DEVELOPING THE INFORMATION LITERACY-BASED CURRICULUM FOR TEACHER EDUCATION

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Abstract. *The ability of information literacy is very important for teachers in carrying out their duties and functions because it is related to the teacher's ability to find, access, and evaluate information. In addition, information literacy skills are also related to lifelong learning that teachers need to improve their competence independently. Information literacy competencies need to be established through education and training in universities. Some studies have found that the teacher's literacy ability is still low. It takes an effort to prepare teacher candidates who have information literacy skills, one of which is by developing an information literacy-based curriculum (ILbC) for teacher education. In this article, the author studies literature related to curriculum concepts, organizations, models, designs and curriculum structure based on information literacy for teacher education. Base on the analysis, the ecletic (combination of cognitive process and technological concept) concept, integrate curriculum organization, Walker model, and problem centered design is appropriate fo developing ILbC. The curriculum structure is also presented. This curriculum is expected to be an alternative to develop information literacy skills of prospective teacher students.*

A. INTRODUCTION

At the end of the 20th century, the concept of information literacy was defined as a set of abilities to know when information was needed and had the ability to put, evaluate, and use information effectively (Kimmo dkk, 2005). This capability then becomes very important as a result of technological progress. Along with this, information literacy is seen to be more complex because of the diversity and abundance of accessible infor-

mation choices (ACRL, 2000). Not only librarians, all professions require literacy competencies. This is because every profession requires a source of information that can be accounted for.

The concept of information literacy extends to how to find information through the learning process. The better known American Association of School Library AASL states that learning in the 21st century uses a new dimension with the expansion of the primacy of infor-

mation, constantly changing tools, increasing digitalization of text, and high demands for critical and creative thinking, communication, and problem solving collaboratively (AASL, 2009). Of course the learner must develop the level of ability, ethics, and responsibility for information. In addition, learners must also be able to access high-quality information from many sources.

In the field of education, for example, there is a significant relationship between teacher's information literacy ability and lifelong learning motivation and the effectiveness of school activities. Research by Liu Feng and Jih-Lian Ha proved that the better the teacher's information literacy skills, the better the quality of classroom learning (Liu, JIh,2016). The relationship between the two things is found in the mastery of the method and learning content delivered by the teacher. In addition, information literacy is closely related to lifelong learning, so that it becomes one of solutions for improving teacher professionalism.

Because of the importance of the role of information literacy skills in the field of education, the Consortium of National and University Libraries (CONUL) suggested that information literacy be integrated into the education curriculum. In this case, integrating information literacy

in the education curriculum is about building the ability of independence in lifelong learning through systematic steps (CNUL, 2009). In addition, ACRL's Education Behavioral Sciences Section (EBSS) issued an information literacy competency standard for teacher education aimed at providing guidance for Education Institutions for Education Personnel to develop information literacy learning for prospective teacher students (ACRL, 2000).

Prospective teacher information literacy is still low. Opinions between librarians, lecturers, and prospective teacher students collected showed that prospective teacher students did not have a good understanding of information literacy concepts and abilities. Even in the study it was also found that 39 prospective teacher students said that they had never heard of prior information literacy. The term information literacy is foreign to some of the people involved in the research (Marcia, 2012).

Based on the importance of information literacy skills for teachers and the low ability of these students to prospective teachers, the author tries to make an idea about the curriculum of information literacy (ILBC) for teacher education in universities. In this article ILBC is the integration of information literacy skills

that are integrated in the curriculum. The focus of the discussion of this article is to analyze concept, organization, design and all about curriculum structure of ILBC.

B. LITERATURE REVIEW

1. Concept of Information Literacy

The concept of information literacy was originally only for people who learned about literature. However, as Issa E said in his dissertation, the use of the term broader information literacy makes the concept of information literacy need to be developed. Some alternative concepts are then issued by professional organizations, educational institutions, and individually to explain the concept of information literacy better (Al-Issa, 2013). The alternative definition emerged as a response due to the dynamic development of information available, especially when computers and other information technology emerged in the 80s era.

The most commonly used literacy concept is the definition issued by the American Library Association (ALA) which explains that information literacy is recognizing when information is needed and has the ability to effectively place, evaluate and use information needs (ACRL, 2000). In addition, AASL also responded to the need to expand the definition of information literacy by explaining that information literacy includes literacy from various aspects including digital, visual, textual, and technology that are important for all students to succeed amid a wealth of information (AASL, 2009).

