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Faculty perceptions and practices in health sciences information literacy instruction in Tanzania

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Abstract
This study assessed the information literacy (IL) instruction perceptions and practices of faculty at Muhimbili University of Health and Allied Sciences in Tanzania. An online survey was distributed to all faculty members in five schools and one institute at MUHAS (235 in total) from 2011 to 2012, with a response rate of (34.5 percent). The study findings show a general support for IL development, and its importance in enabling students to do library-based research. To a large extent, faculty believed that the IL competencies of students, including their ability to find, use and evaluate information, was average at the lower levels (first and second year students), and improved at the upper levels (third year undergraduates, and all postgraduates). Although faculty usually asked their students to conduct library research for their course assignments, students did not make sufficient use of library due to inadequate IL skills. Although faculty did not often collaborate with librarians in teaching IL, faculty believed that IL should be an independent, mandatory and credit earning course, and it should be taught by either a librarian only or undertaken collaboratively by both instructors and librarians. Faculty also indicated having seen some impact on the improvement in their students' research process after receiving library instruction. Based on the survey results, the study recommends the following: Universities should embed IL programmes into institutions, and librarians should include IL in professional development courses for teaching IL to faculty, use more proactive and interpersonal marketing strategy to promote IL, conduct regular IL needs assessment, use a flexible pedagogical approach and participative, student-centred methods in teaching and developing IL curricula, and expand the sources in which IL articles are published.

Keywords: information literacy, library-based research, Tanzania, health sciences, University

Introduction

The integration of information literacy programmes into University curricula has emerged as a key objective for higher learning institutions. Information literacy refers to "the adoption of appropriate information behaviour to obtain, through whatever channel or medium, information well fitted to information needs, together with critical awareness of the importance of wise and ethical use of information in society" (Johnston & Webber, 2004). The ability to find, access, evaluate and use information in effective and ethical ways is necessary to students' success within their educational program and afterward in their work and personal lives. Information literacy is an important foundation for evidence-based health care practice and life-long learning.

Across the world, stakeholders in higher education, including research and policy organisations, regional accreditation organisations, and the federal government, have recognized and endorsed information literacy as an essential student learning outcome. Universities are now restructuring their curricula to include IL aspects, and formalize the existing instructional arrangements that exist between librarians and faculty. Universities are also transforming "pedagogical practice to facilitate a more active, student-led approach to learning, as well as the physical re-development of learning space to encourage collaboration between students, and more varied use of resources for information problem-solving" (Mcguinness, 2006). This initiative has changed the conception of the role played by librarians in the academic community, which relegates them to ''support services,'' rather

than "active contributors" to the educational process (Lwehabura, 2007; Markless & Streatfield, 1992; Mcguinness, 2006). This initiative has also transformed roles of librarians to embrace a more integrated teaching role, move them closer to the pedagogical structures that they have always supported, including collaboration with key university constituents in pursuit of a student-centered vision of learning. Information users are also searching and using information as the basis for problem-solving, rather than using only information sources prescribed by faculty in class, and thus they are able to become lifelong learners (Mcguinness, 2006).

Although the integration of IL into mainstream course is considered best practice throughout the literature, many countries in Africa have not yet implemented IL interventions. Studies of IL education in library schools in Africa found that only a few library schools offer the IL course as a stand-alone course in their curricula (Baro & Keboh, 2012; Baro, 2011). In Tanzania, studies indicate that IL is still new in the university curricula (Lwehabura, 2007; Lwoga, 2012). It is important for African librarian to be more proactive in advocating and conducting IL programmes to improve the IL skills of the communities they serve including both students and faculty.

Despite the fact that the level of integrating IL into the university curricula in Tanzania is low, Muhimbili University of Health and Allied Sciences (MUHAS) is among the few universities that restructured its curricula to competency based and integrated the IL module into the ICT course in 2011. This course is taught to all first year undergraduate students at the University. MUHAS became a university in its own right in 2007, having previously been a college of the University of Dar es Salaam. As a public University, MUHAS is mandated to increase its student numbers quite rapidly to meet the country's acute need for more health professionals. In total, MUHAS currently offers 86 different undergraduate and postgraduate programmes to over 2500 students. All these development necessitates a need to equip undergraduate students with appropriate IL skills and to enhance students' appreciation of the role of evidence in health care practice and lifelong learning. Therefore, the library integrated the IL module into the undergraduate academic programme and developed several other IL programmes to improve the IL competencies of both students and faculty members. These IL programmes include: orientation programme for new students, professional development workshops for teaching IL to faculty, online tutorial, voluntary workshops for continuing students, and short courses for general public. It was therefore important to assess the faculty attitudes, perception and practices to the University IL programmes for the long-term benefits of information literacy to students at the University.

Most studies on the importance of information literacy to University students have been published by librarians, which brings a need to assess as to whether faculty always share this enthusiasm. While there have been some studies of faculty perceptions of information literacy, most have been shaped primarily by studies conducted in other countries in developed world (Bury, 2011; Julien & Boon, 2004; Mcguinness, 2006; Nilsen, 2012; Saunders, 2012; Weetman, 2005). Only few studies have been conducted in Africa, and specifically Tanzania (Lwehabura, 2007). The faculty perception and experiences towards information literacy development remain a comparatively under-researched concept in the health sciences discipline in Africa, and Tanzania in particular. Are health sciences faculty support information literacy programmes in Africa, particularly Tanzania? Do they believe that the IL competencies are essential for their students to learn? and, if so, whose responsibility do they believe it is to teach those competencies?

Therefore, the aim of this study was to assess the IL instruction practices, attitudes and perceptions of university faculty to advance the discourse of IL programmes at the MUHAS. In particular, the study investigated the following:
1. Faculty's attitudes and perceptions on the students' information literacy competencies,
2. Faculty's support for a variety of information literacy instruction methods
3. The perceived role of librarians in information literacy instructions
4. Faculty's perception of the impact of library-led IL instructions
5. Faculty interest in information literacy options

Literature review
There has been a growth of literature of the faculty perception and experiences with IL instructions across the world (Blau, 2012; Bury, 2011; Chan, 2003; Gullikson, 2006; Julien & Boon, 2004; Leckie & Fullerton, 1999; Mcguinness, 2006; Nilsen, 2012; Saunders, 2012; Weetman, 2005), Africa (Baro 2011) and Tanzania (Lwehabura 2007). The faculty perception and experiences towards IL development remain a comparatively under-researched concept in Africa. Despite that most of these studies focus in the developed countries, there are some patterns that could be used to inform research in the African perspective including instructors' attitudes towards IL and their assessment of students' competency in this area.

