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Developing Kiratu Pocket Dictionary as Supplementary Media for Deaf Children

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ABSTRACT
This research aimed to design the Dictionary as a Supplementary media named KIRATU for deaf children that could help them learn the English language. This dictionary application was focused on supplementary vocabulary. The research method of this research was the Research and Development method (R&D) that adopted the ADDIE model that consisted of five procedures; they were: 1) Analysis, 2) Design, 3) Development, 4) Implementation, and 5) Evaluation. This research involved seven deaf children of Sekolah Luar Biasa Negeri (SLBN) Jombang in senior high school. From those steps, the researcher got the result of the research. 1) The result of material validation was 93, 65% (Very Good category), 2) The result of media validation was 86% (very good category), and 3) The result of deaf experts' validation was 91, 8% (very good category). Based on the result, the researcher concludes that the KIRATU application should be used for deaf children to add vocabulary.

***Keywords**: Children, Deaf, Dictionary, Supplementary media, KIRATU.*

ABSTRAK
Penelitian ini bertujuan untuk merancang Kamus sebagai media pelengkap bernama KIRATU untuk anak tunarungu yang dapat membantu mereka dalam belajar bahasa Inggris. Aplikasi kamus ini difokuskan pada kosakata tambahan. Metode penelitian yang digunakan dalam penelitian ini adalah metode Research and Development (R&D) yang mengadopsi model ADDIE yang terdiri dari lima prosedur, yaitu: 1) Analisis, 2) Desain, 3) Pengembangan, 4) Implementasi, dan 5) Evaluasi. Penelitian ini melibatkan tujuh anak tunarungu di Sekolah Luar Biasa Negeri (SLBN) Jombang yang duduk di bangku SMA. Dari langkah-langkah tersebut, peneliti mendapatkan hasil dari penelitian tersebut. 1) Hasil validasi materi sebesar 93,65% (kategori Sangat Baik), 2) Hasil validasi media sebesar 86% (kategori sangat baik), dan 3) Hasil validasi ahli tuna rungu sebesar 91,8% (kategori sangat baik).Berdasarkan hasil tersebut, peneliti menyimpulkan bahwa aplikasi KIRATU layak digunakan untuk anak tunarungu untuk menambah kosakata.

***Kata Kunci**: Anak, Tunarungu, Kamus, Media pelengkap, KIRATU.*

INTRODUCTION

Education is one of the crucial roles in the progress of a country. Therefore, the government is trying to improve the quality of education in Indonesia, starting by revising the curriculum, improving teacher skills, and providing learning facilities and resources. (Baroroh Ma et al., 2021).

To improve the quality of education, the government also strives for equal education opportunities, ensuring that every citizen has the right to education, including those who are economically disadvantaged, face accessibility challenges, or have disabilities. This is stated in Article 31, Paragraph 1 of the 1945 Constitution, which states, "Every citizen has the right to education." In 2003, the government further emphasized this by issuing Undang-Undang No. 23 of 2003 concerning Sistem Pendidikan Nasional (UUSPN). This law is closely related to education for children with special needs. (Haenudin, 2013)

It is undisputable that English can be considered a universal language and is learned by many people in various countries. This means that English is the language used to interact and communicate between

nations, or it can also be referred to as an international language. In several countries, English is also a second language and even the main language that "must" be mastered (Ahmadi, 2018).

In this case, English plays an important role in the progress of a nation because it is often used for communication between countries in the fields of education, social interaction, and business. Indirectly, people are expected to master and learn English. English also has a significant influence on pursuing higher education or career advancement, which indirectly requires individuals to be proficient in English. (Rizki, 2016).

Education in Indonesia is impacted by the requirement of English as a compulsory curriculum and a subject tested in the National Exam. This also includes students with special needs, such as Deaf children. Deaf children face difficulties in recognizing, understanding, and pronouncing English words or sentences due to their hearing loss. Limitations in receiving sound stimuli in the environment and difficulties in pronouncing language sounds characterize the language barriers faced by Deaf children. Both of these abilities can significantly affect their language and speech skills. As a result, mandatory English can complicate the learning process for Deaf children, who prefer visual over audio learning. (Rizki, 2016)

Deaf children have difficulties in learning English, as they often find the vocabulary challenging and the pronunciation difficult to pronounce. In addition, there are differences between the written words and their corresponding pronunciation. Those problems cause difficulties for Deaf children in understanding and learning English. Interestingly, they also faced problems with vocabulary in Indonesian. One of the main factors causing their limited vocabulary is their hearing loss, which affects their language skill, verbal skills, and familiarity with terms. (Rizki, 2016)

