



E-Learning in Information Management Education in Sri Lanka: Discussion of the impact of information literacy

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Abstract:

This paper outlines findings regarding the importance of information literacy for e-learning. It reports on a study that investigated the issues impacting on the use of e-learning for tertiary level Information Management (IM) education in Sri Lanka. This was an interpretive case research study which made use of qualitative methods: semi-structured interviews and focus group discussions. Thirty semi-structured interviews were conducted with information management education providers, existing e-learning providers and stakeholders; and three focus group discussions were conducted with information workers and academics. The secondary data was document based.

The research identified that information literacy is a critical factor that affects the use of e-learning i) for information workers as learners, ii) for academics, and iii) for librarians. The study found that information workers need information literacy to engage with the lifelong e-learning process while academics need information literacy skills to develop and implement e-learning. The lack of partnership between librarians and academics poses a problem for conducting successful information literacy programmes in the university and creates a barrier to the use of e-learning.

1. Introduction

Information literacy is being recognized as an essential skill for the 21st century (Breivik, 2005). It is therefore vital to understand importance of information literacy skills for e-learning. This report presents a partial finding of a larger research project that aimed to explore and understand the contextual factors that have a significant impact on the use of e-learning in tertiary level Information Management (IM) education in Sri Lanka. This paper

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only focuses on one of the key factors identified by the study: information literacy. It begins with an outline of the background of the study. A theoretical background which includes a review of the relevant research is then provided. The third section of this paper outlines the research strategy, design, and methodology. Finally, the paper explains and discusses the results and draws conclusions and implications.

1.1 Background of the study

Information has become a fundamental resource in developing countries such as Sri Lanka in order to improve quality of governance and socio-economic development (Goswami & Jain, 2008; Kularatne, 1997; Meso, Musa, Straub, & Mbarika, 2009; Sraku-Lartey, 2006). In recent years, information has increased exponentially (Omekwu, 2006) and there are increasing problems of information overload, and timely, accurate retrieval (Skyrme, 2004). Therefore, managing information in an effective manner is important and has become more complex and specialized. As a result the responsibility of information managers has increased (Karim & Hussein, 2008; Smythe, 1999). Similarly, there is an increasing need for educated, skilled information managers (Smythe, 1999; Sraku-Lartey, 2006). Smythe (1999) further argues that information managers must be prepared to develop innovative ideas, assume leadership roles, disseminate information broadly and demonstrate good management practices in order to tackle current and future issues. These requirements highlight a need for skilled information managers in the field. It is therefore vital for information managers to keep their professional knowledge current and for the education system to supply new skilled and knowledgeable information workers.

Tertiary providers of Information Management (IM) education in Sri Lanka aim to provide education for their students in order to produce well educated, skilled and competent resource persons necessary for IM services in the country. These providers target two populations, tertiary level diploma and degree level students, and information workers who work full time in the information industry. However, a number of barriers currently restrict access to IM education by information workers as discussed in the following paragraph.

There are three providers of IM education in Sri Lanka, all in the greater Colombo area: (1) the Department of Library and Information Science (DELIS), University of Kelaniya, (2) the National Institute of Library and Information Science (NILIS)(Singh & Wijetunge, 2006, p. 3) and, (3) Department of Business and Information Management, Sri Lanka Institute of Information technology. Since IM education is limited to the capital city area, IM students and practitioners face equity issues. For example, the considerable distance between the centre and peripheral areas in the country is a challenge in terms of geography, time and money (Wijetunge & Willson, 1998). According to the Department of Census and Statistics (2010), 83.7% of Sri Lankans live in rural areas, and only 16.3% live in urban areas. Therefore, geographic barriers highly affect information workers' access to IM education. They may require leave to attend the classes but organizations can be reluctant to grant leave for them (Wijetunge & Willson, 1998). Further, there is a lack of parity between education facilities for fulltime students and information workers. For example, teaching institutions are not providing practical training or library facilities for information workers whereas all the facilities are available to fulltime students (Wijetunge & Willson, 1998). Hence, there is a growing need for providing equity of access to IM education as well as improving quality of IM education.

2. Literature review

This integrative literature review consists of two main sections. The first section considers the rationale for introducing e-learning into the Sri Lankan tertiary level IM education. The second section discusses information literacy in the general context.

