LOCAL CONTENT ADIWIYATA CURRICULUM AND RESPONSIVE WEB-BASED MITIGATION

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Article Info	Abstract
	This research is conducted to fill the absence of guidance on Adiwiyata curriculum based on local wisdom and mitigation through the integration of material into the syllabus and lesson plans implementation in elementary schools. It aims to produce an elementary curriculum that can be accessed through responsive web as an effort to realize schools that responsible for environmental management and protection and also know how to mitigate disasters. The type of this research is model development using ADDIE model. Sample of respondents are first and second grade teachers, while subjects of trial are 30 students of SD Negeri 5 Palu City. Data are taken from observations, interviews, and questionnaires with the instruments of validation sheets, response questionnaires, and environmental care instruments. The research results show that: 1) curriculum validation of content and product appearance is in the good category, 2) the guidance is practical and effective to use, and 3) it is useful for realizing environmental care and introducing regional culture and art. The development of this curriculum is feasible and can increase the environmental awareness by utilizing natural materials and waste as learning media.

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INTRODUCTION

Curriculum is the heart of school which aligned its development with challenges ahead (Agustin & Puro, 2016) and a form of an experiential activity for students to have (Panikar, 2015). Efforts to preserve the environment can be done by increasing community awareness, one of which is through education (Syamsurijal, Mulyadi, Syahrul, Mappaloteng, & Dirawan, 2016). Creating school as a pleasant place to learn can make students responsible for saving the environment and maintaining the sustainable development.(Meilinda, Prayitno, & Karyanto, 2018) Actualizing the awareness and living harmoniously with environment is carried out by utilizing the environment as a medium of learning (Macneil et al., 2009).

Alawiyah (2015) stated that the curriculum is a set of plans and arrangements regarding the purpose, content, and teaching materials and methods used to achieve certain educational goals. Teachers must be involved in curriculum development because they know everything related to the learning process.

Values of local wisdom existed around school area and students are integrated into learning process (Maryono, 2016).

Bakhtiar (2016) stated that environmental curriculum development based on local wisdom in elementary school by the way of integrating environmental problems will change the attitudes and behavior of students. Environmental problems emerged as the result of physical development carried out by humans in fulfilling their needs and their behaviors which put no attention to the environment (Afandi, 2016).

Elementary schools are expected to play a role in environmental management by teaching students from an early age to have a good and correct understanding about environment (Sumarmi, 2008).

Result from initial visit showed the absence of Adiwiyata curriculum as a reference for implementing the program, as well as all subjects were not yet integrated into environmental education, local content and mitigation. One of the lokal wisdoms of the Kaili tribe of Central Sulawesi is the typical Kaledo food, head cover (Sampoulu/Siga) with donggala motif, and Pokambu dance. Considering the impact of disaster, mitigation needs to be applied in the school environment by means of preparedness, early warning and trauma healing. . This is the reason of why curriculum of local content Adiwiyata and mitigation needs to be developed in which its guidance book and files can be accessed through responsive web.

Teaching local content (mulok) to students of early grades is a very important thing in education (Adilah & Saputra, 2013). Research of Bentri (2017) stated that equipping students systematically and broadly with various knowledge, attitudes/values, and basic skills can minimize the risk of earthquakes through disaster-based local content models in elementary schools. It is in line with a research by Agung (2015) who stated that local wisdom with noble values must always be inherent in the soul of every person who lives in society, nation and state. A good solution to realize environmental care and awareness is done by integrating environmental education, local content and mitigation into school curriculum through Adiwiyata school program (Baharudin, 2017).

This study aims to produce guidance in the form of local wisdom-based Adiwiyata curriculum and mitigation through the integration of material into syllabus and lesson plans in elementary schools to realize environmental care and awareness among school residents, especially students. It is also to revive local culture through regional dances and games and as a reference for realizing environment care and awareness among school community in accordance with national education objectives where the curriculum is adjusted to the specificity, condition and potential of the region, education units, and students (Julianto, Haryono, 2017).

The foundation of Adiwiyata curriculum development considers local excellence through mulok, so that it can show the characteristics of a school that begins with creating a school vision and mission (Wendie Razif, 2013).

