or liquid soap. The third modification was carried out on the sub-variable of rubbing the back of the hand and between the fingers on the right and left hands to rubbing the back and between the left hands, rubbing the back and between the right hands. The fourth modification was carried out on the sub-variable of rubbing the thumb on the right and left hands to rubbing the left thumb in a circular motion using the right hand, rubbing the right thumb in a circular motion using the left hand. The fifth modification was carried out on the sub-variable, dry both hands to dry hands perfectly using a tissue/towel/rag. The sixth modification was carried out on the sub-variable of turning off the faucet at the end of the activity to turning off the faucet before drying both hands perfectly using a tissue/towel/rag to save water that was no longer used. This study uses data analysis under conditions and analysis between conditions. Analysis under conditions has six components, namely the length of the condition, the trend of the direction, the level of stability, the rate of change, the data trail, and the range of the data. The analysis between conditions has five components, namely the number of variables that are changed, changes in the trend direction and their effects, changes in stability and their effects, changes in data levels and overlapping data.

Table 1. Action Test Score in Baseline Phase – 1 (A1) Sessions 1 to 3

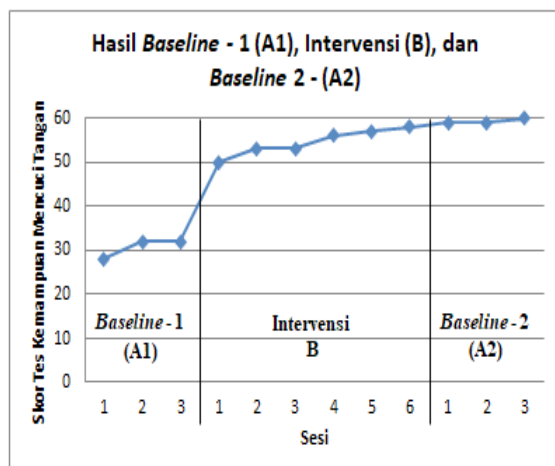
Baseline / Session	Score
Baseline 1 – (A1) / Session 1	28
Baseline 1 – (A1) / Session 2	32
Baseline 1 – (A1) / Session 3	32
Total Score	92

Table 2. Test Score on the Ability to Wash Hands of Children with Intellectual Disabilities in the Intervention Phase (B) Sessions 1 to 6

Baseline / Session	Score
Intervention (B) / Session 1	50
Intervention (B) / Session 2	53
Intervention (B) / Session 3	53
Intervention (B) / Session 4	56
Intervention (B) / Session 5	57
Intervention (B) / Session 6	58
Total Score	327

Table 3. Test Score of Hand washing Ability of Children with Intellectual Disabilities in Baseline Phase – 2 (A2) Sessions 1 to 3

Baseline / Session	Score
Baseline 2 – (A2) / Session 1	59
Baseline 2 – (A2) / Session 2	59
Baseline 2 – (A2) / Session 3	60
Total Score	178

Figure 1. Graph of Baseline 1 – (A1), Intervention (B) and Baseline – 2 (A2) phase score data

FINDINGS AND DISCUSSION

Findings

Baseline Phase Description – 1 (A1)

The first stage is the baseline phase – 1 (A1). Baseline phase data – 1 (A1) was obtained through a hand washing ability test. The implementation

of baseline – 1 (A1) was carried out before the intervention was given using the video media “6 steps hand washing”. Data collection in the baseline phase – 1 (A1) was carried out for 3 sessions and the results were obtained as shown in table 1.

Intervention Phase description (B)

The second stage is the intervention phase (B). Data for the intervention phase (B) was obtained through a hand washing ability test. The implementation of the intervention (B) was carried out after carrying out the baseline phase – 1 test (A1). The implementation of the intervention (B) is given to children by using the video media “washing hands 6 steps”. Data collection in the intervention phase (B) was carried out for 6 sessions and the results were obtained as table 2.

Baseline Phase Description – 2 (A2)

The third stage is the Baseline phase – 2 (A2). Baseline phase data – 2 (A2) was obtained through a hand washing ability test. The implementation of baseline – 2 (A2) was carried out after being given an intervention using the video media “6 steps hand washing”. Data collection in the baseline phase – 2 (A2) was carried out in 3 sessions and the results were obtained as shown in table 3.

The overall hand washing ability score is presented in graphic form, including the baseline phase 1 – (A1), the intervention phase (B), and the baseline phase 2 – (A2) as follows in figure 1.

Based on Figure 1 above, there is an increase in the intervention phase (B) and the ability to wash the hands of children with intellectual disabilities remains high even though intervention (B) has been removed in the baseline phase – 2 (A2). This shows that the ability to wash hands on the subject is already at the mastery stage.

Analysis Data

This study uses descriptive statistical data analysis with graphic visual analysis. The components to be analyzed include analysis under conditions and analysis between conditions. The analysis in the condition there are six components, namely the length of the condition, the trend of the direction, the level of stability, the rate of change, the data trail, and the data range and the results are obtained as shown in table 4.

