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Exploring Information Literacy: A Pedagogical Possibility for IUB Students for Effective Learning

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Information Literacy (IL) is important for today's learners as it promotes information related problem solving approaches and critical thinking competencies. IL proficient learners can confidently ask questions and seek answers, identify and evaluate sources, form opinion, make decision, interpret, organize and utilise information ethically. As using information resources are appearing challenging due to the production of enormous and multifaceted information resources frequently, so IL is the core of the 'Curriculum for Excellence and Literacy' across learning experiences and outcomes, which is a responsibility of all educators to make their students IL literate. This study expands on previous research and seeks to explore the role of IL for students' effective learning through faculty-librarian collaboration. It also presents the reasons for adopting IL as pedagogy of lifelong learning process, which is shifted away from short-term mastery of library skills and focused on higher-order intellectual involvements. Moreover, the importance of libraries enduring to provide and enhance ILE to students in exigent environment is in the discussion. The methodology of this study approaches review of substantial amount of relevant published and grey literature. In addition, research into the ways students interact with information at IUB, observation of the participants' commentary during faculty workshop for research support by the IUB library and evaluation of personal experience are also inseparable part of this study. The findings and review suggest that need for the continued development and implementation of IL should not be ignored. A well-designed IL programme benefits the students and the whole education community. Whatever the model is, after IL curriculum mapping, suitable programme should be integrated into the curriculum where assessment is another essential component. The university initiative to implement ILE would help to evolve as a collaborative effort between librarian and faculty which resulted as an effective driving force for quality higher education.

Keywords: Information literacy, library instruction, higher education, faculty-librarian, collaboration, university libraries, IUB library.

Introduction

In today's information society, information resources are changing very frequently to complicated and multifaceted attributes. Higher education institutions, i.e. universities must cope with these characteristics which may be identified as information access, deep web, numerous number of websites, failure of regulating quality information, availability of resources, pervasiveness of Wikipedia, extensive dependency on Google, students learning and information seeking behaviour, and the quality, standards and the competencies to which academic institutions and libraries should embrace and look for. In such environment, librarians have been conscientiously working on strategies to support and help out students to succeed in this environment. Information Literacy (IL) is an essential part of these approaches.

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Maitaouthong, Tuamsuk, and Tachamanee (2012) described that for supporting educator's teaching and students learning, a university library is an important information channel and resource. They emphasized their study to the importance of the role of library to educate their students with the IL competencies for searching their knowledge during doing their assignments or research projects. The Association of College and Research Libraries (ACRL) established two methods for university libraries to integrate IL, namely, (i) the design of teaching programmes in the teaching mission, by establishing course content, teaching methods, programme structures and evaluation and assessment; and (ii) support, i.e., instructional facilities with support, financial support for adequate fund, support for continuing learning and human resources (ACRL, 2008). IL is considered as an essential part of university library user education as well university education process though it remains as an 'alien concept' in Bangladesh. Virkus (2004) pointed out that IL is recognised only by librarians and information professionals and neither familiar to other field explicitly or extensively. The aim of the study is to explore the role of IL for students' effective learning through faculty-librarian collaboration and how it can be integrated into course curriculum.

Background and Context

Independent University, Bangladesh (IUB) is a leading private university with an apparent focus on 'Research and Global partnerships'. It is a full service oriented university with a current enrolment of 5,500 students 8,900 Alumni and 250 faculty members (IUB, 2016). IUB is devoted to make graduates of international standards who will be equipped to provide new leadership and applied research. To provide students with i) communicative skills; ii) socio-cultural background; iii) applied skills or project based experience; and iv) an area of sub-specialization. Students take courses on learning skills, national culture and electives in arts and science during the first year. The academic curriculum of IUB has been carefully designed (IUB Green Book, 2016). Six schools, i.e. School of Business (SB), School of Engineering and Computer Science (SECS), School of Liberal Arts and Social Sciences (SLASS), School of Environmental Science and Management (SESM), School of Life Science (SLS) and School of Public Health (SPH), currently offering 27 undergraduate and 15 graduate programmes. (IUB, 2016).

