

# The roles of university libraries in supporting the integration of information literacy in the course instruction

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## ABSTRACT

*A number of research studies have been conducted related to information literacy in universities. The findings indicated the roles of libraries in information literacy education by means of the arrangement of information literacy activities for students, such as orientation, short training programme, teaching at the reference desk, online self learning programme and co-teaching in class. This research was aimed at studying the roles of university libraries in the support of information literacy integration in the course instruction. Two research approaches, a survey and a focus group were used. Data were collected from 42 academic librarians by using the questionnaires and then confirming the data by conducting a focus group interview with 15 experts in the field of library and information science, curriculum and instruction, and general education. The findings indicate that university libraries are the important organisation with the roles to teach and support the integration of information literacy in the instruction of various undergraduate courses. Libraries have 4 major roles, namely, (a) preparation of resources and learning sources, (b) supporting the teaching of information literacy of educators and librarians, (c) organising learning and teaching activities that develop students' information literacy, and (d) organising activities to develop educators' information literacy. It is suggested that library administrators take the roles to prepare library infrastructures and resources necessary for the integration of information literacy. Librarians should be trained to be able to effectively teach in courses and organise the activities to promote knowledge and understanding of information literacy among educators and students.*

**Keywords:** Academic libraries; Information literacy integration; Information literacy; Course instruction; General education courses

## INTRODUCTION

A university library is an important information channel and resource for research that supports the educator's teaching and students' learning. The library has a particularly important role to educate information literacy to students who require competency in searching for knowledge by themselves when they are doing their course assignments. Li (2006) explained the advantages of university libraries in this respect that the library has information sources ready for information literacy, and has personnel with expertise in information and the ability to manage information literacy. The Association of College and Research Libraries (ACRL) (2008), Hernandez and Urena (2003) and Nimon (2001) hold the same opinion that university libraries should spell out in their strategies the promotion of

information literacy among students by emphasizing their roles in the teaching of information literacy to students and supporting the educators' teaching of information literacy. Additionally, ACRL established three methods for university libraries to integrate information literacy, namely, (a) the design of teaching programmes in the teaching mission, by establishing course content, teaching methods, programme structures and evaluation; (b) human resources, i.e., the library has experienced personnel with expertise to educate students; and (c) acquiring teaching facilities, continuous budget allocation and librarians' knowledge development. (ACRL 2008)

To date, a number of research studies have been conducted related to information literacy in universities. The findings all indicate the roles of libraries in information literacy education by means of the arrangement of information literacy activities for students, for example, orientation, teaching one-on-one searching methods at the reference service section, seminar, integration in various courses, teaching through websites, and teaching it as a curricular course (Hernandez and Urena 2003; Julien and Boon 2002; Kavalya 2003; Korobil, Malliari and Christodoulou 2008; Li 2006; Malliari and Nitsos 2008). The findings of research studies by Iannuzzi (1998), Nimon (2001) and Singh (2005) reveal that university libraries have a role to support educators. University librarians should participate in the teaching and developing educators' understanding of information literacy. Additionally, the Society of College National and University Libraries (SCONUL) has pointed out the importance of university libraries' roles to allocate information resources as required, provide convenience in the use of information resources, and promote cooperation between librarians and educators in teaching information literacy to students (SCONUL 1999)

Presently, university libraries in Thailand see the importance of development of graduates' qualities to strengthen their competitive potential in the international job market. In order for Thai graduates to possess higher competitiveness, they need to be knowledgeable and competent in thinking critically, solving problems systematically, being cognizant of the rapidly changing situations, and being able to continuously learn on their own. Most Thai universities have a policy to develop their students' information literacy skills. They may arrange different types of activities such as training, teaching a course, teaching through e-learning platform, and teaching by integrating information literacy in different courses. In this research, we conducted the study to develop the means of information literacy integration in the instruction of general education courses at the undergraduate level, and a number of related factors were studied. This paper presents the findings of research work on the roles of academic libraries in the support of information literacy integration in course instruction. The interesting issues for academic librarians can be taken into account in the improvement and development of their roles in the promotion of instruction in their parent institutions.

