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Submission date: 30-Nov-2022 05:36PM (UTC+0700)
Submission ID: 1967145672
File name: CURRICULUM_MANAGEMENT_INFORMATION_SYSTEM_Edi_Waluyo.pdf (1.05M)
Word count: 7757
Character count: 45646

Journal of Theoretical and Applied Information Technology
31st October 2021. Vol.99. No 20

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

CURRICULUM MANAGEMENT INFORMATION SYSTEM DESIGN IN EARLY CHILDHOOD EDUCATION

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ABSTRACT

This article aimed to examine and develop a curriculum management information system design to provide convenience for principals and teachers in curriculum development. This study used a qualitative design to find new relationships to problems in the early development of curriculum management information system design. The research subjects were the principal and teachers in the ECE Lab school UNNES institution. Data collection techniques were carried out through focus group discussions (FGD) and questionnaires. Based on the research data, an initial model of the curriculum management information system design was obtained which could provide systematic steps for planning and organizing. Furthermore, based on the questionnaire, it was found that the design of the management information system was practical and received a good response from the respondents.

Keywords: *Design, MIS, Curriculum, ECE*

1. INTRODUCTION

The curriculum has a very important role for early childhood education institutions. It provides direction to the learning process in educational institutions. Various opinions agree that curriculum becomes one of the keys to success in achieving educational goals. Currently, educational institutions are competing to develop the best curriculum to be implemented, especially in the current pandemic conditions. Therefore, educational institutions need a good-quality curriculum, which is easy in planning, organizing, implementing, and evaluating.

Designing a curriculum document is a complex task and involves the use of a robust curriculum model that has been built upon a particular theoretical perspective [1]. Furthermore, [2] mainstream academies are required to offer a broad and balanced curriculum. Thus, the curriculum designed is expected to provide convenience to the principals and teachers in the implementation process and to offer various development programs that are predictive. That almost all developed countries have managed ECE very well, from the budget to the quality of teachers and education personnel [3].

A curriculum that aims to respond to the diversity of expectations and needs of the entire students requires schools that develop their educational offerings while paying attention to the diversity of students' contexts and capacities [4]. Every educational institution needs a curriculum that is easy to plan practically to provide convenience to the principals and teachers in designing a curriculum that suits the institution's needs. To design a curriculum easily and practically, a management information system is surely needed. It is specifically designed to plan and organize a curriculum effectively and efficiently.

The curriculum has a very important role in the development of educational institutions. It makes institutions compete to develop in the best ways. To develop the curriculum effectively, of course, needs innovative breakthroughs that provide convenience for teachers in curriculum development, especially in the field of early childhood education that uses information technology. Information technology can also be

used in the field of education in general and in curriculum development.

Information and communications technology (ICT) has been widely used in educational practice in recent years, which is also reflected in the education policies encouraging the use of ICT in education and teacher professional development [5]. Teachers must be able to adapt to information technology including its use in the learning process, learning evaluation, and curriculum development.

The development of information technology at this time plays a very important role and is used to provide convenience to users, including in the educational field, which is used to facilitate curriculum development. Ally [6], the emergence of digital technologies in education will continue to transform the delivery of education and the role of the teacher in individualized learning environments. In the 21st century's information, economy, and knowledge society, one cannot ignore the need for the development of ICT literacy in teachers and student [7].

This paper tries to explore the development of curriculum management information system design in early Childhood Education institutions. In its implementation, the design of this system is used to support the professional performance of principals and teachers in institutions to develop a curriculum that suits their needs. If the institution does not develop a curriculum from the government, of course the curriculum is still standardized and still requires adaptation to suit the needs of each institution. Through the design of curriculum management information systems, curriculum development practices can be implemented in an easy, practical way and can be applied to ECE institutions

2. LITERATURE REVIEW

2.1 ECE Curriculum

On the National Education System [8], Early childhood education means educational efforts from birth to six years of age by giving stimulus for children's physical and emotional growth and development to prepare them for further education. Early childhood education programs are now hopes for all citizens, including the provision of quality early childhood education programs.

