

Developing Digital-Based Language Teaching Model In The Disruptive Era

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ABSTRACT (10PT)

This study was aimed at finding an appropriate digital-based language teaching model for the national language teaching at the lower level classes of primary school using Javanese language. The research was categorized as Research and Development (R & D) study. The data were gathered through (1) surveying for need assessment, (2) surveying for identification of the contrast between the local language which is Javanese language and the national one which is Bahasa, (3) constructing the product draft, digital-based teaching media, macromedia flash, (5) validating product draft, (6) conducting experimental study for testing and validating the product, (7) developing manual book, and (8) conducting product socialization and dissemination. The study was conducted for 2 years in elementary school students in DIY which the students speak Javanese. The data were analyzed using descriptive qualitative method to examine the constructs of Javanese local language and National language, FGD results, interviews, and questionnaires. While the validation of the product was analyzed quantitatively. The research showed the clear descriptions about the relation between local language and national language teaching at school and the contrast between the Javanese and the national language. This study also produced the validated designed model, the digital-based language teaching media, macromedia flash, validated empirically, with $p \leq 0.05$. At the end of the study, the developed model was also socialized and disseminated.

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1. Introduction

In the current era of disruption, there were major changes in many sectors, including the education field. The disruptive era requires people to innovate, think fast, be communicative, collaborative, creative, and practical. This happened in all fields including education. In the field of language education, for example, learning is required to be fun, inspiring, fast, and stimulates critical thinking. The use of effective and efficient information technology for learning is a need in this era.

In Indonesia, local languages are still maintained and used by the community in daily communication and local traditional ceremonies. The language is protected by law. In the Special Province of Yogyakarta (DIY), for example, Javanese is used in communication and daily activities and in traditional ceremonies, such as weddings, 7-month ceremonies, births, and other traditional events.

Grade 1 students of DIY Elementary School, master their local language because from birth they communicate with the language. When they enter school, the language they master is Javanese. This is causing problem in teaching learning process since according to the government regulations, the language of instruction used is the National language namely Bahasa. Teachers must teach learning material in two languages. First with Indonesian, then the same thing is repeated using Javanese. This becomes impractical, learning becomes sluggish and troubles the teacher. A solution is needed to overcome this problem. One way that can be taken is to teach language learning material using direct Javanese. The problem is the need for comparative studies to determine the differences and similarities exist in the two languages.

In accordance with this disruptive era, digital based learning is favored by millennial generations. Therefore, language learning with digital-based media can be developed. In accordance with regulations, it is not permitted in elementary school to carry a hand phone at school. Therefore, the learning media that can be developed are macromedia flash which can be filled with learning material using illustrations of sounds, images and attractive colors. An in-depth study needs to be conducted to discuss some of the above.

In detail, the problems that need to be discussed are regarding to the use of Javanese and National local languages for elementary school students in the early grades in DIY, the contrast between Javanese and Bahasa, the design of the digital-based Bahasa learning model appropriate for elementary students in the beginning class who speak local Javanese language, and the validation of the digital-based Bahasa learning model appropriate for elementary students in the beginning class who speak local Javanese. This template refers to IEEE conference template and tetrahedron_Letters_template by elsevier, modified in MS Word 2007 and saved as a "Word 97-2003 Document" for the PC, provides authors with most of the formatting specifications needed for preparing electronic versions of their papers. All standard paper components have been specified for three reasons: (1) ease of use when formatting individual papers, (2) automatic compliance to electronic requirements that facilitate the concurrent or later production of electronic products, and (3) conformity of style throughout a ELTEJ template. Margins, column widths, line spacing, and type styles are built-in; examples of the type styles are provided throughout this document and are identified in italic type, within parentheses, following the example. Some components, such as multi-leveled equations, graphics, and tables are not prescribed, although the various table text styles are provided. The formatter will need to create these components, incorporating the applicable criteria that follow.

2. Literature review

2.1. The differences in Javanese and Bahasa as the basis for developing language learning media

In accordance with the existing regulations, the official language used at all levels of schooling in Indonesia is Bahasa as a National language (Law on National Education System Article 33 paragraph 2 number 20 of 2003) [4]. These provisions have an impact on the need for mastery of Bahasa well by students at all levels of education. Though the mastery of the language of elementary students at the initial level is the local language. For Yogyakarta, the local language that is mastered is Javanese. Both languages have different characteristics, although basically both are one language group, namely Polynesian Malay [10].

