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The Effectiveness of Interactive Video in Stimulating the Language Development of 3-4 Years Old Children

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ABSTRACT

This study aims to assess the effectiveness of using audiovisual-based interactive video media in improving language skills and phonological skills of 3-4 year old children at Intan Islamic Kindergarten and Ar-Rahmah Kindergarten. Using a quantitative experimental approach and pretest-posttest design, the study involved measuring language skills before and after treatment using validated and reliable instruments. Data analysis using Kolmogorov-Smirnov and Shapiro-Wilk normality tests showed the data was not normally distributed, so it was continued with the Mann-Whitney non-parametric test which showed a significant difference (p-value = 0.013) between the groups that received the interactive video and those that did not. The results of the N-Gain Score analysis showed that the effect of this media was moderate (43%), with significant improvement in the pronunciation of /r/ and /l/ phonemes in various word positions and communication contexts. The findings support multimedia learning theory and show that interactive video media is effective in stimulating early childhood language development, including helping children with special conditions such as speech delay. This study suggests that this media can be used as a fun and effective learning tool in early childhood language development in Indonesia.

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INTRODUCTION

Early childhood education is a growth and development intervention given to children aged zero to six years, or the golden age, which is very important for future success. According to Article 1 Paragraph 14 of the Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System (SisdikNas), "Early childhood education is a coaching effort aimed at children from birth to six years of age which is carried out through providing educational stimuli to help physical and spiritual growth and development so that children have readiness to enter further education". Language development is a very important component to provide (Sari et al., 2021).

Development is a process that must be experienced by children aged 3-4 years in learning to master more complex levels from various aspects. In line with (Fadlin, 2021) which states that development is a process of maturity of a child in experiencing a progress that has an impact on a change. Language is a tool for social and communicative interaction. This interaction includes the child's ability to use words to convey wishes and feelings, ask questions to satisfy curiosity, and build initial relationships with parents and peers. Through these interactions, a progress that has an impact on the change and maturity of children can be realized.

In line with Hurlock (Zahra which states that language is an organized system of pronunciation, ideas, and emotions used to read, listen, write, and communicate with others. There are several terms in language development, namely language, speech and communication (Abidin, 2020) . So, language development is the process of interacting, expressing ideas, and creating concepts.

Early childhood language development is essentially divided into two main abilities, namely receptive language and expressive language. Receptive language is a child's ability to understand the information they receive, such as listening, understanding commands, and recognizing the meaning of words or symbols verbally. This ability is an important foundation in language development because children first need to understand meaning before they can express their thoughts through speech. For example, children with good receptive language skills are able to understand commands that consist of two to three instructions at once and can distinguish the meaning of words even if there is only a small change in the phoneme, for example distinguishing the words /copies/, /topi/, and /sopi/. This can be seen when the child is able to point to the object in question appropriately even though they have not been able to pronounce it correctly. Research at PAUD Melati III shows that the use of pop-up book media is effective in developing receptive language skills in children aged 4-5 years, with an increase in the ability to listen, understand commands, and distinguish upper and lower case letters up to 86% after being stimulated using the media (Kurniawan et al., 2024). Meanwhile, expressive language is the ability of children to actively use words to convey their desires, ranging from naming objects to combining words into sentences (Nuraini et al., 2025). Within this expressive ability is a crucial component in the form of articulation or phonology, which is the physical ability to produce language sounds clearly. Disorders in this aspect usually appear in children's inability to pronounce certain phonemes correctly. Simple phonemes that are generally easier for children to master in early development include bilabial sounds such as /p/, /b/, and /m/, as they only require coordination of lip movements. In contrast, complex phonemes such as vibrating consonants (/r/), fricatives (/s/, /f/, /z/), and affricates (/c/, /j/) are often challenging and mastered later (Arif & Maharani, 2023). Children who experience speech delays may experience feelings of inferiority and lack of confidence, difficulty socializing with peers, and difficulty understanding and absorbing lessons taught in institutions. Social and personal factors, as well as conceptual ability and academic achievement, are risks for the development of late speech (Nugraha & Rukiyah, 2022) . In general, children aged 3-4 years are not required to be able to pronounce the letter R perfectly. Phonological development at this age indicates that the child is still in the process of phoneme acquisition, and the pronunciation of the letter R usually develops at an older age (Habeahan et al., 2024) . This phenomenon can be seen from phoneme changes, such as /r/ turning into /l/, /w/, /i/, or /y/ (Khairunnisa & Ariansyah, 2025), or the phoneme [l] confused with [y] and [r] turning into [l] (Midani & Setiawan, 2021).

Although language development in 3-4 year olds involves an increase in vocabulary and the ability to form more complex sentences, aspects of phonology and articulation are often a specific challenge. At this age, children are still in the process of phoneme acquisition, and the pronunciation of certain sounds such as 'R' and 'L' is often rudimentary. Research shows that this difficulty is quite common; for example, Harani et al. (2022) found that 16 out of 20 children aged 3-4 years had difficulty pronouncing the 'R' phoneme, with some replacing it with 'L' or 'Y'. The phonemes /r/ and /l/ are usually mastered by the age of 4 years or so, and difficulties in pronouncing them can affect speech intelligibility as well as children's confidence in communication (Suharti & Widyagarini, 2025). Although 3-year-olds are able to interact with simple sentences, they still have difficulty pronouncing the letter 'R', while 4-year-olds show better language improvement (Dhari, 2024). Mastery of these phonemes develops with age and consistent practice (Asira & Setiawan, 2024). Therefore, early identification and stimulation of difficulties in the pronunciation of 'R' and 'L' phonemes is crucial to support children's optimal language development. Several studies have shown that technology-based learning, including interactive learning videos, can improve language skills in early childhood, especially in the aspects of pronunciation and vocabulary. According to Mahmud et al. (2020) also shows that the use of interactive videos in learning can improve children's language development. Through this media, children can more easily understand the material and actively participate in the learning process.

