

Information Technology Units in Bachelor Degree of Library and Information Science (LIS) Curriculum in Indonesia

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ABSTRACT

The aim of this paper to discovers and describes the type of information technology (IT) units in bachelor degree of LIS education curriculum through its university's official websites. This paper tries to find out what are the types of IT units in bachelor degree of LIS course in Indonesia? How does it fit the need of the information age? The research method is using curriculum observation through the university's official websites. The author search for IT units based on its name, cluster that available on the curriculum structure, and interviews some lecturers on the university regarding of the curriculum structure. Following that, the data is classified into some categories and finally each category is discussed. The research finding from 8 universities conduct LIS education was surveyed shows different portion of IT units. The range of the IT units offered in the curriculum is from 6 to 14 units. This is because each university has specialty that differ from one to another. However, those IT unit titles have similarity such as introduction to basic computer and information technology, information retrieval system, library automation, and digital library and web design. All of the IT units aim to support student skill on IT so they can help them handle the library and information job. This is only preliminary research, and there were still many areas that need to be covered. For further research, the involvement of the LIS course coordinator and IT lecturer need to discover and to gain in-depth information about the role of IT units in LIS education.

Keywords: LIS education; LIS curriculum; Information technology; Indonesia; Curriculum development; Information technology unit.

INTRODUCTION

On the late 20th century there were many universities that conduct LIS education in Indonesia. From the range of time 1983-2008 there were 14 universities that offer LIS program in Bachelor degree or undergraduate. (Indonesia Education Information Portal, 2009), (Zain & Leidge, 2007). The development of LIS education had been influenced by the demand of LIS graduates to work in such areas like libraries, information and document centers, and other related job in information and library field area. The changing paradigm from industrial into information and knowledge age also give big contribution to the developing of LIS education. Previously, the LIS education mainly conducted in a big city (mostly in Java Island) (Sulistyo-Basuki, 1993), but now it also reaches the other region of Indonesia like Sumatera and Kalimantan. That phenomenon shows the importance of having LIS graduates to handle the information works all around the Indonesian regions.

The enhancing of information technology brings significant value to the development of library job and facilities. Many IT based services are available in some big libraries like OPAC, circulation, and self check out; IT also support internal library processing. Therefore, all LIS graduate students are expected to have some IT skills that suitable for the library requirement. Those IT skills are presented and available throughout the LIS curriculum. Every university conduct LIS has different curriculum strength and uniqueness for instance in Padjadjaran University emphasizes on librarianship and communication skills, Airlangga University weighting on IT and information related skills and University of Indonesia has good information organizing skill. This is because there is no standard curriculum in Indonesia (Zein, 2007). Each curriculum scheme brings different output for LIS graduates. However, since the emerging of computerized catalogue and when the manual library and information center has been change from into digital pushes the LIS curriculum in Indonesia to change. Almost all LIS curriculums have IT based units, which mean increases the IT units or embed IT in all aspect of library materials. However, there is an obstacle when a university develop IT based curriculum because the rapidly change of the technology, and this brings difficulties during implementation. (Zain, 2009). There also some difficulty to blend IT and librarianship on class, because some IT practitioners don't have library background and vise versa, so to obtain the output in order to give understanding and

skills of IT for the LIS students, a lecturer should be competent or has knowledge both IT and librarianship.

The dynamic change of LIS curriculum is to fulfill the industries and stakeholders requirement, in which now there are many libraries and information centers that use technology to increase library performance. It is no doubt that the LIS graduates need IT skills and knowledge as their power in work place and those requirements need to be covered in LIS curriculum. The added value on LIS curriculum especially with IT units is important for the LIS graduates to compete in the global economic. (Mannan, 2009). Some universities in Africa, also put some multimedia, ICT, and computer subjects / units as part of their LIS curriculum. (Ocholla & Bothma).

The aim of this paper is to discover the information technology units in all universities conduct LIS bachelor programs, also discover the types of the IT units in LIS education curriculum. This paper also tries to find the matches between the IT units and the information age. This is important to know about how the LIS education covers the IT units as part of their skill building on librarianship.