## **LITERATURE REVIEW**

Academic libraries are the important organisations that support the integration of information literacy in universities' instruction of different courses. SCONUL has pointed out the importance of academic libraries in allocating accurately required information resources and in facilitating the use of information resources (SCONUL 1999). This corresponds to Li's belief that academic libraries have information resources ready for the study of information literacy, modern technology for information retrieval and personnel having expertise in information who can arrange information literacy education (Li 2006).

Li sees librarians are the major part in promoting information literacy among students and the educators. This can also be seen in ACRL's concept stating that librarians coordinate in the assessment and selection of information resources for supporting the teaching and learning, in arranging systems and facilitating the accessibility to information, and in teaching students as well as educators in their search for information (ACRL 2000). Enger et al. (2002) also opine that librarians should take their roles in preparing information resources that help to select problems for students studying in the course that emphasizes problem-based learning. Besides, ACRL has set the methods for library implementation such that the library has experienced and competent personnel to educate students and is supported in teaching facilities, budget, and continuous development of librarians (ACRL 2008)

ACRL (2008), Hernandez and Urena (2003) and Nimon (2001) show the library's promotion of students' information literacy by placing the library's role to support educators in the library's strategic plan. Rockman (2004) explains that an academic library has three major functions to assist educators in information literacy instruction: (a) to revise their courses under electronics conditions; (b) to integrate technology such as databases and electronics information resources in assignments; and (c) to support integration information literacy in the course outcomes. Librarians will work with the educators to integrate information literacy through activities such as using e-learning platforms (Blackboard and WebCT) in the course, evaluating students' information literacy skills, using on-line teaching for selected contents, recommending the integration of electronic resources in the courses, preparing efficient teaching tools, and introducing plagiarism prevention software. Higgins and Cedar Face (1998) pointed out that academic librarians are able to support the teaching of information literacy by building relationships with students and give them advice through different channels of information. Many research studies recommend building a website for the teaching of information literacy. Studies have shown that website can be used as a tool to support the teaching of general education courses for first year students (Armstrong and Georgas 2006; Bury and Oud 2005; Donaldson 2000; Li, Leung and Tam 2007; Markey et al. 2008; Michel 2001; Noe and Bishop 2005; Orme 2004; Wareesa-ard 2007). Additionally, the work of Sonntag and Ohr (1996) also shows that library administrators should support librarians by allocating time for their preparation of information literacy teaching, allocating special remuneration, and making other library personnel understand this duty. The works of McMillen, Miyagishima and Maughan (2002) and Sugarman and Mosby (2002) similarly demonstrate the support of library administrators and librarians' colleagues who substitute them in their other duties, as well as support in budget, positions, space and equipment and tools.

With the duty of university libraries to support information literacy by means of different methods well understood, ACRL (2008), Hernandez and Urena (2003) and Nimon (2001) added the importance of libraries in the teaching of information literacy – the concept corresponding to many research studies that describe libraries as the venues for information literacy activities, such as orientation, teaching researching on the one-on-one basis at the reference section, seminar, integration in curricular subjects, teaching through websites, and teaching it as a curricular course (Hernandez and Urena 2003; Julien and Boon 2002; Kavalya 2003; Korobil, Malliari and Christodoulou 2008; Li 2006; Malliari and Nitsos 2008). ACRL has developed library's implementation in mandatory design of a teaching programme as a library mission, establishing with the programme the content, method, programme structure, and evaluation (ACRL 2008). The teaching of information literacy means cooperation between librarians and the educator (Fitzwater et al. 2003; Iannuzzi 1998; Nimon 2001; SCOUNL 1999; Singh 2005) This can be seen in Rader's (1995)

work that shows the important role of librarians to understand the curriculum and carry out their regular work which is related to the selection of information resources with the educator, prepare the teaching, understand the different learning strategies, and attract attention of students in the teaching process. The work of librarians should be flexible enough to appropriately accommodate various curricula and courses as well as the difference of individual teachers and students. Librarians should also take responsibilities in developing technology for the teaching of information literacy. Julien and Boon (2002) reported that librarians teach information literacy for 1-2 hours, emphasizing lectures and practices in the computer laboratory, and prepare a manual for students to use the website. The findings of Higgins and Cedar Face (1998) indicate four efficient methods for librarians to cooperate with the educators in the integration of information literacy: (a) participation in classrooms and being the course committee; (b) presentation of information literacy programme in faculty meetings; (c) building relationships with students by giving advice through different channels; and (d) assisting in the design of the teaching website, preparing and presenting course lessons. Cobus' (2008) findings also show the cooperation of librarians and educators in the design of information literacy curriculum.

