

Pedagogical Intervention Model on Language Development in Deaf Children in Special School

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Abstract

Background: Deaf children experience problems with their hearing organs, resulting in an inability to hear, ranging from mild to very severe levels which are classified into deafness and hard of hearing. A deaf child who is hearing impaired (a deaf person) is a child who is unable to hear, so he experiences obstacles in processing language information through his hearing with or without using a hearing aid. Meanwhile, a child who is hard of hearing (a hard of hearing person) is a deaf child who usually uses a hearing aid, whose remaining hearing is sufficient to enable successful processing of language information, where the child uses a hearing aid, the child can still perceive speech through his hearing. Language ability is an indicator of a child's overall development. Lack of stimulation can cause speech and language disorders and these disorders can even persist. The direct impact of deafness is that verbal communication is hampered, both expressively (speaking) and receptive (understanding other people's speech), making it difficult to communicate with the environment. Barriers to communication result in obstacles in the education and learning process. Assistance for deaf children can be provided at school or at home. Therefore, it is necessary to carry out a Pedagogical Intervention Model for Language Development in deaf children. **Research objective:** To determine the effect of the Pedagogical Intervention model on Language Development in Deaf Children in Special Schools (SLB) in the Special Region of Yogyakarta. **Research Method:** Quasi-experimental research with a pretest-posttest with control group design. The research location was at 4 Special Schools in DIY (SLBN Pembina, SLBN II Sewon, SLB Rela Bakti and SLB Karnnamanohara). The population of 90 deaf children was divided into 45 experimental groups and 45 control groups. The sample was 68 deaf children divided into 34 experimental group children and 34 control group children. Using purposive sampling technique. Data analysis used the paired t-test and Wilcoxon test with a significance level of 0.05. **Research Results and discussion:** Pre-test and post-test language development with a significance result (p value) = 0.00, namely that there is an influence of pedagogical intervention on language development in deaf children in special schools in Yogyakarta Special Region Province **Conclusion :** There is an influence of Pedagogical Intervention on Language Development in Deaf Children in SLB Special Region of Yogyakarta Province

Keywords : Pedagogical Intervention, Language Development, Deafness.

INTRODUCTION

Deaf children experience problems with their hearing organs, resulting in an inability to hear, ranging from mild to very severe levels which are classified into deafness and hard of hearing. A deaf child who is hearing impaired (a deaf person) is a child who is unable to hear, so he experiences obstacles in processing language information through his hearing with or without using a hearing aid. Meanwhile, a child who is hard of hearing (a hard of hearing person) is a deaf child who usually uses a hearing aid, whose residual hearing is sufficient to enable successful processing of language information, where the child uses a hearing aid, the child can still perceive speech through his hearing.

Hearing disorders usually occur in the outer, middle and inner ear. The anatomical location of the disorder classifies hearing impairment into conductive, sensorineural and mixed types. Conductive type hearing loss is caused by disorders of the outer and middle ear, while sensorineural hearing loss is caused by disorders of the inner ear and auditory nerve. Mixed hearing impairment is a combination of conductive and sensorineural types. Deafness can occur in the pre-language and post-language periods. Prelingual deafness is hearing loss that occurs before speech and language abilities develop, while postlingual deafness is hearing loss that occurs after spontaneous development of speech and language abilities. The direct impact of deafness is that verbal/oral communication is hampered, both expressively (speaking) and receptive (understanding other people's speech), making it difficult to communicate with the environment. Barriers to communication result in obstacles in the education and learning process. The next impact is that deaf children will experience language development disorders in carrying out daily activities (Activity Daily Living/ADL) either at home or in the school environment. Deaf children have the potential to learn to speak and language and need special services to develop language and speaking skills, as well as carry out daily activities (ADL) so that deaf children can be independent and express words to their parents at home and to their teachers at school. So as to minimize the impact of the deafness they experience.

To realize the 6 pillars of health transformation as planned by the government, one of the pillars of health transformation is the first pillar regarding primary service transformation. Namely, transformation to improve promotive and preventive services, such as strengthening prevention efforts, early detection, health promotion, building infrastructure, completing facilities, infrastructure, Human Resources (HR), as well as strengthening management in all primary services in the country (Ministry of Health, 2022). Assistance for deaf children is in accordance with the first pillar of health transformation, namely primary services that can be provided at school or at home. Mentoring activities lead to the ultimate goal of independence. Independence in deaf children can be trained or developed through ADL. ADL is a daily activity where deaf children are taught to independently and responsibly carry out their daily activities. Deaf children have limited information not only in terms of hearing but also in terms of visuals. Therefore, it is necessary to carry out a Pedagogical Intervention Model for Language Development and Activity Daily Living (ADL) in deaf children. However, many deaf children can survive in life and be successful in the long term. Deaf children are taught to be independent in daily activities but also to prepare for the future. This is in line with the opinion of Ginsburg and Rapp (2013) that education plans for deaf children must include transition services in the form of services to prepare children who have reached the age of 16, to be able to demonstrate their achievements and skills at school and at home.