The research methodology is using curriculum observation through the official university websites. The website observation is important to be used to gather data about the curriculum as evidence. The data will be gathered from 11 universities in Indonesia that have LIS bachelor degree but after final investigation there were only 8 (eight) universities that still conduct LIS undergraduate degree, and 1 (one) website is under construction. All information was accessed from the website during November 2010 to February 2011. For the LIS education institution that is not available on the portal yet, the author contacted directly to the LIS department staff to collect the curriculum data. Since this is a preliminary research, author only collect curriculum data from the official website, some of them were consulted with the department staff if the curriculum structure was not clear, some of them have very clear curriculum structure that divide LIS units into some categories.

The research outcomes are, gives an overview about the IT units in LIS curriculum that available at this moment. So, the paper will give actual and latest evidence to university that conduct LIS courses about the IT units requirement, so they will have consideration when they redesigning the curriculum in the future.

LIS Education in Indonesia

There are many institutions that have LIS courses in some regions of Indonesia. The courses degree is D3 (Diploma), S1 (undergraduate), and S2 (postgraduate). My research constraint only discusses the S1/undergraduate of LIS curriculum. To finish the S1 program, a student should obtain at least 144-160 units or equal to approximately 50 to 60 subjects. Student usually spent 3, 5 to 4 years to accomplish the LIS bachelor degree. LIS courses are held under various faculties, such as Social & Political Science Faculty, Faculty of Letters, Communication Faculty, and IT Faculty (Table 1). There also have different course's name, such as Library and Information Science, Information and Library Science, but some universities still stick with the old name, which is Library Science (Table 1). In 2000s some of LIS educations change their name from Library Science to Library and Information or Information and Library Science because of the changing paradigm from book and printed material (related to librarianship) to information especially when it is supported by the information technology.

The revolution of the LIS new labels brings significant increases to the percentage of students that enrolled in this program. Those students see the broaden area that been covered by LIS education, they also expect that LIS education is suitable with the information age. As we know, the study area of LIS has been increase not only talking about librarianship but also discuss about the emerging of information in the digital age where people live with it. The students feel that they have a new hope if they not only working in library but also handling information online such as web publisher, developer, information specialist, information architect, and so on.

Table 2: List of LIS Education in Indonesia

University	Faculty	Course Name/date Establishment
University of Indonesia-Jakarta	Faculty of Letters	Library & Information Science /1996
Padjadjaran University-Bandung	Faculty of Communication	Information & Library Science /1983
University of North Sumatera-Medan	Faculty of Letters	Library & Information Science /2001
Yarsi-Jakarta	Faculty of Information Technology	Library & Information Science /2000
Airlangga University-Surabaya	Faculty of Social & Politic Science	Information & Library Science /2003
Wijaya Kusuma University-Surabaya	Faculty of Social & Politic Science	Library Science /2000
Diponegoro University-Semarang	Faculty of Letters	Library Science (2005)
Sunan Kalijaga Islamic University-Jogjakarta	Faculty of <i>Adab</i> (faculty of letters)	Library Science

According to the table 1, the S1 LIS education is first time established in early 80's. Now, there are more than 10 universities both public and private that offers LIS program, and some universities initiate to open the same program during this year or next year. The development of LIS and the increasing number of people who are aware of the urgency of the library and information skill pushes the university to open LIS program. Some universities also think this is a good business for the future because the interdisciplinary nature of the field of study. The change of program's name also influence the curriculum, by adding 'information' in traditional library science brings some opportunities for the students on their future career. If in the past LIS graduates work in libraries, now graduates can work in many information field such as system analyst, web site publisher, information manager, knowledge management officer, and so on. (Weech & Konieczny, 2007).

Each university has specialty to differentiate from one to another LIS courses holder, and each course has different output. So if student study LIS in particular university, they will have different skill and knowledge from the other, even though the basic skill on librarianship is mainly the same. For instance, in Airlangga University, LIS is under Faculty of Social and Politic Science that has strong influence of sociological aspect and now it combines with information technology to bust their graduates' skill in order to handle job both in libraries and especially in other alternative workplace. Information technology has become important thing for LIS because since the emerging of computer, it extremely helps to solve library problem in all aspect. In so doing, when the internet and web technology is booming, library is also participating to use it through virtual library and online library. Another example of the LIS specialty is in Padjadjaran University, that the oldest LIS course in Indonesia and now under Faculty of Communication, also has unique content that been influenced by communication science. This is off course will make the LIS graduates have unique skills and knowledge to fulfill the information and library related work field.