2.1 Drive for e-learning in IM education in Sri Lanka

In other contexts, e-learning has been used as a solution for problems similar to those faced by Sri Lankan IM education for example, increasing equity of access to IM education. Various studies have shown that e-learning is capable of widening access to education (Engelbrecht, 2003; Fry, 2001; Gulati, 2008; Inglis, 1999; Oliver, 1999; Rajasingham, 2009b; Ruiz, Mintzer, & Leipzig, 2006; Siritongthaworn & Krairit, 2006), of improving social and educational equity (Gladieux & Swail, 1999), of reducing cost (Salmon, 2005; “What is electronic learning,” n.d.), of improving quality of learning (Bates, 2009; Fernando, 2008; Siritongthaworn, Krairit, Dimmitt, & Paul, 2006), of providing flexible learning (Bates, 2001; Collis & Moonen, 2001; Collis & van der Wende, 2002; Sun, Tsai, Finger, Chen, & Yeh, 2008), and of maintaining interactive learning (Garrison & Anderson, 2003; Katz, 2000, 2002; Trentin, 1997). It seems e-learning has the potential to address the issues of tertiary education and IM education in Sri Lanka. The next section provides further explanation for moving towards e-learning in IM education.

The Quality Assurance & Accreditation Council (QAAC) of the University Grants Commission (UGC) in Sri Lanka was established to achieve excellence in higher education and to contribute to the vision for higher education in Sri Lanka. In a 2008 departmental review of one IM education organization, QAAC recommended that it should “*take necessary steps to commence e-learning courses for both internal and external students*” (“Subject Review Report: Department of Library and Information Science,” 2008) in order to minimize the barriers in IM education namely inadequate building space for teaching and learning process, time, limited access and inconsistent quality of the subject. However, it is unclear what ‘the necessary steps’ might be and how e-learning should be implemented in the Sri Lankan cultural context. There is also very little understanding of what factors affect e-learning development and what the barriers or enablers might be. For example, in Sri Lanka, a few universities have transformed their traditional face to face learning into e-learning, such as Open University of Sri Lanka (OUSL) since 1999 and University of Colombo School of Computing (UCSC) since 2002. However, Anderson (2008, p. 29) found through reviewing the eBIT course in UCSC that the dropout rate is higher in e-learning courses than traditional classroom based courses. It is because of the lack of understanding of use of e-learning in the Sri Lankan context. Existing research has shown that context must be understood in order to successfully implement e-learning (Siritongthaworn et al., 2006). There is still a lack of research that indicates what factors affect the use of e-learning in information management education in the Sri Lankan context.

2.2 Information literacy

The term information literacy has been defined in numerous ways by authors in the field. Therefore, it is useful to define the meaning of information literacy for the purpose of this study.

Dorner and Gorman (2006) develop a four part of definition for information literacy in a developing country context by reviewing various definitions which has widest acceptance in

information literacy literature including definition stated by US Association of College and Research Libraries (ACRL). Since this study represents one of the developing countries: Sri Lanka, in the context of this research, the term information literacy refers to:

The ability of individuals or groups:

- to be aware of why, how and by whom information is created, communicated and controlled, and how it contributes to the construction of knowledge
- to understand when information can be used to improve their daily living or to contribute to the resolution of needs related to specific situations, such as at work or school
- to know how to locate information and to critique its relevance and appropriateness to their context
- to understand how to integrate relevant and appropriate information with what they already know to new construct knowledge that increases their capacity to improve their daily living or to resolve needs related to specific situations that have arisen (Dorner and Gorman, 2006, p.284).

Information literacy is being recognized today as an essential skill for the 21st century (Breivik, 2005) because the core intellectual skills that learners need to be prepared for the 21st century include critical thinking skills; computer literacy, library literacy, media literacy, network literacy, and visual literacy (p.23). This highlights how students need to be information literate for their continuous learning.

Martin (2003) argues that 'e-literacy is gradually coming to be seen as a challenge which educators, and those who shape education must address as a priority. At the least, it means avoiding the inequalities wrought by differential access to e-facilities; at the most, it means enabling everybody to make their way with confidence in the e-world' (p. 23). It seems e-literacy skills are very relevant to academics involved in e-learning initiatives.

The widespread development of ICT has changed the role of librarians as educators (Secker, 2004). A significant part of their job now involves teaching users skills such as searching online library catalogues and online databases, formulate internet search strategies, and using a variety of subject specific databases and electronic sources (p.64). Thus, academic librarians need to be more information literate in their profession.

Martin (2003) argues that the notion of e-literacy is based on the assumption that there are skills, awareness and understanding which will enable individuals firstly to survive and secondly to be more effective, in their e-encounters. It seems information literacy skills or the broader concept of e-literacy skills is relevant to academic librarians involved in e-learning initiatives.

Though information literacy skills or e-literacy skills are identified as essential skills for students, academics, and librarians, it remains unclear how these skills impact on the use of e-learning especially in the tertiary level IM education in Sri Lanka. For tertiary providers of IM education to plan and adopt e-learning in order to improve IM education for their students and to achieve the vision of higher education in Sri Lanka, potential issues and problems need to be addressed. This paper examines in detail the impact of information literacy on e-learning in IM education in Sri Lanka.