In teaching children their own independence, apart from communication, it is very important in conveying messages and being part of the important learning process. Activities of Daily Living (ADL). Several communication models for deafness include, as stated by Milles (2005), communication modes for the deaf include: namely: Use of the hearing system (speak clearly with the help of a hearing aid) or sight (for example, write in large print). Language ability is the skill, expression, richness of human speech and feelings through sounds that are used to collaborate, interact and identify oneself in good conversation. Language skills are also an important aspect, but not all children are able to master this, the inability of children to communicate well is due to limited ability to understand other children's speech or not being able to answer correctly. According to Safitri (2017). Language ability is an indicator of a child's overall development. Lack of stimulation can cause speech and language disorders and these disorders can even persist.

One way to develop language skills in deaf children is by using speech stimulation. Providing stimulation to children is stimulation or encouragement that will speed up the child's own development, therefore it is hoped that providing speech stimulation can help make it easier for the

child to develop the child's existing abilities. According to Salis (2016), speech stimulation is given to help deaf children who experience articulation disorders (vagueness in speaking). Speech stimulation also provides experience for children so that children can read facial expressions and expressions. It is hoped that children will be able to speak without needing to use sign language. The purpose of this speech stimulation is as an effort to improve speech for individuals who experience language and speech disorders by means of how children can express existing ideas in the form of words and master language. Speech stimulation not only teaches about vocalization, but also trains children to understand commands, trains eye contact to stay focused, trains children's patience in waiting to play and trains children to complete or finish their activities. SLB B is a school intended for children who have hearing impairments or are deaf. According to Rahmaniar (2015), deaf children are children who experience loss of hearing ability due to damage or non-functioning of part or all of their hearing devices so that the child experiences obstacles in speaking. Deaf children are no different from other normal children when seen physically, people will not know that the child is deaf if they have not invited the child to communicate.

Based on a preliminary study in four Special Schools/SLBs (SLB N Pembina, SLB N II Sewon Bantul, SLB Rela Bakti Gamping Sleman and SLB Karnnamanohara) in the Special Region of Yogyakarta from interviews with 12 teachers who teach in 4 SLBs in DIY, the results were obtained. 76 percent of special school teachers said that the majority of deaf students in 4 special schools in DIY experienced language problems in expressing sentences. Based on the description above, the researcher is interested in conducting research on "Pedagogical Intervention Models for Language Development in Deaf Children in Special Schools (SLB) in the Special Region of Yogyakarta".

Research purposes

To determine the effect of the Pedagogical Intervention model on Language Development in Deaf Children in Special Schools (SLB) in the Special Region of Yogyakarta.

RESEARCH METHODS

This research is a quasi-experimental research with a pre test-post test with control group design. The research design can be described as follows:

<i>Pre test</i>	<i>Intervention</i>	<i>Post test</i>
O ₁	X ₁	O ₂
O ₃	X ₂	O ₄

Picture 1: Research Design

Keterangan:

X₁: Providing Pedagogical Intervention Treatment to the experimental group was carried out once a week for 3 months, duration 30 minutes

X₂: Providing leaflets about Pedagogical Interventions to the control group

O₁: *Pre test Language Development* in the experimental group

O₂: *Post test Language Development* in the experimental group

O₃: *Pre test Language Development* in the control group

O₄: *Post test Language Development* in the control group

Independent variable : Pedagogical Intervention Model Method

Dependent variable : Language Development

Research location: at 4 special schools (SLB N Pembina, SLB N II Sewon Bantul, SLB Rela Bakti Gamping Sleman and SLB Karnnamanohara) in the Special Region of Yogyakarta

Research time: Research was conducted in 2023 and 2024.

