Research Article doi: 10.12973/eu-jer.8.4.1137

European Journal of Educational Research
Volume 8, Issue 4, 1137 - 1143.
ISSN: 2165-8714
http://www.eu-jer.com/

Development of E-Modules Based on Local Wisdom in Central Learning Model at Kindergartens in Jambi City

Hendra Sofyan*
Universitas Jambi, INDONESIA

Evita Anggereini
Universitas Jambi, INDONESIA

Jamiatul Saadiah
Universitas Jambi, INDONESIA

Received: June 1, 2019 ▪ Revised: September 25, 2019 ▪ Accepted: October 4, 2019

Abstract: This study aims to produce e-modules based on valid and appropriate local wisdom in the Central Learning Model at kindergartens in Jambi. The product of this research is realized in the form of an electronic module using 3D Pageflip Professional software to determine the feasibility of e-modules as well as knowing the teacher's response to e-modules based on local wisdom in Central Learning Model at kindergartens in Jambi city. The type of this research is developing research that refers to the ADDIE model. After the e-learning module was created, the e-learning module was validated by the expert. Validation was carried out by two material experts and an e-learning module expert until the e-learning module is declared feasible. After the e-learning module has been validated and revised, a trial was then conducted by the respondent to see the perception results. The developed e-modules are stated in the valid category based on the results of the validation of the e-module material and the e-module design which obtains excellent criteria. The results of the questionnaire perception of 62 respondents (lecturers, teachers and students) on e-modules showed an average rate of 83% which is included in the excellent category. These results indicate that the e-module developed in this study is very feasible to use. E-Modules developed in this study are highly recommended for use by Lecturers, Students, and Teachers in the major of Early Childhood Education.

Keywords: *Development of e-modules, central learning model, local wisdom.*

To cite this article: Sofyan, H., Anggereini, E., & Saadiah, J. (2019). Development of e-modules based on local wisdom in central learning model at kindergartens in Jambi city. *European Journal of Educational Research, 8*(4), 1137-1143. http://doi.org/10.12973/eu-jer.8.4.1137

Introduction

According to Sofyan (2014), early age is the most important and basic early period in the range of growth and development of human life. This period is marked by various important periods which are fundamental in the next life of children until the final period of their development. To support the growth of children, education is needed for early childhood.

Early Childhood Education (PAUD or Pendidikan Anak Usia Dini) is intended to form optimal growth and development of children so that they have the readiness to enter further education (Black et al., 2017). As stated in Law Indonesian Republic Number 20 concerning the national education system article 1 that: early childhood education is a coaching effort aimed at children from birth to the age of eight years, which is carried out through providing educational stimuli to shape physical and spiritual growth and development so that children have a readiness to enter further education (Undang-Undang, 2003). For this reason, learning for children of this age should be held professionally to help the process of early childhood development.

According to Nurani and Sujiono (2010), education for children at an early age is learning through playing. Early childhood education (PAUD) is directed to facilitate children's growth and development in a healthy and optimal manner in accordance with the values, norms and expectations of the community (Latif, 2016). Implementation of the learning process in kindergartens (TK or Taman Kanak-Kanak) throughout Indonesia using a variety of models, one of which is the learning center models.

The learning center model is a play zone or area that is equipped with a set of play tools that serve as the environmental footing needed to support child development (Luluk, 2014). In connection with this matter, Central

* **Corresponding author:**
Hendra Sofyan, Early Childhood Education Study Program, Faculty of Teacher Training and Educational Science, Jambi University, Indonesia.
✉ hendrasofyanpaud@gmail.com

Learning Model should always be associated with the surrounding environment such as culture, regional excellence, regional potential and others that are around or can be said to be related to local wisdom.

Local wisdom is a set of plans and arrangements regarding the objectives and learning materials compiled by the education unit in accordance with the diversity, regional potential, regional characteristics, regional excellence, regional needs, and the environment respectively as well as the ways used as guidelines for organizing learning activities to achieve certain educational goals (Kurniawati, Wahyuni, & Putra, 2017; Patta, 2016).

