

Development of Media Vocabulary Cards to Improve the Speech Competence of Children with Intellectual Disabilities

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Abstract

The research is aimed at developing media vocabulary cards to improve the speech competence of intellectual disabilities of children. It was conducted in SLB/C Jakarta. This study went from February 2016 to January 2018. This research uses ASSURE development model. The develop product in this research is Media Vocabulary cards which are to increase speech ability. The steps of media development in this research base on the media development process. The steps are as below: Step 1: Preliminary a study of needs, Step 2: Plan and Media Development, Step 3: Validation and Revision 1. The judgment expert, Media expert, a special children expert, 2. Small groups, 3 Field groups, Step 4: Media implementation. The development proved that the calculation of the assessment of material experts on media products in the category of very good that is 95%. The results showed that the card vocabulary media product is in a very good category that is 95.4%. The results of this study also show when designing a media should pay attention to five elements, among others: color, shape, size, position, background image, and texture. The most important note is the color.

Keywords: Intellectual disabilities, early childhood, vocabulary cards, mental retardation, research and development

1. Introduction

Learning media as expressed by many experts is a tool used in the learning process. Learning is a process of communication between teachers, children, and teaching materials. This communication will be very effective when using the right media, so it can be said that the media is a means to achieve the goal of learning.

Learning media can be used anytime and anywhere, there is no provision when the media should be used. But it is highly recommended that teachers choose and use instructional media appropriately. The use of learning media is that is not right cause of the achievement of learning objectives. It includes learning to improve speaking skill at SLB / C Asih Budi I Jakarta as an ability that must be owned by children with intellectual disabilities then use vocabulary media card become very important.

Picture Exchange Communication System (PECS) method is by a method using pictorial media for speech enhancement for individuals who have difficulty in speaking. Developed in 1985 by Andrew Bondy and Lori Frost, PECS was initially used for preschoolers with ASD

(autism spectrum disorders) and other social communication disorders (Tien, 2008). The Image Exchange Communication System (PECS) is very effective for improving the functional communication of individual skills with the spectrum of autism disorders. Finally, PECS becomes a challenging choice used in the classroom especially the classroom child with intellectual disabilities.

Light twenty-five years ago, continues to provide a useful framework for this new era of communication. Regardless of the dramatic changes in the field of AAC intervention purposes (Augmentative Alternative communication) has not changed (Light & McNaughton, 2012). AAC interventions should address the development of adequate functional communication skills to support individuals with complex communication needs in developing, rebuilding, or maintaining communications. The ability to express needs and wants, develop social closeness, exchange information, and participate in social routines as needed.

White and Bradley (1969: 10), in his book Communications Problems in Mental Retardation, reveals that approximately 2% to 3% of children with moderate IQs under 75 who enter primary school has a very high risk to get less satisfactory grades in school because it cannot talk, articulation is not clear, hearing is disturbed,

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therefore the vocabulary card developed by the researcher becomes the answer to the lack of children.

This is similar to the findings made by Memisevic and Hadzic revealed that children with intellectual barriers have a higher risk of developing speech abilities (Memisevic & Hadzic, 2013). Children with intellectual obstacles or better known as children with intellectual disabilities have limitations of speech and language disorders, compared with children in general.

The study of children's language skills with down syndrome is still very rare, one of the studies by Schnitzer-Meirovich et al. found that individuals with a non-specific intellectual disability (NSID), especially Down syndrome, will have a delay in language development so that early intervention may be required (2017: 252-267). As you get older your child will find it difficult to improve speech. Given in the classroom there are three children with an indication of down syndrome.

Vocabulary card as a medium in the learning process has a specialization that is not owned by other media, namely: 1) as an effective media to cultivate children's interest in learning, 2) make children involved and actively participate in the learning process, 3) children who use media vocabulary cards are faster remembering images because of the interesting characters and color images.

The child is very interested in the image that has an interesting color. It is supported by research conducted by Nakamura (2015) who finds children very enthusiastic in learning by using picture books, although using the same image with different stories children will not get bored. This research is supported by Houglum et al. that the use of vocabulary cards for ASD is very effective (2013: 11-17)(Ertmer & Ottenbreit-Leftwich, 2010).

Researchers based on Gestalt theory about the visual form that is based on the thinking Chr. von Ehrenfels (2011), later developed by Max Wertheimer, Wolfgang Kohler, Kurt Koffka, about the motion that is felt without seeing a moving object, where the individual will see things as a whole that will shift to the item that the individual finds interesting. According to Schichida (2010: 35), a very rich image always flows in the right hemisphere. The imagery will be a force when the brain waves descend in 10 Hz where the hormone that facilitates the right brain awareness is released when the child thinks the soul, emotions, and physiology are transformed into images, which are under the right brain consciousness.

Research objectives

Based on the background and focus of the problem above, the purpose of this research is:

How is the preliminary study conducted for the development of vocabulary media card for children with intellectual disabilities?