The population is all deaf children in 4 special schools (SLB N Pembina, SLB N II Sewon Bantul, SLB Rela Bakti Gamping Sleman and SLB Karnnamanohara) in the Special Region of Yogyakarta

Inclusion Criteria: Deaf children with normal intelligence and deaf children with healthy conditions

Exclusion Criteria: Deaf children with low intelligence and deaf children who are sick

In this study, there were 34 respondents in two groups of deaf children in 4 special schools (SLB N Pembina, SLB N II Sewon Bantul, SLB Rela Bakti Gamping Sleman and SLB Karnnamanohara) in the Special Region of Yogyakarta. Control. The sampling technique in this research used purposive sampling.

Data analysis: The examination result data will be analyzed descriptively and analytically with the help of the SPSS for Windows version 16.0 program using the paired t-test, Wilcoxon and Mann Whitney (Sugiyono, 2007) with a significance level of 0.05.

RESEARCH RESULTS AND DISCUSSION

Research was carried out in 4 special schools in the Special Region of Yogyakarta Province (SLB Negeri Pembina, SLB N II Bantul in Sewon, SLB Rela Bakti I and SLB Karnnamanohara). There were 74 respondents divided into 37 treatment (experimental) group respondents and 37 control group respondents. The 4 research locations and details of the number of respondents can be seen in Table 1 as follows:

Table 1: Location and distribution of respondents based on research location in Special Schools (SLB) DIY Province

No	Location	Experiment Group		Control Group	
		Frequency	Percentage	Frequency	Percentage
		(f)	(%)	(f)	(%)
1.	Special School Karnnamanohara	25	67,6	25	67,6
2.	Special School N II Bantul in Sewon	7	18,9	7	18,9
3.	Special School Rela Bakti I Sleman	2	5,4	2	5,4
4.	Special School N Pembina	3	8,1	3	8,1
	Total	37	100	37	100

Source: Primary data analysis

From Table 1 above, it can be seen that the highest number of respondents were in Karnnamanohara Special School as many as 25 respondents (67.6%). The fewest respondents in the extraordinary school Rela Bakti as many as 2 respondents (5.4%).

The distribution of respondents' characteristics based on age, sex, class and birth order in deaf children in special schools in DIY Province can be seen in Table 2 below.

Table 2: Characteristics of child respondents based on age, gender, class and birth order in deaf children in Special Schools (SLB) DIY Province

No	Characteristics of Respondents	Experiment Group		Control Group	
		Frequency	Percentage	Frequency	Percentage
		(f)	(%)	(f)	(%)
1.	Age (Years)				
	a. 6-8	13	35,1	13	35,1
	b. >8-10	14	37,8	14	37,8
	c. >10-12	10	27,1	10	27,1
2.	Gender				
a.	a. Man	24	64,9	18	48,6
b.	b. Woman	13	35,1	19	51,4
3.	Class				
	a. Basic	11	29,7	14	37,8
	b. Garden	26	70,3	23	62,2
4.	Child Order to				
	a. First	14	37,8	7	18,9
	b. Second	15	40,6	18	48,7
	c. Third	7	18,9	11	29,7
	d. Fourth	1	2,7	1	2,7
	Total	37	100	37	100

Source: Primary data analysis

From Table 2 above, it can be seen that the lifespan in the experimental and control groups was mostly >8-10 years as much as 14 (37.8%). Sex in the experimental group was mostly men as many as 24 children (64.9%). While in the control group, most of the female sex as many as 19 respondents (51.4%). The grade level in the experimental group was mostly elementary class as many as 26 respondents (70.3%) and in the control group most elementary classes as many as 23 respondents (62.2%). The order of children in the experimental group was mostly second as many as 15 respondents (40.6%) and in the control group most of the second order as many as 18 respondents (48.7%).

Univariate Analysis

Table 3: Language development of deaf children in experimental and control groups before and after Pedagogical Intervention in deaf children in Special Schools (SLB) DIY Province

No	Language Development	Experiment Group				Control Group			
		Pre Test		Post Test		Pre Test		Post Test	
		f	%	f	%	f	%	f	%
1.	Good	0	0	0	0	0	0	0	0
2.	Enough	2	5,4	17	45,9	1	2,7	1	2,7
3.	Less	35	94,6	20	54,1	36	97,3	36	97,3
	Total	37	100	37	100	37	100	37	100

In Table 3 above, it can be seen that the language development of deaf children in the experimental group before being given Pedagogical Intervention was mostly less than 35 respondents (94%) and after being given Pedagogical Intervention most categories were less than 20 respondents (54.1%) and there was an increase before being given Pedagogical Intervention treatment in the sufficient category by 2 respondents (5.4%) to 17 respondents (45.9%). In the control group before and after the Pedagogical Intervention treatment, most of the respondents were less than 36 respondents (97.3%).