As an integral part of university, libraries are established for a common operation to fulfil the mission and objectives of their parent institutions. These are related to support teaching, and learning, research and development to the academic community. The IUB library is the major contributor to achieve the university's aim of developing independent learners. The library's mission is to provide user-focused services through the provision for accessing to the recorded knowledge in an environment that foster individual teaching, learning, research and promote exchange of ideas by providing materials, resources and facilities to support to its academic community (IUB Library, 2016). Currently, the library serves about 7,000 users; among them graduate and undergraduate students, faculty members, and staffs. Additionally, trust and donor members as well as the alumni also get services to some scales. IUB Library holds a good number of traditional and digital collection with the access of a large number of subscribed online electronic resources. Two individual study exposed that the most frequent visitors at IUB library are the business students (Shoeb, 2008, 2015) in comparison to other disciplines.

Globally, almost all the top level universities adopted IL education as several programme, i.e. small group-based or integration as course-based curriculum. So, it is not unrealistic for IUB students to design such programme. The lack of knowledge in information problem-solving skills limit overall learning and success for any students, IUB students are not apart from this process. Earlier, IUB library frequently took initiatives to make the user strengthen with the library use, i.e. library

catalogue search techniques, identifying and selecting required information, information access and retrieval, orientation and guidance on using information etc. But these individual programmes did not pay attention to the mass learners of different schools as there is no institutional policy. In addition, those activities did not emphasize enough as those were not defined or familiar to the IUB students or IUB academic community as IL activity.

In an information competency test (Shoeb, 2011), it has been exposed that among the IUB freshman business students, 28% respondents given correct answers whereas 72% answered incorrectly. The test was conducted using a set of sample IL questions which were relevant to their study and information seeking behaviour. The questions were very basic and related to finding information sources and resources, searching local and online database, proper citation, avoiding plagiarism, information evaluation etc. IUB students may be smart, and they very secured in the job market but they are still find the process of research trouble. These students have the scarcity of learning the basic information skills; it may be the overall scenario of the country like any developing nations. They only end up using trial and error methods for finding information, this limits their capabilities to satisfy their information needs for their research. Students thought that they know more about accessing information and conducting research than they were able to demonstrate. When put into the test, the students were confused and felt unfamiliar for organizing and accessing information. Another study (Shoeb, 2012) revealed inefficiencies of IUB students in proper citation abilities which also described the state of the inadequacies of finding resources and managing references properly. Recently, students necessity of research assistance, instruction and competency have been recognized by the faculty members in the faculty workshop (Research Support, 2016) at IUB library. Moreover, differences of the perceptions towards online research practices of the business students of IUB in small-scaled competency tests (pre-test and post-test) also suggested an IL programme for effective learning process.

Literature Review

As the graduates are unprepared and struggling with certain qualities and skills, there are having impact on university curricula. Higher education institutions with strategic objectives have addressed learners lifelong learning, graduate employability, and the ability to transform knowledge into practice in their workplaces which are regarded as factors of this pedagogical changes (Morgan & Houghton, 2011). Huge research and studies have been made in this arena where librarians and information professional would be well-placed to assist and to extend IL competencies. Embedding academic librarian within a course has positive correlation with students learning process (Gibson & Luxton, 2009). Libraries as organization and librarians as professionals demonstrated in a position uniquely as educational reform contributor (VanderPol et al., 2008). Kenedy & Monty (2011) mentioned that recently, the importance of academic-library collaboration are widely recognized where students academic skills are developed in a meaningful and relevant way. However, this section described IL conception in academic arena.

Rader (2002) mentioned that during the 1970s, the concept of IL first appeared in the literature. In 1974 Paul Zurkowski introduced the term “information literacy” and identified information educated people with the techniques an skills for using information tools to provide the information solution (Zurkowski, 1974). The concepts of library education and orientation were gradually replaced by the term “information literacy” during the 1980s which has now extended and with different definitions, substitute terminologies, rationalization, clarifications and justification for information literacy. In a research Irving (1985) revealed that the students with essential information skills can solve different types of information problems even their real life.

