# LINGUA TOOLBOX (LITO): INTERACTIVE TOOLBOX INNOVATION AS LANGUAGE DEVELOPMENT MEDIA FOR SPEECH DELAY CHILDREN WITH EXPRESSIVE LANGUAGE DISORDER

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***ABSTRACT***

*The development of technology presents gadgets as one of the technologies that can be accepted and used by all groups, one of which is early childhood. Inappropriate and excessive use of gadgets can cause children to experience difficulties when communicating, leading to speech delay and expressive language disorders. The research aims to create an interactive toolbox as a language development media for speech-delayed children with expressive disorders. This research uses a type of quasi-experiment research with a one-group pretest-posttest design using a sampling technique, namely purposive sampling which uses the criteria of children who have received a diagnosis of expressive language disorders aged 4 to 6 years. The measuring instrument used in this study is an observational checklist with a reliability value of 0.785 and validity in the form of content validity by expert judgment. The results of testing the hypothesis of this study were carried out with the Paired Sample T-test which resulted in a significance level of .000 (p < .05), so it was concluded that there was a significant effect on the provision of Lingua Toolbox on children's language development in speech delay children with expressive language disorders. Therefore, Lingua Toolbox can be an effective intervention to improve language development in speech-delayed children with expressive language disorders.*

***Keywords:*** *Speech delay, expressive language disorder, lingua toolbox.*

## INTRODUCTION

The rapid development of technology causes the use of technology, such as gadgets, is increasing every day (Srinahyanti et al., 2019). Gadgets are one of the technological developments that can be accepted and used by all ages of developmental stages, from adults to children (Suzana et al., 2020). This is evidenced by research conducted in Tinga-Tinga Village, Bali, in 2023, where it was found that the use of gadgets for children aged 2-5 years was at a moderate intensity of 38.2% (Meriyani et al., 2023). Furthermore, according to data from Badan Pusat Statistik Indonesia in 2022, there were 33.44% of early children in Indonesia used gadgets. The percentage of children aged 0-4 years who use devices is 29.96% and children aged 5-6 years who use devices is 52.76% (Wuladari & Kurniasih, 2023).

The purpose of giving devices to children is because parents are often involved in screen media use for personal or work matters throughout the day, so they are likely to use devices during parent-child interactions (Beamish et al., 2019). Excessive use of devices in children has a negative impact on their development, one of which is the child's language development. In using devices, children will usually access animated videos through YouTube or other social media. Children will watch a lot of animated films that only present pictures and minimal dialog, causing children to only be exposed to one-way

communication and resulting in the non-development of expressive abilities in children. This is what causes many children to experience difficulties when communicating or known as speech delay (Sari, 2020).

In addition, based on a study conducted by Najiha et al. (2022), excessive use of devices in children can cause children's difficulties in communicating, children tend to be more silent and only focus on the screen, do not want to interact with peers and imitate bad language and behavior. Another study conducted by Nurmalina & Gusman 92021) also revealed that gadgets harm the development of children's social interactions. However, many parents are not aware of the impact of excessive use of gadgets on children's behavior patterns, so children continue to use and even become dependent on devices (Najiha et al., 2022).

Early childhood is a golden age or critical period for children's developmental stages (Manas, 2020). The early childhood period starts from the age of 2-6 years (Berk, 2017). Sowmya & Manjuvani (2019) state that early childhood is a time when children are being prepared to enter formal education. This implies that the early childhood period is a very important stage of development for the sustainability of the next stages of development. One of the most important aspects that must be prepared in early childhood is language skills as a communication tool with others (Brebner et al., 2016).

Interaction for children plays an important role in child development both socially, physically, intellectually and emotionally (Sainain et al., 2020). Research by Black et al. (2016) found that family interaction with early childhood is one of the factors in child development in early childhood. Where this interaction it can increase self-esteem and empathy, and also children can internalize social values (Mohan et al., 2021). Not only that, children's interactions with families, especially with parents, can protect children from social-emotional difficulties (Leon & Olhaberry, 2020). Even through children's interactions with parents, it has been proven effective in increasing early childhood intelligence (Zulminiati et al., 2022).

However, according to the Indonesian Paediatric Association, cases of children who experience delays in speech and language are increasing every year (Nafi'ah & Maghfiroh, 2020). In 2017, the overall prevalence of children with speech and language disorders at Moewardi Surakarta Hospital was 595 children (Afriany & Sofa, 2022). Furthermore, in December 2021 at the Pediatric Sub-Specialist Poly Ulin Banjarmasin Hospital, 69 children were found to have speech delay (Mahmudianati et al., 2023). This data shows that children with speech delay in Indonesia are quite children with speech delay in Indonesia is quite a lot and worrying so that the need for proper handling for these children. children.