Normalitas test

Table 4: Normality test of experimental group and pre test and post test control group on children with hearing loss at Special School (SLB) DIY Province

Variable	Group	p	Information
Language Development	Pre	Experiment	0,063
		Control	0,079
	Post	Experiment	0,025
		Control	0,134

In Table 4 above, it can be seen that the pre-test and post-test control groups of p (sig) values > 0.05, have normally distributed data so that parametric paired t-tests are used. In the experimental group, post-test data with p (sig) < 0.05 had abnormally distributed data so that a non-parametric test derived from paired t-test was used, namely Wilcoxon.

Bivariate Test

Table 5: Test results analyzed data on the difference between pretest and post test in the experimental group and the control group in deaf children at the Special School (SLB) DIY Province

Variable	Kelompok	p (sig)
Language Development	Experiment	Pre test
		Post test
	Control	Pre test
		Post test

In Table 5 above, it can be seen that in the pre-test and post-test experimental groups with p (sig) values < 0.05, Ha is accepted and Ho is rejected means that there is a difference between pre test and post test in the experimental group. In the pre-test and post-test control groups with p (sig) values < 0.05, Ha was accepted and Ho was rejected meaning that there was a difference between pre test and post test in the control group.

In Table 3 above, it can be seen that the language development of children with hearing loss in the experimental group before the Pedagogical Intervention was mostly less than 35 respondents (94%) and in the control group before most of the less than 36 respondents (97.3%).

In the control group there was no change with results remaining with less categories. In the experimental and control groups before the Pedagogical Intervention was given, there were no respondents with either category. During the pre-test, respondents found it difficult to recognize pictures and pronounce long words and consonants, for example longan, rambutan, flamboyant and others. This is due to many factors that influence deaf children in language development.

According to Ratih and Rini (2015) that deaf children are children who have hearing impairments so they cannot hear sounds perfectly or even cannot hear at all, but it is believed that there is no human being who cannot hear at all. Although very little, there are still remnants of hearing that can still be optimized in the deaf child.

Deaf children or hearing loss are caused by children having very little vocabulary in the brain system and children are not used to speaking. Children with hearing loss have intelligence levels varying from low to genius.

Deaf children who have normal intelligence generally achieve in low school. This is due to the acquisition of information and understanding of language less when compared to children able to

hear. Deaf children get information from senses that are still functioning, such as the senses of sight, touch, taste and smell. Deaf children lack understanding of verbal information.

This makes it difficult for children to accept abstract material, so media is needed to facilitate the understanding of a concept in deaf children. The ability to master vocabulary in children with hearing loss is clearly different because of limited hearing function so that deaf children tend to have learning or communication barriers in deaf children.

The general tendency as a characteristic of deaf children is that the intelligence of deaf children is no different from normal children, namely high, average and low; The ability of deaf children in language and speech is different from normal children in general because these abilities are closely related to the ability to hear, and deafness can cause alienation from the environment.

Pedagogical interventions teach children to develop self-monitoring skills. The child learns to listen to his/her own voice as well as others during natural conversation thus improving the sound quality of nature. Pedagogical intervention is a logical and critical set of principles. Parents, therapists, and children engage in play activities that teach children to learn verbal auditory by reinforcing residual hearing to be like children with normal hearing.

According to Yuswanjaya and Yuliyati (2015), the results of data analysis in this study found that there was a significant influence on the use of media in learning at school, especially for children with special needs. The media will facilitate the teaching and learning process in the classroom because it can help the interaction between teachers and students in a clear and fun manner and students can easily understand the material delivered by the teacher so that learning objectives will be achieved.

According to Wagino and Rafikayati (2013) this is also influenced by the rest of the hearing that children have. Residual hearing is the ability to hear that deaf children still have to listen to sounds. If the sound received is not intact by the child (which usually occurs in moderate, severe and very severe deafness) of course verbal communication cannot run optimally. This lack of hearing can have an impact on a child's expressive language.

For example, the child's voice cannot detect the "s" sound because the "s" sound itself is at an intensity of 40 dB, as a result every word containing the child's "s" cannot for example "milk" become "uu", or in the word "can" become "bia". With comprehensive and consistent listening practice, the child will be able to hear all the sounds of conversation. The preparation of the program must also pay attention to the disabilities that children have in addition to deafness

Records that are also owned by children can be in the form of (mentally impaired, mentally impaired, autistic, visually impaired) these things greatly affect the results. If the child has a multi handicap, of course, the results should not be equated with children who are only purely deaf. For example, children have intelligence below average, of course, the program given is not as much as children with normal cognition. Pedagogical interventions for deaf and hard of hearing children. This therapy helps children to grow in a regular learning environment, allowing them to become independent, participate and contribute in society.

