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Local Content Curriculum Model for Early Childhood Scientific Learning

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ABSTRACT: Curriculum material is generally considered the subject matter of information, talents, dispositions, understandings, and principles that make up research programs in the field. At a more complex level, the curricula need to contain historical and socio-political strengths, traditions, cultural views, and goals with wide differences in sovereignty, adaptation, and local understanding that encompass a diversity of cultures, laws, metaphysics, and political discourse This study aims to develop a curriculum with local content as a new approach in early childhood science learning. The Local Content Curriculum (LCC) is compiled and developed to preserve the uniqueness of local culture, natural environment, and community crafts for early childhood teachers so that they can introduce local content to early childhood. Research and model development combines the design of the Dick-Carey and Dabbagh models with qualitative and quantitative descriptive analysis. The results showed that local content curriculum products can be supplemented into early childhood curricula in institutions according to local conditions. Curricula with local content can be used as a reinforcement for the introduction of science in early childhood. The research implication demands the concern of all stakeholders to see that the introduction of local content is very important to be given from an early age, so that children know, get used to, like, maintain, and love local wealth from an early age.

Keywords: *Early Childhood, Scientific Learning, Local Content Curriculum Model*

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1 INTRODUCTION

Teaching early childhood about local content with a scientific approach is very important to develop knowledge about local content that is around children, familiarize an attitude to care about local content that needs to be maintained, preserved, and can develop early childhood life skills and skills. The transformation of the potential for local wisdom in the early childhood curriculum can support the implementation of learning in early childhood education (Prasetyo, 2015). The values of wisdom that appear in integrative thematic development based on the local wisdom learning model are used to shape characters, especially characters of honesty and responsibility, through traditional games ((Ramdhani, 2019).

Education and learning can be successful if a set of tools that are used as guidelines by teachers in carrying out learning process activities known as curriculum are developed according to correct principles (Westbrook et al., 2013). Student achievement in learning always has an impact on curriculum and teaching (Ulla & Winitkun, 2017). Based on preliminary information, each school develops its own curriculum (Andrian, 2018), which is then approved by the local government. The purpose of the local curriculum is to preserve the uniqueness or culture of the area (Hakk, 2011). Teachers should be given various powers and autonomy, enabling, and encouraging them to play a greater role in curriculum planning and implementation. The results of research on the development of local wisdom-based environmental education curricula are promising for early childhood education and elementary schools (Bakhtiar & Nugroho, 2016).

Along with the changing times, there is a paradigm shift in education and teaching that demands teachers to support independence in learning, for that schools and teachers are given the opportunity to build themselves as independent teachers, to support independent curriculum development, in Indonesia it is known as the Education Unit Level Curriculum. The curriculum needs to be equipped with a companion curriculum, namely the local content curriculum, so that there is a balance with the material being developed, local content is also very important to learn. The local content curriculum can also be part of a promotion to introduce Indonesia to the international arena, to be preserved and not eroded by foreign cultures. The government considers language and regional culture lessons to be the content of regional curricula that are not urgent to be passed immediately (Sagita et al., 2019). However, local governments must realize that globalization and the penetration of foreign cultures can unwittingly erode local language and cultural values.

A longitudinal study of eleven preschoolers and their teachers was filmed over 50 hours during weekly explorations of a nearby state park as part of a longitudinal study of children's development of relationships with and understanding of their natural surroundings. These findings reveal that when playing outside, children demonstrate self-awareness of the features of the local cultural environment, develop complex scientific theories based on findings, and engage in environmental management (Bohling-philippi et al., 2015). Indonesia has a wealth of languages, customs, and abundant natural resources as a source of local wisdom (Setiawan et al., 2017). This needs to be paid more attention because

local wisdom is part of the national identity that can be introduced early through the curriculum and various kinds of learning approaches (Albantani & Madkur, 2018).

The essence of achieving curriculum goals depends on the evaluation process during development (Hussain et al., 2011). During the curriculum development process, content selection is of little importance in terms of objective considerations and content organization. This study aims to develop a curriculum that can be supplemented with local content as a strengthening of the science learning model in early childhood education. Development can be done through clusters, because Education Unit Level Curriculum development has so far been carried out in schools so that it is not representative, if development is carried out at the cluster level, many are involved (can involve practitioners, relevant experts) so that the implementation of curriculum development can be done through a workshop model.

2 THEORITICAL STUDY

2.1 *Early Childhood Curriculum*

The curriculum provides useful differentiation for students, besides that it also gives teachers the ability to manage learning activities (Hos & Kaplan-wolff, 2020). Through planning activities that attract diverse student interests and impose different learning styles. Aslan (2018) states that emergent curriculum practices can build a relationship between theory and practice. Several local potentials that can be used as the basis for curriculum development, interviews with teachers and students who schools need a curriculum that is integrated with teaching and learning activities (Agustin & Puro, 2015). The local content curriculum used by the teacher as a learning guide for early childhood can be developed by looking at the potential that exists within the environment around early childhood education institutions.