If university libraries find it necessary to have faculty members or educators, librarians, and other university personnel related to the integration of information literacy well acknowledged of information literacy, then it is important to arrange various activities. Iannuzzi (1998), Nimon (2001) and Singh (2005) described that one role of university librarians is to develop understanding of information literacy among teachers. Iannuzzi (1998) indicated that libraries play an important part in developing educators along with other sections of the university by means of workshops that support them in the use of technology. These workshops can be organised on evaluation of information literacy, information-based assignments and plagiarism. Likewise, many other studies have presented the means to develop understanding of information literacy among educators by emphasizing the importance of university libraries. For instance, Birmingham et al. (2008) revealed that the cooperation between librarians and educators will enable the latter to better understand information literacy. Black, Crest, and Volland (2001) concluded that educators' professional development in information literacy instruction is the duty of librarians in which different means are to be developed, such as newsletter for dissemination of news, training to instill information resources awareness and library services, and seminars or workshops aiming at introducing the importance of integration of information literacy in the curriculum. Black and colleagues reported that the university library has cooperated with the Center for Instructional Advancement and Technology to present workshops that aim to develop educators in teaching skills and technology in a general education course named Using Information Effectively (UIE). Other researchers (Farmer 2003; Ojedokun and Lumande 2005, Rockman 2004) reported the role of the Faculty Development Center or Center for Academic Development to organise various faculty development activities such as workshops, training, news and information dissemination.

## **METHODOLOGY**

The study of university libraries' roles in supporting the integration of information literacy in instruction is a part of research work that investigates the integration of information literacy in the instruction of general education courses at the undergraduate level. Implementation has been achieved in two parts: (a) the study of factors related to the

integration of information literacy in the instruction of general education courses at the undergraduate level; and (b) the development of instruction by integrating information literacy in general education courses at the undergraduate level. This paper presents the findings on the second part of the implementation i.e. the development of the methods of the integration of information literacy. Conclusion has been drawn related to the roles of university libraries in supporting the integration of information literacy in instruction.

Two research methods were applied: (a) the survey research method to investigate librarians' opinions on their experiences in teaching/co-teaching undergraduate courses, and (b) the qualitative approach by means of focus group interview of experts. The questionnaire which consisted of questions on librarian's experiences in teaching/co-teaching information literacy in classes included the characteristics of courses taught, cooperation activities between librarians and educators, librarians' roles in students' development of information literacy, and the support from library administrators for librarians to teach/co-teach in class. The questionnaire was pilot-tested on 58 non-sample librarians, and the validity test using Cronbach's Alpha Coefficient resulted in a value of 0.889. The actual data for the study were collected in January 2010 from 42 librarians of a university in Bangkok. The focus group interview to confirm the reliability and validity of the survey findings as well as to gain experts' opinion was conducted in December 2010. A total of fifteen experts in the field of library and information science (LIS), curriculum and instruction, and general education were involved in the focus group interview. They comprised five LIS teachers, three head librarians, two academic reference librarians, two curriculum and instruction experts, and three general education teachers.

## **RESULTS**

### **Survey**

The 42 librarians were asked about their experiences in teaching/co-teaching undergraduate courses. Most of the respondents (95.2%, 40) were females. The highest number (35.7%, 15) was from 51 – 60 years of age. Most (54.8%, 23) held a master's degree and the majority of them were affiliated to the central library (61.9%, 26). The majority (40.5%, 17) had over 15 years of experience working in libraries. The course that half of them (50%, 26) used to co-teach was SWU 141 Information Literacy Skills.

A number of questions were asked on the form of cooperation between the librarians and the educators in instructional management of general education courses (Table 1). The top five activities in which librarians mostly cooperated with the teachers were: preparing exercises/assignments (40.5%, 17), establishing learning activities (35.7%, 15), preparing information resources that support students' learning (31.0%, 13), preparing the computer laboratory and teaching materials and aids (26.2%, 11), and assessment and evaluation of students' learning (23.8%, 10).