Pedagogical intervention is a parent-centered approach that encourages the use of naturalistic conversation as well as the use of spoken language to communicate. Pedagogical intervention is an approach that emphasizes the use of residual hearing to help children learn to listen, process verbal language, and speak. Pedagogical interventions maximize the use of hearing assisted by the rest of the child to detect sounds.

Early identification of hearing loss by direct fitting with amplification, as well as immediate intervention helps to reduce the degree of language delay commonly associated with hearing loss. Pedagogical intervention is based on parents teaching, during their child's individual sessions therapy to emphasize residual hearing and interact with their child using a verbal auditory approach.

Pedagogical interventions encourage children to hear and interact normally. In order to obtain positive results as expected, it is necessary to note that pedagogics have a purpose as well. According to Kurniasih (2017), pedagogic goals are to humanize humans and make a person mature for his happiness in living a life in the future and make someone live a happy life.

In other words, pedagogic goals still coincide with the nature of education itself. The purpose of education itself means providing change (transformative) so that students can maximize their potential both cognitively and character. It can be concluded that pedagogics are all efforts made by educators to guide younger students to maximize their potential both cognitively or the ability of reason and science, as well as in terms of character to become a better person.

These efforts include managing learning, language or how to deliver material so that it is easily understood and absorbed by students and classroom mastery. In order to obtain positive results as expected, it is necessary to note that pedagogics have a purpose as well.

According to Kurniasih (2017) pedagogic goals are to humanize humans, and make a person mature for his happiness in living a life in the future and make someone live a happy life. In other words, pedagogic goals still coincide with the nature of education itself as a modifier that is expected to be able to make students develop their potential

According to Deassy and Endang (2018), pedagogic competence is the ability of educators to create varied learning atmospheres and experiences in the management of students who meet the curriculum delivered. A fun and varied learning process will make students more enthusiastic in following the learning process, the ability of pedagogic competence is the first step that a professional teacher needs to have.

In line with Perni's research (2019) which states that pedagogic competence is the ability to manage student learning which includes understanding of students, designing and implementing learning, evaluating learning outcomes, and developing students to actualize their various potentials.

Factors that influence the success of Pedagogical Intervention, it can be concluded that the results to be achieved by each individual will be different. The end result is returned to the child's potential, facilities and people's participation in carrying out pedagogical interventions in children. In practice, pedagogical interventions must be carried out by parents and cooperate with various scientific fields that support the success of habilitation.

Parents as the main culprit and audiologists, therapists, and teachers only as counselors. The role of parents is the most important in the implementation of the Pedagogical Intervention.

This is in accordance with Sunardi and Sunaryo (2007) it is assumed that parents are the closest environment to children, know their special needs and are most influential, and most responsible for their children, while the function of experts is only as a consultant or one of the "social support" for the success of their children.

The experts involved in Pedagogical Intervention are as follows; (1) Medical interventions as people who can catch the condition of child disorders, including: (hearing tests), provision (CI) as a medium to improve hearing and mapping skills, (2) Therapy, as a place for habilitation and also a place for parents to get information about Pedagogical Interventions that parents can then apply at

home, (c) Educational interventions, as a place for children to learn as children their age are certainly in accordance with the needs, abilities and learning styles of children.

System support both internal and external strengthens the implementation of Pedagogical Interventions. This is because the implementation of Pedagogical Intervention will be more optimal if cooperation is carried out by various parties such as family, medical, audiologist, therapist, equipment and educational intervention

In the implementation of Pedagogical Intervention, the teams involved include children and families, Pedagogical Intervention therapists, audiologists, ENT doctors, family doctors, occupational therapists, social workers, physiotherapists, geneticists, psychologists, teachers and experts in speech and language disorders. All of these experts work together with parents and collaborate together according to their fields in dealing with deaf children. Parents are focused on improving the communication, cognitive, social, emotional and motor development of children and in its implementation requires cooperation / collaboration between parents and experts in facilitating child development.

The support of parents, medical personnel, habilitation personnel and education is very important for the development of children. In practice, parents remain the main players and experts are only supporting players, so the success of children depends on the participation of parents in dealing with children with hearing loss or hearing impairment.

CONCLUSION

There is an influence of Pedagogical Intervention on language development in deaf children in SLB Yogyakarta Special Region province

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