The curriculum, which is a set of teaching and learning recipes, is essentially a knowledge formation activity (Scott, 2014). Curriculum content is generally seen as the knowledge, skills, dispositions, understanding, and values of the subject matter which is the study program. Control involves various governments practices operating in schools (Oates, 2010), and has been transferred to the framework of early childhood education policies (Dahlberg et. al., 2013). Curriculum content, the substance of early childhood education, cannot logically be identified based on knowledge of child development theory: that is, figuring out what subject matter knowledge should be taught does not follow from understandings of what children are like at particular ages and stages (Hatch, 2012, p. 46). Curriculum content, the substance of early childhood education, cannot logically be identified based on knowledge of child development theory: that is, figuring out what subject matter knowledge should be taught does not follow from understandings of what children are like at particular ages and stages (Barbarin, O. A., & Wasik, 2009).

In early childhood education play has long been considered the best way for children to learn. The game is then carried out through a psychological approach to science, which

provides justification for its importance and significance in children's lives, as well as several pedagogical conditions in which the effects of development and education can be realized (Reifel, 2014; Saracho, 2012; van Oers, 2012).

The concept of play-based learning, curriculum, and pedagogy (Wood, 2013b), reflects debates about the role of the practitioner (Fleer, 2015), the perspective of parents (O'Gorman, L., & Ailwood, 2012), and the effectiveness of play as a means of achieving curriculum goals and ensuring school readiness (Bodrova, 2008). From an educational perspective, the interpretation of play and learning is inevitably pedagogical, in that the perceived results must be framed in a way that is consistent with curriculum objectives, whether they are prescriptive, indicative, or aspirational (Wood & Hedges, 2016). According to Scott (2014, pp. 26–27) It is possible to identify a transcendental condition for the production of knowledge, and the form that it should take. However, this transcendental condition necessarily has pragmatic and normative elements in the way it is constituted, and therefore, there would need to be an acknowledgment of these in providing a radiative for a curriculum.

In the implementation of curriculum preparation, clear stages are needed so that the resulting curriculum, including the local wisdom supplement curriculum, can be useful for education stakeholders. Curriculum have five levels of the synthesis series of curriculum preparation (Schumacher, 1995, pp. 75–76). Departmentalized, this separate is a traditional model separately separate and distinct disciplines taught separately from one another. Parallel, Topics or study units are rearranged and rearranged to suit one another complementary or shared Units of Study. Related disciplines are brought together in formal units to investigate a theme or problem. Webbed are connections, or nets, are made between content curricula and disciplines related to productive themes. Integrated Themes, although themes for study can, and often do, be imposed on students by teachers and others, the themes successful integrated themes students produce, based on their personal and social concerns.

The implementation of learning by the teacher is given the freedom to determine strategies, learning methods that are mastered and able to be implemented properly in the classroom, which is the responsibility of the teacher, for learning, local content is identical with the characteristics of the local area. The teacher is expected to be able to develop the competence of aged children in the field of sciences. (Broström, 2015) states that the first step towards creating a didactic preschool science based on an action research project. A science-oriented dynamic contextual didactic model can be used as a tool for educational thinking and planning.

In line with these studies Fisnani et al., (2020) stated that it was very important to equip students with various knowledge, attitudes or values, and basic skills needed by the curriculum in schools in a systematic and massive manner. Preliminary studies provide valuable insights on the impact of programs at the local level, teacher perspectives on education reform, and the ability of the Ministry of Education to facilitate change in schools (Haridza & Irving, 2017). The research results of Elde Mølstad and Karseth, (2016) state

that by using a result-oriented curriculum, the Norwegian approach ignores important differences between material and meaning, is developed with a local content curriculum and aims to explore local wealth that can be used as a learning resource, such as local socio-culture, local wealth, and local wealth that can be preserved and utilized for science, as well as information materials for the global community. Curriculum reform in Turkey seeks to update it according to the current local cultural conditions (Orakci et al., 2018). The learning experience in pursuing GCE (Global Citizenship Education) in some cases has not been fully implemented, except for introducing globalization in Indonesia (Wahyudin & Suwirta, 2017).

2.2 *Local Content Curriculum*

The curriculum of local content in education is very important, so that students are more familiar with and closer to their environment and are not isolated from the socio-cultural context in which they live. For this reason, the government seeks to integrate formal education with the socio-cultural environment. Through the application of a local content curriculum, especially in the era of regional autonomy, local governments are required to realize a diversified curriculum that is tailored to the needs and potential of the region as well as the socio-cultural values prevailing in society.