Interactive learning videos can be used to teach language development for children aged 3-4 years. This is in line with the opinion of Rismark & Sølvberg (2019) which shows that videos can also be useful to encourage children, increase their curiosity and improve their understanding of the material being taught. Interactive learning videos make learning material diverse not only in terms of language, but also text, audio, visual. so that children can learn freely and fun, interactive, and immersive (Auliyani, 2025) . So it can be concluded that interactive learning videos can teach children about language development.

Similar research has been conducted by Auliana et al. (2024) which states that Kinderflix YouTube videos improve the speaking skills of two- to three-year-old children, including increased vocabulary, command word comprehension, speaking fluency, and the ability to say sentences of three to four words. Kinderflix shows impact children not only while they are watching them, but also after they have finished watching them (Auliana et al.,2024) . In addition, there is also research that has been conducted by Aisyah et

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al. (2024) who said that Kinderflix children can clap their hands, show feelings of sadness or happiness, stomp their feet, imitate birds flying, and rabbits jumping, and nod or shake their heads to express gratitude. The vocabulary acquired includes the words mama, papa, hoye (hooray), mentioning letters of the alphabet, rabbit, counting, and imitating animal sounds (Aisyah et al., .2024)

Based on the results of preliminary research observations on November 6, 2024, at the Intan Islamic Kindergarten, Tambaksari District, Surabaya, the media used in learning is using natural materials in the form of rice, flour, cardboard, dry leaves, food coloring. Because there is a cooking class activity, so the teacher provides materials for cooking along with the tools. So, not always using paper and pencils. The children's response was that most of the children found it was a stone object, because maybe at home, the children had seen their families use it, but apparently only a few had used it. Another media is the use of audio, most often using songs recorded with a cellphone and connected to active speakers. Besides that, through stories, either stories using books and props, or purely with sound. Therefore, researchers created an interesting interactive video so that children are more interested in learning so that it is easier to stimulate children to learn language. In addition, interactive videos can be used at any time and for a long period of time.

The problem of language development experienced at Intan Islamic Kindergarten is the child's lack of clarity in pronouncing a letter. This can cause a word that is pronounced not so clearly. It also causes misunderstanding in interpreting the meaning of what the children are talking about. Therefore, special treatment is needed to help the child's language development.

This research is expected to be useful, especially in the use of interactive videos at Intan Islamic Kindergarten, Tambaksari District, Surabaya, so that it can substantially improve the language skills of children aged 3 to 4 years. This interactive video is expected to enhance the development of an effective technology-based language learning model for 3-4 year old children in Indonesia. The use of interactive videos in education has been recognized as beneficial in improving several aspects of child development, including language skills. However, the efficacy of appropriate interactive videos in improving the language skills of 3-4 year old children has not been thoroughly investigated, especially in formal educational settings such as Islamic kindergartens.

METHOD

This study used a quantitative approach with an experimental type. The purpose of an experiment is to find out how independent variables (treatments or treatments) have an impact on dependent variables (outcomes) under controlled conditions (Sugiyono, 2013: 303) . Therefore, the analysis in this experimental research aims to observe changes that occur due to the provision of certain treatments, so that the effectiveness of the treatment can be known.

The research design used in this study is a type of experimental research with the form of Pre-Experimental Designs, specifically the One Group Pretest-Posttest Design. In this design, a pretest is conducted first before the treatment is given, with the aim of knowing the initial condition of the subject. After the treatment is given, a posttest is conducted to see the changes that occur. This design allows researchers to measure the effectiveness of treatment more accurately (Sugiyono, 2013: 74) .

In this study, the pretest was conducted to determine the initial condition of children's language skills before being given treatment in the form of interactive videos. The research subjects were children aged 3-4 years at Intan Islamic Kindergarten and Ar-Rahmah Kindergarten, Tambaksari District, Surabaya. After the initial condition was known through the pretest, treatment was given in the form of learning using interactive video media. Furthermore, a posttest was conducted to evaluate changes in language skills after the treatment was applied. Comparison between pretest and posttest results allows researchers to see the extent of the effectiveness of interactive video media in stimulating early childhood language development.

RESULTS

This section describes the results of the research as well as provides a comprehensive discussion. Results can be presented in the form of pictures, graphs, tables and others that readers can easily understand [8]. The discussion can be done in several subchapters.

a. Validity Test

Validity is a product of validation. The validity test is carried out to measure the level of validity of an instrument used (Darma, 2021) . In this study using content validity for instrument testing. The validity test is carried out through a variable instrument grid which is presented based on variable indicators. Indicators become benchmarks of question items that have been described, then consulted with validators who have expertise in their fields to assess their validity level. The results of the validation sheet that has been approved by expert validators are 98% with very valid criteria.

The calculated r value and the r table value were tested with a significance level of 5% to test significance. If the calculated r value is greater than the r table value and is positive, then the statement in the test can be considered valid. Conversely, if the calculated r value is lower than the table r value, then the statement can be considered invalid. In this case, the sample size is 120 and the r table value is 0.1779. Therefore, if the r table value is greater than 0.1779, it can be stated that the statement is valid. The following are the results of the validity test using SPSS software version 20 .