The development of Indonesia 2020-2024 is aimed at forming quality and competitive human resources, namely human resources that are healthy and intelligent, adaptive, innovative, skilled, and with character [9]. Janta [10] stated that the provision of a high-quality ECE is very important because it can give a significant effect on the experience and learning of children in preschool. Therefore, adopting a flexible curriculum and the right method of delivering material is a very important factor in the success of quality learning [11,12].

The curriculum developed must pay attention to various factors, one of which is the development aspect where children will be used as subjects in the practice of implementing the curriculum. In its implementation, the curriculum 2013 ECE gives teachers options to develop a curriculum according to the children's needs in each class. Thus, every early childhood education institution has roles and responsibilities in providing the best stimulation services for every child.

A good curriculum is, of course, provides convenience for teachers in its implementation which results in better learning. In the ECE institution, obstacles in developing a curriculum are often found either from the institution or teacher's factors. It is because developing a curriculum is not an easy job. It has to be done by an expert team with the aim that the curriculum developed will give a contribution to children, institutions, and society.

The development of science and technology and various changes that occur in society are parts that must be responded to and developed in the curriculum [13]. The practice of curriculum development is carried out to produce a curriculum that meets the needs and is carried out through steps in curriculum management. The need for guaranteed and high-quality education involving predefined curricula covering a corresponding scope of input knowledge and skills required in subsequent practice has been gaining momentum (14).

Rusman [15], curriculum management is a cooperative, comprehensive, systemic, and systematic system to realize curriculum achievement. Meanwhile, Kambunandiwan [16], suggested that curriculum management influences teacher's performance. Therefore, developing a curriculum through good curriculum management gives an impact on teacher's performance and the quality improvement of ECE institutions.

Curriculum development becomes a demand for professional teachers in the current

situation. The role of teacher and institution in designing a curriculum is to reinforce the institution's strengths. The curriculum developed is certainly based on the institution's vision and mission so that all forms of development and stimulation activities head to the achievement of the institution's vision, mission, and goals. The curriculum developed by the institution is certainly not an easy job. As confirmed [17], managing a medical school curriculum is a difficult challenge. The body of knowledge is large, diverse, and changing. Continuous oversight is required to ensure the proper balance of learning opportunities, eliminate redundancies, and fill in gaps.

It needs innovation in the form of system design development and its various derivative products from annual programs to daily programs to provide convenience and practical steps in developing a curriculum. A system design assisted by technology aims to provide convenience in implementing a curriculum. One of which is by developing a management information system design.

2.2 Management Information System

Education involving digital technology is the latest transformation of the education system, especially during the COVID-19 pandemic [18]. The development of technology has been used in various sectors. It is used in the form of a management information system to develop a curriculum design which would take a lot of time if done manually [19].

A curriculum is very important to society because they will take the graduates as a result of the curriculum they have implemented. The curriculum is always undergoing improvements in line with the demands of needs and developments when the curriculum applies through innovative planning [20,21]. Based on the observation, curriculum development practice is not yet optimal. It is because of the absence of a program that provides convenience for the teacher to develop a curriculum in ECE institutions with easy steps. The use of manual methods makes the steps in developing a curriculum do not run optimally and do not follow the institution's needs. It needs an easy method through the development of management information system design.

Era of the industrial revolution 4.0, educational institutions are required to be able to develop various educational system applications including curriculum management information systems to improve the quality of educational services and the performance of educational institutions [22,23]. This system provides clarity of the developed curriculum design and leads to high-quality graduates. The use of a management information system to develop a curriculum design in ECE institutions is very interesting to be implemented. It anticipates various changes in society and prepares students through various stimulations that are documented in the curriculum management information system.

In this digital era, various demands in early childhood education must be served quickly and accurately. The challenges of becoming a professional ECE teacher include having to follow various developments in science and technology to provide services through the development of a curriculum that suits the needs of children by using a system that provides convenience in working. This system is expected to be able to overcome existing problems and provide information quickly, precisely, and accurately [24,25]. Therefore, curriculum management with the help of technology is expected to develop a high-quality ECE curriculum.