Method

This research uses ASSURE development model (Sezer, Yilmaz, & Yilmaz, 2013). This model was initiated by Smaldino, Russell, Heinich, and Molenda, which focused on actual classroom planning (2013: 134-144). Here are the steps of ASSURE model:

1. Analysis of student characteristics
2. Setting learning goals
3. Choosing the right media, methods and learning materials
4. Use of learning materials
5. Evaluation of the revision: expert judgment: media expert, specialist child expert, media material expert.

Population

Participants

Participants in this study were teachers and students of SLB / C Asih Budi I, SLB / C Asih Budi II Jakarta, SLB / BC Arrahman Jakarta. There are 20 items measuring each dimension. The items belonging to each dimension are as follows:

Legibility: 1,4,5,7, 10

Shape: 2, 3, 11

Texture: 12, 15, 18

Size: 8, 9, 13

Position: 14, 21, 25

Background: 27, 26, 30

Measure

All the data is collected through questionnaires as well as interviews with teachers and principals. The guidance of assessment by using scale 4 is as followed:

4: Very Match

3: Matches

2: Simply Match

1: Not Match

The data obtained in the form of this figure is analyzed in percentage form with the following formula:

$$P = \frac{F}{N} \times 100\%$$

With descriptions:

P = Persentase

F = Total percentage total

N = Number of subjects

To give meaning of scale which have done by using category as follows rating category table with scale 4:

Table 1: Assessment Scale Category

Scale	Category
76% - 100%	Very interesting
51% - 75%	Interesting
26% - 50%	Pretty interesting
0% - 25%	Not interesting

Source: Djaali, Pengukuran Dalam Bidang Pendidikan, Jakarta: Grasindo, 2008.

Preliminary Study Sites

Field studies conducted at three locations, namely Asem K morning market, GramediaMatraman Book Store and GunungAgungKwitang Book Store show that the average vocabulary card is sold using a foreign language or English. The paper used is very diverse. But generally, the type of paper used is art cartoon and art paper.

Art paper material is not suitable for writing media because the surface is slippery. Therefore, art paper is often used for prints that are promotional and small, such as invitation cards or business cards. Based on the study in the field of art paper used as the basic ingredients of vocabulary cards generally, use paper weighing 100 grams to 150 grams. Art paper is suitable for mass production.

Art carton has properties similar to art paper, but the basic material is cardboard. In addition, art carton has a heavier grams that is thicker than art paper. This type of paper becomes a safer option for children, what's more for children with special needs. The weight of paper commonly used for the basic ingredients of vocabulary cards is 190 grams to 350 grams. A duplex paper is the most easily recognizable paper type and most often used for food packagings, such as cake box, box, and another rice packaging. The duplex paper is one side white and the other side is gray and white on both sides. A duplex paper is not suitable for vocabulary use. But in fact, there are some publishers who use duplex paper as the basic ingredients of making the card.

Table 2: Comparative Study of Vocabulary Media Cards

Assessment Category	Vocabulary Cards on the Market	Vocabulary Cards
<i>Legibility</i>	attractive colors	attractive colors
<i>Shape</i>	Variations	Square and rectangle
<i>Texture</i>	slick and rough	slick
<i>Size</i>	Average size 2.24 inches x 4.45 inches to 5.51 inches x 7.28 inches	Picture size: 8.5 inches x 11 inches Word size 8.5 inches x 2.73 inches
<i>Position</i>	Too many items in the picture	At most 5 items in the picture
<i>Background</i>	Use mixed colors as the background of the image	Use the basic colors as the background of the image

Based on the comparative study the researcher concludes that the basic material suitable for the manufacture of vocabulary card media is art cartoon besides thicker than art paper art cartoon with paperweight 400grams. The glossy nature of the paper makes the colors in the picture

brighter. Here are the conclusions after a comparative study of media vocabulary cards in the field, by looking at the elements that exist on a vocabulary media card:

Research Findings

It was found that color became one of the elements that must be fulfilled to design a vocabulary card, with a 30% percent with an attractive color the child would love to learn. This is in line with Walter and Gioglio's opinion that color has an extraordinary power to steal children's attention (Walter and Gioglio: 2014). This research is also supported by Lawless and Heymann that the use of color is very important and becomes the main quality shown (2010). So it can be concluded that the color is a decisive element in the making of a vocabulary media card.

The second element is a position with a percentage of 20% of the object is very decisive. For children with intellectual disabilities, too many objects in one frame will confuse them so according to Kemp and Smellie specify one object to be highlighted. It is also supported by Tseronis that the position of an object in the image supports the evidence and the truth of an image (Tseronis, 2013). This is the thing to note when designing this vocabulary card the researcher determines what object to be introduced to the child so as not to force the child to remember all the objects in the picture.

The third element is the size and background of the image with the amount of 15%. Size and background are things to watch out for. Because the picture will be taped on the blackboard the picture should be visible to the child from their seat. According to Simonson and Visual Volker, a picture must be clear (Simonson and Volker: 1984). According to Palmer and the contrasting background, friends will be very well liked (Palmer, Schloss, & Sammartino, 2013), and it is evident that the intellectual disabilities are able to practice liking contrasting colors. The size and background of this image will certainly strongly support a media aesthetically.