The American Library Association (ALA) (1989) defines IL as "…the ability to recognize when information is needed and the ability to locate, to evaluate, and to effectively use the needed information….". Doyle (1992) defined IL as the ability to access, evaluate and use information from a variety of sources. Plotnick (1999) opined that most of the IL definitions are based on ALA definitions. Different models, explanations have been defined and comprehensive programmes have been proposed on IL by several authors, researchers and institutes (Snavely & Cooper, 1997; Bawden, 2001; Avery & Allen, 2002). The Association of College and Research Libraries' Information Literacy Competency Standards for Higher Education (ACRL, 2009) defines IL as "a set of abilities requiring individuals to recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information." The International Federation of Library Associations and Institutions (IFLA) has a section on Information Literacy to promote and foster international cooperation in the development of information skills education in all types of libraries (International Federation of Library Associations [IFLA], 2004).

Pitts (1996) suggested the requirement of skills in higher education. Loo and Chung (2006) asserted that IL helps to increase the information proficiency of the students who are in higher education. They also stated that "...as such, students are able to develop critical analysis and communication skills, recognize and appreciate the variety of information formats available in today's society, and critically evaluate and ethically use the desired information" (Loo & Chung, 2006, p. 252). Ojedokun (2007) stressed on the necessity of higher education institutions, which missions are to develop lifelong learner so that the learners have the intellectual abilities to think critically, to construct them as independent learners and learning how to learn. Curriculum-based information literacy programmes are the most useful approach to provide effective and quality information literacy education (Parker, 2003; Baro & Fyneman, 2009). The way to facilitate or provide instruction, education, training etc. for the IL learners is defined as Information Literacy Education (ILE). The knowledge or the experience that gathered by the people of any region is relevant to him, to their community, and ILE is always affected by the context. So, it is very important that, ILE should comprisable to contextual stand which indicates cultural context. Dorner (2009); Dorner and Gary (2006) stated that ILE differences on local, social, cultural and political context. ILE programme should reflect the local context and facilitate by ILE educators in a cooperative process which should also reveal the factors of the general cultural circumstances too.

For supporting collaboration, curriculum design and pedagogy there are a number of IL models for higher education, among them the mentionable models are, Big6 (Eisenberg and Berkowitz 2003), CILIP's Information Literacy Skills (CILIP 2012), SCONUL's Seven Pillars of Information Literacy (SCONUL 2011), the ACRL's Information Literacy Competency Standards for Higher Education (ACRL 2009) by Association of College and Research Libraries and ANZIIL (ANZIIL Standards, 2010) six core standards of Information Literacy are established by Australian and New Zealand Institute of Information Literacy. Though until recently, they have been exposed very little critical examination, these models have widespread acceptance among librarians and other educators, (McNicol, 2014). However, the local context and relevancy with 21st century should be considered during adopting any IL frameworks. Kutner and Armstrong (2012) suggested that in order to remain relevant within the global context IL definitions and standards need to be considered. Now a days, the types of pedagogies which are becoming increasingly common classrooms, such as: collaborative learning, creativity, critical thinking, problem-solving, and authentic learning tasks. These make students equipped for future life and work, require students to be self-assured and competent in precisely these tasks. Besides, IL model that implemented need to be adapt to the need of classrooms of the future too. (McNicol, Lewin, Keune, & Toikkanen, 2014).

Methodology

Substantial amount of relevant published and grey literature review approach is the basic methodology of this study. In addition, research into the ways students interact with information at IUB, observation of the participants commentary during faculty workshop for research support and evaluation of personal experience are also inseparable part of this study.

The empirical data for this research was collected through structured questionnaire (Devasagayam, Johns-Masten & McCollum, 2012) from the business students who took part in training programme on 'Effective search strategies and techniques' and 'EndNote Basic for reference management' at library. A total effective sample of 17 students was obtained from seniors business students across both genders. Though the sample size is small but there were no other provisions or ways to collect data of both pre-test and post-test for any course here by the librarians as trainer. However, the sample profile reflected the overall characteristics of the student population at IUB. For pre-test, in one type of data collection arrangement, a short oral instruction regarding the survey instrument and related library instruction were given to the students before starting the training session. The oral instruction briefly covered search strategy, information source identification and introduction, IUB library Online Public Access Catalogue (OPAC), e-resources and databases, citation style, importance of current data/most current data available, quality of the data source, and resources evaluation. After receiving the instruction, the pre-test was administered.