Indonesia has hundreds of local languages, one of which is Javanese. The language is one of the 9 largest languages in Indonesia. Local languages still exist and their existence is protected by law because local languages are the entrance to ethnic culture, local wisdom, and traditional noble values that need to be maintained. An understanding of the contrast between Bahasa and Javanese can help students participate in classroom learning.

Contrastive Linguistics is a part of Linguistics that constructs language with one another in the same period of time. In its development, Contrastive Linguistic theories that use constructive analysis are used for language learning, especially in second or foreign language learning [10]. The basics of Constructive Linguistic theory that pay attention to interference and transfer can be used for learning Bahasa Based on the initial survey, even though Bahasa and Javanese are in one family, namely the Malay language of Western Polynesia, among them, some similarities and differences are found. In terms of phonology, for example, the phoneme /a/ second tribe of the Bahasa will reflect to /e/ in Javanese. Example: word "*santan*" (coconut milk) in Bahasa, be "*santen*" in Javanese, "*pedas*" (hot) be "*pedes*", "*pagar*" (fence) be "*pager*", while "*atap*" (roof) be "*atep*".

In the sentence level, the contrast between the two languages also appears, as in the sentence "*Iki dolanane sapa?*" (Whose toy is this?) in Javanese turns into "*Ini mainannya*

siapa?” in Bahasa. Even though, in good and correct Indonesian, it will become “*Ini mainan siapa?*” The contrast between the two languages can be the basis of Bahasa learning for students who speak the first Javanese language. The contrast can be packaged in the form of interesting media and it can facilitate language learning in elementary classes in the Javanese mother-in-the-beginning class.

2.2. Top down and bottom-up strategies in early language learning

One part of language learning is reading learning. Reading competence is important because reading is a gateway to knowledge. Thus, mastery of reading is the key to one's success in learning, as is the case for beginning grade elementary students.

Reading learning departs from theories about how meaning is obtained from reading activities. There are two types of theories that can be used, namely **top down** and **bottom-up** [2]. In the top down model, the text is understood by using information that the reader already has and analyzing something that is already in the reader's mind to develop meaning and not to understand the meaning of the word. The top down process involves predicting, contextual guessing, image associations, and finding certain markers (finding clues). Based on the description, it appears that this model is suitable for advanced reading learners. Understanding, top-down models start with text, paragraphs, sentences, and vocabulary.

The bottom up model starts from the smallest element of language, namely phonemes and words, sentences, to understanding the text as a whole. The mastery of vocabulary at the basic level is to know the shape and meaning. The bottom up model looks appropriate for students who are learning Indonesian as a second language. With constructive analysis theory, they will learn to recognize the phoneme differences, words, and the structure of the first and second language sentences. Then you can understand the text as a whole. In the framework of making digital-based media for learning reading comprehension of elementary students in the early grades, this model can be chosen [11].

2.3. Digital based media as a language learning model in the disruption age

In language learning, early grade elementary students, vocabulary mastery becomes important [8]. The higher the mastery of vocabulary, the more likely someone is to understand the text they are reading. In addition, the success of beginner readers is also supported by appropriate learning media. In accordance with the theory of Bottom-up reading, the media developed begins with the introduction of letters, words, sentences, and texts. With media, learning will be more alive and the messages of learning will be conveyed better. The media itself can be either print or audiovisual media and its equipment.

The existence of reading learning media contains a number of benefits, such as the learning process is more interesting, interactive, and effective in the use of time. Thus, with interesting media, students' passivity can be minimized because they are actively involved in learning. Learning becomes interesting and not boring.

Computer assisted media are learning aids that utilize computer systems to convey messages directly to students. In computer assisted media, various elements, such as text, graphics, audio, images, motion, and color, can be integrated. Computers can be used in teaching and learning activities [3]. All learning materials can be presented with the help of computer technology [5]. There are several criteria that need to be considered in the selection of computer media, namely the accuracy of learning objectives, support for the content of learning material, ease of obtaining media, teacher skills in using it, and compatibility with students' thinking levels [9]. In addition, the media must be artistic and look good to attract students.