Recent developments regarding the concept of information literacy have progressed more rapidly. Information literacy is defined as an integrated set of knowledge that includes finding reflections from information, understanding how information is produced and assessed, and the use of information to create new knowledge and participate with good ethics in the learning community (Okanagan, 2016). Therefore, information literacy cannot be separated from the education process because through this ability information can be accessed, evaluated and used properly.

The increasing need for information and the abundance of information sources in various fields of science makes the concept of literacy information cannot be narrowed down to the library field. The concept of information literacy must certainly get a place in other fields of science so that it can effectively provide information well. A more advanced development makes the concept of literacy very essential because it

involves increasing professionalism. One of the professions that must develop competency in a sustainable manner is the teacher.

In a paper presented by Bruce in "the 3rd International Lifelong Learning Conference", several issues related to information literacy in the field of education, especially information literacy education, are explained as a catalyst for the transformation of information society into a learning society in the future. Bruce said that currently the teachers focus on carrying out learning activities based on information and communication technology (Bruce, 2004). However, it must be noted that the basis of all these things is the effective use of information. It brings this information practice into the curriculum, and ensures that students have the ability to be involved, and reflect on the practice, which is information literacy education. Information practices can vary somewhat across disciplines, but they clearly support academic and professional practices in, for example, the humanities, science, social sciences, health sciences and technology-based disciplines, and support knowledgeable community responsibilities. Even Ross Todd has identified schools in Australia, students with better information literacy skills scores on assessment criteria and in ex-

ams (Todd, 1995).

2. The Role of Information Literacy for Teacher Education

Information literacy can be said to be the fundamental ability a teacher must possess to manage information. Information literacy will make it easier for someone to study independently wherever they are and interact with some information. In addition, by having information literacy, the students are able to think critically and logically and not easily trust the information obtained so that they need to evaluate it first (Johan, 2012).

Many associations issue views on the interrelationship of information literacy skills with lifelong learning. The International Federation of Library Associations and Institutions (IFLA) issued a book entitled, "Guidelines on Information Literacy for Lifelong Learning." According to IFLA, information literacy and lifelong learning have mutually reinforcing relationships that are strategically mutually influential on the success of every individual, organization, institution and country in the global information society (IFLAI, 2006). Both of these are two modern paradigms in order to survive and compete in the 21st century. In this case, the literary contribution of information is not only for individuals, but

more broadly for organizations and society in general. If viewed from the perspective of lifelong learning motivation, the teacher is one of the related professions directly because they have to convey information to their students.

Research conducted by Liu Feng explains that there is a significant relationship between teacher's information literacy abilities and lifelong learning motivation and the effectiveness of school activities. This is the best quality of classroom learning (Liu, JIh,2016). The relationship between the two things found in the mastery of the method and learning content delivered by the teacher. In addition, information literacy is closely related to lifelong learning, so that it becomes a driver for improving teacher professionalism.

Gandhe expressed that in the information society, the entire teaching and learning process is change and technology pedagogy is always used (Gandhe, 2011). Students are expected to be able to find information themselves where the teacher is a facilitator. Teachers must be aware of the many sources of knowledge available inside and outside the library. Therefore, teachers must be able to access information from various sources and should teach their students to use the information. In the transfer of

knowledge, the teacher is a person who is trusted by students. So, the teacher must be aware of information or in other words the teacher must have information literacy skills.

Finding information that can be accounted for is one of the responsibilities of a teacher at this time. Nigel et al explained that web information search strategies are related to one's learning approach (O Nigel, 2002). The relationship in question is how much information is sought from one's learning approach. Therefore, searching for good information has an impact on a good learning approach from someone. Even according to Tarunasena et al through information literacy, can help develop one's character in managing information (Tarunasena dkk, 2018).

3. Information Literacy for Teacher Education

Because of the importance of information literacy for teachers, the universities of education must also be designed in order to develop literacy as early as possible. According to Ghandhe (2011) explained that various associations issued their views and thoughts about information literacy for teacher education. The National Forum and Information Literacy (NFIL) recommend that teacher education and expected competencies

should include information literacy. Then the National Educational Technology Standards Profect (NETS) has begun an effort to effectively support the use of technology in learning and learning. Furthermore, AASL also issued information literacy standards for learning (AASL, 2009).

One of the most specific ways to explain information literacy standards for teacher education is that issued by the Education and Behavioral Sciences Section (EBSS) of the ACRL. These standards cover a variety of basic abilities in finding, retrieving, and evaluating information for prospective teachers. It can be said that the information literacy standard is the ideal information literacy that should be mastered by prospective teacher students. These standards can be a reference in the preparation of goals to be achieved by teacher education students regarding information literacy.