After finishing the pre-test, the 1st author led two hours extensive workshop on 'EndNote Basic for reference management' where oral presentation, demonstration, activities and hands-on practice were performed. Another week, in the same manner, 2nd author led two hours session on 'Effective search strategies and techniques'. These training sessions also covered the topics those briefly discussed before conducting pre-test whenever relevant to the training sessions. During every training session, the students asked questions, took notes, made discussion, and engaged themselves in practices. They were encouraged to ask the librarians how they can make themselves more efficient to solve the problems. The concept of learning something via lecture and then immediately using it reinforces knowledge and creates an active learning environment. The hands-on nature of this exercise that appropriate to their discipline and real world aspects appeared to increase the level of interest and involvement of students. The survey captured information about each student's on-line research habits. The post-survey data were collected via the very same instrument one week later to see the change of the attitude and perception. After data collection, the survey data was entered into SPSS (Statistical Package for the Social Sciences). Paired sample t-tests at the standard level of 0.05 ($p < 0.05$) and descriptive statistical analysis allowed a better understanding of the students' differences of perception and comprehensiveness of IL. Faculty commentary were collected during several faculty workshops of the previous semester on the same titles in advanced level regarding searching and EndNote through participant assessment form. The survey results obviously would make consequence to ILE integration process as well the evidence of the necessity of information literacy at IUB for the students success and benefit.

Data Analysis and Findings

Students Survey

In the students survey, among the participants most of the respondents were male (52.2%) and rest of them were female (47.8%). Among the respondents all of them spent time at the IUB library in a range of 1-5 hours (100%). Table 1 shows the pre-test and post-test result of IUB business students online research practice. First column of the table corresponded 20 statements, which are relevant to their online information seeking and research behaviour. Second and third columns contained the Mean values

with Standard Deviation (SD) for each of the statements respectively, with 95% confidence intervals. The fourth and last column showed the significance value of statistical differences of students pre-test and post-test of their online research practice by conducting 2-tailed paired *t-test*.

Table-1
Online Research Practice by the IUB Business Students (t-test)

Statements	Pre-Test Mean (SD)	Post-Test Mean (SD)	Sig. (2-tailed)
1. I check the source of the information	4.91(1.76)	5.26(0.62)	.357
2. I check the identity of information provider	2.22(1.13)	4.30(1.77)	.000*
3. I check the domain of my source	2.78(1.88)	4.91(0.29)	.000*
4. I ensure that the information relates to my research	5.70(0.97)	4.70(1.49)	.000*
5. I ensure that the information is applicable to my research	5.04(1.87)	5.83(1.03)	.092
6. I know well about the resources of IUB library	2.48(1.56)	5.22(1.20)	.000*
7. I am quite expert using IUB library OPAC	2.09(1.41)	3.78(1.41)	.000*
8. I know about the resource4life	2.48(1.47)	5.22(1.20)	.000*
9. I feel comfort of using library e-resources	2.43(1.59)	5.35(1.11)	.000*
10. I know how to cite the resources properly	2.00(0.90)	4.48(1.16)	.000*
11. I ensure that the information is comprehensive	4.70(1.49)	5.96(0.82)	.005*
12. I prefer to concern library resources for research	4.65(1.37)	4.78(1.24)	.601
13. I ensure that the information is current	5.13(1.60)	5.30(1.15)	.707
14. I depend mostly on Google or Yahoo for my research	6.00(1.09)	4.52(1.27)	.000*
15. I do not need any information related skill	4.13(1.58)	4.00(0.74)	.714
16. I am an excellent researcher	2.78(1.44)	4.43(0.84)	.001*
17. I am able to conduct quality research	2.70(1.22)	4.57(0.73)	.000*
18. I believe that on-line sources are as good as print sources	4.65(1.15)	4.35(1.64)	.418
19. I believe on-line sources are better than print sources	5.04(1.64)	4.35(1.77)	.057
20. I have extensive experience conducting on-line research	3.65(1.72)	4.22(1.04)	.313