But to implement learning activities in the learning center model that is associated with local wisdom, the teacher must prepare all learning tools, especially the daily activity plan (RKH / RPPH). The learning module is specially created to make it easier for teachers to prepare their learning tools. One way to facilitate educators in delivering learning material is to use learning modules. By utilizing current technological advances, we can find modules in electronic form (e-modules) that are specifically designed according to learning material and can be used easily by educators.

An electronic module can be interpreted as an electronic-based book which is written with the aim that students can study independently without or with the guidance of the teacher. Modules as teaching and learning program activities that can be learned by students with minimal assistance from the supervising teacher, including planning the objectives to be clearly achieved, provision of subject matter, tools needed in learning, tools for conducting assessments as ways to measure student success in completing lessons (Indonesia, Departemen Pendidikan, & Pusat, 2008).

Central approach is PAUD implementation approach which focuses on kids in its learning process the centre is game and kids in the circle by using four kinds of scaffolding to support kids' development, such as (1) scaffolding of game environment; (2) scaffolding before the game; (3) scaffolding during the game; and (4) scaffolding after the game (Latif, 2016).

In developing central, according to Jackman, the curriculum of kids' development can be developed and enlarged through Language and literacy, literature, Math, science, social studies, art, sensory centres, music and movement, puppets, and dramatic play (Jackman, Beaver, & Wyatt, 2014).

The learning emphasises on the support for interest development, potency, and strength of the kids. Playing is considered as the work until kids are given opportunities to start from development until finishing the task and finish the work "start and finish" such as beam centre, micro role-play centre, big role-play centre, faith and belief centre, Art centre, preparation centre, and natural materials centre (Phelps, 2006).

Nowadays, local wisdom gets special attention from various stakeholders starting from the policy issued by the province and subdistrict which is then implemented through the school such as The Authority of the provincial government, according to PP 25 in 2000 about curriculum development aiming for digging the potency of certain regions optimally. One of the effective ways is that making local wisdom to be a subject at school (Sagala, 2010), the local subject can be developed later and will become the particular trait of local potency, local superiority, as mentioned by the following expert. Local wisdom is curricular activity to obtain competence in line with local characteristics, local potency, and prospects of local development included local superiority which its materials can be grouped into the existed subject (Jamaris, 2013).

However, in fact, there are still many educators who have not recognized the module in the electronic version. From the results of a survey conducted by researcher when searching for subjects/respondents in this study in the Jambi City area, on average the teachers assume that electronic modules are still rarely found and are rarely used, especially those related to local wisdom. From the results of interviews conducted the electronic module was considered to be unfamiliar, and he had never met. Besides, learning related to local cultural wisdom has not yet been implemented because the government plans to issue new regulations to implement learning related to local wisdom / local cultural content of Jambi itself in the next new school year (2019/2020). The purpose of this study is to produce an e-module based on valid local wisdom that is valid for Central Learning Model in kindergartens in the city of Jambi. This research product is realized in the form of an electronic module using *3D Pageflip Professional software.*

Research Method

Development Style

The research carried out is developing research. According to Gall, Borg, and Gall (1996), development research is a process used to develop and validate an educational product. The research steps or development process consists of reviewing the research findings of the product being developed, developing the product based on these findings, testing the product according to the setting in which the product will be used, revising the results of the field test. The development model used in developing this learning media is ADDIE *(analysis, design, development, implementation, and evaluation)*.

Based on the development model adapted from the ADDIE model (Branch, 2009), the five stages in this study are; in the Analysis stage, the researcher conducts analysis and thoughts about e-module products by identifying curricula, programs, themes, aspects of child development, and e-module products that are appropriate to the target learners. In

the Design stage, researcher designs new product development tools (e-modules). After the e-learning module has been created, the e-module will be validated by media experts and material experts. Validation is done to determine the validity of the e-module. If a weakness is found, the product must be revised. Validation data obtained are quantitative and qualitative data. After being validated by material experts and media experts, the e-module will then be applied in real situations with real teaching. The questionnaire used was a closed questionnaire which was used to assess aspects of the e-module as a whole by respondents.