In terms of quality, computer-assisted learning media need to meet several criteria, both in terms of material content, programming design, and display aspects. From the aspect of material content, it can be mentioned, among others, the formulation of clear competency objectives, content of knowledge, information, and attitudes according to unit components, language is easy to understand, there are assignments and exercises, in accordance with competency units, and assessment is in accordance with the instructions easy to understand.

The criteria of the media in terms of software design. These criteria are related to introduction, learner control, presentation of information, providing help, and ending a program [1]. Meanwhile, another experts state that software must facilitate users and can be delivered in various ways [7].

There are various computer-based media models, one of which is Macromedia Flash. In this model media, learning material is included in flash, and the teacher teaches the material with a computer and LCD. Another model is Android-based media. In this model, the subject matter is packaged in a cellphone (HP), then students are guided by a teacher, independent learning with the cellphone. In the initial stage, the teacher teaches using laptop which contains macromedia flash-based learning media. The Android model doesn't seem to be suitable for early grade elementary students since the teacher hasn't allowed students to use their own cellphones.

Computer assisted learning media can be compiled based on local languages, especially for elementary students in the first class who speak the first local language. The results of contrastive analysis of local languages and Indonesian can be used for that [10]. Thus, Bahasa learning media assisted by computers based on local languages, Javanese for example, for elementary students in the beginning class can be arranged. The strategy for preparing a bottom up model can be used for this purpose.

3. Methodology

The Research & Development (R & D) method was used to find effective digital- based learning media in learning Indonesian at the elementary school class in the disruptive era. The study began with survey need assessment of the conditions of learning Bahasa elementary school classes in DIY, then continued with literature review of comparative theories of contrastive languages. The next step was a survey related to Indonesian and Javanese contrastive identification.

For this purpose, a "network system" instrument was used which contained a vocabulary of 500 with Indonesian gloss translated into Javanese. The informants were 27 people, consisting of men and women, aged 40-60 years, living in the area for two generations, elementary-junior high school education, employment in farming, entrepreneurship, or housewives, complete talking tools, and rarely traveling to outside the area used for that. The data were analyzed descriptively qualitatively. The study sites were in Bantul, Sleman and Gunungkidul Districts, Special Region of Yogyakarta.

Based on the results of Javanese and Bahasa contrastive identification, computer-based language learning media were developed. The first step of development is to examine the theory followed by the development of media design. Furthermore, the media design was conducted by Focus Group Discussion (FGD) in order to validate the design of models developed both by experts and by users. The expert consists of computer media experts, material experts, and elementary learning experts, while users are elementary school teachers. Media validation was developed through experimental studies.

4. Findings

Based on the analysis carried out, several contrasts were found between Indonesian and Javanese. The contrast of the two languages is as follows. The use of Javanese and Bahasa in the lower level of elementary school students in Yogyakarta. The results of the need assessment study in three elementary schools in Yogyakarta, it was revealed that Bahasa could not be used fully in learning in schools. The teacher conducts learning in Indonesian then repeats it in Javanese. Kalidadap Public Elementary School, Imogiri, Bantul, for example, most (90%), both students and teachers use Javanese in interacting in the learning process. This condition illustrates that Indonesian has not been able to be used as the language of instruction in the school.

Based on interviews with the teacher, the results were obtained that the teacher deliberately focused more on the language used in the learning process, Javanese. That is the reason not to let the Yogyakarta people not speak Javanese.

Similar conditions also occur at SD Negeri Wiloso, Panggang, Gunung Kidul. The results of the observation and interviews at SD Negeri Wiloso revealed that the teacher used Bahasa which was sometimes mixed with Javanese. Students can understand Indonesian, but students' answers use a mixture of Bahasa and Javanese or Bahasa sentences, but the structure is Javanese.

Likewise, what happened at SD Negeri Rejosari, Tanjungsari, Gunung Kidul. At the school, the teacher has used Indonesian in the learning process. Students already understand Indonesian, but have not been able to compose sentences in Indonesian correctly. In addition, the answers of students still use mixed languages between Bahasa and Javanese.

Based on the conditions above, it can be concluded that the use of Indonesian as the language of instruction in the early grade elementary schools is still experiencing problems. Indonesian is not well understood by students. Therefore, to help realize the government's ideals about Bahasa as the language of instruction in schools, we need a learning media that can be used as a Javanese translator into Indonesian.