Based on the summary results in the table above, it is known that the length of the conditions in the baseline phase – 1 (A1), intervention phase (B), and baseline phase – 2 (A2) is 3 – 6 – 3. The trend of the data direction in the baseline phase – 1 (A1), intervention phase (B), and baseline phase – 2 (A2) tend to increase.

Table 4. Summary of Analysis Under Conditions

Condition	(A1)	(B)	(A2)
Condition Length	3	6	3
Trend	(+)	(+)	(+)
Direction	Variabel (66,66%)	Variabel (66,66%)	Stabil (100%)
Stability Level	28 – 32 (+4)	50 – 58 (+8)	59 – 60 (+1)
Level	(+)	(+)	(+)
Change	28 – 32 Variabel	50 – 58 Variabel	59 – 60 Stabil

Table 5. Summary of Analysis Between Conditions

Condition Comparison	A1 / B	B / A2
Changed Variables	1	1
Changes in Direction and Effects	(+) (+)	(+) (+)
Changes in Stability Trends and Their Effects	Variabel ke Variabel	Variabel ke Stabil
Data Level Change	32 – 50 (+18)	58 – 60 (+2)
Overlap Data Change	100% = 0%	100% = 0%

The level of stability in the baseline phase – 1 (A1) is 66.66%, the intervention phase (B) is 66.66%, and the baseline phase – 2 (A2) is 100%. The rate of change in the baseline phase data – 1 (A1) increased by a difference of 4 scores, the intervention phase (B) increased by a difference of 8 scores, and the baseline phase – 2 (A2) increased by a difference of 1 score. The data footprint of the baseline phase – 1 (A1) is increasing, the intervention phase (B) is increasing, and the baseline phase – 2 (A2) is increasing. Also, the data range shows that in the baseline phase – 1 (A1) the acquisition of variable or unstable data, the intervention phase (B) the acquisition of variable or unstable data, and the baseline phase – 2 (A2) the acquisition of stable data.

Furthermore, the analysis between conditions is carried out by comparing the results of data analysis under conditions through the components of the analysis. The analysis between conditions consists of 5 components, namely the number of variables that are changed, changes in the direction of the trend and their

effects, changes in stability and their effects, changes in data levels and overlapping data and the results are obtained as shown in table 5.

Based on the summary results in the table above, it is known that the variables that were changed in this study from the baseline phase – 1 (A1) to the intervention phase (B) were 1, and the intervention phase (B) to the baseline phase – 2 (A2), namely 1. Changes the trend direction and its effect in the baseline phase – 1 (A1) to the intervention phase (B) i.e. from ascending to ascending, and the intervention phase (B) to the baseline phase – 2 (A2) i.e. from ascending to ascending. Changes in the trend of stability and its effect in the baseline phase – 1 (A1) to the intervention phase (B), namely from variable to variable and the intervention phase (B) to the baseline phase – 2 (A2), namely from variable to stable. Changes in the data level from the baseline phase – 1 (A1) to the intervention phase (B) which is +18 and the intervention phase (B) to the baseline phase – 2 (A2) which is +2. Also, changes in overlapping data show that the baseline phase – 1 (A1) to the intervention phase (B) is 0% and the intervention phase (B) to the baseline phase – 2 (A2) is 0%.

DISCUSSION

The effectiveness of the “6-step hand washing” video media to improve the ability to wash the hands of children with mild intellectual disabilities can also be seen from the data acquisition which increased from the baseline phase – 1 (A1) to the intervention (B) of +18 and an increase in the intervention phase (B).) to the baseline phase – 2 (A2) by +2. The stability of the data in the baseline phase – 1 (A1) showed a 66.66% stability result, the intervention phase (B) showed a 66.66% stability result, and the baseline phase – 2 (A2) showed a 100% stability result. The percentage of overlapping data in this study is 0%. The smaller the percentage of overlapping data, the more effective the use of the video media “6 steps hand washing” to improve the ability to wash the hands of children with mild intellectual disabilities will be more effective.

The initial ability of children with mild intellectual disabilities in washing their hands can be seen in the baseline phase – 1 (A1). The implementation of baseline – 1 (A1) aims to determine the ability to wash the hands of children with intellectual disabilities before being given an intervention (B) in the form of video media “6 steps hand washing”. The baseline phase – 1 (A1) was carried out in 3 sessions. The baseline phase – 1 (A1) is the initial condition phase of the child’s ability to wash hands before being given treatment in the intervention phase (B). During 3 sessions of baseline – 1 (A1) the researcher did not provide assistance or prompts to the subject. However, the researcher gave prompts to the subjects during the implementation of the intervention

(B) and the implementation of baseline – 2 (A2) after being given the intervention (B) if needed. The score obtained by the child in the baseline phase – 1 (A1) is 28-32 points. Based on these data, it can be seen that the ability to wash children's hands before being given an intervention (B) or treatment is still quite low. Implementation of 3 consecutive sessions, children wash their hands without using soap and do not dry their hands perfectly using a tissue/towel/rag. Soap can clean dirt and kill germs, because washing hands with water alone will not kill germs, bacteria and viruses on hands (DepKes RI, 2007).