Rivalina [26] the development of information technology has a significant influence on the paradigm shift of learning in educational institutions. Based on the research results on teacher perceptions at various levels of professionalism in implementing information technology to improve the quality of learning, the average score was still relatively low. Meanwhile, Abdul Syukur [27] based on students' opinions, it was found that at various levels of education, the professionalism of teachers in implementing information technology was still not optimal.

Curriculum development in ECE institutions today must be able to balance with various existing changes. Henward et al., [28] we have to adapt it (curriculum) to our environment and culture. McLain [29], it is a need to design appropriate curriculum experiences for the classroom. Thus, curriculum development must be able to predict changes that occur in educational institutions such as how students can be given various kinds of material and knowledge that suit their development level and in balance with the challenges and changes in society. To anticipate these kinds of changes, the role of information technology becomes very important, one of which is its use in curriculum development and various learning devices.

Kurnianingsih et al., [30], current advances in information technology and the internet have resulted in very abundant digital information resources. Stated that the use of ICT is classified into three types, namely: first, as an educational medium, namely as a complement to clarify the descriptions submitted; second, as a source, that is as a source of information and seeking information; third, as a learning system [31]. Thus, various changes in learning are urgently needed to reform a conventional learning system, which is considered irrelevant to the dynamics of an increasingly fast-paced era influenced by science and technology development [32].

Education has to be ready to face various challenges. One of the efforts to face these challenges is through improving teachers' competencies in the field of ECE curriculum management. Educational policies in the current industrial revolution, at the level of early childhood education, are encouraged to take advantage of the information technology development that can be used to facilitate the course of the educational process. Not only in the learning process but, the use of information technology can also be optimized in the curriculum management, which makes it easy for teachers to design a curriculum that suits the children's needs.

At this time, all types of work can be facilitated through information technology. The world of education is also doing the same thing, trying as much as possible to develop various kinds of innovations in the use of information technology for various purposes in the management of educational institutions.

The development of times and the era of globalization are marked by the rapid development of products and the use of information technology. It affects the conception of organizing and realizing modern learning management. Innovation in education lies in the power of thinking which results in the ideas as a design technology that must be owned by technologists in the field of education and learning [33].

Sutabri [34], computer technology is developing rapidly so that organizations begin to feel that information technology needs to be used for the provision of information. The function of using this information technology is to support the decision-making process that will be carried out by management. The main objectives of developing an information system are (a) to develop an information system that meets the information needs of the organization and the needs of the organization's functions, (b) to develop an information system effectively and efficiently, and (c) to organize a new information system that can handle all problems that occurs within the organization.

Today, information technology plays an important role in almost every aspect of life starting from educational institutions, state and private offices, companies, banks, shopping centers, and so on. Advances in information technology in the world of education will shake the establishment of the traditional education system. Optimizing the use of information technology-assisted services aims to improve efficiency and acceleration of service. The distribution acceleration of information on ECE learning curriculum programs is carried out by optimally utilizing web-based and online electronic service facilities.

The development of ECE institutions today must have a basis of excellence. Program development and institutionalization of ECE units must have excellence in terms of economic, technological, social, and potential sources/resources [35]. Thus, every institution must strive to develop so that the institution has excellence as a bargaining power that can be conveyed to the surrounding community or wider society.

Based on the theoretical review above, the best solution for the curriculum development process still needs to be found to provide convenience to the teacher. The development of curriculum management information system design in ECE institutions is expected to be the solution in improving teacher's ability that still uses conventional steps in developing a curriculum and its various devices.

3. RESEARCH METHOD

This study uses a qualitative approach [36], which is carried out interactively according to research needs, namely to find new relationships on complex problems in the field of curriculum management. Akker [37] that curriculum research design focuses on improving the quality of curriculum design and development. In general, this research tries to examine the practice of curriculum development that has been practiced so far and through a constructive approach tries to find the best solution in the practice of curriculum development through the development of a

management information system model design that facilitates teachers.