Table 2 presents the findings on the form of learning activities librarians contributed in the development of students' information literacy through teaching/co-teaching with the educators in various courses. The top five information literacy categories in which librarians associated themselves with were: establishing strategies and information retrieval (47.6%, 20), writing research reports and referencing (28.6%, 12), studying information sources and resources (26.2%, 11), setting problems or topics for study (21.4%, 9), and deciding and selecting of information as required by students (21.4%, 9).

Table 1: Librarians-Educators Cooperation in the Instructional Management of General Education Courses

Cooperation Activities		No. of respondents	Percent (%)
1	Making teaching plan	8	19.0
2	Establishing learning objectives	4	9.5
3	Establishing learning outcomes	4	9.5
4	Establishing learning activities	15	35.7
5	Preparing exercises/assignments	17	40.5
6	Establishing information literacy concept	3	7.1
7	Establishing criteria for information literacy evaluation	7	16.7
8	Setting problem cases for students	2	4.8
9	Preparing small group activities	6	14.3
10	Preparing information resources that support students' learning	13	31.0
11	Compiling learning sources inventory	5	11.9
12	Preparing students' learning support programme	6	14.3
13	Preparing evaluation criteria for information sources and resources	3	7.1
14	Preparing computer laboratory and teaching materials and equipment	11	26.2
15	Making teaching aids that support the teaching of information literacy	8	19.0
16	Assessing and evaluating students' learning outcome	10	23.8
17	Others such as information retrieval for the discipline area, examination writing	3	7.1

Table 2: Librarians' Contribution in the Development of Students' Information Literacy through Teaching/Co-teaching with the Educators in various Undergraduate Courses

Participation of librarians in the development of students' information literacy		No. of respondents	Percent (%)
1	Setting problems or topics for study	9	21.4
2	Analyzing information requirements	8	19.0
3	Studying information sources and resources	11	26.2
4	Establishing strategies and information retrieval	20	47.6
5	Deciding and selecting of information as required by students	9	21.4
6	Concluding, analyzing, and synthesizing the read information	2	4.8
7	Writing research reports and referencing	12	28.6
8	Using information ethically and legally	5	11.9

The librarians were asked on their role or mission associated with their participation in the teaching of different courses (Table 3). The most frequent reported roles were: orientating the use of library (47.6%, 20), preparing and introducing information resources and library services for students and educators (47.6%, 20), giving advices/consultation on information retrieval and report writing (47.6%, 20), participating in the teaching team with educators (33.3%, 14), and making teaching and learning support tools such as teaching manuals, exercises and websites (28.6%, 12).

The librarians gave their opinions on the support of university and library administrators to have librarians teach or co-teach different courses (Table 4). The top five form of supports in the views of librarians were: stipulating teaching as one mission of librarians (26.2%, 11), preparing teaching venues, such as computer laboratory and small conference room (26.2%, 11), preparing teaching facilities (21.4%, 9), allocating time for teaching or meeting with educators (19%, 8), and counting teaching as a duty of librarians (16.7%,7).

Table 3: Role or Mission Related to Participation in the Teaching of Different Courses

	<b>Role/mission associated with teaching</b>	<b>No. of respondents</b>	<b>Percent (%)</b>
1	Developing educators' knowledge and understanding of information literacy	5	11.9
2	Participating in the teaching team with educators	14	33.3
3	Being a member of the course committee	7	16.7
4	Establishing information competency with educators of different courses	2	4.8
5	Orientating the use of library	20	47.6
6	Establishing learning goals and objectives	6	14.3
7	Making teaching and learning support tools such as teaching manuals, exercises and websites	12	28.6
8	Preparing and introducing information resources and library services	20	47.6
9	Giving advices/consultation on information retrieval and report writing	20	47.6
10	Assessing and evaluating students' information literacy	5	11.9

Table 4: Form of University and Library Administrators Support for Librarians' Participation in Teaching/Co-teaching of Different Undergraduate Courses

