



The learning medium design of language intelligence for elementary student based on used oil bottle upcycling

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Abstract

Language is an essential factor that distinguishes humans from animals. With human language, humans are able to communicate their thoughts and feelings both orally and in writing. The development of communicating with this language occurs both in the home environment, school, and the wider community. When these environments do not pay enough attention to developing language skills or what Gardner calls Language Intelligence, then this intelligence does not develop optimally. Based on preliminary studies in elementary school, many students whose language intelligence is not developing optimally. The lack of development of Language Intelligence is partly due to the lack of media that can develop it. Departing from this, the research using the Stanford University Design Thinking research method aims to produce learning media to develop language intelligence using used oil bottles designed with the principle of upcycling.

Key words: *language intelligence, elementary school students, used oil bottles, upcycling*

1. Introduction

Language is an essential factor that distinguishes humans from animals. With human language, humans are able to communicate their thoughts and feelings both orally and in writing. With and through language, all human beings can know and understand themselves, their fellow human beings, the environment, science, moral and religious values.

In everyday life, the most visible language skill is speaking. In early childhood, children have a strong desire to speak because they are a means of getting along with the people / children around them. When a child has difficulty speaking, the child cannot be accepted by the group. In addition, speaking is a means of gaining independence. When the child is unable to speak, other people around him do not understand the child's wishes, so he will depend on other people. As a result, he became less independent (Mardison, S. 2016).

One of the language skills that affects it is the environment in which the child is located, be it family, school, the wider community, and the media of various kinds. During the school period, the school became an institution that was very important

for its role in developing language skills - in terms put forward by Howard Gardner as Language Intelligence - children as students. What is meant by Language Intelligence is the capacity to use words effectively, either orally or in writing which includes the ability to manipulate the syntax or structure of language, phonology or language sounds, semantics or language meaning, and the pragmatic or practical dimensions of language use (Armstrong, T. 2009).

In this regard, in the initial study that the researcher conducted - in collaboration with one of the elementary schools (SD) through assignments to students - the language skills of these school students did not develop according to the level of development they should have. Based on observations and focus group discussions, this happened because one of them was the absence of media that could develop it. The absence of this media is because the school is not unwilling to hold it, but because of budget constraints, and teachers do not have the time and skills to develop it themselves.

From the foregoing description, it can be concluded that there is a gap between "what should have happened" and "the existing reality." This gap is what researchers will answer in this study by designing learning media to develop students'

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language intelligence using used oil bottles with the principle of upcycling.

The research subjects in this study were fourth grade elementary school students who were a transitional level between low class (I to III) and high class (IV to VI) which based on interviews with teachers needed to be specifically handled their language skills so that when errors occurred use of language, especially formal language, can be corrected.

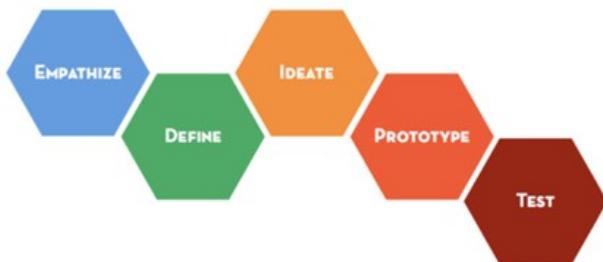


Figure 1. Schematic of Design Thinking stages (Source: Tutorials Point, 2016: 23)

2. Methodology

This study uses the Design Thinking method based on the Hasso-Plattner Institute of Design at Stanford as follows. (Interaction design foundation.com). This method uses 5 stages, namely empathize, define, ideate, prototype, and test. First stage is **Empathize**. At this stage, the identification of the needs of teachers and students in developing language intelligence related to the learning media is carried out. The second stage is **Define**. The data obtained were then analyzed and formulated so that a statement / determination of the problems faced by teachers and students could be obtained. **Ideate** is the third stage. The findings obtained in the previous stage are used to explore and develop alternative ideas for learning media. Next stage is **Prototype**. The ideas that have received feedback are then further analyzed to determine the most appropriate ones, then the selected ideas are followed up to become the initial prototype. And the last one, **Test**. This stage is the initial prototype trial stage which is directly tested on teachers and students with the aim of knowing its shortcomings and strengths as input for improvement into the final prototype.

Salinan Tulisan	Salinan Tulisan yang Ditulis Kembali
<p>Cita - Cita (guru)</p> <p>Nama saya Luthfia cita-cita saya ingin menjadi seorang guru. Saya ingin menjadi guru karena saya ingin membantu orang-orang yang membutuhkan ilmu. Saya ingin menjadi guru karena saya ingin membantu orang-orang yang membutuhkan ilmu. Saya ingin menjadi guru karena saya ingin membantu orang-orang yang membutuhkan ilmu.</p>	<p>Cita-Citaku (guru)</p> <p>Nama saya Luthfia cita-cita saya ingin menjadi. Seorang guru saat dewasa nanti untuk merah cita-cita seorang guru saya harus rajin belajar terutama rajin membaca dan tidak lupa juga untuk selalu berdoa. Alasan saya bercita-cita menjadi seorang guru karena ingin memberikan ilmu yang saya dapatkan pada murid-murid saya. Guru merupakan pahlawan bangsa tanpa mengenal pamrih dan guru pun disebut juga pahlawan tanpa jasa saat ini saya selalu beruntung-sungguh atas cita-cita ini supaya bisa mencerdaskan anak bangsa dan sabang sampai meroke.</p>

Figure 2. Example of the text written by student

3. Discussion result

In this study, the researchers conducted a survey at SD Negeri 151 Sukasenang Bandung, especially Grade IV. In the survey, students were assigned to write a story in Indonesian. The following is one example of the nineteen texts written by each student individually.

