Development of Picture Book Media for Expressive Language Skills of Children with Autism

Resha Fitria Suistika  
Program Studi Pendidikan Luar Biasa, Program Pascasarjana, Universitas Negeri Yogyakarta  
e-mail: resha.fitria2016@student.uny.ac.id

Ishartiwi  
Program Studi Pendidikan Luar Biasa, Program Pascasarjana, Universitas Negeri Yogyakarta  
e-mail: ishartiwi@uny.ac.id

Abstract:  
The expressive language skills of children with autism can be improved through teaching and learning. One of the factors supporting the success of teaching and learning process in improving the expressive language skills of children with autism is the selection of media which is in accordance with the characteristic of children with autism as target of learning. Children with autism are known to conceive information based on visual as their characteristic, so visual-based media will be more effectively in the learning process. This study uses the ADDIE (Analyze, Design, Development, Implementation, and Evaluation) development model that aims to develop visual-based media that can accommodate the expressive language skills of children with autism. The media developed is in form book-shaped media that contains a combination of writing and image illustration. This study produces a decent picture book media based on material conformity with curriculum, grammar used, media display, and communication theory used.  
Keywords: Media; Expressive language; Autism.
1. INTRODUCTION

Expressive language skill is a process of conveying information orally. It is one of the aspects of language skills which consist of writing and speaking skills (Zulela, 2013: 5). Expressive language skills of children with autism are characterized by delayed-speech or non-speech, difficulties in starting or responding to conversation, and repetition in language use (Kurt, 2011: 1436). It causes the information conveyed by children with autism are not well received by others, so is the other way around. Expressive language skills of children with autism are limited to short conversation or unable to start a conversation first. Conversation of children with autism can’t be considered as communication because it can’t be interpreted. A research conducted by Lane, Shepley, & Lieberman-Betz (2016: 3216-3231) reveal that expressive language skills of children with autism can be improved through naturalistic language intervention. Naturalistic language intervention can be done by teacher in learning process. The increase of communication skills in children with autism can be done through learning process in school, one of which is in Bahasa Indonesia subjects.

According to the General Director of Primary and Secondary Education Regulation Number 10 Year 2017 about curriculum structure, core and standard competencies, and guide book for the implementation of curriculum 2013 for special education, language skills in bahasa Indonesia subject are divided into receptive language skills (listening and reading) and expressive language skills (speaking and writing). Bahasa Indonesia learning for children with autism is focused on increasing their language skills according to the potential owned by each child. One of the supporting factors of learning process success is the selection of media that is in accordance with the learning objectives. Children with autism tend to be visual learner and more interested in colored object, shaped object, and object that has certain textures, so visual media will be more effective in learning process (Indina, Handajani, & Laksmiwati, 2004: 2). Other than that, children with autism can conceive messages better through visual compared to messages that are conveyed orally (source: http://repository.usu, diakses pada 3 Oktober 2017). It is supported by a research conducted by Pamuji (2014: 123) in which the result shows if visual media can help children with autism to convey messages accurately and efficiently through communication symbols. The communication symbols used need to be properly understood its meaning and suitability in order to visualize the messages conveyed or received by the children with autism.

Visual media in bahasa Indonesia subject can be implemented in form of image illustration, animation, or direct object image. Results of previous research conducted in October 2017 by one of the Special Schools in Yogyakarta show if teachers use pictures in learning process. The images used by teachers are picture cards imbedded on whiteboard. The use of picture cards in learning process can make children with autism have good receptive language skills. It is shown by how
the children with autism can understand the teacher’s command but are unable to accommodate the expressive language skills. The picture cards used by the teacher can’t be used outside the classroom, so a media that can be used both inside and outside the classroom to train expressive language skills of children with autism is needed.