Table 1 Instrument Validity Test

Correlations

Correlations

		Total Score	Conclusion
P1	Pearson Correlation	.801**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P2	Pearson Correlation	.862**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P3	Pearson Correlation	.842**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P4	Pearson Correlation	.818**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P5	Pearson Correlation	.831**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P6	Pearson Correlation	.864**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P7	Pearson Correlation	.764**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P8	Pearson Correlation	.753**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P9	Pearson Correlation	.771**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P10	Pearson Correlation	.788**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P11	Pearson Correlation	.732**	Valid
	Sig. (2-tailed)	.000	
	N	120	
P12	Pearson Correlation	.800**	Valid
	Sig. (2-tailed)	.000	
	N	120	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

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Based on the results of the validity test, it can be concluded that each statement in the research questionnaire has contract validity or is called internally consistent with a significance value below 0.05 which means the variable is valid. From the results of table 4.1, the calculated r value is greater than the r table value. So, all statements used in this research instrument can be said to be valid. Based on the validity test results above, a summary of the validity test results is as follows:

Table 2 Summary of Validity Test Results

Variable	Dimensions	Item Number	Failed Item Number	Valid Item Number
Effectiveness of Interactive Video in Stimulating the Language Development of 3-4 Years Old Children	Pronunciation of R/L phoneme at the beginning of a word	P1 P2	-	P1 P2
	Pronunciation of R/L phoneme in the middle of a word	P3 P4	-	P3 P4
	Pronunciation of the R/L phoneme at the end of a word	P5 P6	-	P5 P6
	Repeating words containing R/L phonemes	P7 P8	-	P7 P8
	Pronunciation of R/L phonemes in simple sentences	P9 P10		P9 P10
	Pronunciation of R/L phonemes in various contexts	P11 P12		P11 P12
	Total	**12**	**0**	**12**

At the instrument validity test stage, there are several important notes that need to be corrected so that the instrument can measure the variables appropriately. First, the content of the instrument needs to be adjusted by adding a focus on the variable pronunciation of /r/ and /l/ sounds, especially in the final position of the word. This addition is important so that the instrument truly reflects the phonological aspects to be studied. Second, the indicators used are still less relevant and do not specifically lead to the ability to pronounce the /r/ and /l/ sounds, so adjustments need to be made to be in line with the measurement objectives. In addition, the form of instrument used has not been integrated in detail with the video material used as a stimulus. Third, the initial video used in the testing process was not in accordance with the indicators or variables that had been determined, so it was necessary to replace or adjust the video so that the validity of the instrument could be improved. The following is a picture of some revisions to the research instrument.

Figure. 1 revision of research instruments

No	Aspek yang dinilai	Skala penilaian			
		1	2	3	4
I.	**Aspek Petunjuk** 1. Petunjuk lembar instrumen sesuai dengan judul penelitian				
	2. Kriteria penilaian dituliskan dengan jelas				
II.	**ISI** 1. Variabel: Pengucapan fonem /r/ dan /l/ apiko-alveolar di posisi awal kata (Siregar et al., 2001). 2. Variabel: Pengucapan fonem /r/ dan /l/ apiko-alveolar di posisi tengah kata (Siregar et al., 2001).				

	3. Variabel: Pengucapan fonem /r/ dan /l/ apiko-alveolar di posisi akhir kata (Siregar et al., 2001). 4. Isi instrumen perlu disesuaikan dengan menambahkan fokus pada variabel pengucapan bunyi /r/ dan /l/, khususnya pada posisi akhir kata				
	Relevansi indikator perkembangan bahasa anak usia 3–4 tahun Indikator yang digunakan masih kurang relevan dan belum secara spesifik mengarah pada kemampuan pengucapan bunyi /r/ dan /l, sehingga perlu dilakukan penyesuaian agar selaras dengan tujuan pengukuran Relevansi indikator perkembangan bahasa anak usia 3–4 tahun sangat penting karena pada rentang usia ini, kemampuan berbahasa merupakan salah satu aspek utama dalam perkembangan kognitif, sosial, dan emosional anak. Adapun fokus utama dalam penelitian ini adalah kemampuan anak dalam mengucapkan fonem /R/ dan /L/ secara tepat dan konsisten. Berikut poin-poin relevansi indikatornya: Video awal yang digunakan dalam proses pengujian ternyata belum sesuai dengan indikator atau variabel yang telah ditetapkan, sehingga diperlukan penggantian atau penyesuaian video agar validitas instrumen dapat ditingkatkan • Mengukur kemampuan anak dalam mengucapkan fonem /R/ di posisi awal, seperti pada kata "Rusa", "Rumah", dan "Rambutan". • Mengukur kemampuan anak dalam mengucapkan fonem /R/ di posisi tengah, seperti pada kata "Burung", "Permen", dan "Kereta". • Mengukur kemampuan anak dalam mengucapkan fonem /R/ di posisi akhir, seperti pada kata "Jamur", "Gitar" dan "Anggur". • Mengukur kemampuan anak dalam mengulang kata yang mengandung fonem /R/ seperti: "Roti" dan "Sarang". • Mengukur kemampuan anak dalam mengucapkan fonem /R/ dalam kalimat sederhana seperti "Ria membaca buku di rumah"				

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b. Reliability Test

This research was conducted in two early childhood education institutions, namely Intan Islamic Kindergarten and Ar-Rahmah Kindergarten in Surabaya. Both institutions are Islamic-based PAUD institutions that are active in developing children's social-emotional education programs. The institutions have a sufficient number of children, with a total of 60 children aged 3-4 years who became respondents in this study (each kindergarten consists of 30 children). Both institutions were also willing to cooperate well in the research data collection process and had teachers who supported the process of filling out the instrument objectively. On this basis, these two kindergartens were considered representative to be the research locations in order to measure the validity and reliability of the instruments used. Both kindergartens also showed high enthusiasm and commitment in supporting the research data collection process and ensuring that the instruments were completed objectively. Similar problems in both institutions include limited learning media that can support the development of children's social-emotional aspects optimally, variations in children's characters and social backgrounds that are quite complex, and challenges in language stimulation, especially in the pronunciation of certain letter phonemes such as /r/ and /l/. Some children still have difficulty in pronouncing phonemes correctly, which has an impact on their communication clarity and confidence when interacting. Therefore, these two kindergartens are considered representative to be research locations in order to test the validity and reliability of the instruments used to assess children's social-emotional development and language skills as a whole.