Information Technology Units in LIS Curriculum

Since 1990s information technology is starting to develop in Indonesia (Qolyubi, et.al, 2003). Even though not many libraries were using IT, but university library became a leader to implement IT to support library works. Some areas that been covered by the IT at that moment were circulation services where library use the automation system. Online catalog and library processing activities were also done with IT.

The use of information technology in library is a must at this moment, where many libraries try to enhance their services by using technology, starting from cataloguing process,

circulation, and reference service all done by the helping of information technology. So, it is obvious that the LIS graduates in the millennium age should be having good skill on information technology. To answer the global challenge, the LIS school should have sufficient curriculum that adjustable with the global change. According to the survey on 8 LIS school in Indonesia, all school adopt some information technology units into the curriculum, even though the weighing of the units is subject to each course (Table 2). They also use different label/name on each unit, but still have the same meaning. This is because there is no standard on information technology unit's name.

Table 3: IT units in LIS Curriculum

University	Course Name	IT units
University of Indonesia	Library & Information Science	<ol style="list-style-type: none"> 1. Introduction to organizing information technology 2. Application technology on organizing information 3. Database management 4. Digital library management 5. Digital information network 6. Graphic and electronic media technology
Padjadjaran University	Information & Library Science	<ol style="list-style-type: none"> 1. Information management system 2. Database design 3. Information network system 4. Information & communication technology 5. Information retrieval system 6. Computer mediated communication 7. Web design and creation
University of North Sumatera	Library & Information Science	<ol style="list-style-type: none"> 1. Introduction to computer 2. Computer application 3. Computer application practice 4. Digital libraries 5. Digital libraries practice 6. Media technology 7. Library automation 8. Information retrieval system 9. Online searching practice 10. System analysis and design 11. Science and information technology sources 12. Automated cataloguing 13. Web portal 14. Database management system
Yarsi	Library & Information Science	<ol style="list-style-type: none"> 1. Information technology foundation 2. Graphic and electronic publishing 3. Internet 4. Library Automation 5. Database 6. Technology media 7. Information technology application 8. Multimedia technology 9. Information network system
Airlangga University	Information & Library Science	<ol style="list-style-type: none"> 1. Web design 2. Library information system 3. Introduction to computer 4. Online searching 5. Computer application 6. E-commerce 7. Library information network 8. Library system analysis 9. Digital library

		<ol style="list-style-type: none"> 10. Library database 11. Data transformation system 12. Telecommunication and informatics 13. Library application development 14. Study on information technology
Wijaya Kusuma University	Library Science	<ol style="list-style-type: none"> 1. CDS-ISIS 2. Internet 3. Computer application 4. Digital library 5. Library automation 6. Information technology
Diponegoro University	Library Science	<ol style="list-style-type: none"> 1. Computer foundation 2. Computer advance 3. Information technology 4. Library and information center automation 5. Electronic information retrieval 6. Information technology application 7. Information network
Sunan Kalijaga Islamic University	Library Science	<ol style="list-style-type: none"> 1. Introduction to information technology 2. Spreadsheet application 3. Information technology 4. Library network system 5. Linux operating system 6. Library automation 7. Internet 8. Information retrieval 9. Database application 10. Media technology 11. Web design 12. Digital library 13. Computer and network technology

The table shows that all LIS courses have adopted the information technology in a different degree of importance. Airlangga University, with their goal to create a high tech graduates provides 14 units of IT on the LIS course. The IT units comprises on library process, automation, and web technology. That technology aspect is very important in the information field today, since Airlangga University LIS School encourage their graduates to broaden their career not just on the traditional libraries, but also working as part of information community. Most of the IT units in Airlangga University are compulsory unit that need to be taken by LIS students. The differentiate of the IT unit from Airlangga University with other is E-commerce, in which through this unit students are expected to set up their entrepreneurship skill to become independent knowledge worker.

University of North Sumatera and Sunan Kalijaga Islamic University also offer 14 and 13 units respectively, to answer the millennium age requirement on IT. However, like in the previous statement that Padjadjaran University has strong influence on communication science so they don't have many IT units on their LIS course. The IT units in Padjadjaran are mainly for the services purposes rather than information processing and library automation. Information retrieval and web technology is part of digital library services, where library should provides ease of use web interface and simplifies the information retrieval process.