This research is conducted to produce media in form of picture book. Picture book media is a book-shaped media that contain combination of pictures illustration and writing that support each other so that similar perception between the writer and reader which is the main objective of communication can be achieved (Mallet, 2010: 24). Combination of writing and visual symbols in delivering material can accommodate expressive language skills of children with autism. A research conducted by Hayes, Hirano, Marcu, Monibi, Nyuyen, & Yegayan (2010: 664) show if visual support can help children with autism to communicate using picture illustration or real object that represents the basic needs of children with autism. A research conducted by Pamuji (2014: 123) in which the result confirms that visual support helps children with autism to deliver messages efficiently using communication symbols both orally and in writing. The material in picture book media developed involves everyday activities. The material are taken from the standard competence of Bahasa Indonesia subject for grade fourth elementary school according to curriculum 2013 which is understanding simple text book about family activities and documents that belong to family presented in oral, written, and visual. The material is limited to conveying the sequence of everyday activities and activities that the children with autism want to do by using the visual media.

This research is conducted to produce picture book media for expressive language skills of children with autism using ADDIE (analyze, design, development, implementation, and evaluation) development model that is limited to knowing the eligibility of the picture book media through expert judgement in the development stage. The picture book media is assessed by material and media competent experts in order to know the eligibility of the media. The research process is explained in the Research Method section. The objective of this research is to produce picture book media that is suitable for expressive language skills of children with autism in form of A4-sized communication book that contains writing and picture illustration of everyday activities.

2. LITERARY REVIEW


Children with Autism are defined as children who have delays in social relationship and language that cause them to have difficulties in social interaction skills, communication with the environment, behavior, and delays in academics (Pamuji, 2007: 2). Language skills of children with autism have abnormal development which interrupts their expressive and receptive language skills. About 50% of children with
autism have language and speech delays (Smith & Tyler, 2010: 409). Children with autism often babbling with no meaning repetitively using a language that no other people understand, talking with no intention to communicate, and they also like to imitate others (Sunarya, 2004: 45). A research conducted by Vaioulli and Andreou (2017: 1) in which the result reveals that children with autism have delays in speech due to their difficulties in understanding the language context used and their inability to build functional speaking skill. The condition is caused by the use of basic syntax aspects as difficulties in using different grammatical morphemes experienced by the children with autism (Kim, Junker, & Lord, 2014: 3230).

Expressive language skills of children with autism are limited to short conversation or even unable to start conversation first. Conversation of children with autism can’t be considered as communication because it can’t be interpreted. It is hard for children with autism to communicate expressively because they tend to use unusual intonation, speed, loudness, and content that make it hard to understand them (Hallahan, Kauffman, & Pullen, 2012: 243). According to Thompson (2010: 88), children with autism have echolalia symptom which means that they do repetition with no understanding to the meaning. Other than that, it is difficult for children with autism to use language expressively as a tool to do social interaction because they don’t care about the listener’s responds. Children with autism prefer to communicate using body movement as pointing or pulling person that is next to them.

Naturalistic language intervention through language learning can be done to improve the expressive language skills of children with autism (Lane, Shepley, & Lieberman-Betz, 2016: 3216-3231). Language learning can be done in school through learning-teaching process that involves cognitive skills and maturity in speaking as the results (Allen & Cowdery, 2012: 421). Language learning can be integrated in many subjects, one of which is Bahasa Indonesia subject which includes four language skills; reading, listening, writing, and speaking skills (Polloway, Patton, Serna, & Bailey, 2013: 346; Zulela, 2013: 5). Basically, the main intention of language learning is to form and develop expressive and receptive language skills of children with autism.

2.2. The Use of Media in Learning for Children with Autism.

In general, learning media is defined as any kind of tools used to help teacher in teaching and learning process. Learning media is any sort of things that can be used to convey message from sender to receiver in order to stimulate children’s thought, feeling, interest, and attention in learning process (Sadiman, 2011: 7). Learning media is arranged completely and systematically by following development process system so that the children can feel the benefits of the learning media they used after learning by using it (Pujiati, 2007: 23). Basically, learning media consist of knowledge, value, attitude, action and skills that contain message, information, and
illustration in form of fact, concept, principle, and process related to certain discussion directed to reach the learning objectives.

Broadly, learning media are divided into two groups, printed and non-printed media. According to Heinich, Russell, Smaldino, & Molenda (2008: 207-302), learning media is divided into 4 kinds, they are a) Visual Media, a media that utilizes the sense of vision, for example text book, module, graphic, and picture, b) Audio Media, a media which can be understood with the sense of hearing, for example voice recording, radio, and tapes, so as c) Audio Visual Media, a media that utilizes both sense of vision and hearing, for example video and movie. Teacher has to consider the learning objectives and characteristics of the target user in selecting learning media.