METHODS

This research develops two things: 1) development model, 2) development procedures

and model effectiveness by using 5R Adiwiyata concept and 4 Adiwiyata assessment components which involve teachers as team of executor Alsubaie (2016) and apply ADDIE model of development (Robert Maribe Branch, 2009). There are 5 procedures as follows: **analyzing** the needs and curriculum analysis; **designing** and compiling curriculum instruments and questionnaires; **developing** stage by collecting material, testing small groups, testing the product on teachers, improving the product and web based on the suggestions of subject teachers; process of **implementing** via field test, and **evaluating** through product improving after field test and making final product by inserting all files into responsive web (Made Giri Pawana, Naswan Suharsono, 2014).

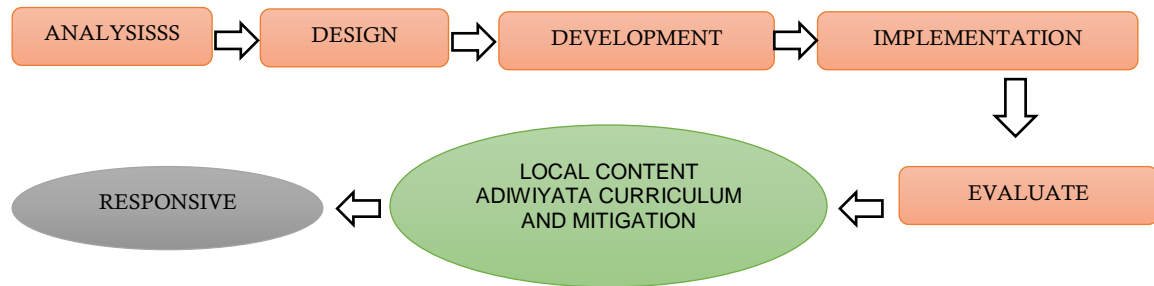### ADDIE Development Model (Figure 1)

Figure 1. ADDIE Development Stages

Validation is carried out by 2 experts with the results of contents and product materials feasibility in the form of assessment and suggestions for improvements. Then, the revision is made to obtain the expected results. Validation results are calculated using the Gregory formula. Test of content validity 0.85% means content validity is higher than the formula set> 75% or 0.75. (Rivai, Rika Kurnia, 2013) Effectiveness test gains positive response from teacher's response questionnaire, and it is said positive because the value was more than 80%. **Analysis to calculate effectiveness.**

It uses Likert scale with the criteria of 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree with 100% score for the highest score.(Suharsimi, 2014) Teachers' response questionnaire is positive if 80% respondents answered "strongly disagree" or "good", and negative for the response of "less good" or "not good". In addition, the interview response data are being analized and described. **Assessment for content validation (figure 2)**

		Expert Assessment 1	
		Weak Relevance (value item 1 or 2)	Strong Relevance (value item 3 or 4)
Expert Assessment 2	Weak Relevance (value item 1 or 2)	A	B
	Strong Relevance (value item 3 or 4)	C	D

Figure 2. Agreement Model between Assessors for Content Validation

With the formula as follows: $Validation\ of\ content = \dfrac{D}{(A+B+C+D)}$

RESULTS AND DISCUSSION

Responsive web design is a website design technique provides an elegant visual experience without being limited by browser size used. Web applications accessed via computer will remain responsive to the size of smartphone screen or tablet through this technique (NR Glassman, 2014).

Therefore, responsive web is best used in technical series to build a site and functioning as a good tool for work (Rachel E. Vacek, 2015). According to Sugiyono (2015) research and development method (R&D) is a research method used to produce spesific product design and test the effectiveness of that product. Research by Hartini et al (2018) stated that the ethnosciences

are different in the implementation of disasters mitigation (tsunami and liquefaction) which have occurred in Palu city and its local credibility of Kaili's culture and art application (lokal typical food, dance and traditional games). Utilizing used waste and natural materials. This study will produce local content Adiwiyata curriculum and disaster mitigation with systematic development steps by means of fiels testing, validity of curriculum, and media experts to obtain valid data and product effectiveness so that it can be used as a reference for curriculum development **Procedural design development** is shown in figure 3 below:

PROCEDURAL DESIGN OF LOCAL CONTENT ADIWIYATA CURRICULUM AND RESPONSIVE WEB-BASED DISASTER MITIGATION TO IMPROVE ENVIRONMENTAL AWARENESS AMONG STUDENTS
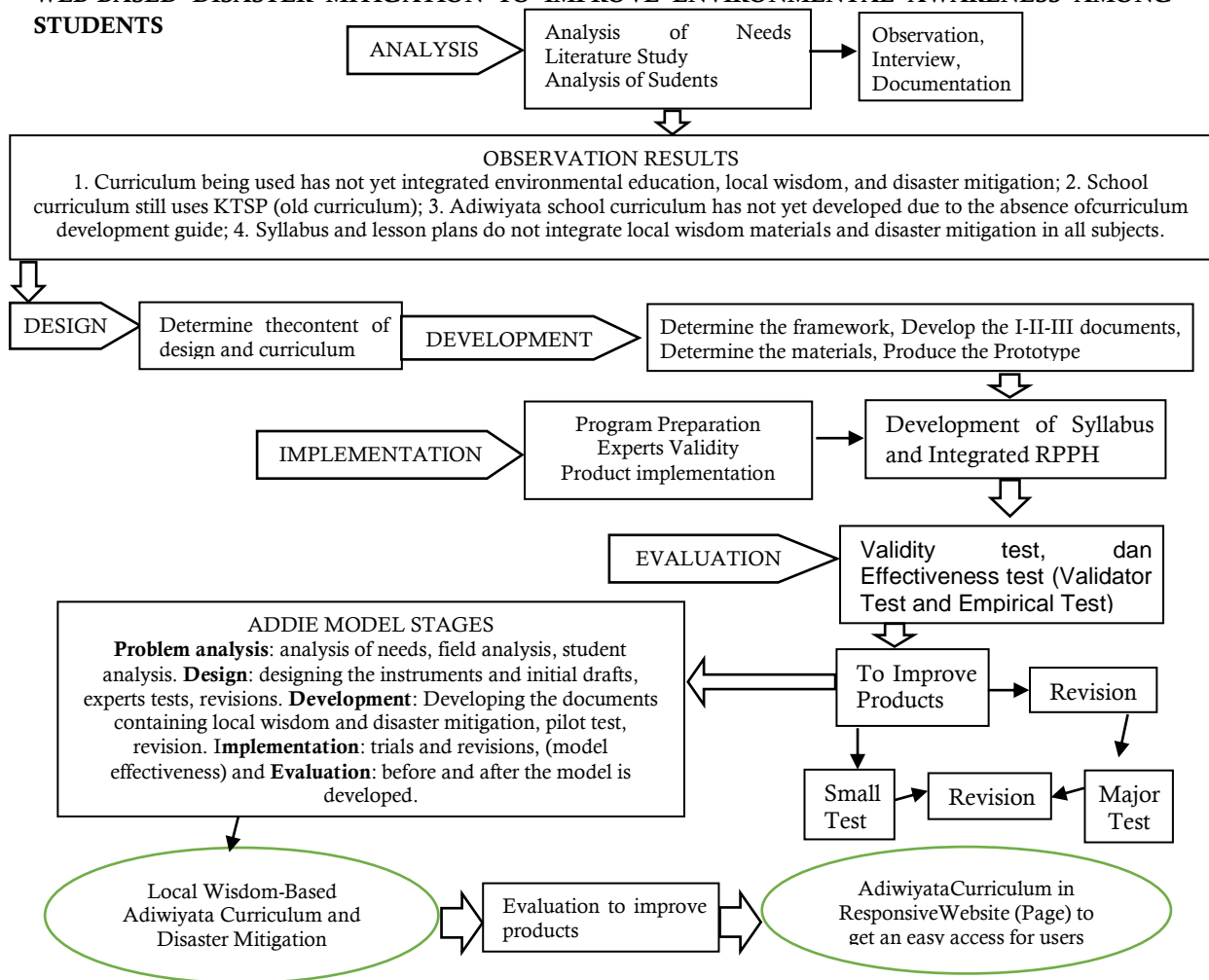

Figure 3. Procedural design development

Document I contains local content Adiwiyata curriculum and disaster mitigation which encompasses: 1) background; 2) curriculum objectives and functions; 3) scope 4) development of curriculum models; 5) educational goals; 6) school vision and mission; 7) curriculum structure and content; 8) Criteria for completeness; 9) graduation standards; 10) assessment 11) educational calendar; 12) Adiwiyata program indicators; 13) Adiwiyata components and principles; 14) life skills education; and 15) basic and core competencies.