Contrary between Javanese and Bahasa. The second phoneme /a/ tribe of Indonesian becomes /e/ weak in Javanese. This can be seen in the word "pagar" in Indonesian to become a "pager" in Javanese. This also applies to "santan" which turns into "santen", "atap" turns into "atep", "pagar" turns into "pager", "asap" turns into "asep", "sambal" turns into "sambel", or "arang" turns into "areng".

The phoneme /a/ second syllable contrast in Indonesian being phoneme /e/ weak in the Javanese language is quite numerous. It happens regularly. Other examples can be mentioned, such as "deras" (heavy rain) in Bahasa turns into "deres" (Javanese), "matang" (cooked/ripe) turns into "mateng", "cepat" (fast) turns into "cepet", and "hangat" (warm) turns into "anget".

The phoneme h- of the initial position in Bahasa word is eliminated in Javanese. Based on the data, we found regular sound reflexes from Indonesian into Javanese, which is the phoneme /h/ in initial position turns into /0/ zero in Javanese. As an example, "hidung" (nose) turns into "irung", "hati" (liver/feeling) turns into "ati", "hujan" (rain) turns into "udan", "hangat" turns into "anget". So does "hutang" turns into "utang" and "halus" turns into "alus".

Phonem /b/ in the initial word of Bahasa turns into /w/ or fixed /b/. For example "bulu" (feather) turns into "wulu", "bungkus" (wrapped) turns into "wungkus", "beras" (rice) turns into "wos", "cobek" (mortar) turns into "cowek", "bulan" (moon/ month) turns into "wulan", "abu" (ash) turns into "awu", "batu" (stone) turns into "watu", "balas" (reply) turns into "wales", "balik" (turn around/ reversed) turns into "walik", "basuh" (wash) turns into "wasuh". Besides /b/ being

/w/, /b/ also can be /b/, as in "bulan" becomes "bulan" and can also be "wulan".

Phonem /ai/ in Bahasa turns into /e/ in Javanese. For example, "gadai" (pawn) turns into "gade", "kedelai" (soy bean) turns into "dele", "serai" (lemon grass) turns into "sere", "balai" (hall) turns into "bale", dan "gulai" (curry) turns into "gule".

Phonem /au/ in Bahasa turns into /o/ in Javanese. For example, "hijau" (green) turns into "ijo", "pisau" (knife) turns into "peso", "danau" (lake) turns into "dano", "jauh" (far) turns into "doh", and "kerbau" (buffalo) turns into "kebo".

Phonem /e/ at the initial word of Bahasa turns into 0 (zero) in Javanese. For example, "ketela" (cassava) turns into "tela", "kecambah" (sprout) turns into "cambah", "selasih" (basil) turns into "tlasih", "kerudung" (veil) turns into "kudung", "keranjang" (basket) turns into "kranjang", "kerupuk" (chips) turns into "krupuk", "kedondong" (kind of local fruits called kedondong) turns into "dondong".

Bahasa and Javanese languages are part of the West Austronesian language family following RGH Sound Law proposed by Van Der Tuuk [6]. For example, "kapur" (chalk) turns into "apu". "ratus" (hundred) turns into "atus", "rusuk" (lateral) turns into "usuk", "turut" (go along) turns into "tut"

Bahasa and Javanese as the West Polynesian family of languages follow RDL's Sound Law For example. "empedu" (gall) turns into "peru", "padi" (paddy) turns into "pari", "tidur" (sleep) turns into "turu", and "udang" (shrimp) turns into "urang".

The quality of digital-based Bahasa learning model for L1 javanese elementary students. The design of the model starts from (1) gathering initial information through literature studies, (2) planning material development: setting competency standards, basic competency mapping, preparing subject matter, and preparing assessment forms, (3) developing program design: writing cauwear, design each frame, choose programming language, collect and produce related materials and (4) developing initial product.

Through the FGD and questionnaire, the model design was validated by experts in media, material, and learning. The FGD results showed that the media developed is quite good, with an average questionnaire of 4.80. The validation from the teacher who was joined in the teacher training also showed the same thing, the model design is categorized as good.

In accordance with the design, there are two computer applications that seem to be suitable for that purpose, namely macromedia flash and Android-based media. However, for early grade elementary school students, expert FGDs and teachers suggested choosing macromedia flash because elementary students had not allowed to bring HP to school.