For Children with autism that tend to be visual learner and more interested to colored object, shaped object, and object that have certain textures, it will be easier for them to understand the learning material if it is delivered visually (Indina, Handajani, & Laksmiwati, 2004: 2). For that reason, learning media that is suitable for children with autism is visual based media. Visual based learning media for children with autism is implemented in AAC (Augmentative and Alternative Communication) (Sigafoos, 2010: 101). The use of AAC can deal with the obstacles of children with autism to communicate and interact. Visual symbols consisted in AAC represent object, action, and concept through the use of items as the physical object itself, colored or black and white picture, line image, and written words. The principles of implementing AAC in learning for children with autism according to Shane, Laubscher, Schlosser, Flynn, Sorce, & Abramson (2012: 1230) are a) communication development of children with autism is done by giving a lot of visual supports in their surrounding environment, either home, school, or even in the society, b) visual media supports the understanding and expression of children with autism, and c) visual media is focused on the communicative function.

2.3. Development of Picture Book Media for Expressive Language Skills of Children with Autism

Picture book is a book-shaped media that contain both picture illustration and writing that support each other so that similar perception between the writer and reader which is the main objective of communication can be achieved (Mallet, 2010: 24). The picture illustration and writing are designed to support each other in the process of conveying message (Nurgiantoro, 2010: 152). Picture illustration in picture book can be made traditionally by using colored pencils or crayon and modernly by using digital technique. Picture book can be formed into pop-up or overhauled as needed.

book. Alphabet book is a delivery of material by using letters as a stimulus for children in developing their vocabulary, while wordless picture book is a delivery of material by using visual illustration in a form of picture.

According to Januszewki and Molenda (2008: 102-103), producing learning media is a process of making the pattern of words, pictures, or gestures to modify the students’ behavior with the principles of a) material presentation in delivering message, b) semiotic perspective, c) principle of generating message, d) standard of making, and e) quality of technique. According to Widodo [26], these things are in accordance with the eligibility criteria for media development, in which according to him, the eligibility of media development are based on its content, language aspect, presentation, and display.

The eligibility criteria of media development are used to set the assessment indicators for the picture book media developed. The eligibility criteria set are a) eligibility in term of content in which the material has to be accurate and in accordance with the curriculum used and characteristics of children with autism, b) eligibility in terms of language aspects which include readability, sentence structure, and diction in accordance with the GGIS (General Guidelines of Indonesian Spelling), in Indonesia called PUEBI (Panduan Umum Ejaan Bahasa Indonesia), c) eligibility in term of presentation which includes completeness of material, capability to attract the attention of children with autism, and benefits for children with autism, and d) eligibility in terms of letter kind, letter size, writing and picture layout, color combination used, and presentation between pages.

2.4. Implementation of Visual Communication Theory in Picture Book Media

The support of visual communication theory has potential to increase communication effectivity of children with autism in interacting. Visual communication theory can give stimulation effect so that children with autism are more active in communication and can also give therapy effect so that the children with autism can be more calm (Indina, Handajani, & Laksmiwati, 2004: 2). Basically, visual communication emphasizes on communication applied in many visual communication media by processing graphic design that is based on illustrations, letters, colors, compositions, and layout used in conveying the visual message to the target.

According to Smaldino, Lowther, & Russel (2012: 78-87), visual support in designing media need to keep a close look on a) setting, which is the determination of archetype in preparing the media consistently, for example bringing together related material and separating unrelated material, b) balance, which is a proportion setting of picture and writing in the media, c) the use of color in visual media is done to differentiate each of the visual elements, giving focus to the presentation and making the suitable contrast, d) readability includes the setting of letter kind, size, and color used in order for the message in the material delivered can be received.
Development of Picture Book Media for Expressive Language Skills

well by the media user, and e) the level of media attractiveness set according to the characteristics of target users.

The eligibility of picture book media is also assessed from the implementation of visual communication theory element. In general, the elements are size, contrast, and texture. Size is a setting of how big or small the visual display adjusted with the available room in the area so it will be easier for the reader to acquire the information. Space separator in each field is done by combining dots and lines. Contrast is the difference of dark and light colors used to accentuate the message wanted to be delivered, while texture is the touch value of the surface.