Research Sample

E-modules, based on local wisdom that has been validated by the validator, were tested on the subject of the Group test as users of the product that had been developed. The validators involved were two experts from Jambi University. An expert team validation assessment comes from two validators of one material expert and one media expert. Each of the experts provides an assessment of the material content and media forms in electronic modules. Besides, as many as 62 respondents were included in this study. The respondents consisted of 3 Lecturers if Early Childhood Education at Jambi University, 25 Kindergarten Teachers in Jambi City, and 34 Students of Early Childhood Education at Jambi University.

Instruments and Data Collection Techniques

In this development research, the data collection instrument used was an open ended questions. open ended questions given to module design experts and material experts at the time of validation by experts. Data collection instruments used for product trials were given to lecturers, teachers and students to see their perceptions in the form of open and closed questionnaires.

In this study, there were three instruments used, namely instruments for media validators, material validators and instruments for users (students, teachers and lecturers).The questionnaire was given based on four indicators to the material validator, namely the suitability of the material with the syllabus, content and material aspects, learning aspects and language aspects. The questionnaire was given to the media validator based on four indicators namely the design of the cover and size of the module, the design of images and animation, video and audio according to the e-module, font type and colour combination with the background. The questionnaire indicators provided for students, teachers and lecturers are electronic module display, written clarity, ease of use, the interest of drawings, animations and videos as well as the suitability of the material with the learning objectives.

Data Analysis Techniques

Analysis of this research data was in the form of a validation questionnaire and user response questionnaire, namely as follows:

1) Analyzing the results of the validation from the initial validation of the product until the product can be stated to be feasible (good) by the material expert and media design expert.
2) Calculating the average percentage of positive responses shown from the questionnaire. According to Yamasari (2010) calculates the percentage score of each question, using the formula:

$$RS = \frac{f}{n} \times 100\%$$

Description:
RS = Percentage of teacher responses,
f = number of scores for each sub-variable,
n = maximum number of scores

From the results of these calculations, the perception of validators, students, teachers and lecturers on the validity and feasibility of local wisdom-based electronic module products tested can be concluded from the criteria (excellent, good, poor, very poor) which has the highest percentage (Ramadhan, Mardapi, Prasetyo, & Utomo, 2019; Ramadhan, Mardapi, Sahabuddin, & Sumiharsono, 2019). More specific criteria can be seen in the following Table 1.

Table 1. Guidelines for respondent response conventions

Percentage of obtained score (%)	Effectiveness
X > 76	Excellent
50 < X ≤ 75	Good
25 < X ≤ 50	Poor
X≤ 25	Very Poor

Results and Discussion

Research from the development of an electronic module based on local wisdom in this center learning model results obtained in the form of (1) Electronic Module (e-module) based on local wisdom on the center learning model at Kindergartens in Jambi City. (2) Evaluation of the validation of a team of experts from two validators, namely material expert and media expert on the contents of the material in the electronic module. (3) Assessment of 62 respondents consisting of Teachers, Lecturers and Students in the major of Early Childhood Education. The development of electronic modules in the learning center model in kindergarten was developed with the ADDIE Model which consists of 5 stages.

Analysis Stage

In the analysis process, it was concluded that in making the concept of a learning center model, teachers need guidance in the making of the lesson plan. In making lesson plans, teachers have difficulty because many Central Learning Model must adjust to the theme and that there is still a lack of learning based on local wisdom, especially in the city of Jambi. Therefore, the researcher then provides the goal of this research is to make e-modules that contain instructions in Central Learning Model.