Children with language disorders are also associated with lower academic qualifications (Calder et al., 2022). Problematic language and speech skills will make it difficult for children to learn to read, which is a basic skill that children must master (Fauzia et al., 2020). It was also found that boys with language impairment were four times more likely to exhibit anti-social behavior and girls with language impairment were three times more likely to be victims of sexual abuse (Calder et al., 2022). These impacts are felt by children whose language and speech development is inhibited or who experience speech delay, commonly referred to as expressive language disorder.

Expressive language disorder is a condition where children experience delays in language and communication competence that cause children to lag behind their peers (Sansavini et al., 2021). Symptoms of expressive language impairment (ELD) can be seen from the second to third year, characterized by limited expressive vocabulary, lack of word combinations in dialogue, poor comprehension, to no expressive language. dialogue, poor

comprehension, and absence of gestures during dialogue (Sansavini et al., 2021). Various risk factors have the potential to cause children to experience expressive language disorders such as being born with a low body weight (Sansavini et al., 2021; Wu et al., 2023), premature birth, exposure to alcohol and tobacco to pregnant women, low maternal education, low socioeconomic status (Calder et al., 2021; Wu et al., 2023). economic status (Calder et al., 2022; Wu et al., 2023), presence of frailty (Sansavini et al., 2021), and others.

But in fact, 60% of children with expressive language disorder are undiagnosed. Children with expressive language disorder need special stimulus or therapy to train and develop language communication skills. If expressive language disorder is not given stimulus or is not diagnosed, it can have an impact on social interactions and the child's academic process (Bishop, 2017). Moreover, children with language impairment have a higher risk of mental health problems, both internalized (e.g., depression, anxiety, and social withdrawal) and externalized (e.g., bullying, violence, and rule-breaking) (Toseeb et al., 2020). Thus, with such a high prevalence and lifelong consequences, health and education professionals must understand the well-being and quality of and intervene for children with language disorders (Eadie et al., 2018).

Several interventions have been carried out to overcome expressive language disorders in children such as explicit grammar intervention which has helped early school-age children with language development disorders who have difficulty in grammar (Calder et al., 2020). Bruinsma et al. (2020) also contributed their research by applying Language in Interaction Therapy (LIT) to children with language disorders and it has been proven that there is a greater growth in speech length and increased grammatical complexity in children with language disorders, although the effect is limited to the individual level. However, there is no simple program that can be practically implemented by parents in stimulating their speech-delayed children with expressive language disorders, and no definite steps taken by the government to help speech-delayed children with expressive language disorders, even though this phenomenon should be minimized as early as possible.

Based on the explanation above, the authors are interested in conducting research as an effort to help the language development of children who experience speech delay with expressive language disorders through an interactive toolbox developed by the researcher himself as a form of effort to assist the government in achieving its commitment to leave no one behind. Therefore, this research is titled ‘Lingua Toolbox (LiTo): Innovation of Interactive Toolbox as Language Development Media for Speech Delayed Children with Expressive Language Disorders’.

## METHOD

This research uses a psychological science approach that focuses on the influence of interactive toolbox innovations based on standardization of the level of language development for speech delays in children with expressive language disorders. This type of research is quasi-experimental with a one-group pretest-posttest design using a sampling technique, namely purposive sampling, which uses the criteria of children who have received a diagnosis of expressive language disorder aged 4 to 6 years. The measuring instrument used is an observation checklist compiled by the author and following Minister of Education and Culture Regulation No. 146 of 2014 concerning the 2013 Early Childhood Education Curriculum which has been adapted to the theory of language development (Papalia et al., 2009) with a reliability value of 0.785 and validity in the form of content validity based on expert assessment.

## RESULT AND DISCUSSION

### Result

1. Description of the research based on ages

| No | Age (Years Old) | Total Subject | Percentage |
|---|---|---|---|
| 1 | 4 | 4 | 36.36% |
| 2 | 5 | 3 | 27.27% |
| 3 | 6 | 4 | 36.36% |
| Total | | **11** | **100%** |

Based on this table, it can be seen that there were 4 research subjects aged 4 and 6 years each, or around 36.36%. Meanwhile, for those aged 5 years, there were 3 subjects or around 27.27%

2. Description of the research based on gender

| No | Gender | Total Subject | Precentage |
|---|---|---|---|
| 1 | Boy | 6 | 54.55% |
| 2 | Girl | 5 | 45.45% |
| Total | | **11** | **100%** |

Based on this table, it can be seen that 6 subjects in this study were boys, or around 54.55%. Meanwhile, there were 5 girls subjects or around 45.45%.

3. Description of the research based on region

| No | Region | Total Subject | Presentage |
|---|---|---|---|
| 1 | West Sumatera | 9 | 81.82% |
| 2 | North Sumatera | 2 | 18.18% |
| Total | | **11** | **100%** |

Based on this table, which shows the regional distribution of the research subjects, for

the province of West Sumatra there were 9 research subjects or around 81.82%, and for the North Sumatra area there were around 2 people or a percentage of 18.18%.