Wijaya Kusuma, Yarsi, and Diponegoro stick to IT in library processing and automation, Computers, and information retrieval, rather than the development of information system, such system analysis and design, information management and system, and web based information system. The basic information technology unit such as computer, automation, computer application, and information retrieval has been adopted by all universities conduct LIS program. Now LIS students not only study about the technology but how to design and analysis a good system that involves technology, information, and human at one time. They should understand about the system requirements from different point of view that applicable for all types of information center. So by study computer, students in LIS will have awareness on computer literacy and about the importance of technology (computer), learn about how they work, and use

computer to help people solve the problem (Capron, 1998). Some LIS courses give basic understanding or introduction to computer, but some of them remove the introduction to computer from their curriculum. However, for some reasons, computer is compulsory for student as a gateway to study information technology in the next level. In Airlangga University, introduction to computer is not a compulsory unit because right now, students have computer skill since their high school.

Furthermore, Database system, database design, or management database is become important for library, from time to time. It is arguable since database is used by the library to hold a wide range of collection data and information, including books, journals, electronic materials, and many more. Usually student should can design and construct simple database for library. Another popular IT unit in LIS is information retrieval and electronic online searching, this is also change in nature, if in the previous time information retrieval only focuses on library collection on OPAC (online public automation cataloguing). Now, information retrieval is merely used for information that available online, both in library database and internet sphere. So, it is more complex especially when dealing with information quality on the internet. Student should have ability to assess the right and qualify information for all purposes. Information retrieval is also important to support information literacy for information professional.

Information retrieval system is first adopted by libraries in order to help them retrieving information. The changing retrieval technology influence the retrieval strategy, in which in the previous time people search information through catalog using author and title, but now they can use subject, keyword, and some query facilities.(Baeza-Yates & Ribeiro-Neto, 1999).

Another IT unit that is taught in LIS course is library automation, students will have ability to understand and some library automation curriculum output is student able to explore and develop library automation system. The understanding about library automation is important because almost all big libraries use library automation to handle all library activities such as processing, circulation and services. Even though the library automation curriculum out put is not technically build the automation system for library, but student will have knowledge about how to use and evaluate the existing automation system.

Internet and web design emerge into LIS curriculum on early 2000s. Some universities adopt the internet related units into their curriculum to fulfill the user requirement and the information society needs. This is also because the rapid development of web technology and internet, especially the web 2.0, in which every people acts as both information publisher/provider and as an information user. So to study about internet is very common for LIS student in the millennium age. However, web design offer a great challenge for student to build library website that user friendly and easy to access. Web design is mainly to cater digital or virtual library into humanist interface so user will easily interact with the library.

Study on human computer interaction and user interface design can be included into LIS information technology curriculum. It will support the virtual library or information portal that delivers on web site format. The assessment skill on virtual library website also important to do by LIS student. Some LIS schools also provide information architecture in their curriculum; maybe LIS institution in Indonesia can adopt it. Information architecture has very important role in online environment, in which information can be so complicated if they are not arranged in sophisticated manner with the influence of the information architect. A good online information arrangement can help people search and retrieve information effectively.

To see the IT units on the LIS course, off course it cannot act as a stand alone as an information technology, but the information technology should embrace and fully support the library and information activities. Information technology also should be embedded in all aspect of LIS units otherwise the IT would be useless. The IT units should be have library and information orientation to get the main purposes, which is support LIS student's skill and knowledge in librarianship.

CONCLUSION

According to the unit's label/name there are some similarities on the implementation of IT in LIS courses in Indonesia. Most of the IT units aim to support student's skill on basic computer and information technology in general such as library automation, information retrieval and web design and internet. Those IT units are very library and information minded in order to support the library and information activities. The adding IT units based on the information age requirement is highly recommended, such as e-business, information architecture, human computer interaction and interface design that applicable on world wide web environment. For further research, the author will investigate the IT units in LIS curriculum by the unit content and involving the IT lecturer and LIS course coordinator to get in depth information, also assessing the IT uses in library and then match them with LIS curriculum and finally compare and contrast the IT units of LIS in Indonesia with other countries.

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