In general, studies have shown a general support for IL development and faculty rate most of the IL competencies as important. For instance, previous studies found that faculty believed IL is important for their university students in Australia (Gullikson, 2006), Malaysia (Chan, 2003), Canada (Bury, 2011; Nilsen, 2012), USA (Saunders, 2012) and UK (Weetman, 2005). Since faculty are key players in facilitating changes in various academic issues, their influence can enhance the acceptance of IL activities among students and university management, and improvement of IL skills and knowledge among students.

Although faculty support IL development for their students, they rate the IL competencies of their students differently. One set of studies looks at students as a group and their abilities are rated as moderate or strong, but if we look at the studies that assess IL competencies of students at different stages of their university career, we can see that faculty perceive a difference in IL brought about by IL instruction or (presumably) experience. On one hand, studies that assess students as a group and their IL abilities show that faculty rate the IL competencies of their students as somehow strong or moderate. For instance, a study in USA reported that the majority of the faculty rated students as 'somewhat strong' in six areas, specifically: identifying scholarly materials, identifying reliable/authoritative information, finding relevant information, citing sources properly, synthesizing information, and searching databases (Saunders, 2012).

On the other hand, studies show that faculty perceive that undergraduate students at their lower levels are largely not information literate, but IL skills of undergraduates improve after receiving IL instructions or when they reach years 3-4 of their studies. In a survey conducted to the faculty of programs fully accredited by the Accrediting Council on Education in Journalism and Mass Communications (ACEJMC), faculty reported that most of their graduate students met the Association of College and Research Libraries (ACRL) criteria for information literacy, but only some of their undergraduate students could be considered information literate by these standards. Faculty also reported consistent improvement in their students' research process after receiving library instruction (Singh, 2005). In Canada, faculty

rated IL skills of lower-level undergraduate students in particular as largely poor to fair. However, these skills improve markedly by the time students reach years 3-4 of their studies (Nilsen, 2012). Similar observations were made by another study in Canada that faculty perceived student IL competencies fall below desired standards (Bury, 2011). Although IL skills are very important for University students of all levels, lower-level undergraduates do not yet, according to their instructors, possess great strength in this area.

Some faculty seem to believe that students acquire the necessary competencies on their own, or through exposure to resources without librarians' assistance. A study by Mcguiness (2006) in Ireland found that IL has not yet become a priority for faculty. The study indicated the faculty's belief that the extent to which students develop as information literate individuals depends almost entirely on personal interest, individual motivation and innate ability, rather than on the quality and format of the available instructional opportunities (Mcguinness, 2006). Other studies (Julien & Boon, 2002; Weetman, 2005) also found that faculty believe that student's path to IL development is, by nature, a solitary one where students develop information skills gradually, and usually without much direct assistance from librarians. It is clear that there is a general lack of support for IL development within various institutions due to many factors such as lack of awareness among faculty with regard to relevance of IL and its long-term benefits to students.

While faculty value IL competencies, they do not necessarily agree on how students should be taught these abilities. A study of journalism and business instructors indicated most faculty members included assignments requiring library research or schedule an information literacy session in each of their courses, while over half of architecture and art and design instructors were engaged in activities that support information literacy learning outcomes (Singh, 2005; Wu & Kendall, 2006). In USA, Saunders also reported that faculty have not found systematic ways to integrate it into their curriculum. About 77.6 percent of respondents (211 participants) strongly agreed or agree that they address information literacy concepts in their teaching. Substantially fewer faculty, 55.2 percent strongly agree or agree that they assess IL outcomes (Saunders, 2012). Another study in Canada also indicated that faculty do not regularly request in-class library instruction from a librarian for any of the classes that they teach, despite rating IL skills and instruction as very important to students in their disciplines (Nilsen, 2012). Literature suggest that faculty do not have systematic ways of integrating IL into their courses, and thus issues related to the need of IL policies become important to guide how IL activities should be conducted.

The literature further show that some faculty members collaborate with librarians to deliver IL programmes, while others do not. On one hand, studies indicate that faculty appear to be reluctant to collaborate with information professional in IL instruction. A study of nursing faculty in Indiana and Florida showed that most faculty were more likely to view librarians as collaborators in curriculum development or assessment than partners in instruction (Schulte & Sherwill-Navarro, 2009). In Ireland, faculty members believed IL to be taught through informal methods and do not often collaborate with librarians in teaching IL (Blau, 2012). Another study indicated that although faculty did not regularly request in-class library instruction from a librarian for any of the classes that they teach, they clearly identified librarians as professionals as opposed to teaching staff, clerks, administrators, or semi-professionals in Canada (Nilsen, 2012). At the same time, 61 percent identified librarians as academic equals to other (non-librarian) faculty (Nilsen, 2012). Faculty perceptions of and attitudes toward the status and capacity of academic librarians may influence their willingness to utilize librarians as instructors in their classes.

On the other hand, other studies show firm support for a collaborative model. In Canada, majority of York faculty (78.7 percent) believed that IL education should be undertaken collaboratively by faculty and librarians (Bury, 2011). Collaboration is important because it helps librarians to understand the research needs of faculty and students and helps improve students' information literacy skills (Mounce, 2010). Thus health sciences librarians need to initiate and implement creative and far-reaching collaborations to improve IL instructions.