In implementing the local content curriculum, narrow regional (ethnocentric) views are avoided as far as possible. Society must accept and respect the existence of other ethnic groups that demonstrate Indonesian pluralism. The younger generation that knows and are proud of socio-cultural values will stick to their identity and character and accept the diversity of the Indonesian people which will eventually become the strength of the nation. The application of the local content curriculum is still faced with several fundamental problems. In terms of determining how to organize a curriculum formulation that can make a sincere contribution to students and benefit the surrounding community. Including the preservation of cultural values for the surrounding community, such as the existence of culture and the identity of local communities.

Local content subjects must cover regional cultural characteristics, skills, noble regional cultural values, and issues relating to the social and natural environment, social environment and cultural environment as well as regional needs (Nasir, 2013). The determination of the local content curriculum in education is considered very important so that students learn more and are committed to their environment, and are not isolated from the socio-cultural context in which they live (Sagita et al., 2019).

Andrian et al., (2018) the local curriculum is to preserve the uniqueness or culture of the Region. With a well-managed education system, students as a young generation can develop local and regional uniqueness. Children are more familiar with culture outside their environment, especially the global world, which is very easy to get through the Internet, with the development of a local content curriculum, it is hoped that the younger generation will have the power of local cultural wisdom, which is a characteristic of the

Indonesian nation that loves peace, is friendly, polite, and cultured. In addition, the Education Program is intended to carry out a teaching and learning process to create quality human resources (Agustina & Mukhtaruddin, 2019). The local curriculum developed by teachers for early childhood education, and care aims to make children know their closest environment as early as possible and are also integrated with the education unit level curriculum which is the embodiment of the national education goals (Eurydice, 2018).

Local governments as well as the school unit level can develop local content curricula, such as promoting local languages and literature. Local governments can create local content curricula, such as promoting local languages and literature (Sagita et al., 2019). In educational practice that is implemented through programs that present local content and substance, media, and delivery strategies, it is necessary to link the natural environment, social environment and cultural environment as well as regional needs (Wasliman, cited (Nasir, 2013). Local content material in the curriculum must contain local cultural characteristics, skills, local cultural values and raise social and environmental problems which in turn are able to equip students with basic skills for life (Nasir, 2013).

The local curriculum is a collection of plans that regulate content, learning materials, and strategies used to organize learning experiences that are specific to regions and adapted to local circumstances and needs (Maryono, 2016). Dakir (2014) states that the local curriculum is an educational program whose content and delivery media are related to the environmental, social, and cultural climate, as well as regional needs, and must be studied by students in the city. Local content is a curricular activity to develop competencies that are tailored to regional characteristics and potential, including regional excellence, and the material cannot be grouped into established subjects.

Local content in curriculum subjects can be used alone or as a topic of study on existing material. Local content has its own time allocation because it is a separate topic. Local content is additional research material that has been available as a topic of study material. Thus, local content may or may not have its own time allocation. Local content is adjusted to the needs of the family and the environment by sticking to the goals of national education. Farid (2012) states that local content will also provide an overview of who students are and give teachers the opportunity to help students build the skills needed according to their field of expertise.

2.3 *Early Childhood Scientific Learning*

The scientific approach as a learning approach contained in the 2013 curriculum emphasizes or focuses on modern pedagogical dimensions in the learning method, where teachers must create active students through observation, asking, trying, reasoning and building networks (Wahyono et al., 2017). Learning with a scientific approach gives students the opportunity to actively construct concepts, laws, or principles by observing (identifying or finding problems), formulating problems, proposing or formulating hypotheses, collecting data with various techniques, analyzing data, drawing conclusions, and communicating concepts, laws, or found principles (Daryanto, 2014).

The scientific approach is based on Bruner's theory, by which students learn and build knowledge through cognitive processes (Hosnan, 2014). This scientific approach focuses students on the learning process in seeking knowledge rather than transferring it. Children are seen as learning subjects who must actively participate in the learning process, while teachers act as facilitators that guide and coordinate learning activities. Saefuddin, A., and Berdiati (2014) added that in the scientific approach, the scientific approach, namely the learning process, aims to support and assist students in finding and applying their knowledge. Komariah (2016) says that students are expected to be able to think critically using this approach. The scientific approach also helps students develop attitudes, knowledge, and skills. Learning with a scientific approach has a positive influence on teachers and students, because the learning refers to a scientific thinking process that trains systematic and holistic thinking. Because it does not only see learning as an estuary but then builds knowledge linkages that are reflected in process skills, exploring, and elaborating on subject matter.