4. Normality test

| Variable | Sig. | Data Distribution |
|---|---|---|
| Pretest | 0.106 | Normal |
| Post-test | 0.200 | Normal |

Based on the data in the table above, it can be seen that the results of the Kolmogorov Smirnov test in the pre-test obtained a significance level of .106 (ρ> .05), and for the post-test, it was .200 (ρ > .05). So it can be concluded that the data is normally distributed.

5. Homogeneity test

| Homogeneity test | Sig. |
|---|---|
| Pretest – Posttest | 0.711 |

Based on the data in the table above, it can be seen that the ANOVA test obtained a significance level of .711 (ρ > .05). So it can be concluded that the data is the same size.

6. Main effect test

a. Paired sample t-test

| Variable | Mean |
|---|---|
| Pretest | 7.18 |
| Post-test | 20.27 |

Based on the data in the table above, the average before treatment was 7.18 and the average after treatment was 20.27. So it can be concluded that there were significant changes before and after being given treatment.

| Variable | Mean |
|---|---|
| Post-test | 0.000 |

Based on the data in the table above, it can be seen that in the paired sample t-test, a significance level of .000 was obtained (ρ < .05). So it can be concluded that H1 is accepted and H0 is rejected, where there is the influence of the Lingua Toolbox on language development in speech delayed children with expressive language disorders.

b. Cohen's D test

| Independent Sample Effect Sizes | Point Estimate |
|---|---|

| | |
|---|---|
| Cohen’s D | 0.66 |

Based on the data in the table above, it can be seen that Cohen's D test was found to be d = 0.66 (> 0.8). So this effect size in the Lingua Toolbox is included in the category of moderate influence on language development in speech-delayed children with expressive language disorders.

**Discussion**

1. Lingua Toolbox effectiveness

This study provides results that show the significant effectiveness of Lingua Toolbox as a language development media in improving the language development of speech-delayed children with expressive language disorders. This can be seen from the results of the Paired Sample T-test which shows that there are changes in the subject before and after the experiment.

Of course, the results of the study are supported by interactive tools contained in the lingua toolbox in stimulating children's language development, such as flashcards, role-play methods using interactive and interesting tools for children, storybooks, and conducting many communication interactions through interactive methods when conducting experiments. The results showed that children had an increase in verbal signals, vocabulary, and improved sentence structure.

The results of this study are in line with research conducted by Ladapase (2022), namely the role of flashcard media in improving speech skills in speech-delayed children. Furthermore, the study stated that flashcards train children's right brain to remember pictures and words, so that children's vocabulary and language skills can be trained and improved. Flashcards are able to make children compose simple sentences by combining several cards into one sentence. Children are also encouraged to tell stories through the cards.

Then, the results of previous research conducted by Azizah (2021) prove that the roleplay method is effective in improving children's language development. Role-playing is a game that portrays characters around children to develop children's imagination and creativity. Roleplaying games encourage children to express what is in their minds, express feelings through the roles they play, and encourage children to ask questions in playing the role-playing method (Anggraini & Putri, 2019).

Furthermore, Selian et al. (2019) proved that the use of storybook media has an effect in stimulating children's language development. In using storybooks, the child will listen to the story in the book and afterwards the child will be encouraged to repeat the story that has been read. In the next session, children are gradually encouraged to tell their own pictures in the storybook. This is in line with Ummah & Mustadi (2017) statement that pictures included in picture storybooks provide opportunities for children to imagine more effectively. So, children can produce a lot of vocabulary from the imagination they get through picture storybooks.

Not only that, providing stimulus for preschool children is very important for the next stage of development (Hastuti & Jacobus, 2021). This is because language stimulation can help children in carrying out their social and emotional lives. Furthermore, language stimulation is related to children's cognitive processes. Children will process and understand the sentences they receive. Therefore, not only through the intervention of tools, parents must play a role in stimulating children's language development by involving children in conversation.

2. Implications, limitation, and future direction

This research has implications for developing language skills in speech delayed

children with expressive language disorders by using a simple Lingua Toolbox (LiTo) that can be practically applied by parents in stimulating their speech delayed children with expressive language disorders. During the implementation of the research, the researchers had difficulty in asking permission from parents who had children with expressive language disorders to be given intervention. Future research is recommended to collaborate with kindergartens to make it easier to conduct research.

## CONCLUSION

This research proves that the Lingua Toolbox significantly affects the language development of children who experience speech delay with expressive language disorders. Through this interactive toolbox innovation, the children improved speaking and expressing themselves. Lingua Toolbox helps stimulate children's verbal signals, increasing vocabulary, and improving sentence structure. The benefits of this research are not only for children, but it also gives parents a better understanding of the urgency of children's language development. In addition, Lingua Toolbox can be an intervention that can be easily implemented by parents in stimulating children who experience speech delay with expressive language disorders.

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