	<b>Support of university and library administrators</b>	<b>No. of respondents</b>	<b>Percent (%)</b>
1	Stipulating teaching as one mission of librarians	11	26.2
2	Counting teaching as a duty of librarians	7	16.7
3	Reducing librarians' regular workload	1	2.4
4	Building understanding/acceptance of information literacy among university personnel	4	9.5
5	Making library personnel understand the librarians teaching duty	6	14.3
6	Continuously developing discipline knowledge	3	7.1
7	Allocating time for teaching or meeting with teachers	8	19.0
8	Allocating budget for remuneration and procurement of information resources for teaching	0	0
9	Preparing teaching facilities	9	21.4
10	Preparing teaching venues, such as computer laboratory, small conference room, etc.	11	26.2

### **Focus Group**

The quantitative data from the librarians sampled in the survey, incorporated with the qualitative data from the focus group sessions with the 15 experts are categorized into four themes associated with the roles of university libraries to support information literacy in instruction.

#### ***The role in preparation of learning sources and resources***

(a) Preparation of teaching resources. This involves:

- allocation of recruitment positions personnel with knowledge and understanding of information literacy and of information and communication technology,
- allocation of budget to support information literacy in course instruction, and
- provision of space for teaching preparation, teaching venues, teaching facilities such as computers, computer laboratory, small meeting room, projector, and teaching materials that develop students' information literacy skills.

(b) Preparation of information and communication technology. This involves preparing:

- information and communication technology that supports the acquisition of knowledge relevant to the courses,
- computers in the university library to facilitate students' self-learning from different learning sources, and
- computer laboratory for students' to practise retrieving information and learning about information and communication technology.

(c) Preparation of learning sources. This involves preparing:

- information resources and library services that enable students to acquire knowledge and information by themselves,
- learning sources on campus that were aimed at self-researching, through provision of small group discussion room, mini theatre, computer room, reading and relaxing corner,
- teaching materials corner aiming at information skill development where students can borrow,
- inventories of learning sources outside classrooms for students to select according to their interest, and
- inventories of electronic information resources that have been selected by the course teachers for students to search for more knowledge.

***The role in supporting the teaching of information literacy of teachers and librarians***

(a) Preparation of teaching media. This involves:

- developing teaching media and tools that support the teaching of information literacy and students' learning, such as teaching manual, exercise, teaching website, video and compiling various learning resources,
- preparing computer laboratory to be used for information retrieval practice,
- making video introducing the library and library services,
- putting information sources on the website that links course contents to the topics students are searching, such as the library website where librarians introduce database of information sources, university library websites, and library services, and
- providing a computer programme to support the teaching of information literacy and self-access learning of students.

(b) Making an evaluation form for student research. This involves the development of an assessment tool to evaluate case studies conducted by students. The following five criteria are used to evaluate students' information literacy:

- setting the topic to study,
- stipulating the concept that covers the topic to study,
- selecting information sources for the study and references,
- synthesizing reporting data, and
- referencing in the content and at the back of the report.

(c) Introduction of information sources and resources and library services. This involves:

- preparing information sources and resources and library services which will be useful for students in their researching for information on their research topic, and
- introducing information sources and resources and library services that support the acquisition of information required by students.

(d) Provision of advice on information literacy for students. This involves:

- introducing and assisting in the planning and setting of strategies in retrieving information that is direct to students' needs,
- giving advice to students in their selection of information that they require, and
- discussing and exchanging opinions and experiences in students' information retrieval.

(e) Supporting the librarians in teaching information literacy. This involves:

- supporting the librarians' teaching/co-teaching of information literacy in different courses, by working with the educators and team to write the teaching plan, set

learning activities, prepare exercises and assignments that aim at students searching and using information,

- stipulating teaching as librarians' workload, and
- allocating time for librarians to prepare the teaching or meet with the teachers.

***The role in organising learning and teaching activities that develop students' information literacy***

(a) Preparation of teaching that integrates information literacy and teaching materials. This involves:

- analyzing the teaching plan of the course in which information literacy will be integrated and setting the information literacy outcome, and
- preparing teaching materials that will guide towards information literacy by linking it with the course content.