Masithoh (2018) explains that the teaching experience becomes more meaningful when it is done realistically with different learning activities both inside and outside the classroom, according to the teaching experience using scientific methods. Various abilities of teachers in understanding scientific methods, different learning styles and abilities, as well as variations in the learning process for students who need special assistance become obstacles in the application of the scientific approach. Fitriani (2018) research results state that because students do not master biology, the teacher uses one of the learning approaches recommended in the 2013 Curriculum, namely the scientific approach. The scientific approach is used in science classrooms to improve students' conceptual understanding and critical thinking (Syarifuddin, 2018). While student learning competence is still not satisfactory, but the scientific approach has succeeded in improving students' understanding of concepts and critical thinking. Based on the results of previous research regarding the scientific approach, it can increase children's competence to master knowledge, for early childhood education is the introduction of knowledge, but learning activities using a scientific approach are still carried out. With a scientific approach, it is easier for children to understand and learn local content under the guidance of their respective teachers.

3 METHOD

Research and development used a combination of two design models, namely the Dick and Carey and Dabbagh models. Data collection techniques are carried out by approaching two types of research data, qualitative and quantitative. The research site was carried out in six early childhood education institutions with a total of 31 participants. The researcher followed the stages of developing the Dick and Carey model combined with the Dabbagh stage. This was chosen because it adjusted to the context of the model development associated with local content and the latest learning conditions that made more use of online learning.

The research was conducted by designing and developing new learning model products in curriculum development. Generally, the curriculum developed by teachers in schools, known as the education unit level curriculum (KTSP), for local content curriculum is developed through the Early Childhood Education Group (PAUD), so that the development of the school curriculum is effective and efficient, the next impact PAUD teachers can teach local content to students according to local content in the surrounding environment. In the early stages, before the model development stage was carried out, the researcher conducted an analysis of the existing needs at the education unit level as curriculum implementers. Researchers raised initial information about the implementation of the curriculum that has been implemented, how the application of local content in the curriculum, the obstacles faced by teachers and what is needed in the curriculum are easy to understand and implement by utilizing local content.

3.1 *Conceptual Model*

A locally loaded curriculum as a tool, schools can take advantage of the opportunity to consider what experts seriously and efficiently in education call "prior knowledge" in students and improve student learning outcomes by relying on prior knowledge that students already have. Strength, specificity, or trust is symbolized in what is called local wisdom. In this case, the local curriculum can be used as a powerful didactic tool to improve classroom learning and increase interaction between students and teachers (Barongutty, 2018). To carry out curriculum development, the Dick & Carey learning model can be used as a system learning model, with material development, in line with this research, a curriculum is developed in the form of a set of materials that are used as guidelines for teachers, curriculum development is currently being carried out by schools known as the Education Unit Level Curriculum in this study the local school content curriculum was developed through clusters.

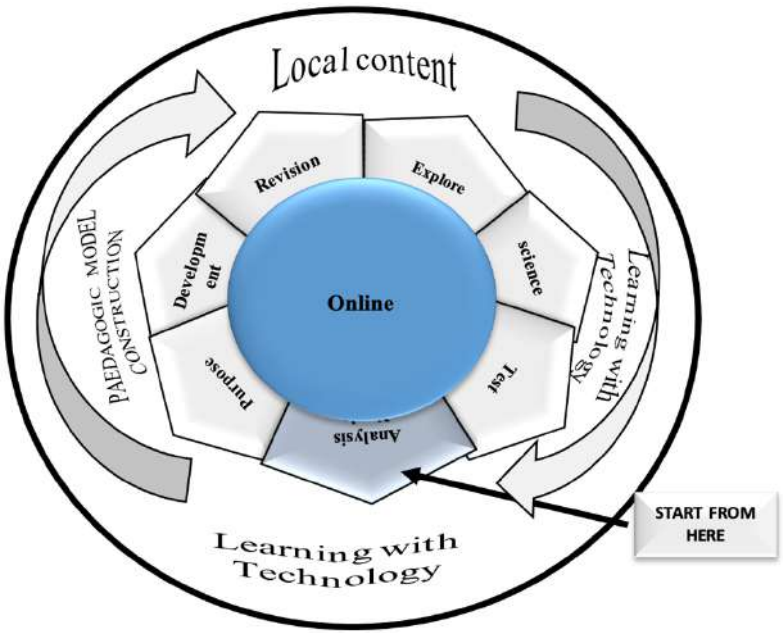

Figure 1. Conceptual Model

This model is a learning approach that emphasizes the development of teaching materials, which is one part of the learning model system (Dick, 2009). This is because the research carried out is research on Local Content Curriculum Development. Model development carried out in Early Childhood Education produces a product in the form of a local content curriculum. The procedural stage of the Dick & Carey model research is combined with the Dabbagh model, on the grounds that this model is a socio-cultural learning context, very relevant to community development (Dabbagh, N & Bannan-Ritland, 2005). The local content curriculum in the context of developing socio-culture, besides being adapted to changes in learning carried out online.