After taking data in the baseline phase – 1 (A1), the next step is to provide recognition or intervention (B). This study uses the video media "6 steps hand washing" to improve the ability to wash hands properly in children with mild intellectual disabilities. Audio visual media in the form of video is effectively used compared to audio media or visual media only. Recent literature suggests that children with developmental delays can benefit through instructional techniques that include modelling life skills such as hand washing through video presentations that are played over and over again (Gardner & Wolfe, 2015). Video media convey realistic behavior with complex stimulus and response routines (Gardner & Wolfe, 2015). This two minute video shows the steps on how to wash your hands properly according to the steps that have been determined. These steps are based on WHO hand washing recommendations. In line with this, deRecat, Emily H, (2019) stated that hand washing activities are divided into the following steps: turning on the water, taking soap, washing hands, turning off the water and drying hands.

The implementation of the intervention phase (B) was carried out in 6 sessions. The researcher measured the ability to wash hands during the intervention (B) using the video media "6 steps hand washing" in each session. Children showed an increase in the ability to wash their hands during the treatment. This can be seen in the score at baseline – 1 (A1) 32 which increased to 50 points in session 1 when given treatment. The increase was because children were interested in the video media "washing hands 6 steps" and watched it repeatedly 5 times. These changes are seen in the steps of using soap and towels when washing hands even though the child still needs help or verbal prompts from the researcher. However, at the end of the intervention (B) the researcher only gave a prompt in the form of a sign or gesture to the child. This is in line with the opinion of deRecat, Emily H (2019) that at the end of the intervention it is enough to point to a tissue dispenser or soap dispenser to remind students, rather than giving verbal prompts or partial physical commands (hand-over-hand) with 80% accuracy. The score of the intervention phase (B) for session 1 was 50, session 2 was 53, session 3 was 53, session 4 was 56, session 5 was 57 and session 6 was 58. These data

indicate that the level of data change in the intervention phase (B) increased by +8.

The baseline – 2 (A2) phase is a repetition of the baseline – 1 (A1) condition as an evaluation of the effect of treatment using the video media "6 steps hand washing" on the ability to wash the hands of children with mild intellectual disabilities. The results of the test of the ability to wash hands showed an increase compared to the baseline – 1 (A1) and intervention (B) phases. Children have remembered that when washing their hands, they must bring and use soap and towels. Only one step requires help or prompt from the researcher. The prompt is in the form of a sign or gesture, the rest of the children are able to carry out the steps to wash their hands properly. This statement is in line with deRecat, Emily H (2019) who stated that most students skip the steps to wash their hands thoroughly and dry their hands properly. At first students need verbal instructions to remember to take soap or dry their hands. Towards the end of six weeks, they need only non-verbal cues (pointing to the soap or tissue dispenser) to successfully complete the task (Emily H, 2019). The score of the ability to wash hands in the baseline phase – 2 (A2) session 1 was 59, session 2 was 59, and session 3 was 60 or reached the maximum score.

The results of the data analysis above show that the use of the video media "6 steps hand washing" is able to improve the ability to wash the hands of children with mild intellectual disabilities. In accordance with the opinion of Swank (2011), the effectiveness of learning by 40% is obtained by students from visual experience, 25% from auditory, 17% from tactile, 15% from various other organic sensations and 3% from aroma sensation which is interpreted by 65% of information or experience. obtained by students using audio-visual or video media. The video "6 steps hand washing" is a medium as a representation of a model that can be taught directly by teachers or parents. According to Arief (2009), video is able to save time, effort, and video recordings can be played over and over again.

Single subject research by giving treatment or intervention to children with mild intellectual disabilities can be said to be effective if there is an increase in scores obtained from the intervention phase (B) and the baseline phase – 2 (A2). In addition, another effectiveness criterion is if during the intervention process the child experiences a change in the ability to wash hands for the better. Based on the results of the data analysis and the opinions of the experts described above, it shows that the video media "6 steps hand washing" is effective in improving the hand washing ability of children with intellectual disabilities in the mild category of class VII fashion class at one of the special schools in Yogyakarta.

CONCLUSSION

Based on the results of the research and discussion in this study, it can be concluded that the use of video media "6 steps hand washing" is effective for improving the ability to wash hands properly in children with intellectual disabilities in the mild category of class VII at one of the special schools in Yogyakarta. For teachers, it is hoped that the "6-step hand washing" video media can be used as an alternative in selecting media for children with intellectual disabilities that can be used to convey hand washing materials properly. For schools, the results of this study can be used as input and innovation for schools, especially with the variety of video media on how to wash hands properly. For other researchers, the research results obtained in this study can be used as a reference for conducting research related to the use of video media "6 steps hand washing" and the limitations in this study can be used as evaluation material for further research, so that in future research it can be produce maximum results.

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