According to all the explanations above and to overcome this problem faced by Deaf children in the learning process, the researcher tried to develop the KIRATU (Kamus Inggris Ramah Tuli) Pocket Dictionary as a supplementary book for the Deaf to master English. The researcher hopes this pocked dictionary will be able to help master English and supplement the vocabulary for the Deaf. This Dictionary will be more interesting because it uses a friendly sign language for the Indonesian Deaf, it is called Indonesia Sign Language or Bahasa Isyarat Indonesia (BISINDO).

METHOD

Research Design

The researcher uses the R&D (Research and Development) method as a researcher design. R&D is a research design that aims to develop or design educational products. There are several steps in conducting research, first researcher has to know about the media needed by teachers and also by children, such as knowing about the class problems, class situations, children's conditions, and children's psychology, expert validation, and trial and evaluation. There are many research models of R&D, especially product-oriented models such as ADDIE, ASSURE, Kemp, Borg, Gall, etc. Based on these models previously, researchers adopted the ADDIE model.

Research Procedure

The researcher uses the ADDIE model, which consists of analysis, design, development, implementation, and evaluation as follows:

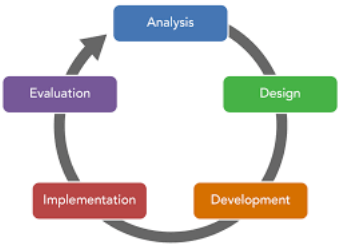

Figure 1. model featuring ADDIE

Analysis

During this step, the researcher conducted field studies by analysis. The observation was carried out at SLB NEGERI Jombang in April 2023. The researcher used teacher interviews as instruments in this analysis.

Design

The researcher used a flowchart as the first step in making the product. In the next step, the researcher prepared the main button and materials and used Microsoft PowerPoint. The researcher shall prepare the software that will be needed to build KIRATU and undertake expert verification before using Spring Free 11 with some supporting applications such as PowerPoint for basic progress, Spring Free to convert from PPT format into HTML format, Gdrive for backup KIRATU's data, Adobe Illustrator for creating icons of KIRATU, WEB2 APK for convert HTML to APK.

Development

Development in the context of learning media is a series of processes or activities carried out to produce learning media based on existing development theories (Fabiana Meijon Fadul, 2019). Validators validate the product after it has been designed and developed. The material expert validates the suitability of the product's material to the learning material while also improving the product developed by the researcher. Furthermore, media specialists assess the appearance, animation, and clarity of product information to help students use this learning media more effectively.

Implementation

The fourth stage in the ADDIE model is implementation. Researchers conducted the implementation at SLB Negeri Jombang. At this stage, researchers carried out the Implementation using KIRATU as media, which was carried out in a small class consisting of 7 deaf children.

Evaluation

The final stage of the ADDIE model is the evaluation of the learning program in the media. This evaluation is conducted to assess the effectiveness and validity of the learning media. The evaluation results show the successful use of English learning media at SLB NEGERI Jombang.

RESULT AND DISCUSSION

Result of Analysis

At this stage, The researcher has conducted observations through interviews and questionnaires to get information about deaf children's needs in understanding English and the difficulties they face. The researcher has also interviewed Ms. Tri Susanti, a teacher at the State Special School (SLB) in Jombang, who explained that class "B" serves 9 students, including some with other special needs. The teacher tries to reduce the use of sign language in the teaching and learning process to familiarize the children with verbal language and help them adapt to a social environment. However, sometimes, sign language is still used in communication exercises.

Result of Design

At this design stage, the researcher has created the application design before KIRATU is developed, such as Layout, Icon, Video, Packaging.