There are various factors that hinder faculty and librarian collaboration and further integration of IL into the curriculum. One of those factors relates to the a lack of awareness among faculty with regard to the issues surrounding pedagogy for IL development, and the importance of integrating IL development into the institution's curricula (Blau, 2012; Gullikson, 2006; Nilsen, 2012; Saunders, 2012). Further, IL is often identified with library skills, thus faculty tend to believe that IL competencies are not their discipline. This concept in mainly emphasized by librarians who want to retain ownership of information literacy (Saunders, 2012). Different "cultures" inhibit librarians and university faculty to collaborate because faculty are more content-based in their instruction, whereas instruction librarians are more process-based (Mounce, 2010). Other reasons for not utilizing librarian-led in-class instruction as identified in a Canadian study include lack of time, lack of confidence in the effectiveness of such instruction, and lack of coordination of IL instruction at the level of departments and faculty members in the institutions (Nilsen, 2012). These studies indicate that librarians need to change their mind set and conduct extensive promotional work; otherwise IL will remain unknown subject to most faculty members.

In Tanzania, few studies have been carried out to assess the faculty perception of IL instruction in higher learning institutions. One of the few studies was conducted by Lwehabura (2007), who assessed the lecturers' perception on IL education in four universities of Tanzania. Lwehabura (2007) found that majority of faculty (94.6 percent) believed that effective use of the library and its resources contributed positively to a student's academic performance, and that most students were moderately information literate. Most faculty members (95.5 percent, n=246) required their students to use additional sources in addition to those they prescribe (Lwehabura, 2007). However, few faculty members consulted librarians about providing assistance to students (Lwehabura, 2007). In general, Lwehabura (2007) assessed the faculty's perception on student IL competencies judging from assignments, and role of librarians in IL instructions. However, Lwehabura (2007) did not assess other aspects that are also important in examining perception of faculty members in IL education, which include faculty's engagement in IL instructions activities, faculty's preferences on the collaborative approach for teaching IL with librarians, impact of library-led IL instructions, and the faculty interest in IL options. Knowledge of and familiarity with IL standards is more closely associated with whether faculty address IL in their courses (Saunders, 2012), and whether library led IL instructions have any impact at the university setting. In order to bridge this gap, this study sought to assess faculty perception and experience with IL competencies and skills of their students to provide empirical findings that would improve delivery of Il instructions in higher learning institutions with a particular focus in the African region.

Methodology
The online questionnaire survey was conducted to assess the IL instruction practices and perceptions of university faculty at Muhimbili University of Health Sciences. The online survey was distributed to all faculty members in five schools and one institute at MUHAS (235 in total) from 2011 to 2012. These five schools and institutes included School of

Medicine, School of Dentistry, School of Nursing, School of Public Health and Allied Sciences, School of Pharmacy, and Institute of Traditional Medicine. The remaining Institute of Allied Health Sciences was excluded from the study because it focuses on diploma and advance diploma programmes, while the study aimed to assess the IL competencies of undergraduate and postgraduate students. On the whole, a total of 81 faculty members took part in the survey, with a rate of return of 34.5 percent. Though the response rate was relatively low, the significance of this article involved making an original contribution to knowledge in a research field especially in Sub-Saharan Africa where few empirical studies on the faculty's perception towards students IL competencies have been conducted in the last five years.

This study adopted the questionnaire tools to survey the faculty perception and experience of IL competencies of students used in similar studies elsewhere (Blau, 2012; Bury, 2011; Leckie & Fullerton, 1999; Lwehabura, 2007; Nilsen, 2012). The survey questionnaire comprised six sections, which had both closed and open ended questions as shown in Appendix 1. The first part of the questionnaire included questions related to demographic characteristics of the respondents. The second part included questions related to the faculty's attitudes and perceptions on the students' IL competencies, which had four questions that were borrowed from various studies (Blau, 2012; Bury, 2011; Leckie & Fullerton, 1999; Lwehabura, 2007; Nilsen, 2012). The third part of the questionnaire determined faculty expectations regarding IL competencies of students judging from assignments, and it had three questions which were borrowed from Lwehabura (2007). The fourth part of the questionnaire assessed the faculty's support for a variety of IL instruction methods, which had four questions that were adapted from various studies (Blau, 2012; Bury, 2011; Leckie & Fullerton, 1999; Lwehabura, 2007). The fifth part the questionnaire survey determined the perceived role of librarians in IL instructions, and it had four questions which were adapted from various studies (Bury, 2011; Lwehabura, 2007; Nilsen, 2012). The sixth part of the questionnaire identified faculty's perception of the impact of IL instruction, and it had only one question which was borrowed from Bury (2011) and Leckie and Fullerton (1999). Lastly, the questionnaire aimed to determine faculty interest in IL options, and the section had only one question which was borrowed from Leckie and Fullerton (1999).

Results and discussion
A total of 81 faculty members (51 male, 30 female) responded to the online questionnaire at MUHAS. The average age of the study participants was 42 years. More than half of respondents had Masters Degree (53.1 percent, n=43), and they were employed as assistant lecturers (33.3 percent, n=27) and lecturers (22.2 percent, n=18). Responses by faculty mainly included 42 percent of respondents from medicine discipline (See Table 1).

Table 1: Demographic details (N=81)

		Frequencies	Percentages
Gender	Male	51	63
	Female	30	37
Age	below 35	23	28.4
	36-45	29	35.8
	46-55	21	25.9
	56 and above	8	9.9
Academic qualification	PhD	28	34.6
	Masters	43	53.1
	Bachelor	10	12.3
Position	Ass. Professor	7	8.6
	Senior Lecturer	14	17.3
	Senior Research Fellow	1	1.2
	Lecturer	18	22.2
	Research Fellow	4	4.9
	Assistant Lecturer	27	33.3
	Tutorial Assistant	10	12.3
Schools	School of Medicine	34	42
	School of Dentistry	8	9.9
	School of Nursing	10	12.3
	School of Pharmacy	10	12.3
	School of Public Health and Allied Sciences	15	18.5
	Institute of Traditional Medicine	4	4.9

Faculty perceptions of students' IL competencies

Similar to previous studies (Bury, 2011; Gullikson, 2006; Leckie & Fullerton, 1999; Lwehabura, 2007; Nilsen, 2012; Saunders, 2012; Weetman, 2005), the present study found a general support for IL development at MUHAS. A majority of faculty members (95 percent, n=77) stated that knowledge and skills for effective use of the library and other information resources contribute positively towards student's academic performance. When asked if students could benefit from receiving IL instruction, most faculty members (79 percent, n=64) believed that students can benefit from the teachings. It is evident that faculty rate IL competency as important skills required by students to learn and conduct research more effectively.