3. Developing Curriculum

Planning a curriculum is about developing concepts and organizations in the form of developed curriculum. This is related to an in-depth analysis of the intent and context (what is to be achieved), conceptualization of curriculum design (such as what a curriculum is), and the process and implementation of a curriculum. Therefore, curriculum planning is an integral part of curriculum development itself. While curriculum design leads to the regulation of components of a curriculum. The most essential form in the curriculum is the concept and organization of parts of the curriculum (Print, 1993).

4. Curriculum Conception

There are five curriculum concepts initiated by curriculum experts. The five concepts include academic rationalist concepts, cognitive, humanistic, social, technological and eclectic processes. The difference in the five curriculum concepts can be seen in table 1.

Table 1. Curriculum Conceptions

| Curriculum Conceptions | Purpose | Characteristic Analysis | | |
		Content	Learning Approach	Evaluation
Academic rationalist	To enhance the individual's intellectual abilities in those subject areas most worthy of study	Emphasizing the knowledge, skills, and values to be found in the various academic disciplines	Teacher-centered approach	Emphasizes examination and testing of knowledge and skills

Cognitive process	To provide students with the necessary skills or processes to help them learn how to learn	The numerous skills that enable us to conceptually address the world and solve our problems	Combination of student-centered and teacher-centered teaching-learning strategies	Testing and use of problem-solving situations.
Humanistic	To provide learners with intrinsically rewarding experiences to enhance personal development	Integration cognitive, affective, and psychomotor	Experiential learning by experiencing through one's senses	Qualitative measurement such as observation, interviews, personal diaries,
Social reconstruction	The school curriculum should effect social reform and help produce a better society for all	Their content from an examination of societal needs, social issues, current ideals and future aspirations	Most methods require group activity and include group discussions, group experiences, to achieve social consensus, student involvement in community activities and group investigation of social	Employ traditional assessment techniques such as examinations and tests.
Technological	Emphasizes the effective and efficient resolution of predetermined ends	Invariably employed as a content base for the technological conception	The nature between learner and information source	Assessment procedure of effectiveness and efficiency
Eclectic	Using two or more curriculum conceptions			

(Source: Print, 1993)

5. Curriculum organization

In general, the curriculum organization consists of two things, namely the organization of the core and the organization of components. The core organization consists of a variety of themes, topics, problems, questions and projects that are significant, while the component organization consists of various concepts, generalizations, abilities, and values (McNeil,1996). In addition, Rusman also explained that the curriculum organization is very closely related to the arrangement of learning materials in the curriculum, while the sources of learning material are cultural values, social values, aspects of students and society, as well as knowledge and technology (Rusman, 2008). Therefore there are several things that must be considered, namely scope, sequence of materials (sequences), continuity, balance, time allocation, and integration. Classifications regarding curriculum organization can be seen in Table. 2.

Table 2. Curriculum Organizations

Curriculum Organizations	Kind of Curriculum Organizations	Description
Subject curriculum	Separated subject curriculum	Learning through separated subject
	Correlated curriculum	Learning through unification similar subject
Integrated curriculum	Core curriculum	Using ingredients from various subjects for solve student problems
	Social functions and persistent situations	The curriculum is basedon student problems on-the community
	Active learning	The curriculum that provides skills or vocational

(Source: Print, 1993)

6. Curriculum Model

A model is a simplified representation of reality which is often depicted in diagrammatif form. The purpose of a model is to provide a structure for examining the variables that constitute reality as well as their interrelationships (Print, 1993). Zais in Print considers models to bel miniature representations that summarize data and/or phenomena and thus act as an aid to comprehension. Dallen in Print refers to models or paradigms as simplified or familiar structures which are used to gain insights into phenomena that scientist want to explain (Print, 1993). In curriculum development development we use models to examine the elements of a curriculum (the variables) and how those elements interrelate.

Curriculum development is seen here as the process for making programmatic decisions and for revising the products of those decisions on the basis of continuous and subsequent evaluation. A model can give order to process. As taba expressed, curriculum development should be approached systematically. When considering both structure and strategy in curriculum development, the curriculum continually and authentically evolved in a relevant context (Peter, 2013).