Result of Development

The researcher validated KIRATU through three categories, including content, media, and deaf experts, who are experienced and competent in their respective fields. The team includes two content experts, two media experts, and two deaf experts, with a minimum of 2 years of experience and a bachelor's degree. Furthermore, the score obtained is converted into a value with a Likert's scale, as shown in the table below:

Table 1. Categorization Criteria Validity(Damayanti et al., 2018)

Percentage (%)	Validity Level
81% – 100%	Very Good
61% - 80%	Good
41% - 60%	Fair
21% - 40%	Low
0% - 20%	Very Low

According to the result of materials sheet validation by the validator, the researcher interpreted the quantitative data into the qualitative data by using the average formula below:
The formula to calculate the total score from each validator from each aspect formula:

$$P = \frac{\sum Score}{\text{Maximum Score}}\ x\ 100\%$$

∑ Score (The total number of validator scores)
Maximum Score (criteria + maximum value)

1. Result of Materials Validation

This assessment focused on the materials aspect of the KIRATU application. The first validator of this research was Afidah Iftidah SA, S. P.d. (S1 English Education, Teacher of MI Unggulan Annur Jombang), and the second validator Yuanita Mariana, S. Pd. (S1 English Education, English tutor of Eduwisata College Pare). A validation sheet was needed to evaluate the KIRATU application based on materials.

The first materials validation sheet was filled by Afidah Iftidah SA, S. P.d. (S1 English Education, Teacher of MI Unggulan Annur Jombang). It was conducted by the researcher on November 03, 2023, and the result validation sheet was:
∑Score: 88
Maximum Score: 19 x 5 = 95

$$P = \frac{88}{95}\ x\ 100\% =\ 92{,}6\%$$

The result of the first media validation was assessed or validated by Afidah Iftidah SA, S. P.d, the next was calculated the result of the validation sheet, the researcher got an average score of 92,6% which meant that the material was suitable for use as learning material.

The second media validation sheet was filled by Amalia Ridhani, S. Kom. (S1 Informatics Engineering, TKJ Teacher of SMK Dwija Bhakti 1 Jombang). It was conducted by the researcher on September 03, 2023, and the result validation sheet was:
∑Score: 54
Maximum Score: 15 x 5 = 75

$$P = \frac{54}{75}\ x\ 100\% \ =\ 72\%$$

The result of the second material validation was assessed or validated by Amalia Ridhani, S. Kom., then calculated the result of the validation sheet, the researcher got an average score of 72% which meant that the media was suitable to use as learning media.

From the results of the two material validators, the researcher totalled the results of the two validators so that the scores obtained were as follows:

$$\frac{\text{Score validator 1}\ +\ \text{score validator 2}}{2}$$

$$\frac{100\%\ +\ 72\%}{2} = 86\%$$

Based on the calculate of the media validation sheet, the researcher interpreted that the result of KIRATU application was “Very Good” with “86%” score validation.

2. Result of Media Expert Validation

This assessment focused on the media aspect of the KIRATU application. The first validator of this research was Laily Febrianty, S. Kom. (S1 Informatics Engineering, Teacher of SLB Muhammadiyah Jombang), and the second validator Amalia Ridhani, S. Kom. (S1 Informatics Engineering, TKJ Teacher of SMK Dwija Bhakti 1 Jombang). A validation sheet was needed to evaluate the KIRATU application based on media.

The first media validation sheet was filled by Laily Febrianty, S. Kom. (S1 Informatics Engineering, Teacher of SLB Muhammadiyah Jombang).

$$P = \frac{\sum Score}{\text{Maximum Score}}\ x\ 100\%$$

∑ Score (The total number of validator scores)
Maximum Score (criteria + maximum value)
It was conducted by the researcher on July 27, 2023, and the result validation sheet was:
∑Score: 75
Maximum Score: 15 x 5 = 75

$$P = \frac{75}{75}\ x\ 100\% \ = \ 100\%$$

The result of the first material validation was assessed or validated by Laily Febrianty, S. Kom., then calculated the result of the validation sheet, the researcher got an average score of 100%, which meant that the media was suitable to use as learning media.

The second media validation sheet was filled by Amalia Ridhani, S. Kom. (S1 Informatics Engineering, TKJ Teacher of SMK Dwija Bhakti 1 Jombang). It was conducted by the researcher on September 03, 2023, and the result validation sheet was:

∑Score: 54

Maximum Score: 15 x 5 = 75

$$P = \frac{54}{75}\ x\ 100\% \ = \ 72\%$$

The result of the second material validation was assessed or validated by Amalia Ridhani, S. Kom., then calculated the result of the validation sheet, the researcher got an average score of 72% which meant that the media was suitable to use as learning media.

From the results of the two material validators, the researcher totalled the results of the two validators so that the scores obtained were as follows:

$$\frac{\text{Score validator 1 + score validator 2}}{2}$$

$$\frac{100\% \ + \ 72\%}{2} = 86\%$$

Based on the calculate of the media validation sheet, the researcher interpreted that the result of KIRATU application was “Very Good” with “86%” score validation.