Using a 4-point scale, faculty members were asked to rate their students' abilities to find, retrieve, evaluate and use effectively information they get. To a large extent, faculty believed that the IL competencies of undergraduates at the lower level as moderate, and that student had a gradual improvement in IL skills as they progress to higher levels. The study findings showed that faculty rated the IL skills of first and second year undergraduate students as satisfactory (34.6 percent, n=28), while the IL skills of third, fourth and fifth year students was perceived as satisfactory (32.1 percent, n=26) and good (23.5 percent, n=19). Faculty further had a higher level of confidence in graduate student IL competencies, where the IL skills of graduate students were ranked as good (18.5 percent, n=15) (see Figure 1). It is evident that first and second year undergraduate students are perceived as much less able to find, retrieve, evaluate, and use information than students in their senior years. The findings of this study are also supported by the results of other studies carried out elsewhere (Bury,

2011; Leckie & Fullerton, 1999; Nilsen, 2012; Singh, 2005) that faculty members believed the IL competencies of undergraduates improve considerably by their senior years. It is thus important for Universities to teach IL competencies to undergraduate students at all levels of their studies. The IL module was introduced at MUHAS in the academic year of 2011/12, and thus the IL skills of undergraduates are expected to improve as they proceed to upper education levels.

When asked about the level of IL competencies of students, three-quarters of faculty (71.6 percent, n=58) believed that some aspects of knowledge or skills related to library and information use were inadequate among their students. The study findings were also confirmed by another study of four Universities in Tanzania that most teaching staff (69.8 percent) stated that students had inadequate IL competencies (Lwehabura, 2007). When asked if students conduct library research, a large proportion of faculty (58 percent, n=47) stated that students did not make sufficient use of library for course assignments. It is clear that it is important for students to acquire library research skills for them to make sufficient use of library for their learning purposes.
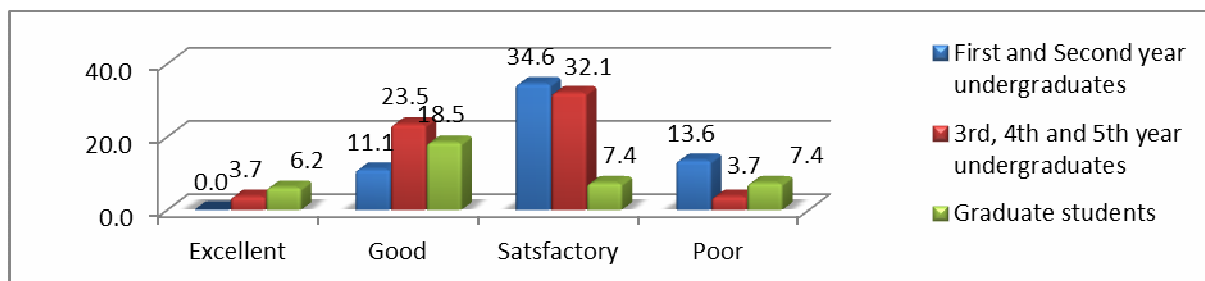

Figure 1: Faculty rankings of information literacy skills of their students (N=81)

The main specific IL competency which faculty identified for development among their students, was the ability to search information from electronic sources (72.8 percent, n=59). Other IL competencies that faculty identified as important skills for development included formulation of search strategy and establishing keywords, citing information sources correctly, understanding how to critically evaluate information found on the free web, and synthesising information gathered from different sources (see Table 2). Similarly, Lwehabura (2007) found that faculty considered the following three areas to be weak among students which were: searching for information from electronic sources, formulation of search strategy and establishing key words, and evaluation of information. The study findings suggest that faculty place high importance on the IL topics related to ability to search information, construction of search strategies, and evaluation of information. It is important for librarians to assess the IL needs of faculty and students to improve of IL programmes in their Universities.

Table 2: Faculty preferences of specific information literacy competencies that need further development for their students (N=81)

	Frequencies	Percentages
Searching information from electronic sources	59	72.8
Formulation of search strategy and establishing key words	51	63.0
citing information sources correctly	49	60.5
Understand how to critically evaluate information found on the free web	45	55.6

synthesize information gathered from different sources	45	55.6
Knowledge about using electronic sources	44	54.3
Topic analysis	32	39.5
Catalogue usage and location of relevant information sources in the library	32	39.5
Searching information from print (hard copy) sources	28	34.6
Knowledge about using print (hard copy sources)	27	33.3
Understand how to critically evaluate library information sources found	27	33.3

Faculty expectations of IL competencies of students judging from assignments
Faculty members were asked whether they asked their students to complete assignments in any of their courses which need library research. The majority of faculty members (82.7 percent, n=67) usually asked their students to conduct library research for their course assignments. This finding was consistent with those results of Lwehabura (2007) that most faculty members (95.5 percent) in his study required their students to use information sources in addition to those they prescribe in classes. It is important to note that faculty expect students to do library research which may enable students to acquire IL competencies as well as become lifelong learners. However, Lwehabura (2007) notes that despite the fact that faculty require students to use library resources in addition to what they prescribe in classes, they need to make sure that they expose students to library and information sources by incorporating IL elements in their teaching.

When asked to indicate types of assignments requiring library research they routinely included in their courses, most faculty stated either research or design projects, or long paper and essays (62.7 percent, n=42) in their courses. Other types of course assignments that required students to conduct library research included short papers (37 percent, n=25), and lab or tutorial reports (32.8 percent, n=22). Other studies show similar results, though they are not to the same degree as the findings of the present study. Leckie and Fullerton (1999) found that about half the faculty required either short papers or research/design projects in their courses, and slightly more than a third required longer papers or lab/ tutorial reports in a study of faculty's perceptions of IL education in two Universities of Canada.