The reliability test is used to determine the extent to which the measuring instruments (instruments) used in this study can be trusted and produce consistent data. This test is carried out after the items on the instrument are declared valid. In this study, the reliability test was carried out on 12 valid items using the help of SPSS version 20 software through Cronbach's Alpha analysis. According to Darma (2021) , the significant level / level used can be 0.5, 0.6, and 0.7. Reliability Test The test criteria are as follows:

- If the Cronbach alpha value> significant level, then the instrument is said to be reliable.
- If the Cronbach alpha value < significant level, then the instrument is said to be unreliable.

Table 3 Reliability Test Results

Case Processing Summary

		N	%
Cases	Valid	120	100,0
	Excluded[a]	0	,0
	Total	120	100,0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,949	,950	12

Item Statistics

	Mean	Std. Deviation	N
P1	2,5333	,69733	120
P2	2,4750	,73293	120
P3	2,4167	,79477	120
P4	2,6333	,62083	120
P5	2,2417	,79912	120
P6	2,2250	,83477	120
P7	2,6750	,59638	120
P8	2,6750	,61031	120
P9	2,6500	,66925	120
P10	2,5333	,68518	120
P11	2,4083	,76142	120
P12	2,3167	,77766	120

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
P1	27,2500	40,441	,760	,944
P2	27,3083	39,476	,831	,942
P3	27,3667	39,058	,803	,943
P4	27,1500	41,036	,785	,944
P5	27,5417	39,141	,789	,944
P6	27,5583	38,400	,828	,942
P7	27,1083	41,728	,725	,946
P8	27,1083	41,694	,711	,946
P9	27,1333	40,990	,727	,945
P10	27,2500	40,676	,746	,945
P11	27,3750	40,556	,673	,947
P12	27,4667	39,680	,754	,945

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
29,7833	47,667	6,90413	12

The questionnaire instrument for the Effectiveness of Interactive Video in Stimulating the Language Development of 3-4 Year Old Children has a reliability coefficient of 0.949, according to the results of the instrument reliability test using Cronbach Alpha above. This means that the questionnaire is very strong and reliable. An instrument can be tested for reliability using Cronbach alpha testing, where if the Cronbach alpha value is more than 0.6, the instrument is considered reliable (Darma, 2021) .

Data Collection Results Research

a. Data Results Before Treatment (Pretest) and After Treatment (Posttest)

Researchers collected data using an observation instrument sheet. In this study, observations were made before and after the pretest treatment. The focus of this study was to observe the language development of children aged 3 to 4 years at Intan Islamic Kindergarten. The results of the pretest and posttest activities are as follows:

1. Data Results Before Treatment (Pretest)

In this activity, 2 stages of research were carried out in which 1 activity was carried out in stages. This activity was carried out on Monday, June 2 - June 3, 2025 at Ar-Rahmah Kindergarten on Wednesday, June 18, 2025 and Friday, June 20, 2025 in KB A and KB B groups at Islam Intan Kindergarten and KB B. This study was conducted to determine the language development of the pronunciation of the phonemes of the letters R and L in the KB groups at the Islam Intan Kindergarten and Ar-Rahmah Kindergarten. Thus, in order to interpret the data more easily, the assessment criteria are divided into 3 categories, namely difficulty in pronouncing the phonemes of the letters R and L, the pronunciation of the phonemes of the letters R and L is developing, and being able to pronounce the phonemes of the letters R and L well with a minimum scale of 1 and a maximum scale of 3. The pretest data can be seen in Appendix 2 and Appendix 3.

The pretest results of Intan Islamic Kindergarten, which can be seen in Appendix 2, show that 6 children are in the difficult category, 12 children are in the developing category, and 12 children are in the able category. The pretest results of Ar-Rahmah Kindergarten, which can be seen in Appendix 3, show that 3 children are in the difficult category, 9 children are in the developing category, and 18 children are in the able category.

2. Data on Results After Treatment (Posttest)

In this activity, 2 stages of research were carried out in which 1 activity was carried out in stages. This activity was carried out on June 14-June 16, 2025 at Ar-Rahmah Kindergarten and KB B on June 29, 2025 and June 30, 2025 in KB A and KB B groups at Intan Islamic Kindergarten. Based on the results of the posttest on children at Islam Intan Kindergarten and Ar-Rahmah Kindergarten, each of which is contained in Appendix 4 and Appendix 5, it is known that the acquisition of the results after treatment. The posttest activities were carried out for 1 day. From these activities can assess the development of children's language in Intan Islamic Kindergarten with the provision of interactive video treatment. There is 1 child in the difficult category, there are 5 children in the developing category, and there are 24 children in the able category. Meanwhile, the pretest results of Ar-Rahmah Kindergarten in Appendix 3 show that there is 1 child in the difficult category, there are 11 children in the developing category, and there are 18 children in the able category.

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3. Pretest and Posttest Observation Data

Based on the results of observations before being given treatment (pretest) and the results after being given treatment (posttest) about the language development of KB A and KB B children at Intan Islamic Kindergarten and Ar-Rahmah Kindergarten, it can be seen that stimulus activities through interactive videos have an effect on children's language development. This can be seen based on the value of the pretest and posttest results that have been carried out by researchers who have increased. Therefore, the results of the values in Appendix 6 and Appendix 7 can be used to compile calculations in testing the requirements.