3. RESEARCH METHODOLOGY

This research develops picture book media by using ADDIE development model through analyze, design, development, implementation, and evaluation stages. Within the analyze stage, needs analysis, curriculum analysis, and characteristic of children with autism analysis are conducted through teacher interview and classroom observation. Within the design stage, the media component, process of delivering the material, and media arrangement are determined. The development stage is a stage where the initial product is created and then assessed by material and media experts. The product is created by combining text and picture illustration of everyday activities material through Corel Draw x9 2017 application and saving the file in .pdf format. The picture illustration of everyday activities can be accessed on www.picture.google.com site. Expert judgement on the material is to assess the eligibility of the material within the media based on curriculum 2013, while expert judgement on the media is to assess the eligibility of the media based on the suitability of learning media principles and visual communication theories used. The instrument used to collect the data is questionnaire. The research is to produce a decent picture book media based on assessment by material and media experts which are analyzed descriptively. The picture book media eligibility is considered in “good” category if the overall assessments results are rated “good” by the experts.

4. FINDINGS

Picture book media developed is in a form of A4-sized communication book so it will be easier for the children with autism to use. Picture book media developed is a book which has similar model to activity book arranged by combining letter and picture illustration so that the children with autism don’t only focus on the picture. The materials contained within the media are material that can be used as conversation topic between the teacher and children with autism. The material coverage is limited to delivering the sequence of everyday activities and activities wanted to do through simple conversation by the children with autism using the visual media. The materials within the picture book media are 1) delivering information, the material is divided into sub-material of delivering the activities that the children with autism want and don’t want to do by using the activities picture
cards, and 2) simple conversation, the conversation is divided in the sub-material of short conversation related to everyday activities and delivering the sequence of the activities that are going to be done to the teacher.

Set of tools used in this development are Microsoft Word to create the letters and Corel Draw x9 2017 to create the picture illustration. The coverage of the picture book media component as an initial product are a) cover, b) personal identity of the children with autism, c) the sequence of activities done by the children according to the schedules, and d) the activities they want and don’t want to do. Integrated practice on the whole media is delivering information about activities to other people expressively either in oral or writing. Picture book media developed can be used as conversation topic by teacher and used by the children with autism in learning process to support the learning process with the teacher acting as a guide for the children with autism.

Assessment of the picture book media developed is done by material and media experts through questionnaire. The results of expert judgement show if the picture book media can stimulate expressive language skills of children with autism through conversation topic presented as the material. Other than that, the combination of picture illustration and sentence can train the children with autism to deliver information orally or through writing with full sentence. The judgement by material experts is done on curriculum suitability, language aspect, presentation eligibility, and the implementation of visual communication theory aspects. The results of expert judgement done by material experts can be seen in the table below:

<table>
<thead>
<tr>
<th>Scoring Indicators</th>
<th>Average score</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Material expert I</td>
<td>Material expert II</td>
<td></td>
</tr>
<tr>
<td>Curriculum Suitability</td>
<td>4,2</td>
<td>4,2</td>
<td></td>
</tr>
<tr>
<td>Language Aspect</td>
<td>4</td>
<td>4,8</td>
<td></td>
</tr>
<tr>
<td>Presentation Eligibility</td>
<td>4,2</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>The implementation of visual communication theory</td>
<td>4</td>
<td>4,3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>16,4</td>
<td>18,1</td>
<td></td>
</tr>
<tr>
<td>Average Score</td>
<td>4,1</td>
<td>4,5</td>
<td></td>
</tr>
<tr>
<td><strong>Overall Average Score</strong></td>
<td><strong>4,3</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

According to the score given by material expert I, the media is considered to be in “good” category” based on the average assessment score of 4.1. Picture book media can be used by children with autism to express everyday activities both orally and in writing, so it can accommodate their expressive language skills. Based on the judgement by material expert I, picture book media developed is considered eligible to be used by teachers to train expressive language skills of children with autism.
The advice given by material expert I is to maintain the consistency of picture illustration selection so that children with autism as the target users are not confuse. Material expert II states if the media developed is eligible to be used in training expressive language skills of children with autism because the media can be used as conversation topic between the teacher and children with autism. The material expert II give the picture book media “very good” score because it looks interesting and the material is focused on expressive language skills of children with autism. The advice given by the material expert II is that the material coverage can be widen based on kind and time of the activity, and involvement of others in the activity. Generally, the average scores given by material experts reach 4.3, which mean the media is in “very good” category. It means that the material coverage of the picture book media is considered eligible to accommodate and train expressive language skills of children with autism.