Table 3. Curriculum Models

Models of Curriculum Development	Description	Strength	Weakness
Rational/objectives models (Tyler Model and Taba Model)	These models emphasizes to the process curriculum the fixed sequence of curriculum elements, beginning with objectives and following a sequential patter from objectives to content, method and finally evaluation.	These models have simplified what is a confusing, daunting task to many prospective curriculum developers, especially in its logical and sequential structure	This model could not be used in unpredictable nature of teaching and learning
Cyclical Models (Wheler Model and Nicholls Model)	Cyclical models see the curriculum process as a continuing activity, constantly in a state of change as new information or practices become available	Cyclical models provide baseline data upon which effective objectives may be devised	More difficulto to locate largely because this approach to the curriculum process is so successfully employed by curriculum developers
Dynamic/Interaction Models (Walker Model and Skilbeck Model)	Dynamic models have emerged from a more descriptive approach to curriculum where researchers have observed the behavior of teachers and developers as they devise curricula	These are far more realistic ways of handling curriculum development	Some dynamic models offer so little direccion that developers are left perplexed as to wat to do

(Source: Print, 1993)

7. Curriculum Design

In developing a curriculum design starts from determining the concept and foundation of a curriculum. The concept and foundation are the considerations in thinking. When a curriculum developer starts to develop the curriculum, they usually have ideas about curriculum design in their minds. This is very important for curriculum developers to find out the different groupings of curriculum design, because it is directly related to the consistency and effectiveness of the developed curriculum (Print, 1993). Curriculum design is classified into four, namely subject, as listed in Table 3.

Table 4. Curriculum Design

Curriculum Design	Description	Emphasis	Approach
Subject-centered design	Based on classification and organization of subject matter into discrete groups called subjects	Acquisition of knowledge subjects and content structured sequentially	Design discipline academic consists of knowledge, ability, and values
Learner-centered design	Organizing curriculum appears from various needs, interests, and student desires	Individual development	There are two approach that is design activity / experience and design humanistic
Problem-centered design	Curriculum design focused on attention and trial for solving problem from within and the environment social	Solving the problems	There are two approach that is thematic approach is a problem approach
Core design	Emerge from a set general learning which cover knowledge, ability, and value taught to students	Balance knowledge, skill, and attitude.	Unification knowledge, skills, and inner attitude learning

(Source: Print, 1993)

8. Method

This research is a literature study where the author searches for sources from relevant journal articles and books. After that, the author combined it into an idea of an information literacy curriculum. The idea was written in the form of curriculum information-based curriculum recommendations that could be used to advance teacher education.

9. Discussion

In learning information literacy, several themes are recommended that can be used, including; information literacy as a concept (including developing self-confidence as information literate, communicating with people and organizations, searching and browsing, selecting and evaluating information, ability to work in teams, writing well and correctly, and an information economy (Sheila, 2000). In addition, in the Boyer Commission report, a strategy is also recommended that requires students to be actively involved in offering a series of important questions, research or creative exploration to find answers, and communication skills to convey the information found.The program is structured in such a way as to create a learning environment student-centered where inquiry is the norm, problem solving becomes focused, and critical thinking is part of the learning process, such a learning environment requires information literacy skills to encourage students to improve their abilities directly or indirectly (ACRL, 2000).

Student information literacy ability

is related to the multiplication of learning independence. This is because students are directly involved in using various kinds of information resources to broaden their knowledge, ask informed questions, and sharpen their critical thinking. To achieve competencies in information literacy, an understanding is needed that these abilities are not separate from the curriculum but are interwoven into the content, structure, and curriculum sequence. Integration in this curriculum also provides many possibilities for advancing the influence and impact of student-centered teaching methods such as problem-based learning, evidence-based learning, and inquiry learning (CNUL, 2009).

Guided by teaching staff and others in a problem-based approach, students think about the content of learning information literacy at a deeper level than is possible through the exclusive use of learning with textbooks. To take full advantage of problem-based learning, students must often use thinking skills that require them to become skilled users of information resources in many locations and formats, thereby increasing their responsibility for their own learning (CNUL, 2009).

Information literation programs can be implemented through integration in the curriculum. Learning methods that are suitable for planting information literacy include learning critical thinking, problem solving, and other innovative learning. The recommended learning approach is self directed learning. This approach helps students to build understanding and meaningfulness from contextual learning content. In addition, students can also rationalize, solve problems, and be critical of content (Gandhe, 2011). Some things that are the principle of self directed learning, including;

a. Provides information about when and how to use metal learning strategies.

b. Explicitly illustrate how to use strategies to think through solutions to real-world problems.

c. Motivate students to be actively involved in being actively involved in the subject matter by going beyond the information provided to restructure in an open-minded way and prior understanding.

d. Gradually shift responsibility for learning to your students through training exercises, questions and answering dialogues, and / or discussions that involve them in increasingly complex thinking patterns.