Document II contains integrated syllabus of environmental education, local wisdom and disaster mitigation as a reference for developing RPP (lesson plans) covers: 1) subject identity or theme; 2) competency standard (SK); 3) basic competencies (KD); 4) subject matter; 5) learning activities; 6) indicators of competencies achievement; 7) assessment; 8) time allocation; 9) learning resources.

Document III contains learning plans covering 5R Adiwiyata concepts (Recycle, Reuse, Reduce, Replace, Replant) and 4 components of Adiwiyata assessment (caring and cultured environmental policies, environment-based curriculum, participatory based activities and environmentally friendly supporting facilities and infrastructure) which included in the learning material: 1) subject identity; 2) SK and KD; 3) indicators of competencies achievement; 4) goals and material; 5) time allocation; 6) learning methods and 7) learning activities.

Environmental care is carried out through teaching and learning activities, school culture, habituation/action activities, and school programs (Fatimah et al, 2017). Schools should provide opportunities for students to study outside the classroom, observe nature, practice and test issues/learning materials on environment that have learned before (Ozsoy, Ertepinar, & Saglam, 2012).

In developing the curriculum, teachers need to involve students and parents collaboratively (Fardoun, Paules, & Jambi, 2014). Patankar & Jadhav (2013) state that curriculum is a planned interaction of learning content, materials, resources, and process to evaluate the achievement of educational goals.

It is in line with (Hines, Hungerford, & Tomera, 2013)., who states that positive attitudes towards environment, taking action, and a sense of responsibility are needed to guide environmental educators.

Paul Chapman (2014) recommends 10 steps to develop green and sustainable schools which focused on each school, namely partnership, organization, leadership, efficient resources, facilities, healthy operations, food nutrition, curriculum, extracurricular programs, and students. According to research by Yoon Fah and Sirisena (2014) environmental education needs to be integrated into the curriculum of each subject and at each level of education. Adiwiyata curriculum can help students to pay attention, be aware, care, and give response to environmental sustainability and natural resources and also foster a critical and wise attitude towards global information flows (Fajarisma & Adam, 2014).

Conde & Sánchez (2010) conduct a research which concludes professional teachers as a tool for change that cannot be ignored and integrates environmental education into the school environment to make progress.

Several existing studies on Adiwiyata school curriculum have not yet examined local content Adiwiyata curriculum and disaster mitigation by incorporating 5 R concepts and 4 principles of Adiwiyata assessment. This research embodies schools that care about the environment by utilizing waste and limiting excessive use of plastic, using durable items that can be refilled, reusing items to make reusable goods, greening the environment by planting medicinal plants or vegetables, and protecting trees that characterize local area. Environmental education curriculum developed based on local wisdom shows satisfactory results.

Based on results of various supporting research, it can be concluded that local content Adiwiyata curriculum and responsive web-based mitigation can be applied in Palu city and supported by local policies so that all staff and students at schools can easily access it.

This curriculum is equipped with a website that can be accessed anywhere, anytime and by anyone. Adiwiyata curriculum

development includes curriculum websites aim to facilitate the user and other schools because all data is inserted in responsive web/page. This page contains Adiwiyata curriculum files based on local wisdom, environmental vision and cultural mission, supporting photos, infrastructure, Adiwiyata assessment indicators, healthy canteens, slogans, Adiwiyata songs, supporting videos, and examples of waste recycling.

The research results show that: 1) curriculum validation in the form of content and product appearance of good category, 2) it is very practical and effective to use, 3) it is useful for realizing environmental care and introducing regional culture and art, including dances, special foods, and regional games.

CONCLUSION

The development of local content Adiwiyata curriculum models and responsive web-based disaster mitigation can be used as a reference for developing school curriculum. This curriculum aims to realize environmental care among students and give them knowledge on how to carry out disaster mitigation. This model of curriculum development greatly affects students' characters because it teaches them to love their cultures through culturally local subject matter, for example, traditional dances, traditional games, local sports, and getting to know local food specialties. In addition, it also teaches students to forget about online games which make them pay no attention nor care about environment and other people.

This guidance is expected to be useful for teachers and students alike and everyone in general in understanding and executing school curriculum that care to the environment. It also helps to create modern generation of students that aware to the sustainability of environment.

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