Results of Research Data Analysis

a. Data Analysis Prerequisite Test

1. Normality Test

In this study, the normality test was used to test the data analysis requirements; carried out by the Kolmogorov Smirnov formula and SPSS, the decision-making reference is that if the significance value is more than 0.05, the data is normally distributed, and if the significance value is less than 0.05, the data is not normally distributed (Rozak & Hidayati, 2019) . The results of the normality test in this study using the Kolmogorov Smirnov formula are as follows:

Table 4 Normality Test Results

Tests of Normality

	Kolmogorov-Smirnov [a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest	,161	60	,001	,876	60	,000
Posttest	,209	60	,000	,806	60	,000

a. Lilliefors Significance Correction

The normality test values used can show that the research data is not normally distributed, as shown in Table 4.4. The results showed that the pretest significance value was less than 0.05, namely 0.001 <0.05, and the posttest significance value was 0.000 <0.05. Therefore, an additional test of non-parametric test using Mann-Withney test should be conducted.

2. Hypothesis Test

Hypothesis testing was conducted to determine whether there is an effect of interactive videos on the language development of children aged 3-4 years. Hypothesis testing was carried out by researchers using non-parametric statistics in the form of Mann-Withney because the data was not normally distributed. In the Mann-Withney test there are two hypotheses, namely:

Ha = μ 1 $\neq\mu$ 2 = there is a significant difference in the application of interactive videos in stimulating the language development of children aged 3-4 years.

H0 = μ 1 =μ 2 = there is no significant difference in the application of interactive videos in stimulating the language development of children aged 3-4 years.

According to Syahida et al. (2025) , if the p value <0.05, it means there is a significant difference between the two groups. The following hypothesis test results are in Table 4.5 as follows:

Table 5 Mann-Withney Test Results

Test Statistics[a]

	Result
Mann-Whitney U	1335,000
Wilcoxon W	3165,000
Z	-2,489
Asymp. Sig. (2-tailed)	,013

a. Grouping Variable: Group

Based on the Mann-Whitney U test results presented in Table 4.5, the hypothesis decision can be drawn directly. With a significance value (Asymp. Sig. 2-tailed) of 0.013, which is smaller than the significance level of 0.05, the null hypothesis (Ho) stating that there is no difference between the two groups is rejected, and the alternative hypothesis (Ha) is accepted. The rejection of Hostatistically proves that there is a significant difference between the language skills of 3-4 year old children at Intan Islamic Kindergarten and Ar-Rahmah Kindergarten. Thus, it can be concluded that the two groups had unequal levels of language ability at the time of testing.

The results of the Mann-Withney test will then be reinforced by conducting the N-Gain Score test. This aims to see how much influence is produced through interactive video activities on children's language

development. N-Gain Score test by calculating the difference between the results of the pretest and posttest data (Yonata et al., 2020) . The results of the N-Gain Score test calculation are as follows:

$$N - Gain = \frac{\text{Skor Posttest} - \text{Skor Pretest}}{\text{Skor Maksimal} - \text{Skor Pretest}} \text{ x } 100\%$$
$$N - Gain = \frac{1889 - 1685}{2160 - 1685} \text{ x } 100\%$$
$$N - Gain = \frac{204}{475} \text{ x } 100\%$$
$$N - Gain = 0{,}429 \text{ x } 100\%$$
$$N - Gain = 43\%$$

The N - Gain calculation value is obtained at 43%, where the value is included in the moderate category. According to Yonata et al. (2020) , the reference for the N-Gain Score category can be seen in Table 4.6:

Table 6 N-Gain Score Criteria

Percentage	Criteria
> 70 %	High
69% > *N - Gain* > 30%	Medium
< 30 %	Low

Source: Archambault, (2008)

Based on the six research indicators, the interactive video was shown to have a positive influence on early childhood ability to pronounce R and L phonemes. In the first indicator, namely the pronunciation of phonemes at the beginning of words, there was a significant increase in Intan Islamic Kindergarten by 0.4, while in Ar-Rahmah Kindergarten it did not change, in line with the findings of Febriana et al. (2025) that children tend to master the initial sound first. The second indicator, the pronunciation of phonemes in the middle of the word, also improved although more slowly (0.5 in TK Islam Intan and 0.1 in TK Ar-Rahmah), considering that the middle position demands more complex articulation control (Panggabean et al., 2025). In the third indicator, pronunciation at the end of the word, there was a notable improvement at TK Islam Intan (0.7) thanks to the show emphasizing final pronunciation, which is in accordance with the principles of multimodal learning (Dewi et al., 2025). The fourth indicator, repetition of words containing R/L phonemes, showed progress (0.5 at TK Islam Intan and 0.1 at TK Ar-Rahmah), indicating integration between auditory perception and active speech production (Juliana et al., 2023). The fifth indicator, pronunciation in simple sentences, improved by 0.4 in TK Islam Intan and 0.1 in TK Ar-Rahmah, reflecting the transition from memorization to the use of phonemes in communicative contexts (Permana & Fauziyah, 2023). Finally, the sixth indicator shows that children are increasingly flexible in pronouncing R/L phonemes in various contexts, such as when telling stories or playing, with an increase of 0.5 at TK Islam Intan, supporting Solihin's (2021) view that phonological development is closely related to the ability to distinguish sounds in daily communication.

DISCUSSION

The purpose of this study was to find out how well interactive videos help children aged 3 to 4 years old at TK Islam Intan and TK Ar-Rahmah learn language. That way in this study, of course, the activities given to children are the activities of pronouncing the letter phoneme "R / L" with interactive videos to stimulate children's language development. Based on the results of the validity test in this study, it shows that the research instrument used in data collection reached a very high rate of 98%, which confirms that the instrument is able to measure variables accurately. In addition, the reliability test results show a Cronbach's alpha coefficient value of 0.949, which indicates a very strong level of internal consistency, and strengthens the reliability of the instrument in examining aspects of children's language development.