3. Deaf Expert Validations

Based on the calculate of the media validation sheet, the researcher interpreted that the result of KIRATU application was “Very Good” with “86%” score validation.

$$P = \frac{\sum Score}{\text{Maximum Score}}\ x\ 100\%$$

The first media validation sheet was filled by Tri Susanti, S.Pd., M.Pd. (S2 Indonesian Language and Literature, Teacher of SLB Negeri Jombang). It was conducted by the researcher on July 21, 2023, and the result validation sheet was:

∑Score: 50

Maximum Score: 11 x 5 = 55

$$P = \frac{50}{55}\ x\ 100\% \ = \ 90{,}9\%$$

The second media validation sheet was filled by Lince Yayuk Kusdarini, S. Pd. (S1 Special education Teacher of SLB Negeri Jombang). It was conducted by the researcher on November 06, 2023, and the result validation sheet was:

∑Score: 51

Maximum Score: 11 x 5 = 55

$$P = \frac{51}{55}\ x\ 100\% \ = \ 92{,}7\%$$

After obtaining the results from each content validator, the next step is to determine the average to ensure the final deaf expert validation results.

$$\text{Average} = \frac{\text{Score validator 1 } + \text{ score validator 2}}{2}$$

$$\text{Average} = \frac{\text{Score validator 1 } + \text{ score validator 2}}{2}$$

Based on the calculate of the media validation sheet, the researcher interpreted that the result of KIRATU application was “Very Good” with “91,8%” score validation.

4. Result of Product Revision

In this stage the researcher revised the KIRATU application based on the suggestion from the media and material validator. There were some revisions based on critics and suggestions of experts. After conducting the content validation, several errors were identified, particularly in word usage, requiring revisions based on the suggestions from the media experts. In this regard, the researcher received advice to revise the phrase 'Please forgive me' to 'Please forgive me'.

Before validation

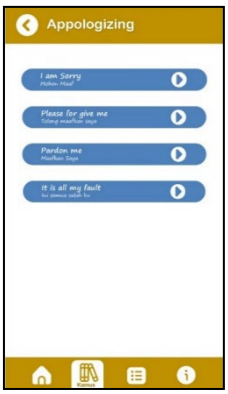

Figure 2. before revision text 'Please forgive me'

After validation

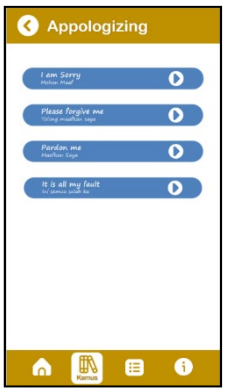

Figure 3. after revision text 'Please forgive me'

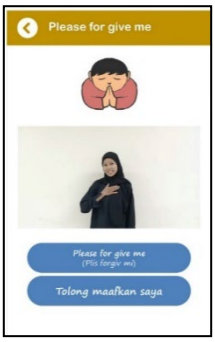

Figure 4. before revision text 'Please for give me'

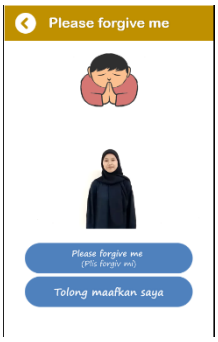

Figure 5. after revision text 'Please forgive me'

Result of Implementation

The research was conducted to develop the KIRATU application specifically for deaf children by involving 7 students from Sekolah Luar Biasa Negeri Jombang. The research involved the use of sign language and lip movements in the operation of the application.

Result of Evaluation

The trial results show that the "KIRATU (Kamus Inggris Ramah Tuli)" application can help students, especially in learning English. The data obtained by researchers through Analysis shows that this product is feasible to use as an English learning media for students who have hearing difficulties.

CONCLUSION

This research aims to design a KIRATU application specifically developed to assist deaf children's English vocabulary development. In this study, the results of the KIRATU learning media design were declared feasible to use with excellent material, media, and validator validation scores. This application is expected to help deaf children improve and increase their vocabulary. Some suggestions are that KIRATU users should focus on adding vocabulary by using video material that uses Indonesian Sign Language (BISINDO) to facilitate understanding. In addition, users must also have an Android device with a minimum version of "jellybean" that is compatible with the KIRATU application. This research can also provide information and increase vocabulary for deaf children.

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