(b) Educating information literacy knowledge to students. This involves:

- educating students on the topics of information literacy that are related to the course topics and assignments that require students to select their case studies,
- educating students on the analysis of information requirements for their research topics, and
- demonstrating methods of information retrieval under the topics "establishing searching/ retrieval strategy for information from library website, information resources database, online database, and information retrieval from the Internet, such as Google search engine" so that students are able to retrieve information and present their research report.

(c) The measurement of information literacy competency and evaluation of students' attitudes. This involves:

- stipulating criteria for assessing students' information literacy competency by setting the conceptual framework that links between information literacy and course content, and
- evaluating students' attitudes towards information literacy.

***The role in organising activities to develop teachers' information literacy***

(a) Organisation of meeting for exchanges of opinions on information literacy. This involves:

- organising meetings among faculty members or educators to discuss the integration of information literacy in instruction, and
- providing venues for exchanging of opinions and experiences between educators and experts on the integration of information literacy in course instruction.

(b) Organisation of activities to develop knowledge and understanding of information literacy. This involves:

- organising activities to develop knowledge and understanding of information literacy so that educators will be aware of the importance of information literacy and will be able to accurately design their instruction,
- organising activities to increase educators' knowledge in the development of information skills, integrated teaching, or topics related to their taught courses, and
- organising training on information skills and computer programmes for integrating information literacy in instruction.

(c) Creating information literacy network. This involves building of information literacy network for educators to emphasize the information literacy in their teaching.

## **DISCUSSION**

This section discusses the results of the study on the roles of university libraries in supporting the integration of information literacy in undergraduate instruction.

### **The Role in Preparation of Resources**

University libraries have a role to prepare teaching and learning resources as well as information and communication technology tools. The findings on this role correlate to ACRL's concept, which states that university libraries should have experienced and specialized personnel in teaching, and should be supported in terms of budget and teaching facilities (ACRL 2008). The findings on the preparation of learning sources correspond to the studies by ACRL (2000), Enger et al. (2002) and SCOUNL (1999) in that university libraries have a role to prepare information resources that support teaching and learning. The findings on the preparation of information and communication technology tools are similar to the Li's (2006) belief that libraries should possess modern technology for information retrieval. Hence, it can be seen that teaching and learning resources as well as information and communication technology are the major infrastructures university libraries have to prepare to accommodate the integration of information literacy in educators'/librarians' instruction and students' learning. Faculty must have knowledge and understanding of information literacy and utilize teaching resources, information and communication technology, and learning sources to acquire information for studies, research and course assignments.

### **The Role in Supporting the Teaching of Information Literacy**

University libraries have a role to prepare teaching media, produce evaluation form for research and report work, introduce information sources and resources and library services, advise students on information literacy, and support the librarians' teaching of information literacy. The findings in preparing teaching media are similar to many research studies that have found the role of libraries in designing and developing websites for teaching students information literacy (Armstrong and Georgas 2006; Bury and Oud 2005; Donaldson 2000; Li, Leung and Tam 2007; Markey et al. 2008; Michel 2001; Noe and Bishop 2005; Orme 2004; Wareesa-ard 2007). Our findings in the preparation of the evaluation form for research and report work, introduction of information sources and resources and library services correlate to the work of Rockman (2004), who believes that libraries have a role to assist teachers in evaluating students' information skills, integrating databases and electronics information resources to students' assignments, and in introducing plagiarism prevention software. The findings in giving students advice on information literacy correlate to the study of Higgins and Cedar Face (1998) in that libraries should build relationships with students by librarians' provision of information literacy through different channels. In terms of support of librarians' teaching of information literacy, the results were in line with the studies of McMillen, Miyagishima and Maughan (2002), Sonntag and Ohr (1996) and Sugarman and Mosby (2002), which show that library administrators should support librarians by allocating time for them to prepare for the teaching materials for information literacy work, allocating remuneration, making other library personnel understand their duty, providing work substitution, budget, position, space, materials and equipment. It can be seen that librarians have to perform their roles in preparation of teaching media, evaluation form for research reports, provision of information sources and library services, and provision of advice on information literacy to

students. These activities and the librarians' mission in the teaching of information literacy should be supported by library administrators and other library personnel.