The respondents of this study were a principal and thirteen ECE Lab school UNNES teachers who have worked for at least 4 years. The data was collected through a focus group discussion (FGD) to examine the curriculum management practices that have been carried out and discuss the design of effective models in curriculum management. Furthermore, questionnaires were used to find out about the practicality of curriculum management information system design and the response to curriculum management information system design.

The data obtained through the FGD was then analyzed as the basis for developing the curriculum management information system model design. Furthermore, from the initial model design, the level of practicality and responses using a questionnaire were seen. After all, data was obtained, then it was presented to represent the initial model design developed, the level of practicality of the model, and the users' responses to the ECE curriculum management information system.

4. RESULT AND DISCUSSION

4.1 Result

Principals and teachers at ECE institutions are strived to be able to adapt to various developments, one of which is adapting to technological developments. The implementation of information technology in educational institutions can be used to assist its professional improvement, including in developing the curriculum. Curriculum management is a very interesting thing to study, even though it has become the daily task of the principals and teachers to prepare learning activities for children in the classroom.

Teachers in today's conditions are required to be able to design various interesting learning activities using various existing platforms. In practice, teachers try to facilitate various needs of children in every learning activity they deliver. These various activities, of course, must be prepared by teachers through the development of a curriculum that suits the needs of the students and society.

Early childhood education is an institution that develops human resources from an early age. This development program must be programmed through a curriculum document that is developed in every institution. One of the goals in developing a curriculum is to prepare students to be good individuals and be accepted as members of society. Thus, curriculum development must be relevant according to the development in society. The emergence of various ECE institutions in Indonesia takes part in giving a great contribution to the development of human resources that are reliable and professional in the future.

The effort in developing a curriculum that suits the children's needs gives a rich variety of stimulation, and relevant to the development are always be the goal to be achieved. To develop a curriculum, support from various parties is needed, including the need to develop a system that can provide easy and clear steps to design, organize, implement, and evaluate.

The development of curriculum management information system design in ECE institutions is carried out by the principal and teacher to create strengths in the program offered by every institution. This system design development was examined through the practicality and response of the user candidates. Other than that, this system design development received some inputs from the ECE institution to make it more adaptive and flexible.

Professional teachers must be able to develop learning activities and various stimulations that can produce knowledge and skills for children. In practice, learning activities are held interactively, inspiring, fun, and challenging so that students learn and are stimulated in all aspects of development. Therefore, the implementation of learning will be optimal, if it is supported by professional teachers who can develop curriculum and learning designs that are following the needs and interests of children.

A good curriculum suits the development stages of children and society. Therefore, curriculum plays a crucial role for the principal, teacher, student, institution, community, and stakeholder. The research that was done at ECE Lab school UNNES in May-July 2020 obtained data that was collected using questionnaires and focus group discussion. It was used as a basis to analyze the practicality of ECE curriculum management information system design and its response to MIS design to help the ECE curriculum management.

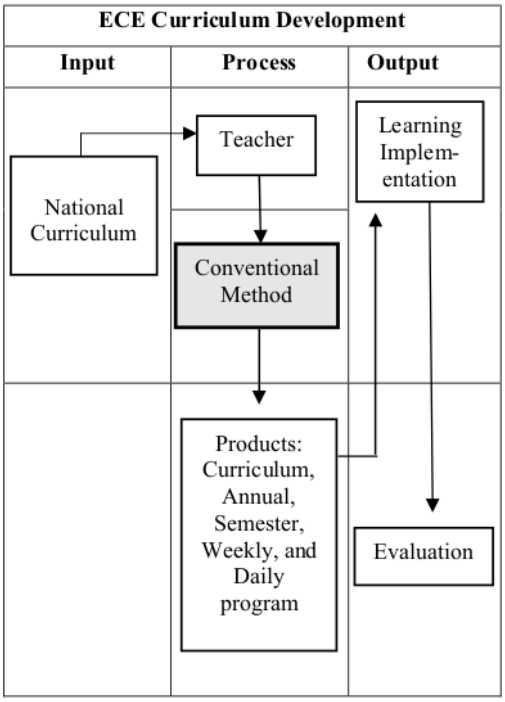
According to the analysis carried out through questionnaires and focus group discussion, the process of curriculum development and documentation still used a conventional method.