Using a five point scale (very poor to very good), faculty members were asked to rate the specific IL competencies judging from assignments attempted by their students. Table 3 indicates that faculty mainly rated the average use of current source materials (39.5 percent, n=32), use of print and e-resources (37 percent, n=30), critical evaluation of materials (35.8 percent, n=29) and ethical use of information (35.8 percent, n=29) from assignments attempted by their students. Similarly, another study in Tanzania reported that faculty's highest rating for IL competence was average for use of range of information sources, use of up to date sources and critical evaluation of information (Lwehabura, 2007). Consistent findings were also reported in Malaysia that faculty indicated that many students did not use the knowledge that was gained from the IL course in their learning, which would be indicated in their course assignments (Chan, 2003). It is clear that students have average IL competencies, which confirms earlier results in this study that first and second year undergraduates have average level of IL competencies which gradually improve as they move to upper education levels.

Table 3: Rating of competence for IL aspects judging from students' assignments (N=81)

	Very poor		Poor		Average		Good		Very good	
	No	Percent	No	Percent	No	Percent	No	Percent	No	Percent
Range of print and e-resources	2	2.5%	9	11.1%	30	37.0%	12	14.8%	7	8.6%
Use of up to date source material	2	2.5%	6	7.4%	32	39.5%	10	12.3%	9	11.1%
Critical evaluation of the information they use	4	4.9%	14	17.3%	29	35.8%	7	8.6%	5	6.2%
Ethical use of information in general	5	6.2%	16	19.8%	29	35.8%	4	4.9%	5	6.2%
Breadth of materials	0	0.0%	12	14.8%	28	34.6%	14	17.3%	4	4.9%
Correct citation format	11	13.6%	12	14.8%	25	30.9%	6	7.4%	3	3.7%

Faculty's support for a variety of information literacy instruction methods
Faculty can engage in IL through various ways including assignments, training, and a requirement for use of those information sources as a criterion for being awarded additional marks. In terms of training, the study found that the rate of faculty engaging in teaching IL was slightly low. Less than half of faculty (42 percent, n=34) taught IL competencies as part of their course. These findings were almost similar to previous studies in Canada that half of the respondents (52.9 percent) were engaged in IL instruction (Bury, 2011). Similarly, Dacosta (2010) found that the rate of incorporation of IL teaching and assessment by faculty ranges on average from 53 percent to 56 percent in the surveys conducted. There is therefore a gap between the perceived importance of IL instruction and its implementation on the ground. The study findings showed that faculty rated IL as important competencies for students, but few of the faculty taught IL aspects in their courses. It is also important to note that although these results suggest that more than half of faculty are doing very little or nothing about instructing IL in their classes, it is nonetheless encouraging that 42 percent of faculty are teaching various aspects of IL in their courses. Thus, librarians can build on this initiative, by creating more awareness of IL, conduct IL professional development training programmes for teaching IL to faculty, and assisting those faculty members who are already engaged in IL education.

Faculty did not incorporate teaching of IL competencies within any of their courses mainly because they were not aware that librarians could be asked to conduct the course, and lack of time to teach IL as shown in Table 4. One respondent said that,

> "I was not aware that this service was available to use, however I should have gone out of my way to find out because it is not only my students who require this knowledge but also myself as well".

This finding shows that faculty perceive IL as important competencies to be taught to their students, however few of them teach IL due to lack of awareness that librarians could facilitate IL in their classes. Similar observations were made by Leckie and Fullerton (1999) that a large group of faculty did not incorporate IL in their courses because they were unaware that librarians would offer help in this regard.

Table 4: Reasons for not incorporating teaching of information literacy competencies within any of Faculty's courses (N=81)

	Frequencies	Percentages
I didn't know librarians could be asked to come to my class(es)	36	70.6
Though relevant, the curriculum is already full – no time	18	35.3

It's not my responsibility to organize teaching of these skills	10	19.6
These skills are not relevant to the courses I teach	5	9.8
Students have these skills already	4	7.8
Students can teach themselves these skills	2	3.9

Of those faculty who incorporated IL in their courses, half of the respondents (50 percent, n=17) taught IL on their own, while nearly half of the study participants (44.1 percent, n=15) requested librarians to conduct IL sessions for their students, and few faculty (5.9 percent, n=2) taught IL competencies together with librarians. These findings corroborate with the results of previous IL studies, that faculty did not often collaborate with librarians in teaching IL such as in Canada (Bury, 2011), and Ireland (Blau, 2012). The study findings indicate that faculty teach IL independently, while the IL instruction with librarians inputs are less preferred by faculty.

The study further sought to determine if faculty took any initiatives to make sure that students acquire knowledge about library and information resources apart from teaching IL in their courses. Faculty members were asked to indicate the steps they take to make sure that their students acquire knowledge and skills about the library research. More than half of faculty asked students to consult the librarians and use the library on their own (59.3 percent, n=48). Other steps that were taken by faculty members were to ask students to consult dissertations and theses, and to consult freely available internet resources (see Table 5). These results are similar to the observations made by Lwehabura (2007) that most faculty members requested their students to visit the library on their own and consult the librarians as the main way of making their student get exposure to the use of library and other information sources. Table 5 further shows that few faculty members (25.9 percent, n=21) asked librarians to introduce and teach students how to use specific resources they recommend. This finding is similar to what was revealed earlier in the present study that few faculty members (n=15) requested librarians to conduct the IL sessions for their students. This finding was consistent with previous IL studies that few teaching staff consulted librarians about providing assistance to students in Tanzania (Lwehabura, 2007). The study findings suggest that faculty inadequately collaborate with librarians to make sure that students effectively use library. Instead, they believe that students can effectively use library to get access to and evaluate information on their own.

Table 5: steps taken by faculty to make sure that their students acquire knowledge and skills about the library and other information resources (N=81)

	Frequencies	Percentages
Asking the students to go to the library on their own and consult the librarians	48	59.3
To dissertations and theses	28	34.6
To freely available internet resources in general	28	34.6
To consult databases for articles on a given topic(s)	25	30.9
To specific resources on the freely available internet which you have recommended	25	30.9
To the catalogue to find books on a topic	22	27.2
Asking the librarian to introduce and teach them how to use specific resources	21	25.9
Taking students to the library and introducing them to the resources	11	13.6
To special reserve section	10	12.3

The perceived role of librarians in information literacy instructions

Integration of IL into mainstream course is considered as a best practice throughout the literature, however a recent study in Tanzania and across Africa show that the rate of integrating IL in the university curricula is still low (Baro, 2011; Lwehabura & Stilwell, 2008). The present study sought to assess whether faculty support the integration of IL into the University curricula, although IL was already incorporated into the curricula as a mandatory and credit-earning course at MUHAS since 2011. Therefore, a number of questions were posed to assess whether faculty support the inclusion of IL into the university curricula, how the IL course should be taught, and whose responsibility should be to conduct such a course.