Note: * Significant at $p < 0.05$

Clearly the statements "I check the identity of information provider", "I check the domain of my source", "I ensure that the information relates to my research", "I know well about the resources of IUB library", "I am quite expert using IUB library OPAC", "I know about the resource4life", "I feel comfort of using library e-resources", "I know how to cite the resources properly", "I ensure that the information is comprehensive", "I depend mostly on Google or Yahoo for my research", "I am an excellent researcher", and "I am able to conduct quality research" had greatest differences in pre and post survey. These are the areas where greatest improvement were seen concerning the awareness, perception and view of the students outlook. Before the training session they thought they have been competent enough to conduct their research and they considered that they were skilled for information seeking behaviour and solving problems. But after taking part in the training they could realize their inefficiencies, their position and

unpreparedness. This is not their fault, rather than a gap between the courses they are taught and the skills they supposed to required. In their academic lifecycle at IUB, before the mentioned training sessions they did not aware of checking the information authenticity, information sources and information relevancy. They were unaware of IUB library traditional and electronic resources, expertise in library catalogue searching, proper citation. They depended on Google and Yahoo for searching rather than searching databases. They also considered themselves as excellent researcher and they could able to conduct quality research. This improvement of their understanding for quality research undoubtedly demands a sustainable IL programme to provide opportunity to learn the skills and make them information literate.

Faculty Commentary

Following comments (Table 2) by the faculty members are mentioned regarding library workshops on research supports, which is useful and positive for investigating an ILE programme (only few comments are mentioned here).

Table-2

Faculty Comments on Faculty Workshops by IUB Library on Research Supports

Workshop topic	Comments
Effective search strategies and techniques	*Comment 1: The most useful part of the workshop were the ways I learned of doing searches which I did not know before. Very relevant to senior students for their research. Suggest that all senior project students take this course...*
	Comment 2: ... getting to know about the resources available through IUB library. Helpful workshop. IUB senior students may take part in this workshop...
	Comment 3: ... knowing about the online resources... This workshop would be very useful for the students...
	Comment 4: ... use of Boolean search and the resources for online journal was helpful... such kind of workshop is required for the students...
EndNote Basic for reference management	*Comment 1: The most useful part of the workshop were searching, adding references, input references... cite while you write is a good feature which I come to know and hope to use... students should take part in this workshop (senior project).*
	Comment 2: ... creating manuscripts and getting all the references in MS Word. Good work, helpful for us in future. Students will be benefitted if they are taught in the same manner.
	Comment 3: ... the workshop is relevant to the content of our work for doing research... arrange workshops for students doing senior projects...
	Comment 4: ... importing reference from the web was helpful... students (doing senior projects) should learn this...

It is essential to say that faculty members had advocated and suggested for such types of workshops or training session for IUB students positively. After taking part in such information problem solving related

workshops they could recognize the necessity and applicability of relevant instructions for the students. Obviously, only a proper continuous IL programme can educate IUB students with the tools and activities by which they can be lifelong learner, leading success to classroom, on graduation and in the workplace as well. So, these comments are significant, valid and time worthy for implementing an IL programme at IUB.