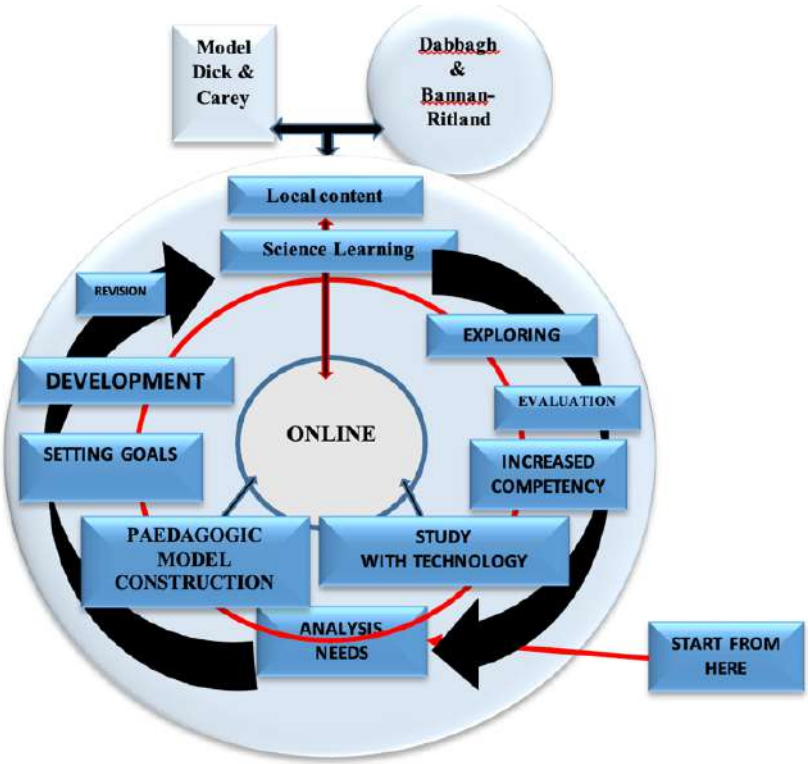

Figure 2. Combining the Dick & Carey Model with Dabbagh & Bannan-Ritland

In connection with the development of a local content curriculum in line with the theory described by Dabbagh, which begins with the development of a learning model, in the development of a local content curriculum, the group learning model used by ECE teachers is identified with the ECE Cluster. Socio-culture, folk crafts, arts, and local history as contained in the local content curriculum documents are partly the result of exploration from online media.

3.2 *Procedural Model*

Curriculum development is carried out in the ECE Cluster by providing education and training for local content curriculum development, from teacher working group activities to local content curriculum development products that can be implemented effectively and feasible to be applied in ECE institutions. Teachers are expected to be able to renew and change mindsets and practices, barriers to developing local content curricula cannot yet be realized during this time because the curriculum must be developed by schools

known as education unit level curriculum, while in ECE, it is for one institution. The number of teachers is below 3, in addition to the institution having to make education unit level curriculum. Furthermore, in command of compiling a local curriculum, the PAUD cluster which is most relevant is used for the development of a shared local content curriculum in the ECE cluster organization.

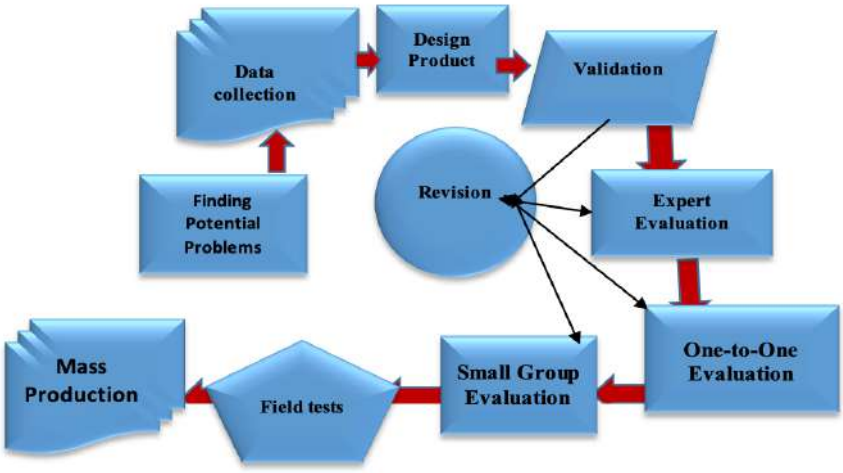

Figure 3. Procedural model

3.3 *Final Model*

Based on the initial findings, followed by the next step in the form of data collection activities, from the results of data collection, a product design was developed in the form of a local content curriculum, to get good results. The product design was validated by experts, then tested 1, 2 and 3. After passing through step by step and the test results state that the product made is feasible, relevant, and effective to apply, so that the product is mass-produced for distribution to the six ECE Institutions.