Most respondents strongly agreed (51.9 percent, n=42) and agreed (11.1 percent, n=9) that IL should be taught in an integrated way, that is, it should be incorporated into mainstream courses, to enable students to relate IL skills acquisition to their academic discipline. There were divergent study findings in the literature regarding the subject, where some faculty members did not support the integration of IL into the curricula in other Universities. On one hand, studies positively indicated a preference for IL instruction to be integrated into the mainstream curriculum. A study of four Universities in Tanzania reported that faculty preferred IL course to be taught as part of the mainstream curriculum to make it effective (Lwehabura, 2007). Bury (2011) also reported that faculty preferred IL course to be delivered during class time (45 percent). On the other hand, a recent study by Blau (2012) found that faculty members believed that IL should be taught through informal methods. It is clear that the findings of the present study show that faculty support the integration of IL into the mainstream courses, which is important factor in imparting the IL skills to enable students to become efficient information users.

When asked whether they would prefer IL to be taught as either an independent course or part of another course, more than half of faculty preferred the IL be taught as an independent course (55.6 percent, n=45), while few faculty members preferred IL to be taught as part of another course (21 percent, n=17). Previous studies however, have revealed contradicting findings, where some faculty members supported IL to be taught as an independent course, while others did not. For instance, Lwehabura (2007) reported that majority of faculty (70.5 percent) were in favour of teaching IL as an independent course in Tanzania. Contrary to this finding, Leckie and Fullerton (1999) found that the idea of a library research module or component for existing courses was far more popular than the idea of an entire course in Canada. It is clear that faculty members at the surveyed University and other studies in Tanzania strongly support IL to be taught as an independent course which is contrary to other Universities elsewhere where they would not prefer IL to be an independent course.

On whether IL should be a required or optional course, less than half of respondents (43.2 percent, n=35) indicated that IL instruction should be a compulsory and credit earning course, 25.9 percent wanted it to be compulsory but not credit earning course, while 9.9 percent (n=8) preferred IL to be an optional/elective and credit earning course. The study findings were almost consistent to the results of earlier studies that most faculty preferred IL instruction to be treated as a compulsory and credit earning course in Tanzania (Lwehabura, 2007) and a required course in Canada (Bury, 2011). This finding shows that faculty support IL development and they would prefer IL to be a required course at the university.

This study found a firm support of faculty preference on IL course to be taught by either a librarian only or undertaken collaboratively by both course instructors and librarians, accounting for 34.6 percent (n=28). Few respondents preferred the IL course to be instructed by only course instructors or either course instructors or librarians, with a score of 3.7 percent (n=3). These study findings show that the role of librarian in conducting IL instructions is well-recognized by faculty in the current study. Other studies however found a similar pattern that faculty support a collaborative approach, although not to the same level as the present study where there was a firm support for also librarians to conduct IL instructions on their own. A Canadian study found that faculty believed that IL education should be taught collaboratively by faculty and librarians 78.7 percent, while 10 percent indicated that it should be taught by librarians only, while 7.1% believe that it should be instructors, and 4.3 percent said it could be either faculty or librarians (Bury, 2011). These findings corroborate with the results of previous IL studies that faculty members were open to a collaborative approach to teaching IL with librarians in other Universities in Ireland (Blau, 2012), and Canada (Leckie & Fullerton, 1999).

Faculty's perception of the impact of library-led IL instructions
When asked to evaluate the impact of IL instructional sessions delivered by librarians to their students, most faculty reported that the librarians–led IL instructional sessions had substantial impact (32.1 percent, n=26), and some impact (29.6 percent, n=24), while 2.5 percent noted minimal impact on their students' IL competencies. About 33.3 percent (n=27) were not aware of any impact generated from librarians–led IL instructional sessions, while 2.5 percent (n=2) indicated that IL sessions had no impact. The study findings are similar to other studies in Canada that most York faculty who had organised IL sessions with librarians reported a substantial (47.5%) impact, or some impact (37.5%) on their students' IL competencies (Bury, 2011). Faculty also perceived IL instructions as useful in another study of two large Canadian universities (Leckie & Fullerton, 1999). It is clear that faculty perceived the IL instructional session delivered by librarians as useful in improving students' library research skills at MUHAS as well as in other universities.