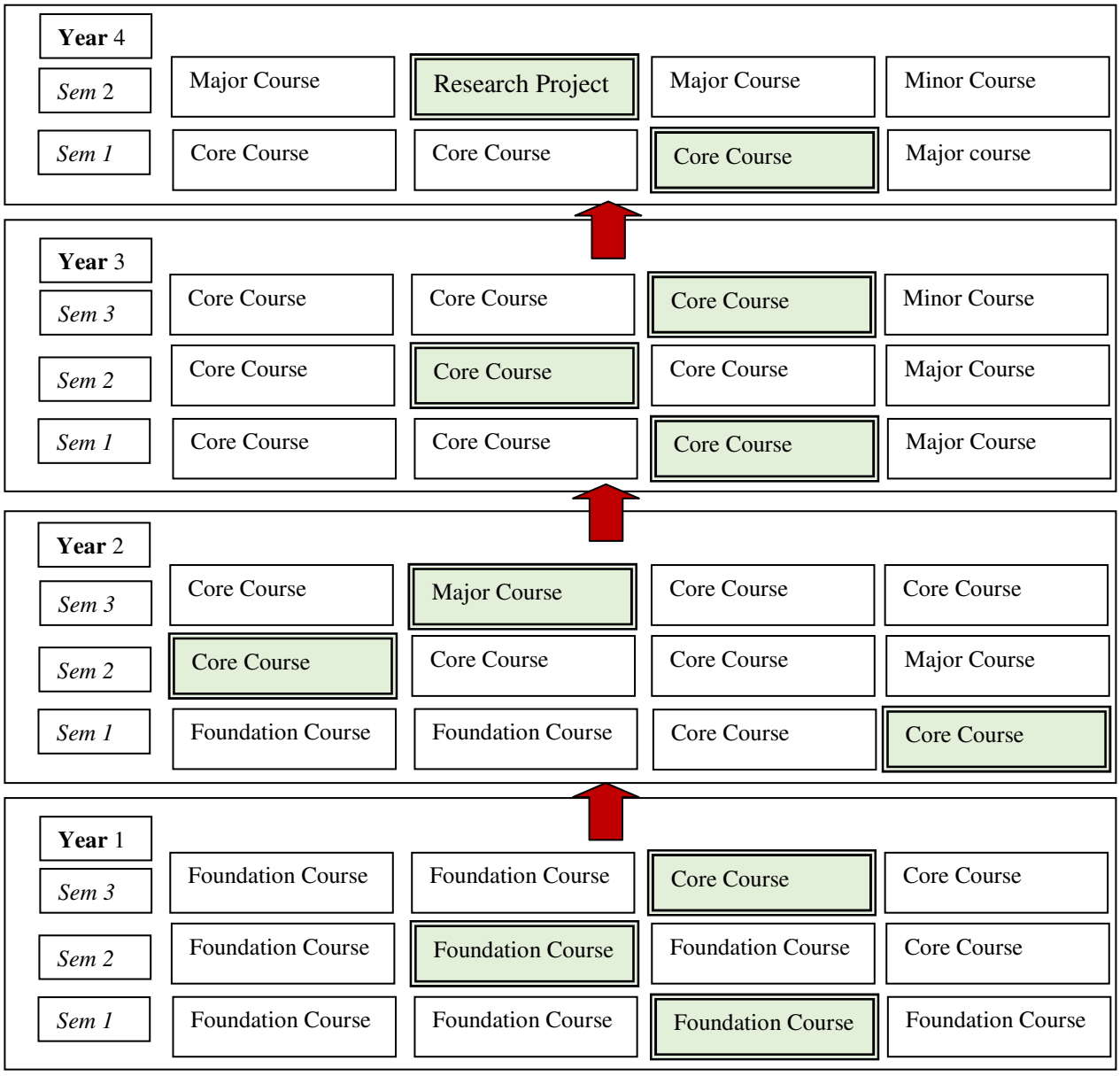
IL Curriculum Mapping (Faculty-Librarian Collaboration)