If we look closely at the writing, students still make many mistakes in writing both in terms of punctuation, as well as using capital or small letters. In addition, from the point of view of the story line, it has not shown sufficiently good and correct language skills. The errors and inadequacies in language were not only experienced by one of the students who wrote the writing but also experienced by 13 other students. So, if it is quantified it can be concluded that from 19 students who are able to write well only 2 students (10.52%), and those who are less able to write properly and correctly - in light to severe levels - are 17 students (89.48%). From these findings the researchers concluded that the language intelligence of the fourth-grade students where this research was conducted was not good enough. This finding is reinforced by the statement of two fourth grade teachers that Grade IV students are transitional students from low to high class so that their language skills are not yet solid. This



Figure 3. Focus Group Discussion with the teachers.

condition was realized by the teachers so that they made improvements in several ways, among others, students were asked to read the story aloud which was carried out in a relay. The method applied is also used to increase students' low reading interest. Even though this has been done, students still make mistakes.



Figure 4. Cleaning used oil bottles and making Waboli V.2.



Figure 5. The initial prototype of Waboli V.2



Figure 6. The initial prototype trial of Waboli V.2 conducted by the teachers and students

In addition to the foregoing, the teachers also stated that since the curriculum was replaced with the 2013 Curriculum, teachers could not teach specific language skills because the curriculum was thematic in their learning so that between one subject and other subjects were mixed or integrated. Meanwhile with regard to learning media, they stated that there was only one learning medium, namely instructional videos, while other non-digital media were only used in Grade I. This also causes teachers to be less free to develop the language skills or intelligence of their students.

Product Design

The media developed in this study is a puppet made from used oil bottles with an upcycling approach, whose initial prototype development stage can be shown in Fig. 4.

The product, which is still in the form of an initial prototype, is called Waboli V.2 (Fig. 5). The trials were held at SDN 151 Sukasenang Bandung by teachers and students (Fig. 6). In the trial, the teacher and students tested six Waboli V.2. Inputs from the trial were, 1. Of the six Waboli V.2, only one was ergonomically correct because the type of plastic oil bottle used as the body was relatively more flexible than the other five so that when the palm was the hand is inserted into the body not pinched, and when the thumb and little finger used to move the hand of Waboli V.2 does not hurt; 2. From the first point, ergonomically, how to operate of Waboli V.2 must be improved when moving the hand, and opening the mouth of the puppet simultaneously, especially the placement of the arm on the body of Waboli V.2 and its mechanical system; 3. In general, Waboli V.2 is very inspiring and effective as a learning medium to develop students' language intelligence.

Product revisions

Based on input from teachers and students, the initial prototype of Waboli V.2 was revised to form the hole to insert the user's palm, place the Waboli V.2 hand on his body and join the mechanical system (Fig. 7). After the revision was carried out, ten Waboli V.2 were tested to find out their comfort, safety and hand movements. The results of these trials stated that Waboli V.2 can be used comfortably and safely, especially it does not make the palms, thumbs and little fingers hurt, and the hand movements can rotate more flexibly.



Figure 7. Revised hole section shape.



Figure 8. Revision of hand laying and join parts.

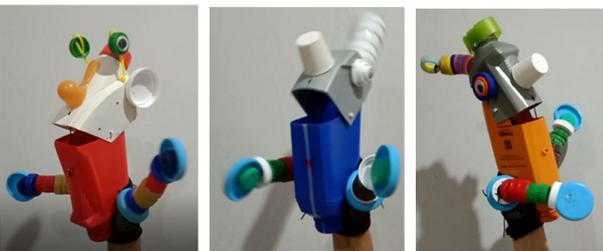


Figure 9. The revised Waboli V.2 trial



Figure 10. The final prototype of Waboli V.2.

Final Prototype Making.

After experiencing further trials and the results are satisfactory, the test results become the benchmark for making the final prototype (Fig. 10)

4. Conclusion

After going through the five stages that have been carried out which follows the Design Thinking research method, it can be concluded that,

- a. Used oil bottles are very suitable for use as wayang products which in this study is called Waboli V.2 which is used as a medium for developing language intelligence for elementary school students;
- b. After having tested it twice, Waboli V.2 is very adequate for use by teachers and students, and very inspiring and effective as a learning medium to develop students' language intelligence.

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