Faculty interest in information literacy options
Using a 5-point scale from 5 (strong interest, would support) to 1 (strongly no interest), faculty were asked to indicate their preference on the development of their IL instruction services for their course. Faculty were strongly interested and interested in the review of research tools/techniques (70.4 percent, n=57), and hands-on workshops on specific tools (66.7 percent, n=54) as shown in Figure 2. Related to this finding, Leckie and Fullerton (1999) also reported a considerable faculty interest in more hands-on workshops of specific tools (69 percent) and review of research tools/techniques (67 percent). The findings of the present study show that faculty support of instructional services involving librarians was positive, and they were mainly interested with hand-on workshops, review of research tools and in-class lectures or demonstrations by librarians.
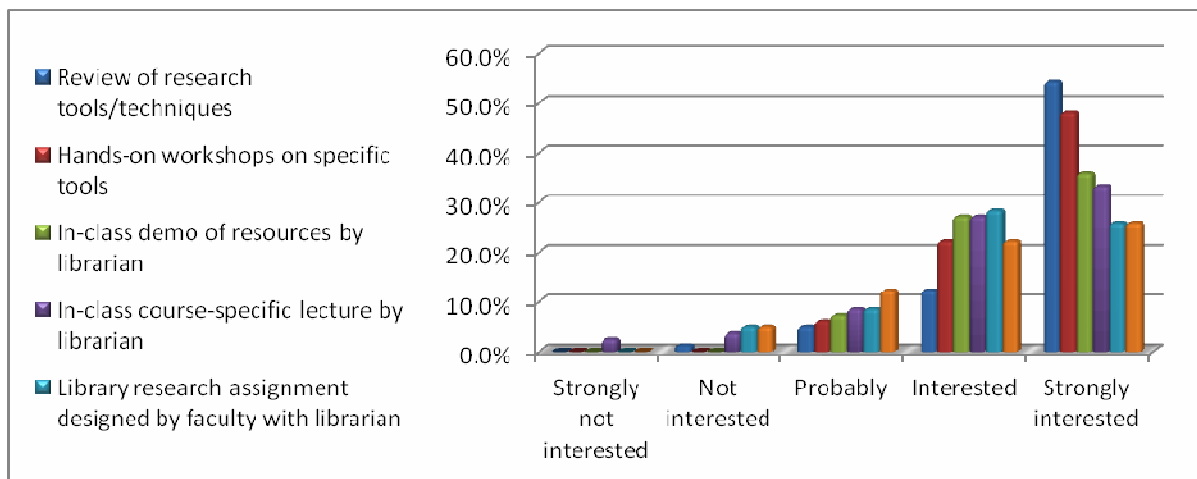
Figure 2: Faculty preference on the development of their information literacy instruction (N=81)

5. Conclusion and recommendations

The present study indicates a general support for IL development, and its importance in enabling students to do library-based research. To a large extent, faculty believed that the IL competencies of undergraduates at the lower level are moderate, and that students had a gradual improvement in IL skills as they progress to higher levels. Although faculty usually asked their students to conduct library research for their course assignments, students did not make sufficient use of library due to lack knowledge or skills related to library and information use. Despite the literature indicating that integration and collaboration is necessary if IL is to be successfully developed in higher learning institutions, limited integration had occurred in the surveyed university and more promotion is required. Less than half of faculty either incorporated IL into their courses or collaborated with librarians to conduct IL sessions for their students. Faculty did not collaborate with librarians to make sure that students effectively use library. Instead, they believed that students can consult the librarians and use the library on their own, consult dissertations and theses, and consult freely available internet resources. Although faculty did not often collaborate with librarians in teaching IL, faculty believed IL should be an independent, mandatory and credit earning course, and it should be taught by either a librarian only or undertaken collaboratively by both instructors and librarians. Faculty also indicated having seen some impact on the improvement in their students' research process after receiving library instruction.

The study findings showed that some of the perceptions of faculty members on IL instructions have changed over time since 2007 where Lwehabura conducted a PhD study on the academics' perception on IL instruction in four Universities of Tanzania. For instance, Lwehabura (2007) found that most teaching staff perceived that students had inadequate IL competencies. Nonetheless, the present study found that faculty believed that IL competencies of undergraduates improve considerably by their senior years. However, other findings were the same between the present study and earlier studies that were conducted in Tanzania. For instance, faculty members in the present study shared similar views with other teaching staff in earlier IL studies in Tanzania (Lwehabura, 2007) on the following issues: specific IL competencies that need further development among students, IL competencies of students judging from assignments, and role of librarians in IL instructions.

The present study also brought new knowledge about the perception of faculty members in IL education among health sciences students, that were not previously assessed in other Tanzanian studies (Lwehabura, 2007), which include: faculty's engagement in IL instructions activities, faculty's preferences on the collaborative approach for teaching IL with librarians, impact of library-led IL instructions, and the faculty interest in IL options. Thus, the study findings provide a broader insight into faculty understanding and practices of IL instruction especially in the health sciences field, and these findings will help to advance the discourse of information IL and evidence based health care in Tanzania, as well as in Africa.

On the whole, the study findings showed that librarians need to be flexible about models and approaches to IL instruction. The needs of faculty and students should be taken into consideration when designing IL curricula. Therefore, to enhance the IL development in the African health sciences Universities, this research suggests the following:

- African Universities should contextualize and embed information literacy programmes into institutions by making information literacy course mandatory or integrating it into regular courses, and ensuring adequate access to technological infrastructure including access to computers, internet connectivity, and alternative electrical power sources;
- Librarians should include IL in professional development courses and encourage faculty to integrate IL aspects in their courses or use the IL library-based instructional services. Hands-on review sessions and workshops for faculty should be a priority in the library instructional program'
- Librarians should use more proactive and interpersonal marketing strategy to promote IL programmes across their universities to make sure that faculty are aware of IL through various means such as website, public lectures, workshops, notice boards, group emails, university meetings, interpersonal communication and other means;
- Librarians should conduct regular needs assessment of their information literacy programmes to deliver tailored programmes to meet users' disparate needs;
- Librarians should take a flexible pedagogical approach. Some faculty are keen to have a collaborative experience, others are not. Librarians should also use participative, student-centred approach in teaching IL, and developing course materials and methods for it. Librarians should work more closely with lecturers to make sure that their needs, and the needs of students, are being met; and
- Librarians should expand the sources in which IL articles are published to increase awareness of IL aspects among faculty.

This study only investigated the faculty's perception and experiences on IL instructions at MUHAS. More studies need to be carried out, particularly of mixed methods nature to gain a deeper understanding of factors that affect or enhance faculty preferences, beliefs and practices in terms of IL pedagogies, methods of delivery, integrated versus non-integrated approaches, and appropriate librarian and faculty roles in IL development.