Experimental studies were conducted to determine the quality of the media model developed. The study was conducted in elementary schools designated in Bantul, Yogyakarta. Pretest was conducted before developed media applied in the teaching learning process. After learning, a post-test was done. The results of the experimental study show that there is a significant difference in learning outcomes between the pretest and the posttest. Based on the t-test conducted through the SPSS program, it is known that the resulting model is effective, with the significant value $p \leq 0.05$.

The results of need assessment explain that bahasa is only used by the teacher in learning in some times. Students have not been able to understand well Bahasa used by the teacher. The teacher must repeat the learning using the Javanese. This is understandable considering the daily language of students is Javanese. In addition, the teacher believes that Javanese needs to be maintained considering the language turns into the pride of Yogyakarta community which needs to be maintained, not only as a daily language, but also turns into the cultural language and preservation of Javanese customs which turns into the pride of Yogyakarta community. Thus, the use of the Javanese language in learning for elementary students in the beginning class needs to be continued.

Therefore, there is a need for new ways of language learning that accommodate the continuity of Javanese language, but learning Bahasa to run well. One way that can be taken is learning that uses media that contrast Javanese and Bahasa. With interesting media, computer-based, there are sounds, pictures, pleasant colors. Students will be easier and faster to learn Bahasa.

The results of a survey on the identification of contrasts between Javanese and Bahasa showed that both languages have differences even though they are in a single language group, namely Malay Western Polynesia. Based on the contrastive characteristics of the two languages, Javanese language learning media based on Javanese can be prepared. The media is considered suitable for beginner learners who speak Javanese (L1) language. By following the contrast in both languages, L1 and L2, learners are easier to learn L2, which in this case is Bahasa. This is in accordance with the aim of studying Contrastive Comparative Linguistics, one of which is for language learning. Sound reflexes that occur in contrast between the two languages occur regularly and it turns into something useful for language learning.

Regarding to the computer assisted media, there are possibilities for school facilities, such as electricity, computer and LCD capacities to turn into obstacles in their implementation. In Yogyakarta, this might not have happened, but the condition of other provinces is unknown. The results of the FGD on the design of the macromedia flash media for Bahasa learning for elementary schools in general were good and acceptable. However, there needs to be a small revision regarding the size of the image, the color of the letters, and the terms used. Media experts argue that macromedia flash-based media is more suitable for elementary students than for Android-based media. This is understandable considering elementary school students have not been able to bring cellphones to school. Material experts and learning experts are of the same opinion, the design of media is suitable for early elementary school students. This is in line with the opinions of supervisors, teachers, and principals. i.e. the design that was prepared was quite good and was expected to be applied in the classroom. Thus, the design of macromedia flash-based Bahasa learning media for elementary schools at the initial level can be followed up.

FGD results on the design of macromedia flash media. The learning media developed turned out to have been well validated, their effectiveness in classroom learning proved. The teacher welcomes the presence of the media because it really helps the students to learn. Usually the teacher teaches loudly because elementary school students usually like to take it, now it is only necessary to pick the computer learning button that can run well, encourage and delight students because there are learning materials accompanied by pictures, musical accompaniment, animal sounds, and full attractive colors.

5. Discussion

After following the description above, it can be concluded that experimental studies were developed. The study was conducted in elementary schools designated in Bantul, Yogyakarta, applied in the teaching learning process. After learning, a post-test was done. The results of the experimental study show that there is a significant difference in learning outcomes between the pretest and the posttest. Based on the SPSS program, it is known that the resulting model is effective, with the significant value $p \leq 0.05$. Bahasa in elementary schools in the early grades in Yogyakarta, has not been used fully in classroom learning the beginning. Indonesian is only used occasionally because students cannot understand Indonesian well. Learning is done in two languages, namely Indonesian and Javanese. As a result, absorption of learning is hampered and learning outcomes are not optimal.

Bahasa and Javanese have similarities and differences. The contrast between the two languages includes several things, which in this study are mostly on the Phonem level. The contrasts between the two languages can be used for beginner to learn Bahasa using their Javanese.

The design of the macromedia flash-based learning media design for learning Indonesian at the elementary school beginning class has been validated by experts and users. As such, the plan can be followed up into real media after going through field trials.

The results of field trials through experimental studies revealed that the developed media proved effective. This shows that a digital-based language learning model can help students in language learning in this disruptive era.

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