The judgement is further done by media experts by filling questionnaire to assess the presentation eligibility, display, language, and the implementation of visual communication theory aspects which can be seen in the following table:

**Table II. Results of Judgment by media experts**

<table>
<thead>
<tr>
<th>Scoring Indicators</th>
<th>Average Score</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Media Expert I</td>
<td>Media Expert II</td>
<td>Media Expert III</td>
</tr>
<tr>
<td>Presentation Eligibility</td>
<td>4,7</td>
<td>4,9</td>
<td>3,8</td>
</tr>
<tr>
<td>Display</td>
<td>4,4</td>
<td>4,7</td>
<td>3,9</td>
</tr>
<tr>
<td>Language Aspect</td>
<td>4,8</td>
<td>4,8</td>
<td>3,8</td>
</tr>
<tr>
<td>The Implementation of Visual Communication Theory Aspects</td>
<td>4,6</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>18,5</td>
<td>19,4</td>
<td>15,5</td>
</tr>
<tr>
<td>Average Score</td>
<td>4,6</td>
<td>4,9</td>
<td>3,9</td>
</tr>
<tr>
<td><strong>Overall Average Score</strong></td>
<td><strong>4,3</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on the judgement of Media Expert I, the picture book media is included in “Very Good” category and is eligible to be used. Media Expert I considers the picture book media can be used to help children with autism to deliver information about activities they want and don’t want to do expressively, but the contrast between the picture illustration and the background color within the media are still overlapping in several parts, so revision on the color contrast within the media is needed in order to make it more interesting for the children with autism. Media Expert II states if the picture book media can help children with autism to deliver information orally and in writing with average score of 4.9 which is included in “Very Good” category. Media Expert II states if the advantage of the media is that the children with autism don’t only see picture illustration but they also learn how to read, so communication of the children with autism don’t only happen by pointing to...
pictures. The advice given by Media Expert II is to maintain the consistency of picture illustration selection that represents the real conditions so there will be no misunderstanding by the children with autism.

Media Expert III assesses if the media is in “Good” category based on average assessment score of 3.9. It means the media is eligible in training expressive language skills of children with autism both orally and in writing. The Media expert III emphasizes esthetic value of the media. The advice given is to pay attention to how neat the cut and color contrasts within the media are. Generally, the advice given by Media Expert III is to revise the color contrast between the picture illustration and background color within the media. Based on the scoring, the average of all scores acquired for the picture book media is 4.3 which means the media is included in “Very Good” category. The picture book media is declared eligible to be used by children with autism to accommodate their expressive language skills, so the communication of children with autism is not only limited to showing pictures but also delivering the information both orally and in writing.

5. DISCUSSION

The research conducted to develop an eligible picture book media to accommodate expressive language skills of children with autism. Picture book media developed is a combination of alphabet book and wordless picture book, the combination of these two book is done so that children with autism don’t only focus on the pictures but also capable of using words. It is done to stimulate the children with autism to communicate using full sentence and in accordance with language structure. The media is developed using ADDIE development model limited to the development model which is to find out the eligibility of the picture book media. The media is considered eligible by material and media experts based on the score given, which is considered “Very Good” so it can be used to stimulate and train expressive language skills of children with autism orally and in written.

The material experts consider if the media is eligible because the material is in accordance with the curriculum and characteristics of children with autism as the target user. Other than that, the material presented can stimulate expressive language skills of children with autism because it can be used as conversation topic between teacher and children with autism. The words chosen for the media is in accordance with the GGIP and are commonly used by children with autism, so it will be easier for them to understand. Within the presentation aspect, the suitability of letter’s kind and size, picture and writing layout setting, and color combination used can attract the attention of children with autism to learn so the media has benefits value for the children with autism once it is used. Other than that, the material in the media presented in form of picture illustration can deliver the exact message so there will be no misunderstanding between the message sender and receiver. The media developed can also be used to modify the behavior of children with autism to
communicate expressively. It is in accordance with the opinion of Januszewki and Molenda (2008: 102-103) about creating learning media.