In seeking the information needed,

information literacy learning can apply WWW learning. The methods carried out according to include (Relan, 1997);

a. As a suber for identification, evaluation, and integration of a variety of information.

b. As a medium of collaboration, change, communication of ideas.

c. As an international platform for expression and contribution to understanding and cognitive meaning.

d. As a medium to participate in apprenticeship simulation experiences, and cognitive partnerships.

Doyle in his report introduces resource-based learning that can be used as a method of learning information literacy (Doyle, 1992). The principles of learning the method include;

a. Using a variety of learning strategies to support students as active learners.

b. Learning is regulated by utilizing groups.

c. Critical thinking or problem solving abilities are developed through meaningful activities that include placing and interpreting information.

d. Learning demonstrations are made how facts are learned in the classroom together.

e. Student assessment procedures are used by involving a demonstration of the information literacy process, through portfolio, projects and performance.

f. Libraries and other sources of knowledge are part of the class.

g. Inform the source of information inside and outside the appropriate class.

The ILBC concept, based on the opinion of Webber, Ghande, Doyle, Conul and ACRL, is more in line with the combination of cognitive processes and technological concepts. Where the need for information is a case study of a problem that is sought a solution through interaction with information sources, one of which is technology. In this case teacher education students are trained to solve problems through searching, using, and evaluating information. In addition, the concept of technology is also in accordance with the explanations of these experts. In which interaction with technology is also emphasized in ILBC. This fact is related to students' emphasis on streamlining and streamlining the search, use, and evaluation of information. The ILBC approach is student interaction with information sources through two-way learning between students and lecturers.

If analyzing the opinion of CONUL and Gandhe then the organization of the ILBC curriculum is more in accordance with the integrated curriculum. This curriculum does not stand alone, but is integrated in other curricula in the form of subjects. But education at universities in Indonesia still uses subject matter curriculum. Therefore the most appropriate solution is to use the subject curriculum organization. The most sophisticated form of subject curriculum for ILBC is correlated curriculum in which a unit is correlated with information literacy skills. For example in plant morphology courses in biology education students can be moralized with information literacy skills.

Of the three main models described by Print with their weaknesses and shortcomings, the authors argue that dynamic models provide an appropriate pattern in the development of literacy-based curriculum for teacher education in higher education (Print, 1993). Dynamic models provide uncomplicated patterns in the implementation process in the field. This is because the information literacy curriculum is integrated with the curriculum that applies in universities and even at the level of study programs.

The most important thing in the development of information literacy-based curriculum is how the curriculum content used can be integrated with the information literacy skills formed in prospective teachers. In this case the Walker Model is appropriate to use where there are three main processes proposed, namely platforms, deliberations, and curriculum design. The position of information literacy abilities that want to be formed in students is given through the indirect learning process. In this case learning is not only intended so that students have mastered plant morphology, but also to practice their information literacy skills.

There are three main stages in the Walker Model. In the first stage, Walker argues 'platform' statements are recognized by curriculum developers. These statements consist of a hotchpotch of ideas, preferences, points of view, beliefs and values that are held about the curriculum. They may be defined clearly or even logically, but they form the basis or platform upon which future curriculum decisions are made by curriculum developers (Print, 1993).

Once the interaction between individuals behind, they are the said to enter the deliberation phase. Walker contends that during this phase individuals defend their own platform statements and push 'spur of the moment' ideas. Together

these events provide a situation where developer seek to clarify their ideas and reach a consensus. From this apparently chaotic period, the deliberative phase produces considerable illumination (Print, 1993).

The deliberation phase is not precisely laid out in a series of steps or procedures as would occur in an objectives model. It is a complex, amount of background week before the actual curriculum is designed. The final phase of Walker's model is what he term design. In this phase developers make decisions about the curriculum elements. Decisions have been reached after extended discussion and compromise by individuals. The decisions or specific curriculum materials (Print, 1993).

Through three stages of curriculum development with the Walker model, curriculum development can develop an information literacy curriculum well. Of course one of the drawbacks of this model is that the pattern shown is very limited. However, the authors argue that this model is the best for two reasons, namely there is a deep platform analysis, and tends to be uncomplicated. Information literacy as a science must have a solid foundation and because in its implementation this curriculum is an integrated curriculum, it requires an uncomplicated process.