The next element is the texture and shape with a percentage of 15%, texture is not sharp and safe for children a priority because the media of this vocabulary card will be in contact with the child so it needs to pay attention to child-friendly texture, the choice fell to the art cartoon material because of the slick texture. The shape is square and large so that the displayed image will be visible when the teacher attaches to the board. This is consistent with Kemp and Smellie's opinion that texture and form must be considered in designing a medium (Kemp and Smellie: 1989). According to Bhagat and Atique that texture and form become very interesting because this is the hallmark of the visual vitur so that the physical composition of the surface of a medium will greatly determine the quality of the media (Bhagat & Atique, 2013). Palmer and his et al. say that the form is a golden ratio that has a high contribution in the success of an aesthetic card media (Palmer et al., 2013). With a good shape, a media will interesting. For more details can be seen in the table below:

Table3 Vocabulary Level Cards Elements

Aspect	Level 1	Level 2	Level 3	Level 4	Average	Amount
Legibility	24	24	23	23	94	23.5
Shape	8	8	8	6	30	7.5
Texture	8	8	8	8	32	8
Size	12	12	12	11	47	11.75
Position	16	14	14	13	57	14.25
Background	12	12	11	10	45	11.25

■ Legibility ■ Shape ■ Texture ■ Size ■ Position ■ Background

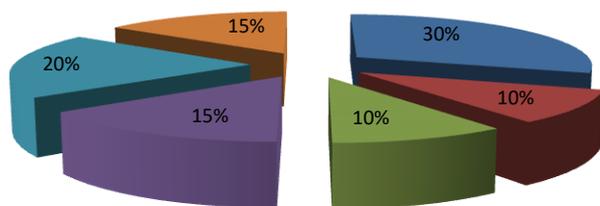


Figure 1 Vocabulary Level Cards Elements

Result and Discussion

During this vocabulary media card used is not interesting, it affects the interest of children to learn, children look quickly bored when the process of teaching and learning activities take place. Because this continues to happen so the researchers decided to develop a media vocabulary cards to improve the ability to speak children with intellectual disabilities.

In this study, the vocabulary card contains an image with a size of 8.5 inches X 11 inches and a word sized that will make it easier for children to understand what the teacher taught. The reason for using the exchange was based on Simonson and Volker's (1984) opinion that the correct paper size for individual learning is 8.5 inches x11 inches. Based on that opinion the expert decided to use the size of the 8.5-inch x 2.73-inch image for word size.

The ASSURE model is focused on the actual classroom planning area using the technology medium. The design model of this learning system was created by Smaldino and friends (2010), describing systematic and thorough steps about activities that can facilitate the child to achieve the desired competencies. This ASSURE model underlies the view of Robert M Gagne, about the event of instruction or event of instruction. According to Gagne the design of effective learning should start from the effort of motivating someone to learn.

O'Bannon and Puckett said that every child with special needs is able to access technology (2010: 52). This means that teachers should be able to provide stimulation to children with special needs in order to adapt to the media provided by teachers. Therefore,

teachers should pay attention to the material used for the media.

Children with special needs with severe intellectual disabilities in future roles, such as parents, employees or self-defense are important components taught in school (Ncube, 2016). Although the teacher should be aware that the child is capable of training will not work at the level that has been predicted is the success of social competence. The teacher should be able to visualize future functions in the present frame and prepare the children with intellectual disabilities to develop his social competence.

These ASSURE steps are highly child-oriented and very easy to apply in the classroom. According to Dale's learning experience is a process of speaking (Ncube, 2016) Dale concludes that children will learn more when they are given real media and learn less when children are given only abstract media. Recent research also shows that children will learn very much when the stimulus is given not only from the eyes but also the hearing. The behaviorism group that begins with Watson whose views were later developed by Skinner with the response-stimulus suggests that constructing knowledge will be influenced by the way teachers teach and the learning media/tools that teachers use.

Some teaching strategies for children with intellectual disabilities able to train are structured teaching, teachers or adults using fewer or simpler words and phrases and should be assisted with the media to improve speaking skills. This is in line with the findings of Irvin et al. that to improve the ability to speak children with ASD indications need to pay attention to the simplicity of the language (Irvin, Hume, Boyd, McBee, & Odom, 2013).

Overall in this study has been supported by the theory of Dale Cone (Mater, 2013) which states that If learning uses the media then it is in the area of the learning experience. The main vocabulary learning materials contain pictures and words. In addition to Assure design can easily apply to a child who has special needs, in this case, children with intellectual disabilities.

Conclusion

The results showed that the card vocabulary media product is in a very good category that is 95.4%. The results of this study also show when designing a media should pay attention to five elements, among others: color, shape, size, position, background image, and texture. The most important note is the color.

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