The judgement given by media experts toward picture book media is that the material presented can support the understanding of children with autism toward an activity and is focused on communication function because it involves the surrounding environment of children with autism to stimulate them to communicate. The media is in accordance with the principle of visual media implementation in learning process for children with autism according to Shane, Laubscher, Schlosser, Flynn, Sorce, & Abramson (2012: 1230). The assessment given by material experts toward the eligibility of content quality and material presentation is in accordance with the curriculum used, the vocabulary and sentence structure used are considered correct, and the media has interesting colors that may attract the attention of children with autism. The words used are commonly used by children with autism so it will be easier for them to understand and use. Other than that, the presentation between pages are good that no divided material presentation that may break the focus of children with autism. It is in accordance with the criteria of learning media development eligibility according to Widodo (2008: 40-48).

The media experts give “Very Good” score because the picture illustration used as visual symbols represent object or action through color combination within a picture. As in the opinion of Sigafoos (2010: 101) that says if visual symbols in media represent object, action, and concept through the use of items as the physical object, color picture or black and white, line picture, and written words. The use of Arial font is declared in accordance with the characteristics of children with autism that can easily be distracted. The Arial font is considered in accordance with the characteristics of children with autism because it is an assertive font. It is in accordance with the opinion of Indriana (2011: 173) about the minimum use of word kind and size used in media so that the message within the material can be delivered and well received by the media user.

Eligibility assessment by material and media experts also covers the eligibility of visual communication theory implementation which are size, contrast, and texture (Kusrianto, 2009: 30; Supriyono, 2010: 57). Media with A4 size can give a lot of space in the media so it will be easier to arrange the layout of writing and picture illustration in the media. Other than that, a lot of space in the media is also used to set the writing and picture illustration so they are proportional and easy for children with autism to understand. The room separator in the media uses black outline so that the children with autism can get the main information and the explanation. It can be done so that children with autism as the media target user can easily conceive and give information. The color contrasts used is light for the background and dark for the material content. The background color used is light blue so it can give stimulation and relaxation effects for the children with autism. Combination of dark
color on the picture illustration and the writing accentuate the main information needed to be acquired and delivered by children with autism.

It is in accordance with the opinion or Smaldino, Lowther, & Russel (2012: 78-87) about visual support in designing media. The basic pattern in picture book media is in accordance with the main development objective and the picture and writing proportion are arranged equally and consistently. The use of color can form suitable contrast so it can make the children with autism focus on the material presented. The use of picture illustration and writing with contrast color make the picture book media has its own attractiveness for children with autism that tend to be visual learner. Generally, the eligibility of the media in term of implementing visual communication theory is considered “Very good” by material and media experts.

6. CONCLUSION

Based on the results of development conducted to create picture book media in form of communication book to help teacher in stimulating and training expressive language skills of children with autism, the characteristics of the picture book media created are a) the media combines the use of writing and picture so the children with autism can communicate using full structured sentence, b) the main parts of the media are cover, personal identity of children with autism, sequence of everyday activities, and the activities the children with autism want and don’t want to do, c) the media is an A4-sized visual media that makes it easier for the children with autism to use and it gives a lot of room for the writing and picture setting in the media, and d) this picture book media is a supporting media used by children with autism in everyday learning with the teacher acting as a guide for the children with autism in using the media.

This picture book media is considered eligible to be used for expressive language skills of children with autism based on the assessments of two material experts and three media experts. It is rated “very good” by the experts while assessing the media completely. This picture book media can help teacher to train expressive language skills of children with autism because the material content can be used as conversation topic starter between teacher and children with autism in class. Combination of picture and writing used in the media can train children with autism to communicate with full structured sentence, so the children with autism don’t have to use body movement as pointing or pulling other people as a form of communication. The combination of writing and picture illustration is considered as the advantage of the media by experts.

7. REFERENCES