Design Stage

In the design stage, researcher-made work plans and things that are needed. The draft product specifications made are;

- Products developed in the form of learning media that can be used as electronic-based learning resources;
- The product developed is called the local wisdom-based electronic module in kindergarten. The material presented consisted of Module 1 Local Wisdom and Module 2 Center Learning Models, Summary, Formative Tests, Reference Lists, Key Answers and Authors' Bio;
- Product display in the form of electronic modules is in the form of 3 Dimensions (3D)
- The product uses images, videos and music based on local wisdom;
- The resulting product can be used via laptops and androids, but for Android, it can be used when downloading 3D Reader first.

Before the process of making a product, the first thing to do is look for material that will be presented on an electronic module. The stages are carried out to produce a product that can be used as a learning guide, namely: 1) Designing a storyboard, that is the concept or delivery of ideas or initial sketch ideas from making electronic modules. 2) Designing cover and background designs using *Corel Draw software*; 3) Packing material, images, covers, backgrounds into the product using *Microsoft PowerPoint software* and directly adjust the size of the writing, the colour of the writing, the layout and adjust the size of the pictures and videos. 4) Adding instrument information and background to the video using the *Kine Master software*; 5) Converting product designs created using *PowerPoint software* to pdf format; 6) Importing the product into *3D PageFlip Professional software.* 7) Adding videos on the material pages that have been provided; 8) Adding links to video and image charts on the table of contents. 9) Adding meaningful animation to the page provided; 10) Saving the file in pfprj (publish) format.

Development Stage

At the development stage, the e-module was validated by one media design validator and one material validator. The media stated in the category are eligible to be tested at the implementation stage because the material validation obtained a value of 44 (80%), then this shows excellent criteria. A more specific analysis based on the indicators, can be seen in the following Table 2.

Table 2. Results of material validation

Indicator of material validation	Percentage (%)	Category
The suitability of the material with the syllabus	85	excellent
Content and material aspects	80	excellent
Learning aspects	75	Good
Language aspects	80	excellent
Average	80	excellent

Likewise, with the validation of media design which scored 44 (81,25%), this shows excellent criteria. A more specific analysis based on the indicators, can be seen in the following Table 3.

Table 3. Results of media validation

Indicator of media validation	Percentage (%)	Category
The design of the cover and size of the module	75	Good
The design of images and animation	80	excellent
Video and audio according to the e-module	85	excellent
Font type and colour combination with the background	85	excellent
Average	81.25	excellent

Thus the results of e-module validation have been said to be feasible. In addition, the results of the review by experts are replacing the cover by adding Jambi batik to the background, as well as adding other Jambi icons which are depicted "Gentala Arasyi" (A bridge with a tower that became a city Icon Jambi) and the house of Jambi, at the bottom of the place there are views on the school, depicting the early childhood education with the local wisdom of Jambi. More specifics can be seen in Figure 1 follows.

Figure 1. Display of e-modules based on local wisdom in the Central Learning Model

Implementation and Evaluation Stage

The implementation stage and the evaluation stage were carried out simultaneously. Media that have been developed then tried out to respondents consisting of Teachers and Lecturers and Students of Early Childhood Education at Jambi University. In the evaluation stage, the media is assessed by formative and summative evaluation. A formative evaluation was carried out at each stage for e-module improvement (qualitatively) while summative evaluation was done to determine the perceptions of the respondents.

The results of 62 respondents who received the perception questionnaire and used the e-module consisting of 3 Lecturers of Early Childhood Education at Jambi University, 25 Kindergarten Teachers in Jambi City, and 34 Students of Early Childhood Education at Jambi University, obtained the average response results which is 83%. More specific results can be seen in the following Table 4.