Curriculum design recommended in ILBC, referring to the opinion of Webber, ACRL, Gandhe, and CONUL, is problem-centered-design in which learning is directed at solving problems regarding information. Students are given cases that are solved through accessing, evaluating, and using information. In addition, students are expected to be able to solve problems related to information both to overcome problems in themselves and the social environment.

The graduate competency standard in this information literacy based curriculum can be adjusted to the information literacy standards issued by the Association of College and Research Libraries (ACRL) (AASL, 2009) in 2000 regarding information literacy standards. Specifically, these standards are then derived by EBSS (The Education and Behavioral Sciences Section (EBSS) of the ACRL. Details of information literacy standards can be adopted to become graduate competency standards in this local content curriculum, including; 1) Standard 1 (information literate students determine and articulate the need for information and choose various strategies and tools to find information), 2) Standard 2 (students who are literate in information place and select information based on

their suitability for specific information needs and student development needs), 3) Standard 3 (students who are literate in information organize and analyze information in the context of a variety of specific information needs and the development of their suitability with recipients of information), 4) Standard 4 (students who are literate in information synthesize, process and present information in a manner that is appropriate to the purpose for which information is needed), 5) Standard 5 (students who are literate evaluate separate pieces of information and the whole process of information seeking), and 6) Standard 6 (information literate students know how to use and disseminate information with good ethics).

In addition, Webber et al (Sheila, Bill, 2000) (2000) recommend several themes that can be used including; information literacy as a concept (including developing self-confidence as an information literate person, communicating with people and organizations, searching and browsing, selecting and evaluating information, team abilities, writing well and correctly, and information economy. However, the content of information literacy must be adapted to the development of the child, in this case Doyle (Doyle, 1992) (1992) explains that; 1)

All children should start school ready to learn, 2) Primary and secondary students need to learn how to learn to make informed decisions, and 3) College students must be provided with literacy and other abilities that are important for work and society. Gandhe (Gandhe, 2011) (2011) also recommends the content of information literacy modules for prospective teacher students as follows; 1) Basic library literacy, including; a) Library awareness, b) Proximity to library equipment, c) Knowledge organizations in libraries, d) Various sections of the library, and e) Services provided by the library. 2) Source literacy, including a) Types of sources (books, periodicals, reference books, web resources, electronic sources etc.) b) Organization and structure of sources, and c) Interests and uses of various sources. 3) Computer and internet literacy, including a) Basic computer, b) Basic internet c) Web resources (search engines, subject gateways, subjects directories, e-journals/e-journals, databases in education, social networking resources, update pieces about information, d) Search techniques (identifying, making of strings, use of bolean operators, alternative search strategies, advanced search techniques), e) Evaluation and non-print resources, evaluation of electronic and web resources),

and f) Netiquettes and ethics. 4) Use of information, including; a) Information organization, b) Transfer information effectively, c) Track information taken, d) Information security, and e) Copyright and IPR issues. Besides, the structure of the contents in this recommendation focuses on literacy on the basic internet, including; 1) Description of various information sources on the internet (blogs, websites, official documents, journal articles, etc.) 2) Information needs, 3) Management of information, 4) Evaluation of credibility of information, 5) How to use information (citation).

Based on the previous analysis, this curriculum concept is an eclectic concept where the concepts used are the concepts of cognitive processes and technological concepts. Where this curriculum is focused on improving critical thinking problem solving of students through the interaction of students with information sources. Therefore, to study information literacy, Webber et al (Sheila, Bill, 2000) (2000) recommend several themes that can be used including; information literacy as a concept (including developing self-confidence as an information literate person, communicating with people and organizations, searching and browsing, selecting and evaluating information, team skills, writing well and correctly,

and information economics. Therefore, supporting facilities are very needed for the successful implementation of this curriculum.

C. CONCLUSION

Information literacy skills are very important for teachers in carrying out their duties. In addition, this ability can also improve the professionalism of teachers independently. Therefore, this capability needs to be established since preparing prospective teachers in universities. One of the recommended solutions for forming this capability is an information literacy curriculum. The development of information literacy based curriculum can be a combination of the concepts of cognitive and technological processes. The right curriculum organization is correlated with the curriculum which is part of the subject curriculum. Furthermore, Walker models are recommended to develop this curriculum based on problem centered design.

tion phase.

D. REFERENCE

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