Journal of Theoretical and Applied Information Technology
31st October 2021. Vol.99. No 20

ISSN: 1992-8645 www.jatit.org E-ISSN: 1817-3195

The research results on curriculum management according to the condition in the ECE institution (Factual Model) can be seen in the following table:

Table 1. Factual Curriculum Management



Information technology plays a very important role in helping to facilitate the work of teachers to conduct curriculum management. The practice of teachers in implementing curriculum management had used computer assistance but had not used a system or application program that can provide convenience with practical steps in developing the ECE curriculum.

Currently, information technology is increasingly advanced. It has an impact on the development of human resources that are capable to deal with various changes, including in the field of information technology. The development of information technology has affected the educational world. It helps in designing a curriculum, supporting the learning implementation, and developing learning evaluation programs.

Based on the results of the analysis of factual curriculum management design that was studied based on theoretical concepts as well as sharing inputs and discussions during FGD activities, the results of the management information system design development were as follows:

Table 2. The Development of ECE Curriculum Management Information System Design

ECE Curriculum MIS Design		
MIS	**Curriculum Management**	**Activities**
Software development : database system, data processing, and data management	Designing	Institution's vision and mission, national curriculum, strengths, inputs
	Organizing	Curriculum Document, Annual Program, Semester Program, Weekly Program, and Daily Program
	Implement-ing	Effective and efficient learning
	Evaluation	Document and implementation evaluation

Teacher practices in curriculum development by using information technology do require support from institutions in providing facilities and infrastructure related to the fulfillment of information technology. Teachers also have good enthusiasm and motivation in developing the curriculum so that they can plan the best curriculum to be implemented by using information technology assistance in the development process. In addition, in supporting the practice of teachers in ECE curriculum management, the use of information technology by teachers also still requires intensive assistance from various parties, especially in the fields of management, curriculum, and information technology.

Furthermore, the development of curriculum management information system design in ECE institutions was analyzed using questionnaires with the criteria 1= very less; 2=

less; 3= uncertain 4 =good, and 5= excellent. The results of the analysis of questionnaires distributed to ECE principal and teachers in detail can be seen in the table below:

Table 3. Instrument Practicality of the Early Childhood Curriculum System

No	Statement	Result
1	Ease to operate	4,5
2	System performance is easy to understand	4,5
3	Ease of navigation	4,4
4	Easy to find system address	4,3
5	Attractive system display	4,3
6	Precise in preparing information layout	4,2
7	Display system according to the field of education	4,4
8	The system provides knowledge development	4,5
9	Providing information on curriculum development	4,5
10	Provide reliable information	4,5
Result		4.41

Further results about response of the early childhood curriculum system, are in the table below:

Table 4. Instrument Response of the Early Childhood Curriculum System

No	Statement	Result
1	Providing information in curriculum development	4,5
2	Make the teacher's job easier	4,6
3	Increase motivation	4,6
4	Attractive system display	4,2
5	Facilitate curriculum development	4,5
6	Aligning ideas with institutional needs	4,4
7	Increase the desire to innovate	4,4
8	Provide a meaningful learning experience	4,5
9	Building effective communication in curriculum development	4,6
10	Can store curriculum document data	4,7
Result		4.5

Based on these data, it can be presented as follows:

Table 5. The Result of ECE Curriculum MIS Design Model

No	Instrument	Result
1	Practicality of the Early Childhood Curriculum System	4,41
2	Response of the Early Childhood Curriculum System	4,50

In addition to the data obtained through questionnaires, based on the focus group discussion, data on curriculum development using conventional methods and using the ECE curriculum management information system design were obtained, which can be seen in the following table:

Table 6. Comparison of ECE Curriculum Development

No	Development of Conventional Curriculum	Development of ECE Curriculum MIS Design
1	Requires a long time in developing ECE learning curriculum	Requires a long time in developing ECE learning curriculum
2	Uses a less systematic method	Uses a more systematic method
3	The development of materials and activities in learning devices is not in line with the vision, mission, and curriculum	The development of materials and activities in learning devices is in line with the vision, mission, strengths, and curriculum developed
4	The results of curriculum development products and learning devices are not yet standardized	The results of curriculum development products and learning devices are standardized according to the system output design
5	Curriculum development using conventional methods	Curriculum management using a system
6	Curriculum documents and learning devices are difficult to monitor	Curriculum documents and learning devices are easy to monitor using a system
7	Products are stored according to the teacher's will.	Products are well documented and systematic

Based on the research results that are presented above, the development of curriculum management information system design can provide convenience to the principal and teacher to develop a curriculum that suits the needs of children and institutions.

4.2 Discussion

Based on the results of research on each instrument, the practicality of the early childhood curriculum system obtained an average score of 4.41 from the highest achievement of 5. The average of these results shows that the design of the curriculum management information system is practical and provides convenience for the teacher's practice to develop the curriculum, starting from the development of the institution's curriculum documents and other supporting programs that help facilitate the implementation of learning in the classroom.

The response of the early childhood curriculum system instrument obtained a score of 4.5, where the score indicates that the early childhood curriculum system design received a good response from the respondents. This was also reinforced through interviews, that through the design of this system, it was easier for principals and teachers to carry out work related to curriculum development. A good system design performance is the right solution to overcome the problems of early childhood curriculum development. In addition, of course, the system design developed is easy to operate by teachers in the field. It also requires principals and teachers to be able to adapt to the development of information technology.

The curriculum has a very important role in delivering the nation's next generation, especially in the early childhood education curriculum. A curriculum is very important that a systematic way of working is needed to provide convenience to the principals and teachers in curriculum development. Mølstad ([38]), the curriculum governing has varied over time. Therefore, a curriculum must be designed according to the needs with various interesting and predictive program designs for early childhood.

Early childhood education curriculum plays role in giving provision related to the attitude, knowledge, and skills needed by students to enter the next level of education. If the students have enough provision in ECE, then, according to the development study, children will be prepared to enter primary education. Here is the importance of the ECE curriculum, it provides various development stimulation to the students to make them independent according to the stages of development and changes in society.

Based on the research result, the development of ECE curriculum management information system design has good impacts on curriculum development by providing convenience to principals and teachers in doing their tasks. Various interesting stimulation programs can be designed in the curriculum document of ECE institutions and implemented through the learning program. Good curriculum development needs to be varied and rich in stimulation.

Management information system design that is developed can provide space to improvise a curriculum to develop various children's competencies through the learning process in the classroom. Thus, the development of this system design provides convenience for the teacher in developing a curriculum according to the needs of students and wider society.

This research emphasized that curriculum development requires the readiness of principal and teacher, facilities, and various materials to be included in curriculum design. Every ECE institution needs to have a curriculum development team that works to develop a curriculum according to the institution's characteristics so that the students will have abilities that suit the competencies developed in the curriculum. The lack of competencies and materials designed in the curriculum will result in the lack of stimulation given to the children in ECE institutions.

ECE curriculum must be able to help children in developing all of their potential so that they will have precious abilities to achieve success in the next level of education [39]. The educational curriculum is used to facilitate the development of various children's potencies and is very much needed by the institution to provide good and quality services.

The research result on the practicality in using curriculum management information system design obtained an average score of 4,41 or in a good category. It means that this system plays an important role in providing clear and detailed information about the curriculum development, providing convenience to draw attention and interest in working, and providing convenience to give new inputs in developing a curriculum.

Furthermore, the response of principal and teachers about management information system design was in a good category with an average score of 4.50. It shows that this system contributes to improving motivation in working, provides convenience in understanding the information related to the ECE curriculum development, gives motivations and innovations in developing a program, and provides a new learning experience that is very important to ECE teachers.