Integrating information literacy into the curriculum is about building skills for critical thinking, independent and lifelong learning in a holistic way throughout a student's career. Employers in the United States have identified the IL competencies among the learning priorities that are required for the students to become successful in today's economy. Hart Research Associates (2013) reported that about 72% study noticed concerning more emphasis for the students on "the ability to locate, organise, and evaluate information from multiple sources". Head (2012) mentioned a recent report from Project Information Literacy (PIL) which surveyed over 10,000 students from 50 colleges and universities, that employers prefers the graduates with a range of research competencies of using information related tools both digital and non-digital and critical thinking in applying the information to solve their tasks. In recent times, librarians have offered instructional services in approaches of diversified, improved and expanded way, i.e. using virtual learning systems or online course management systems. Here, the learners can interact with the librarians via discussion forums asynchronously. Moreover, creating and teaching credit bearing courses, delivering in-class instruction, creating learning objects, conducting workshops, seminars and training programmes are regular engagement of academic librarians. Head (2012) further mentioned that in spite of IL activities and research at academic institutions, the graduates are incapable towards problem solving at workplace by meeting the information needs. It is not such issue that graduates realise the value and skill of IL that they received only via library. But some students can identified the need of the IL competencies even while they still enrolled. The survey results showed that students expressed their frustration towards research activities which they considered more hard day by day. Head (2013) pointed out that the majority of the students do not know information seeking strategy and techniques or even any method of online research, i.e. using library databases. Even, 80% of these students mentioned that they never approached librarians for assistance. This is very contrary that there are several ILE programmes but learners are facing difficulties they experience with research and acknowledging frustration, and this unwillingness to seek librarians assistance considers other way to teach IL skills. This is just a strategic movement of stand-alone IL instructions to integrating these skills into coursework. So, now a days, it is the right time for the creation of IL curriculum map with discipline based content, tools, and research process, and integration into coursework. Charles (2015) noted the following:

> If learning outcomes directly address research skills and appear in the syllabus, students will see research and IL as an integral part of the course and this may diffuse any apathy on their part (p. 49).

In view of the information age and the current higher education background, implementation of an ILE programme with curriculum map can provide formation for librarians and faculty to work together in providing a methodical set of opportunities for students to earn and apply IL skills. Thus the librarians can be strategic in IL instruction while providing concrete records on its impact on student learning. IL curriculum mapping aligns and supports IL competencies with university foundation courses, core courses, major courses, minor or elective courses, specific courses in a discipline, and evaluation. The process of IL curriculum mapping makes a link and association among faculty members, administrators and librarians.

Harden (2001) described a curriculum map as "a diagrammatic representation of the curriculum displaying the different elements of the curriculum and the interrelationships between these different elements" (p. 125). Bester and Scholtz (2012) identified curriculum mapping as procedure and representation that facilitates to elucidate the pedagogical relationship within a curriculum which is relevant. IL curriculum map can also be seen as tool of communication and process which facilitates the integration of IL competencies into the existing curriculum toward student learning. Charles further emphasized that it can help reinforcing a library instruction programme, provide departments with reliable data for self-studies, and ensure accountability to students, faculty, librarians, and administrators. Figure 1 below given an example of curricular mapping of the integration of IL across a business degree. This mapping is imaginary as number and types of courses are needed to be adjusted. The courses highlighted in pink are those into IL would be integrated. The curriculum map has been adopted from the model of Xioli Wang's doctoral thesis (Wang, 2010) with modification for IUB context which is also be considerable for further amendment.



IL is not only for the final year or senior students, the skills are needed to taught in several classes of several disciplines, and the curriculum should not be intentional or unintentional repetitive. Without strong library-faculty partnership, without reaching students through their coursework, exclusion of IL curriculum map, barring identify the information needs of the learners, excluding articulating what skills were being taught at various phase in the curriculum, without aligning institutional goal and IL curriculum map the learning process will not be effective and successful. Collaboratively schools, academic departments, librarians, and instructors will create and implement the programme.

IL Goals and Outcomes

It is found that collaborative and systematic approach of developing IL competencies that aligns with course content being a part of other academic competencies. These competencies are intertwined rather than separate sets of skills and are parts of students' learning.

Table-3

ILE Outcomes under Respective Goals

Goals	Outcome
1: Defining and specifying the need for information	*i: Formulate questions based on the information need*
	ii: Define or modify the information need to achieve learning focus
	iii: Recognize the need for information in creative and analytical thinking
2: Finding needed information effectively and locating the sources	*i: Determine what kind of information is needed*
	ii: Define sources of information for relevant disciplines
	iii: Formulate an effective search strategy and conduct the search using appropriate tools
	iv: Evaluate search results, and revise search strategy as necessary
3: Critically assessing the information	*i: Examine the content and the structure of the information*
	ii: Apply criteria for evaluating both the information and its sources
4: Managing and interpreting the information	*i: Learn various way of extracting data*
	ii: Organize gathered information
	iii: Synthesize and integrate new data to construct new concepts
5: Communication and presentation of information	*i: Integrate new and prior information in the creation of a product*
	ii: Present data as product to audience
	iii: Communicate the product effectively to others
6: Economic, legal and social issues for the use of information	*i: Know the legal and fair use of information*
	ii: Impact of information for the local context