Based on the six indicators used in this study, it can be seen that interactive video media has a positive effect on the ability of young children to pronounce R and L phonemes. In the first indicator, namely the pronunciation of R/L phonemes at the beginning of words, there was a significant increase after treatment. This shows that children are better able to recognize and produce phoneme sounds that appear in the initial position more clearly. The increase is evident from the average pretest and posttest scores on the first indicator, where the average pretest to posttest score at the Intan Islamic Kindergarten institution increased by 0.4. In contrast, at the Ar-Rahmah Kindergarten institution, the average pretest and posttest scores did not increase or decrease. In line with research Febriana et al. (2025) that children tend to start phonological acquisition by pronouncing vowel and consonant sounds that are in the initial position of the word, and tend to avoid final consonants.

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The second indicator, the ability to pronounce R or L phonemes located in the middle position of the word, showed progress although the increase was not as fast as the first indicator. This is evidenced by the acquisition of the average pretest and posttest scores at the Intan Islamic Kindergarten institution increased by 0.5, while at the Ar-Rahmah Kindergarten institution by 0.1. This phenomenon can be explained through the articulatory aspect, where the middle position in the word structure often demands finer and more coordinated oromotor motor control. The production of sounds in the middle of a word requires the memorizer to maintain consistency of articulation from the beginning to the end of the utterance, making it a challenge for individuals who are developing their phonological abilities. Therefore, despite progress, improvements in this aspect tend to be gradual and require ongoing practice and intervention strategies that are specific to the characteristics of the phoneme in question. Panggabean et al. (2025) said that children's first language acquisition can be simple language towards a more complicated form of language. Language acquisition in the first child can start from the use of simple language and develop into more complex forms of language.

The third indicator, which refers to the ability to pronounce the R or L phoneme in the final position of the word, showed a significant increase after the intervention was carried out through interactive video shows . This was also evident from the average pretest and posttest scores at the Intan Islamic Kindergarten institution which increased by 0.7, while at the Ar-Rahmah Kindergarten institution by 0.1. The audiovisual materials were specifically designed to emphasize the importance of pronouncing word endings slowly and repeatedly, thus helping children to strengthen their phonological representations and increase their articulatory awareness. This approach has proven to be effective in facilitating speech motor learning, especially in completing utterances correctly. The success of this strategy can also be attributed to the principle of multimodal learning, where the combination of visual, auditory and kinesthetic elements work synergistically to strengthen children's phonetic memory and improve the consistency of phoneme pronunciation in the final position of words (Dewi et al., . 2025)

The fourth indicator, the child's ability to repeat words containing R or L phonemes, showed significant progress after the treatment. This is also evident from the average scores of the pretest and posttest at the Intan Islamic Kindergarten institution which increased by 0.5, while at the Ar-Rahmah Kindergarten institution by 0.1. This development indicates that children are not only able to recognize the phoneme sound receptively, but have begun to internalize it into the speech production system actively. In other words, the ability to reproduce phonemes through repetition indicates a more mature process of integration between auditory perception and articulatory motor control. This is important, because word repetition is one of the early indicators that can reflect a child's phonological maturity, as well as being the basis for improving fluency and accuracy of speech in the broader context of communication. This improvement can also be a reflection of the success of the intervention in forming neurolinguistic connections that support active speaking skills (Juliana et al., . 2023)

The fifth indicator, the child's ability to pronounce R or L phonemes in simple sentence structures, showed progress indicating an increase in the contextual use of target phonemes. This is also evident from the average scores of the pretest and posttest at the Intan Islamic Kindergarten institution which increased by 0.4, while at the Ar-Rahmah Kindergarten institution by 0.1. This development shows that children are no longer limited to the pronunciation of phonemes in isolation or based on word-by-word memorization, but have been able to integrate them into a more natural and communicative sentence context. This signifies the transition from mechanical phonological ability to functional understanding, where the child begins to master aspects of language use in real situations. This success is an important indicator of expressive language development, as it reflects the child's ability to access and apply sound structures in order to convey meaning effectively in simple yet complete discourse (Permana & Fauziyah, 2023) .

Finally, in the sixth indicator, namely the pronunciation of R/L phonemes in various contexts, it can be seen that after treatment, children show a more flexible ability to apply phonemes to different situations or activities, such as when telling stories or playing roles. This improvement is evident in the average pretest and posttest scores on the first indicator, where the average pretest to posttest score at the Intan Islamic Kindergarten institution increased by 0.5. In contrast, at the Ar-Rahmah Kindergarten institution, the average pretest and posttest scores did not increase or decrease. This shows the development of articulation skills into the realm of everyday communication. Phonology develops through a long process of language decoding. Much of a child's morphological development will depend on their ability to receive and output phonological units. At preschool age, children not only learn the phonetic system and phonetic inventory but also learn to distinguish which sounds are used to distinguish meaning (Solihin, 2021) . This is also in line with one of the theories from the realm of phonology, namely the Natural Phonological Process Theory pioneered by David Stampe (1965). This theory argues that at the beginning of language acquisition, children use the mechanism of "natural phonological processes" to simplify sounds that are difficult to pronounce. These innate processes include suppression (e.g. eliminating consonant final sounds) and restriction (e.g. limiting substitution to specific contexts) (Dewi et al., . 2022)

Overall, the improvement in these six indicators shows that the interactive video is not only an auxiliary medium, but is able to become the main facilitator in the development of early childhood phonological skills. This achievement strengthens the recommendation to use audiovisual-based media in language learning for children aged 3-4 years as an adaptive, fun and pedagogically effective method. The statement that interactive video acts as the main facilitator in the development of early childhood phonological skills is in line with the multimedia learning theory proposed by Richard Mayer (2009). According to Mayer in (Henry, 2012) , learning will be more effective when children receive information through visual and auditory channels simultaneously, because early childhood cognitive systems are still developing and are very responsive to multimodal stimuli. The principle of modality and dual coding in this theory explains that the use of audiovisual media can improve the process of memory encoding, concept understanding, and language retention.