Table 4. Results of respondents' responses to the e-module

Indicator of Instrument	Student		Teacher		Lecturer	
	Percentage (%)	Category	Percentage (%)	Category	Percentage (%)	Category
Electronic module display	80	excellent	80	excellent	70	good
Written clarity	90	excellent	85	excellent	85	excellent
Ease of use	80	excellent	85	excellent	80	excellent
The interest of drawings, animations and videos	85	excellent	90	excellent	80	excellent
The suitability of the material with the learning objectives	85	excellent	90	excellent	85	excellent
Average	**84**	**excellent**	**86**	**excellent**	**80**	**excellent**

From the results of the above data in this study, the e-module based on local wisdom in Central Learning Model can be said to be feasible. This can be seen from the results of validation and the results of respondents' perception questionnaires, which showed an average score of 83% where this score is included in the excellent category.

According to research conducted by Jazariyah (2017) with the title Development of Family-Based Early Childhood Education Module for Improving Parenting Skills in the Amanah Bunda Play Group, it is found that the product developed is suitable for use as an independent learning media that can be used by parents. This is based on the average score of the whole validator which in this case is the media expert, material expert, colleague and educator where the score obtained is 4.53 and is in the "excellent" category.

Utilization of supporting learning materials such as comic media and local wisdom can improve the implementation of the learning process and motivate students. Supporting teaching materials such as comics, modules or books can be used as a means for teachers to optimize learning for students (Kurniawati et al., 2017). Waridah and Aman (2015) explained that learning experiences in schools that are relevant to the lives of students would help students solve problems encountered in daily life and can provide them with learning about how to socialize with the community. The findings in this study are also in line with the results of Rufii (2015) which explain if learning using modules can encourage student learning outcomes. Learning using e-modules as supporting teaching materials in the learning process aims to facilitate teachers in carrying out teaching and learning activities.
The effectiveness of this product is also supported by the local wisdom approach used in composing e-modules. The environment around the students contributes to the development of students ' developmental aspects, skills, knowledge, behaviours (Prochner, 2015). Learning by incorporating local wisdom can maintain environmental sensitivity with local communities, and this will last a long time. In addition to establishing awareness of knowledge and action, the local context was developed through local history, geography, ecology. The inhabitants can be used as thematic areas of learning (Smith & Williams, 1999).

Conclusion

The novelty of the results of this research takes the form of an electronic module based on local wisdom that contains the center learning model. The developed e-modules are stated in the valid category and can be tested at the implementation stage. These results are based on the validation of the e-module material and e-module design, which obtains excellent criteria. Thus the e-modules that have been developed are said to be valid. The results of the questionnaire perception of 62 respondents to the e-module showed an average rate of 83% which is in the excellent category. These results indicate that the e-module developed in this study is very feasible to use. The E-Modules developed in this study are highly recommended for use by PG-PAUD Lecturers, Students, and Teachers. Besides, this e-module has been designed in accordance with the 2013 curriculum that is applicable in Indonesia. However, testing of the products developed in this study is still limited, both the material and the sample used. It is hoped that in future more extensive and extensive research can be carried out.

From these determinations, it is expected that PAUD Lecturers, PAUD Teachers and PAUD Students can find out, understand, and implement Area learning models, Center learning and evolution-based group learning models through environment and thematic approaches to improve the development of all facets of early childhood by utilizing books references that have been produced by researchers. For the further researcher, make the electronic module design as interesting as possible and make it fuller than what has been lived. In this inquiry, testing for experiment and class action research (PTK) has not heretofore been conducted, it is safer than the next field can use type of experiment research or class action research (PTK) to encounter out the users learning result of electronic module local wisdom based on the area learning model in Jambi City Kindergarten.

References

Black, M. M., Walker, S. P., Fernald, L. C., Andersen, C. T., DiGirolamo, A. M., Lu, C., . . . Shiffman, J. (2017). Early childhood development coming of age: science through the life course. *The Lancet, 389*(10064), 77-90.

Branch, R. M. (2009). *Instructional design: The ADDIE approach* (Vol. 722). Newyork, NY: Springer Science & Business Media.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction*. London, England: Longman Publishing.

Indonesia, Departemen Pendidikan, N., & Pusat, B. (2008). *Kamus besar Bahasa Indonesia* [Great dictionary of Bahasa Indonesia]. Jakarta, Indonesia: Gramedia Pustaka Utama.