### **The Role in Organising Instructional Activities that Promote Information Literacy Skills in Students**

The research findings indicate that university libraries have the roles to prepare teaching plans that integrate information literacy and teaching materials, provide knowledge related to information literacy to students, measure students' information literacy competency and evaluate students' attitudes towards information literacy. The findings on integrating information literacy and teaching materials correlate with the studies of ACRL (2008) and Rader (1995), which indicate that libraries should design teaching programmes, select teaching content, methods and programme structure, and design evaluation of information literacy instruction. Librarians have a duty to prepare the teaching and understand learning strategies. The results are also in line with the work of Julien and Boon (2002), who found the role of librarians in the development of an information literacy manual or module for students. In imparting the skills and knowledge on information literacy to students, the findings are similar to the studies of Julien and Boon (2002) and Higgins and Cedar Face (1998), who found that librarians teach information literacy together with educators. The findings in the evaluation of information literacy competency and students' attitude are in accordance with ACRL (2008) in that libraries have a role to evaluate the instruction of information literacy. These findings show that librarians co-teach information literacy in different courses, where they have to prepare the teaching that integrates information literacy, prepare teaching materials, teach students on information literacy, and evaluate their teaching and their students' information literacy competency.

### **The Role in Organising Activities that Develop Information Literacy Instruction among Educators**

University libraries should perform their roles in organising meetings for the exchange of ideas on information literacy, arranging activities that develop knowledge and understanding of information literacy, and building information literacy network. The study found that the role in organising meetings for the exchange of opinions on information literacy correlates to the study by Iannuzzi (1998), who also proves that libraries have an important part to develop teachers by organising workshops on the teaching of information literacy such as the use of technology, evaluation of information literacy and designing information-based assignments. The organisation of activities that develop knowledge and understanding of information literacy is similar to the findings of Black, Crest, and Volland (2001), Farmer (2003), Ojedokun and Lumande (2005) and Rockman (2004), who all point out that the library can conduct different activities to facilitate educators to teach information literacy, such as dissemination of newsletter, training and seminar. The findings prove that the library has important roles in the development of knowledge and understanding of educators' information literacy. This can be carried out by arranging activities and build networks of information literacy, which in turn will create cooperation from educators in emphasizing teaching processes that require information literacy in various courses.

## **CONCLUSION**

University libraries are the major learning channel with important roles to support the educators' teaching and students' learning, particularly in supporting worthwhile and efficient use of information sources. It is extremely necessary for educators and students,

who have to conduct research and use information sources by searching or retrieving information from the library, to know and understand information literacy. Information literacy skills enable them to obtain access to information that they require. This study shows that university libraries have major roles to play in terms of teaching information literacy and supporting the integration of information literacy in various undergraduate courses. The four major roles are:

- preparation of resources and learning sources, including preparation of teaching resources and information and communication technology;
- supporting educators and librarians in their teaching of information literacy, including preparing of teaching media, developing the evaluation form for research report, introducing information sources and resources and library services, giving students advice on information literacy, and supporting the librarians' teaching of information literacy;
- arranging instruction that develops students' information literacy, including preparing of teaching plans that integrate information literacy, preparing teaching materials, educating students in information literacy, measuring students' information literacy competency, and evaluating students' attitudes towards information literacy; and
- organising activities to help develop educators' information literacy by arranging meetings for exchanging opinions and ideas on information literacy instruction, arranging activities to promote knowledge and understanding of information literacy, and building information literacy networks.

However, the ability of university libraries to perform these roles effectively and achieve their goals in the development of information literate students depends on the involvement and support of various quarters. Library administrators should take the role to prepare the infrastructure necessary for the integration of information literacy and should support the librarians' duty to teach information literacy and organisation of various activities to promote knowledge and understanding of information literacy among educators. Librarians are the important personnel to cooperate with educators in the integration of information literacy in the teaching and learning. They should perform the roles to prepare teaching plans, teaching media, information sources and library services. Their roles should extend to giving advice to students on information literacy, evaluating students' information literacy skills, and arranging activities that help to develop educators' knowledge and understanding of information literacy. In addition, it is also very necessary for other library personnel to understand and cooperate with the library to integrate information literacy in the course instruction.

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