Based on the initial data obtained through the pretest contained in Appendix 2 and Appendix 3, it is revealed that the majority of children from the two educational institutions studied, TK Islam Intan and TK Ar-Rahmah, experienced difficulties in pronouncing the phonemes /r/ and /l/. These difficulties reflect limitations in the articulation of certain phonemes that are common in the early stages of language development. However, after being given treatment in the form of learning using interactive videos, the posttest results in Appendix 4 and Appendix 5 show a significant improvement. There was an increase in the number of children who were able to pronounce both phonemes more precisely and clearly, indicating that the intervention through interactive audiovisual media was successful in encouraging the progress of children's phonological skills. This result is reinforced by the findings of a study conducted by (Satriana et al., 2023) which shows that audiovisual media has an influence on the measurement skills of children aged 5-6 years. This is evidenced by the results of the calculation of children's measurement abilities before being given treatment is 48.8% still at the level of undeveloped, then after being given treatment it increases to 38.7% to 87.5% and is already at the level of very well developed. Sofiana & Anaknti (2023) also stated that interactive learning video media can be used to improve early childhood language skills.

Based on the Mann-Whitney U test results presented in Table 4.5, hypothesis decisions can be drawn directly. With a significance value (Asymp. Sig. 2-tailed) of 0.013, which is smaller than the significance level of 0.05, the null hypothesis (Ho) which states there is no difference between the two groups is rejected, and the alternative hypothesis (Ha) is accepted. The rejection of Hostatistically proves that there is a significant difference between the language skills of children aged 3-4 years at Intan Islamic Kindergarten and Ar-Rahmah Kindergarten. This can also be seen through the results of the overall total score obtained at TK Islam Intan and TK Ar-Rahmah. Appendix 2 shows that the total pretest score at Islamic Intan Kindergarten was 797, while at Ar-Rahmah Kindergarten it was 888. However, after being given treatment, the post-test results in Table 4.3 show a significance value of 0.470 ($p > 0.05$). This statistical shift is very crucial which shows that the initially significant difference between groups has now become insignificant. This indicates that the interactive video not only improved children's general skills, but also served as an effective equalizer. The interactive video treatment successfully closed the initial ability gap between the two institutions, and most likely by providing more accelerative benefits to the group that was initially lagging behind. This statement is in line with research (Fitri et al., 2024) that audiovisual media effectively stimulates children with special conditions such as speech delay and deafness which provides a more interesting and effective learning experience for children aged 5-6 years with speech delay, including those with autism factors and expressive speech disorders. The study used a pretest-posttest design on 5 children diagnosed with speech delay and found significant improvements in children's speech after using the media.

Analysis of the results showed that the interactive video not only serves as a learning tool but also as a medium that is able to motivate children to learn in a fun way. The N-Gain Score of 43% in this study shows that interactive videos have an effect in improving children's language skills, in accordance with the category set by Archambault (in, Yonata et al., 2020) which is in the medium category. Although not in the high category, this finding needs to be interpreted as a positive and practically significant result. This result is expected to be a reference for educators and curriculum developers to integrate interactive media in their learning strategies. The implementation of interactive videos should continue to be developed and refined in order to be more effective in addressing problems in phoneme pronunciation that are often faced by young children.

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CONCLUSION

This research originated from the problems found in the KB groups at Intan Islamic Kindergarten and Ar-Rahmah Kindergarten, where many children experienced difficulties in language development, especially in the aspect of articulation or pronunciation of phonemes. This difficulty is manifested in the inability of children to pronounce more complex language sounds such as /r/, /l/ clearly. To overcome this, the effect of interactive video activities as a stimulation medium was tested. In the KB groups at Intan Islamic Kindergarten and Ar-Rahmah Kindergarten, children's language development was influenced by interactive video activities. This conclusion was made based on the presentation of results and discussion. This is evidenced by the results of the Mann-Withney non-parametric statistical test of 0.013 < 0.05 indicating that H0is rejected and Hais accepted. This shows that interactive videos can improve the ability to pronounce phonemes/expressive language of children in general which is effective between children in KB TK Islam Intan and TK Ar-Rahmah. In addition, interactive videos are also said to have an influence on children's expressive language development as indicated by the results of the calculation of the N-Gain Score of 43% which is included in the moderate category.

REFERENCES

[1] Abidin, R. (2020). Early Childhood Language Development Textbook. UM Surabaya.

[2] Aisyah, S., Muzakki, A., & Susetya, H. H. H. (2024). The Role of Youtube Channel "Kinderflix" in the Language Development of Children Aged 12-24 Months Psycholinguistic Study. Journal of Bastra (Language and Literature),9 (2), 487-495. https://doi.org/10.36709/bastra.v9i2.505

[3] Auliana, N., Khotimah, N., Sya'dullah, A., & Widayati, S. (2024). The Impact of Kinderflix Youtube Videos on the Speaking Skills of 2-3 Years Old Children. JIIP (Scientific Journal of Education Science), 7(10), 11803–11810.

[4] Auliyani. (2025). ANALYSIS OF THE USE OF INTERACTIVE LEARNING VIDEOS IN THE INDEPENDENT CURRICULUM AT RA AI-IKHSAN PRADA. AR-RANIRY STATE ISLAMIC UNIVERSITY.

[5] Darma, B. (2021). Research Statistics Using SPSS (Validity Test, Reliability Test, Simple Linear Regression, Multiple Linear Regression, t test, F test, R2). Guepedia.