Figure 4. Final Model

4 RESULT AND DISCUSSION

4.1 *Result*

Potential problems that arise at the beginning of research in early childhood education institutions have not been able to develop local content curricula, which become a source of data for need's analysis. Researchers create new models in curriculum development through ECE group activities, initial product design validation of product designs, validated by three experts, areas of instructional expertise, areas of material expertise, and areas of language expertise. This is in accordance with the statement (Monica & Vianty, 2019) The development of teaching materials must be analyzed and evaluated for validity, practicality, and effectiveness using the proposed formative evaluation, which consists of self-evaluation, expert review, one-to -one, small group, and field test. The product test results are described as follows:

4.1.1 *Expert Review for Media*

Expert testing is carried out after the initial product design is complete, the purpose of this engineering test is to get constructive input on the resulting product after getting input or suggestions. Expert testing is carried out three times, (1) product design. Evaluation is carried out then revised by the researcher, (2) revised results are submitted back to the expert, if the expert spends the third stage, (3) product testing by the expert is obtained as a result that can be is illustrated in table 1.

Table.1 Results of Expert Test in Designing Local Content Curriculum Products for Early Childhood Education

No	Component	Respondents and Calculation Results			
		R1	R2	R3	Average
1	Truth Content	26	26	24	25.2
	Average	3.3	3.3	3	3.2
2	Language	24	23	25	24
	Average	3.4	3.3	3.6	3.4
3	Present	27	27	26	26.6
	Average	3.4	3.4	3.2	3.3
4	Chart	34	32	34	33.3
	Average	3.7	3.5	3.7	3
	Total	111	108	99	106
	Average	3.5	3.4	3.1	3.3

The results of the expert's assessment state that the product in the form of a Local Content Curriculum document is considered relevant to be implemented as a set of documents used as a guide for teachers in implementing the teaching and learning process at ECE. Expert notes can describe the steps applied in developing the Local Content curriculum appropriately because it involves all parties with an interest in early childhood education.

4.1.2 *One-to-one trial*

The small-group test was carried out on three teachers who were still in high school but were placed as accompanying teachers in early childhood education institutions, this was done to find whether the teacher saw the products made could help the teacher in implementing learning. Local content related processes with the results in table 2.

Table 2. One-to-one test results

No	Component	Respondents and Calculation Results				
		R1	R2	R3	Average	Information
1	The truth of the content	28	27	28	27.6	
	Average	3.5	3.4	3.5	3.4	Relevant
2	Language	25	26	25	25.3	
	Average	3.6	3.7	3.6	3.6	Very Relevant
3	Serve	27	27	27	27	
	Average	3.4	3.4	3.4	3.4	Relevant
4	Graphics	34	33	34	33.6	
	Average	3.8	3.7	3.8	3.7	Very Relevant
	Total	114	113	114	113.5	
	Average	3.8	3.7	3.8	3.7	Very Relevant

The test results in the small group of teachers stated that the product made was very relevant. Then the product after the test was carried out the second revision was carried out according to the teacher's input tested in small groups. The teacher stated that the product in the form as a Local Content Curriculum document was very relevant. Meaning that the resulting Local Content Curriculum could have implemented by the teacher as a guide in carrying out teaching and learning activities.

4.1.3 *Small Group Evaluation*

The group test is carried out on teachers who have a bachelor's degree but have not received the same as educators (see table 3).

Table. 3 Small group test results

Component	Respondents and Calculation Results										
	R1	R2	R3	R4	R5	R6	R7	R8	R9	Aver-age	Information
The truth of the content	27	27	28	28	27	27	27	27	28	27.5	
Average	3.4	3.4	3.5	3.5	3.4	3.4	3.4	3.4	3.5	3.4	Relevant
Language	26	26	25	26	26	25	26	25	26	25.6	
Average	3.7	3.7	3.6	3.7	3.7	3.6	3.7	3.6	3.7	3.6	Very Relevant
Serve	28	27	27	27	28	28	28	27	28	27.5	
Average	3.5	3.4	3.4	3.4	3.5	3.5	3.5	3.4	3.5	3.4	Relevant
Graphics	34	33	34	31	31	31	30	34	34	32.4	
Average	3.8	3.7	3.8	3.4	3.4	3.4	3.3	3.8	3.8	3.6	Very Relevant
Total	115	113	114	112	112	111	111	113	116	113	
Average	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.5	Very Relevant

The test results in the small group of teachers stated that the product produced was very relevant, after the test was carried out the third revision was carried out according to the input of the teacher who was tested in the small group.