Jackman, H., Beaver, N., & Wyatt, S. (2014). *Early education curriculum: A child's connection to the world*. Boston, MA: Cengage Learning.

Jamaris, M. (2013). *Orientasi baru dalam psikologi pendidikan* [New orientation in educational psychology]. Bogor, Indonesia: Ghalia Indonesia.

Jazariyah. (2017). Pengembangan PAUD berbasis keluarga untuk meningkatkan ketrampilan pengasuhan [Family-based PAUD development to improve parenting skills]. *Al-Hikmah: Indonesian Journal of Early Childhood Islamic Education, 1*(1), 1-24.

Kurniawati, A. A., Wahyuni, S., & Putra, P. D. (2017). Utilizing of comic and jember's local wisdom as integrated science learning materials. *International Journal of Social Science and Humanity, 7*(1), 47-50.

Latif, M. (2016). *Orientasi baru pendidikan anak usia dini teori & aplikasi* [New orientation education early childhood theory & application]: Jakarta, Indonesia: Prenada Media.

Luluk, A. (2014). *Perencanaan pembelajaran PAUD* [PAUD learning planning]. Bandung, Indonesia: PT Rosdakarya.

Nurani, Y., & Sujiono, B. (2010). *Bermain kreatif berbasis kecerdasan jamak* [Creative play based on plural intelligence]. Jakarta, Indonesia: PT. Indeks.

Patta, R. (2016). *Membumikan kearifan lokal menuju kemandirian ekonomi* [Inaugurated local wisdom towards economic independence]: Makassar, Indonesia: Sah Media.

Phelps, P. (2006). *Beyond centers and circle time: Scaffolding and assessing the play of young children*. Tallahassee, FL: The Creative Center for Childhood Research and Training.

Prochner, L. (2015). The history of kindergarten as new education: Examples from the United States and Canada, 1890–1920 *The Development of Early Childhood Education in Europe and North America* (pp. 289-308): Palgrave Macmillan, London: Springer.

Ramadhan, S., Mardapi, D., Prasetyo, Z. K., & Utomo, H. B. (2019). The development of an instrument to measure the higher order thinking skill in Physics. *European Journal of Educational Research, 8*(3), 743-751.

Ramadhan, S., Mardapi, D., Sahabuddin, C., & Sumiharsono, R. (2019). The estimation of standard error measurement of Physics final examination at senior high schools in Bima Regency Indonesia. *Universal Journal of Educational Research, 7*(7), 1590-1594.

Rufii, R. (2015). Developing module on constructivist learning strategies to promote students' independence and performance. *International Journal of Education, 7*(1), 18-28.

Sagala, S. (2010). *Konsep dan makna pembelajaran* [Concepts and meanings of learning]. Bandung, Indonesia: Alfabeta.

Smith, G. A., & Williams, D. R. (1999). *Ecological education in action: On weaving education, culture, and the environment*. Albany, NY: SUNY Press.

Sofyan, H. (2014). *Perkembangan anak usia dini dan cara praktis peningkatannya* [Early childhood development and practical ways to improve]. Jakarta, Indonesia: Infomedika.

Undang-Undang, R. (2003). Nomor 20 tentang sistem pendidikan nasional [National education system]. Jakarta, Indonesia: Sekneg RI.

Waridah, & Aman. (2015). Pengembangan perangkat pembelajaran tematik-integratif tema menghargai jasa pahlawan berbasis sosiokultural di sekolah dasar [The development of theme-Integrative learning devices respects the services of sociocultural-based heroes in elementary schools]. *Jurnal Prima Edukasia, 3*(2), 213-226.

Yamasari, Y. (2010). *Pengembangan media pembelajaran matematika berbasis ICT yang berkualitas* [Development of quality ICT-based Mathematics learning media]. Paper presented at the Seminar Nasional Pascasarjana X-ITS. FMIPA Unesa, Surabaya, Indonesia.