[6] Dewi, A. C., Yanti, S. N., Vega, A. De, Laini, A., & Maulida, R. (2025). Multimodal Literacy in Early Childhood Listening and Speaking Skills. Murhum: Journal of Early Childhood Education,6 (1), 793-808. https://doi.org/10.37985/murhum.v6i1.1301

[7] Dewi, K. A., Widayati, W., & Tobing, V. M. T. (2022). Study of Phonological Aspects of Early Childhood Language Acquisition in Setro Village, Surabaya City. Wahana: Tridarma of Higher Education, 74(2), 196–207.

[8] Fadlin, I. (2021). Psychological Development of Elementary Education Age Children; Emotional, Cognitive, and Psychomotor. Al-Fikrah Journal,10 (2), 180-192. https://doi.org/10.54621/jiaf.v10i2.161

[9] Febriana, A., Safitri, A. Y., Putri, M. A., & Apriyadi, H. (2025). Analysis of Children's Phonological Development Based on Interaction in Jumbo 2025 Movie. REFERENT,4 (1), 58-72. https://doi.org/10.22236/referen.v4i1.19054

[10] Fitri, N. A., Satriana, M., & Kartika, W. I. (2024). The Impact of Interactive Audiovisual Media on Speech Delay Children 5-6 Years of Age. Murhum: Journal of Early Childhood Education,5 (02), 847-860. https://doi.org/10.37985/murhum.v5i2.990

[11] Habeahan, S. S., Simanjuntak, D. S. R., Matondang, S. G., Sibagariang, M. S., & Meliala, Y. E. S. B. S. (2024). PHONOLOGICAL ACQUISITION IN 3 - 4 YEARS OLD CHILDREN IN PAUD KASIH PANCUR BATU SUB-DISTRICT, DELI SERDANG DISTRICT, NORTH SUMATRA 20353. Scientific Journal of Multidisciplinary Studies, 8(7), 201–210.

[12] Henry, B. (2012). Multimedia Learning. Applying Multimedia Learning to Social and Cognitive Load Theory. ResearchGate, 1–21.

[13] Juliana, A., Nasution, F., Purba, J. N., & Mukhlis, M. (2023). Analysis of Language Acquisition in Rayyanza Malik Ahmad 1 Year Old. Rhyme: Journal of Research and Service in Literature, Language, and Education, 2(3), 38–48.

[14] Mahmud, N., Arifin, A. A., & Tomia, M. (2020). Analysis of Children's Language Development through Interactive Video Learning Media Group A at Al-Khairat Skep Kindergarten, Central Ternate City. Scientific Journal of Cahaya Paud,2 (2), 1-14. https://doi.org/10.33387/cp.v2i1.4273

[15] Nugraha, F., & Rukiyah. (2022). Analysis of Speech Delay Ability in Children aged (3-4) years in Bukit Lama Village Palembang. JoECCE: Journal of Early Childhood and Character Education, 2(2), 171–182.

[16] Panggabean, A. N. P., Nababan, N. M., Sitompul, P. A. S., Zalfana, Z. H., & Puteri, A. (2025). LANGUAGE ACQUISITION OF 3-4 YEAR OLD CHILDREN AT THE PHONOLOGICAL LEVEL. Journal of Education and Government Wiyata, 3(1), 49–57.

[17] Permana, R. A., & Fauziyah, N. (2023). Optimizing the Development of Phonology of 4 Years 6 Months Old Children through Television Shows (Albi Case Study). Sasindo: Journal of Indonesian Language and Literature Education,11 (2), 405-411. https://doi.org/10.26877/sasindo.v11i2.16168

[18] Rismark, M., & Sølvberg, A. M. (2019). Video as a learner scaffolding tool. International Journal of Learning, Teaching and Educational Research,18 (1), 62-75. https://doi.org/10.26803/ijlter.18.1.5

[19] Rozak, A., & Hidayati, W. S. (2019). Data Processing with SPSS. In Sustainability (Switzerland). Erhaka Utama.

[20] Satriana, M., Maghfirah, F., & Sopia, S. (2023). The Effect of Audiovisual Media on Measurement Skills in Early Childhood. Journal of Obsession: Journal of Early Childhood Education,7 (6), 7679-7690. https://doi.org/10.31004/obsesi.v7i6.5379

[21] Sofiana, Y., & Siswanti, M. (2023). Improving Children's Language Skills Through Interactive Learning Media at As-Sakinah Pangkalan Kindergarten. Tambusai Journal of Education, 7(2), 19236–19242.

[22] Solihin, M. (2021). Early Childhood Phonology Development. NUR EL-ISLAM: Journal of Education and Social Religion,8 (2),

93-104. https://doi.org/10.51311/nuris.v7i2.260
[23] Sugiyono. (2013). Quantitative, Qualitative, and R&D Research Methods. Alfabeta.
[24] Syahida, K., Sagita, V. A., Khoerani, A. I., Ramadhan, Y. F., & Wardiyah, M. L. (2025). ANALYSIS OF DIFFERENCE IN THE LEVEL OF ONLINE SHOPPING CONSUMPTION BEHAVIOR BASED ON GENDER BY THE MANN-WHITNEY U METHOD. Balance Sheet Management, Economics, 17(8), 1–8.
[25] Yonata, B. P., Prasetyo, Z. K., & Hastuti, P. W. (2020). The Effect of Simulation Method Assisted by Video Media on Students' Learning Interest and Concept Understanding. OPTIKA: Journal of Physics Education,4 (2), 73-84. https://doi.org/10.37478/optika.v4i2.645
[26] Zahra, S., & Sit, M. (2024). AN EXPLORATION OF EARLY CHILDHOOD LANGUAGE DEVELOPMENT: AN ANALYSIS OF FACTORS, INDICATORS, AND STAGES OF DEVELOPMENT. Childhood Education: Journal of Early Childhood Education, 5(2), 278–288.