4.1.4 *Field Test*

4.1.4.1 Products Field test

The resulting product is assessed through a field test whose rubric is explained in a questionnaire distributed to respondents with the following scores. A score of 4 is converted, and it is explained that the product is considered very relevant. A score of 3 is converted, and it is explained that the product is considered relevant. The score of 2 is converted. The product description is very less relevant. The score of 1 is altered, and it is explained that the product is judged to be relevant suddenly.

Field trials of ECE local content curriculum products were carried out on six ECE institutions as follows, Primanda Kindergarten five teachers, Islamiyah Kindergarten 11 teachers, Sasana Toddler Kindergarten 2 teachers, Buda Kindergarten 3 teachers, Muslimat Kindergarten 2 teachers, ND Pelita Cemerlang Kindergarten 7 teachers. From the results of field tests, the teacher gave evaluators to products that were categorized as highly relevant to the catalyst teachers in the six ECE institutions which gave an average score of 3.6.

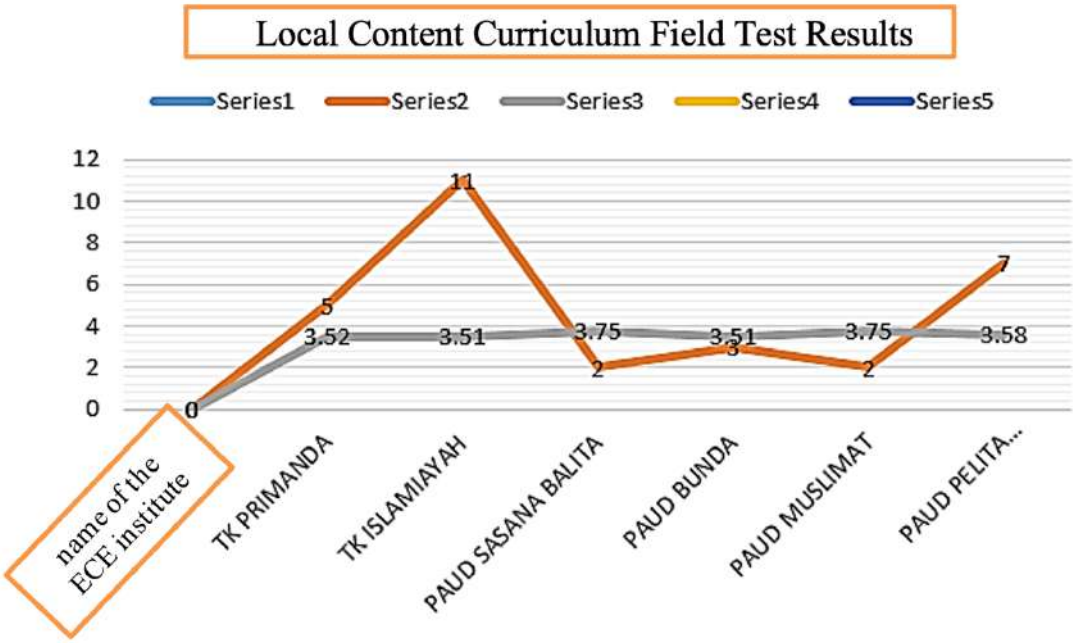

Figure 5. Graph of Local Content Curriculum Field Test Results

4.1.4.2 Field Test for the feasibility of local content curriculum

Field tests carried out in large groups were carried out twice, first when participating in the training for local content curriculum development after the training was completed, and the prototype products had been finalized by the teacher. They were tested again with the test results described in table 4 (Recapitulation of SPSS calculation).

Table 4. Development of local content curriculum for early childhood education through cluster activities

Activities	No. Resp	Mean	Median	Mini-mum	Max-imum	Standard Devia-tion	Post-test Pre-Test Correlation	Score t_{count}	df	Sig. T-test (2 tailed)
Pre-test	31	32.5806	35.0000	15.00	55.00	10.79127	0.808	39.220	30	0.000
Post-test	31	77.7742	75.000	60.00	95.00	7.86854				

Based on table 4, the average post-test score is bigger and significantly different from the pre-test score, namely (77.7742> 32.5806). With a difference range of 45,194, the correlation value between the pre-test and post-test obtained a value of 0.808 (80.8%). Where the correlation has a very strong and significant correlation t value with a two-sided test (sig 2-tailed) with 2 samples given different treatment obtained a quantitative value of 39,220 and a significance value = 0.000. The significance value of this t count (0.000) is less than 0.050 (0.000 <0.050). Thus, it can be concluded that the application of local content curriculum development at ECE through cluster activities can be applied and proved significant based on comparative statistical tests.