These should be approached and characterized as comprehensive, integrated, periodic, and non-linear. Besides, it is important for the librarians who will be major contributor to develop IL programme to have clear goals, expected learning outcomes and contextual characteristics of each course. An example (Table 3) of possible learning outcomes that based on ANZIIL standards (2010) is formulated as per IUB students probable need and requirement (Shoeb, 2012).

These goals and learning outcomes are needed to be associated and aligned with the goals and outcomes of specific courses and IUB academic standards. The primary outcomes under each goal are probable competencies which are expected to learn and to be taught by the students. Different level of each learning outcomes are to be considered with particular indicators.

IL Skill Tutorial: An Example

The IL progammes should be different as per specific subject and discipline, it should be learner centered. Since, information needs and information seeking behaviour of an engineering students will be different from those a public health students, likewise a business student needs will be different from a physics student. Similarly the needs of a freshman students will not be as same as the needs of a senior student. Explicitly need based, specific, achievable and assessable goals and learning outcomes should be designed (Lamouroux, 2008; Tantiongco & Evison, 2008). However, this section illustrates an IL tutorials for a course adopted from Consortium of National & University Libraries (CONUL) which is slightly amended and aligned with specific subject and ANZIIL framework (Integrating information literacy, 2016).

Example : The following table demonstrates an example of BUS201 IL skill tutorial.

Table-4

Sample IL Skill Tutorial - BUS201

Context
Suppose there are 300 students enrolled in the Course, ID: BUS201 in a semester. For the purposes of the tutorials the group will be divided into 10 groups of 30. Four one hour sessions (40 in total) will be delivered to each group. Attendance is compulsory and students will receive 10% of the module mark for attending all sessions.
Learning Outcome
• To be able to identify different types of information sources • To become familiar with the information sources available from the library and to know which source to choose • To be able to develop and implement a search strategy to search the sources and find the required information • To find out how to use the information correctly (plagiarism, citing sources correctly and creating a bibliography)
Learning Activities
• Carry out searches of databases demonstrated • Mark, save, email records • Search different databases and compare results
Assessment
Assessment is by two assignments. In one the tutorial group is divided into teams of four or five to discuss and critique a seminal reading in marketing. The other involves each student being assigned an article for which they have to find the full-text article, find an article that cites it, find a related article, find a book and a web site that cites any of the articles, briefly summarise and compare the three articles and compile a bibliography of the articles.
Key Point
• Co-operation between the librarian and the faculty is crucial to the success of the tutorials

- The skills teach will be directly related to the students' assignments so students will be interested

Conclusion

This article explored the role of IL for students' effective learning through faculty-librarian cooperation. It also presented the reasons for developing and adopting IL as lifelong learning process where integration into the curriculum also defined. Students' survey result revealed the significant statistical differences towards their online research behaviour that observed as their scarcity of information problem solving skills. Similarly, faculty commentary also recommended that the students should be taught information skills for their effective research. Providing IL education is a shared responsibility. To accomplish IL as successfully and flawlessly integrated into the academic curriculum librarian should take initiative here. Collaboration with faculty is essential, even assistance of IT specialist and association with students are also required. A pedagogic approach is needed to ensure that IL activities and assessment are relevant to the course to meet students' information needs and make them IL competent as lifelong learner. All these programme level plans also enable librarians to demonstrate and increase the impact of IL instruction on students' learning process. The approach of curriculum should be basic level to advance level as per students' academic category. This study recommended tiered based curriculum approaches of IL integration which suggests teaching basic skills for freshman and sophomore students and advanced level for the junior and senior students. The tasks are mainly based on needs, articulation, recognition and common sense. It is also important to consider that IL programme should use evidence to make future decisions.

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