Therefore, based on the questionnaires of principal and teachers' practicality and response, the development of management information system design is in a good category and can be the basis that ECE institution needs a more practical and innovative curriculum development system that allows professional teachers to work easier. Nowadays, technology has entered into every walk of life. In this era of technology, the digital revolution has transformed almost everything from our work at our organizations to our daily routines [40].

This system design leads principals and teachers to develop a curriculum according to their needs. A curriculum is developed contextually, that is by considering regional characteristics, school conditions, and children's needs [41]. The development of early childhood who pay attention to the environment. Therefore, through this innovative system development, various development programs materials can be given according to the institution's needs [42].

The implementation of curriculum development must pay attention to every component. Because society is always changing, curriculum development requires an innovation using technology devices in the form of curriculum management information systems. Using this system, various inputs in the development of curriculum can be well managed and the work steps will be more effective. Furthermore, this management information system can directly accommodate various inputs given by the principal, teacher, parents, society, and stakeholders. This was also emphasized Amin et al., [43] that the use of information technology creates a governance change from conventional to digital.

Information technology gives a good contribution to the curriculum management in ECE institutions, but on the other hand, information technology, based on the results of interviews and observations, also has an impact, namely increasing teachers' works and creating difficulties to adapt to the information technology. This condition shows that ECE teachers are not all ready to use information technology to support their performance as demands for professional teachers. In addition, there are also opinions that it is easier to use manual methods in curriculum management.

The performance of the information technology system developed certainly facilitates teachers to implement effective curriculum management according to the characteristics of the institution. ECE institutions have a curriculum development team that is responsible for developing a curriculum that suits the characteristics of the institution, which is developed from the vision, mission, and goals of the institution. This system will produce output that makes curriculum development easier, facilitates the process of developing learning devices to be more effective, and the curriculum can be well documented. Information technology is the right solution to overcome various problems of early childhood curriculum development. Therefore, every teacher can do their best in the learning activities so that learning becomes more interesting by planning the curriculum according to the children's needs.

The design of the curriculum management information system in ECE institutions, is an innovative step that plays an important role and contributes through the development of a curriculum that is in accordance with the goals and needs of the institution. Curriculum management information system design, developing the competence of ECE principals and teachers to be able to follow the development of information technology and utilize it for the development of early childhood education.

Various obstacles in curriculum development are very varied, including teachers have not been able to develop curriculum documents, curriculum development steps have not been effective and require a long time, static curriculum documents become references in learning that should be developed based on the needs and characteristics of institutions, curriculum that is not predictive in accordance with current development. Through the development of curriculum management system design, various obstacles in curriculum development that exist in institutions can be resolved and provide innovative solutions through information technology used in learning.

5. CONCLUSIONS AND SUGGESTIONS

This study examines the problems of curriculum management in the ECE Lab school UNNES institution. Based on the results of the FGD, a factual model of curriculum management that runs in the institution was obtained and an initial model of the curriculum management information system was developed using the software. Then, the initial model of the system design that has been developed was also analyzed using a questionnaire to determine the practicality and user response. The results of the initial model research showed that the design of curriculum management information systems based on practicality and user responses questionnaires were both in a good category. Thus, curriculum management information systems provide convenience in developing a curriculum that is following the needs of the institution.

Curriculum management system design, can facilitate curriculum development in accordance with regional characteristics, conditions of ECE institutions, culture and children's needs so that education programs can be adjusted in educational units.

Some suggestions proposed by researchers are as follows:

1. The development of this management information system design is the initial product in the development of a web-based curriculum, so further research is needed in developing a better system.
2. Further research is needed so that the curriculum management information system design is simpler, more attractive, and easier to operate.

ACKNOWLEDGMENTS

This research received support from the research and community service institution of Universitas Negeri Semarang 2020. Basic Research, DIPA Universitas Negeri Semarang, No: 220.23.4/UN37/PPK3.1/2020

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