4.2 *Discussion*

The development of a local content curriculum through the ECE cluster was carried out to overcome the shortcomings of developing a local content curriculum. Researchers invite collaborators with teachers to develop local content curricula through the ECE group of institutions. From the research results, it was found that the developed curriculum was judged by experts to be effective to be applied. This starts with the development of a local content curriculum in early childhood education institutions as a guide, to the process of learning local content. In line with this, the latest research results state that the transformation of future local wisdom can help in the early stages of learning (Prasetyo, 2015).

According to research findings, local content in South Korea represented in multicultural terms. Childhood et al., (2017) shows several consequences. This includes considering the value of a stronger framework and clearer pathways for multicultural education at the early childhood education stage, as well as recommendations for early childhood teacher education in the context of South Korea and Finland. In the Finnish early childhood care and education (ECEC) curriculum, there is no specific content for education for sustainable development.

We seek to look at the preferences of Finnish early childhood educators through an expanded environmental education model (Reunamo & Suomela, 2013). Behind this, model is the Palmer tree model and the emphasis on the empirical, social, and ethical components of ECEC. Furthermore, Altinyelken (2015) states that curriculum reforms in four countries, namely China, Turkey, Uganda and Bolivia, are analyzed to describe global reform talks, implementation. In the local context, the challenges faced, and the outcome of this major reform effort on learning outcomes and overcoming mismatches in school achievement. This paper ends with a special policy recommendation for the

education agenda after 2015. This is in line with the opinion, Mayfield (1995) how important it is that teachers are ready to change their own mind sets and practices in order to promote the meaningfulness of learning local content and to enhance the development of their students in exploring, thinking, collaborating, creating, and working towards a sustainable future.

Important research findings show that the strength of the resulting model, such as a locally loaded curriculum developed through the ECE cluster, has run quite well. The material can be structured better because it accommodates a lot of input from teachers because of discussions between institutions. Curriculum development is more varied because it can be developed through schools and can also be developed through clusters. Poedjiastutie et al., (2018) revealed that it was very important to develop a more effective and locally applicable syllabus and prepares teacher training programs in more relevant tenure and tenure to facilitate successful implementation. Early childhood education groups face challenges in designing local content curriculum models. Nevenglosky et al., (2019) stated the loyalty of the curriculum in the new phonics program, which created the need to identify barriers and prevent saturation in curriculum implementation.

Using the concerns-based adoption model (CBAM) as the conceptual framework, this qualitative case study identifies the concerns and barriers that teachers report when implementing the new curriculum. The (Organization for Economic and Co-Operation and Development, 2019) introducing curriculum changes at the school, district, or national level do not guarantee that those responsible for implementation will implement the curriculum in a way that leads to in-depth changes in classroom practice. In contrast, decades of implementation have shown that implementation variability is the norm. Educators can follow the curriculum exactly as written, adapt the curriculum to their local needs, or combine the two.

Curriculum material is generally thought of as the subject matter information, talents, dispositions, comprehension, and principles that make up a program of research on the floor. The forms in which material is organized consistently in phases or series to ensure learning progression is known as coherence. Coherence in ECE involves continuity with other structural systems such as play, pedagogical methods, evaluation strategies, tools and services, and interactions and collaborations with the home preschool group (Wood & Hedges, 2016).

Control refers to a collection of government practices that are used in compulsory schooling (Oates, 2010) that have since been adopted by ECE policy systems (Dahlberg et al., 2013). These practices include inspection, evaluation, and accountability arrangements. non- and in-service instructor/practitioner education/training and qualifications, success metrics, such as teacher and child appraisal, guidelines, and consistency criteria, administrative governance and funding, and efficiency and outcome measures (Oates, 2010).

Material, coherence, and power coexist in a variety of forms at a more dynamic level since they bear historical and sociopolitical forces, traditions, cultural views, and expectations. Different ECE curricula formulations across international contexts (Brooker et al., 2014), with broad differences in local content, adaptation, and perception (Nuttal, 2013), encompassing complex linguistic, legal, philosophical, and political discourses, are proof of this (Brooker et al., 2014). Wood (2016) trace and problematize content, substance, coherence, and power considering these complexities. Therefore, author propose a new viewpoint that emphasizes children's working science ideas in local content as the main subject for ECE curriculum considerations

5 CONCLUSION

The development of a local content curriculum model through the ECE cluster aims to help and overcome the weaknesses in the way to develop the ECE Curriculum, which is only carried out by school principals, while the curriculum supplemented with local content as a strengthening of the science learning model developed through the Cluster was developed by involving all teachers in the ECE Cluster, experts, academics. Development is carried out by utilizing online media so that ECE teachers are assisted in development, in addition to product results are made electronically so that it is easy to revise each year. The effectiveness of development products that tested on experts, small groups, middle groups and tests, curriculum supplemented by local content as a strengthening of the science learning model is effective in early childhood.

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