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Appendix I: Questionnaire

A. Profile of the respondents

1. Professional position of respondent:

1=☐ Assistant Lecturer/Researcher	4= ☐ Lecturer/Researcher
2=☐ Senior Lecturer/Researcher	5= ☐ Associate Professor
3=☐ Professor	

2. Gender: Male ☐   female ☐
3. Age:…………………………………………………………………………….
4. Highest level of education: ☐ Bachelors Degree   ☐ Masters Degree ☐ PhD
5. School:……………………………………………………………

B. Faculty perceptions of students' IL competencies

6. Do you consider that knowledge and skills for effective use of the library and other information resources contribute positively towards student's academic performance?
☐ Yes   ☐ No

7. Do you think students in your discipline can benefit from receiving instruction designed to enhance information literacy competencies?   ☐ Yes   ☐ No

8. What are the information literacy competencies of your students, including their ability to find, use and evaluate information? *(Key: 1 = Poor; 2 = Satisfactory; 3= Good; 4=Excellent).*

        1st and 2nd year undergraduates   1☐ 2☐ 3☐ 4☐

3rd, 4th and 5th year undergraduates   1☐ 2☐ 3☐ 4☐
Postgraduate students   1☐ 2☐ 3☐ 4☐

9. Do you think your students' make sufficient use of the library for course assignments?
☐ Yes   ☐ No

10. Are there any specific aspects of knowledge or skills related to library and information use that you consider inadequate among your students? ☐ Yes   ☐ No

11. What specific library and information knowledge and skills do students need? (Please tick the three aspects that you consider to be the weakest among students)
    a) Topic analysis
    b) Formulation of search strategy and establishing key words
    c) Catalogue usage and location of relevant information sources in the library
    d) Searching information from electronic sources
    e) Searching information from print (hard copy) sources
    f) Knowledge about using print (hard copy sources)
    g) Knowledge about using electronic sources
    h) Understand how to critically evaluate library information sources found
    i) Understand how to critically evaluate information found on the free web
    j) Synthesise information gathered from different sources
    k) Citing information sources correctly
    l) Others, please specify:……………………………………………………………

C. Faculty expectations regarding IL competencies of students judging from assignments

12. Do you ask students to complete assignments in any of your courses which require them to conduct library research? ☐ Yes   ☐ No

13. What types of assignments requiring library research you routinely include in your courses ?
    a) Short papers   c) Research or design projects
    b) Long paper or essays   d) Lab or tutorial reports
       Others, please specify:…………………………………………………

14. How would you rate the following aspects of information literacy judging from assignments attempted by your students? *(Please tick one option for each aspect by using the following key: 1 = Very poor; 2 = Poor; 3= Average; 4=Good; 5=Very good)*
    a) Range of source material used in print and electronic formats   1☐ 2☐ 3☐ 4☐ 5☐
    b) Use of up to date source material   1☐ 2☐ 3☐ 4☐ 5☐
    c) Critical evaluation of the information they use   1☐ 2☐ 3☐ 4☐ 5☐
    d) Ethical use of information in general e.g. awareness of plagiarism   1☐ 2☐ 3☐ 4☐ 5☐
    e) Breadth of materials   1☐ 2☐ 3☐ 4☐ 5☐
    f) Correct citation format   1☐ 2☐ 3☐ 4☐ 5☐

D. Faculty's support for a variety of information literacy instruction methods

15. Are information literacy competencies taught as part of your courses? ☐ Yes ☐ No

16. Please give reasons if you do not incorporate teaching of information literacy competencies within any of your courses. (*Please check all that apply*).
    a) I didn't know librarians could be asked to come to my class(es). Had I known I would have considered doing this
    b) These skills are not relevant to the courses I teach
    c) Though relevant, the curriculum is already very full – there isn't sufficient time
    d) Students have these skills already
    e) Students can teach themselves these skills
    f) It's not my responsibility to organize teaching of these skills
    g) Others, please specify:…………………………………………………

17. In classes where you incorporate teaching of information literacy competencies, who does the teaching?
    a) I do this myself
    b) I ask a librarian to do this
    c) This is taught by myself and a librarian
    d) Others, please specify:…………………………………………………

18. What steps do you take to make surethat your students acquire knowledge and skills about the library and other information resources that are important in the discipline you teach? (*Please check all that apply*).
    a) Taking students to the library and introducing them to the resources
    b) Asking the students to go to the library on their own and consult the librarians
    c) Asking the librarian to introduce and teach them how to use specific resources that you consider important
    d) To the catalogue to find books on a topic

e) To consult databases for articles on a given topic(s)
f) To dissertations and theses
g) To special reserve section
h) To specific resources on the freely available internet which you have recommended
i) To freely available internet resources in general
j) Others, please specify:……………………………………………

E. The perceived role of librarians in information literacy instructions

19. It is recommended that in order to have an effective information literacy programme for students, information literacy should be taught in an integrated way, that is integrated into mainstream courses, so as to enable students to relate information literacy skills acquisition to their academic discipline. What is your opinion?

☐ Strongly disagree ☐ Disagree ☐ Neutral ☐ Agree ☐ Strongly agree

20. If information literacy is to be taught as part of the mainstream curriculum should it be taught as an independent course or part of another course?

☐ Be taught as an independent course ☐ Part of another course

21. Should information literacy instruction be optional or required?
a) Compulsory and credit earning course
b) Compulsory but not credit earning
c) Optional/elective and credit earning
d) Optional/elective and not credit earning

22. In your opinion whose role is it to teach students information literacy competencies?

☐ Course instructors ☐ Librarian
☐ Either course instructors or librarians ☐ Both course instructors and librarians
☐ Others, please specify:……………………………………………………

F. Faculty's perception of the impact of library- led IL instructions

23. In general how would you evaluate the impact of instructional sessions delivered by librarians to your classes on your students' information literacy competencies?

☐ Substantial impact ☐ Some impact ☐ Minimal impact ☐ None
☐ Don't know

G. Faculty interest in information literacy options

24. What is your preference relating to the development of your own information literacy, instruction services for your course *(Please tick one option for each aspect by using the following key: 1 = Strongly not interested; 2 = Not interested; 3= Probably; 4=Interested; 5=Strongly interested)*

a) Review of research tools/techniques   1☐ 2☐ 3☐ 4☐ 5☐
b) Hands-on workshops on specific tools   1☐ 2☐ 3☐ 4☐ 5☐
c) In-class course-specific lecture by librarian   1☐ 2☐ 3☐ 4☐ 5☐
d) In-class demo of resources by librarian   1☐ 2☐ 3☐ 4☐ 5☐
e) Library research assignment designed by faculty with librarian 1☐ 2☐ 3☐ 4☐ 5☐
f) Team teaching/grading with librarian   1☐ 2☐ 3☐ 4☐ 5☐