3. Methodology

The Hutter-Hennink qualitative research cycle (Hennink, Hutter, & Bailey, 2011) was used for this study. It consists of three interlinked cycles: the design cycle, the ethnographic cycle, and the analytic cycle. This research project was an interpretive case research study. The subunits of analysis included IM education providers, IM education program participants, existing e-learning providers and stakeholders. Within providers of IM education there are three organizations. Within each provider there are administrative staff, teaching staff, and support staff. Existing e-learning providers consist of the program director, a member of the educational technology support and a member of the learning resource support. Other stakeholders consist of government officials and employers.

This research project used qualitative data collection techniques: semi-structured interviews, group discussion techniques, and documentary evidence and used stratified purposive sampling in order to conduct the semi-structured interviews and focus group discussions. Thirty semi-structured interviews were conducted with information management education providers, existing e-learning providers and stakeholders while three focus group discussions were conducted with information workers and academics. In this study, the term information workers refers to part time students who are mainly full time employees in the information industry in Sri Lanka. The secondary data for this study was document based. The research documents include i) official documents deriving from the state: policy, reports, and announcements, (ii) official documents deriving from the private sources: administrative documents, proposals, progress reports, and other internal records, and (iii) virtual outputs: internet resources.

After the interviews, the recordings of the individual and focus group interviews were transcribed as soon as possible. Relevant documents were also analysed. Gathered qualitative data were analysed according to Miles and Huberman's widely-used data analysis process (1994), which consists of three concurrent flows of activities: data reduction, data display, and conclusion drawing/verification. Initial data categories were identified during the activity of data reduction. Three levels of coding were established: level one - initial codes, level two – descriptive codes, and level three – pattern codes. Initial codes are thoughts captured in a phrase that were directly inspired by the data, which were used to develop categories and themes. Both inductive categories that emerged from the data and deductive categories that emerged from the literature were used. Descriptive codes were developed to identify the contextual aspects of the issue. Pattern codes were involved grouping descriptive codes (identified themes and issues) into a higher level encompassing theme, identified by a set of *pattern codes* – explanatory or inferential codes (Miles & Huberman, 1994, p. 70).

4. Findings and discussion

This research paper focuses on one of the key factors identified by the study: information literacy. This section provides a broad insightful understanding of the situation and explains how information literacy impacts on the use of e-learning i) for learners, ii) for academics, and iii) for librarians in IM education in Sri Lanka.

4.1 Information literacy and the use of e-learning for information workers as learners

4.1.1 Retrieving relevant information

In the focus group with information workers, one male learner made the following comments:

“I think there is a problem with the knowledge. That means lack of information literacy and computer literacy. For example as a learner I should know how to do internet searching, how to use some software, how to retrieve relevant information via internet and databases etc. If not, I am sure I’ll not be able to benefit from e-learning.”

In the same focus group with information workers, a female learner who had e-learning experience said:

“At the beginning of e-learning program, it was really hard for me because when I search internet for specific information, sometimes thousands of web pages are opening. I don’t know what the correct thing is and that time I have no idea about how to specify my searching in order to retrieve relevant information. So, that was a biggest problem I had.”

It appears that academics also believe that many information workers lack the skills required to retrieve relevant information. One of the senior academic staff members in the IM education provider category in this study commented:

“In e-learning the main barrier is [that] students haven’t proper awareness about information literacy. They haven’t proper awareness about using internet. That is we call internet literacy. Most of the postgraduate students, actually it is relevant to the undergraduates as well they haven’t basic internet literacy skills and even basic computer literacy skills. Sometimes they can’t work with basic office packages, for example excel and PowerPoint. They haven’t proper awareness about that. ... Most students haven’t any idea or they don’t know how to retrieve relevant information using search engines.”

This suggests that IM workers as learners in IM education are not advanced in information literacy and therefore face problems in using e-learning. For example, when learners tried to find, evaluate and exploit resources they experienced problems, especially when they were navigating through the complex digital learning environment. E-learning makes certain demands on the students such as time management, acceptance of responsibility, planning, self-assessment, problem solving, coping with stress, motivation, reflection, research skills, searching skills, assessing quality, and collaborating with others at a distance (Clarke, 2004). Inevitably, students need to develop mastery in using a computer as a study tool which involves at least basic IT skills. This eventually leads to a familiarity with the relevant hardware and software tools. This familiarity with the environment is a critical factor for student online participation. Because e-learning offers students access to the opinions of peers and the resources of the web, such self-directed study requires competence in information literacy (Macdonald, 2004). Hence, lack of information literacy may affect information workers’ self-directed studies in e-learning.

Therefore, the perceptions above suggest that information literacy is one of the critical factors that affect the use of e-learning for information workers in Sri Lanka. This is because they lack the degree of self-direction and competence required to retrieve accurate information from the ready availability of information rich sources on the web. Also these findings suggest that information workers need information literacy to engage with their lifelong learning process.

4.1.2 Student-centred education

This study found that learners as well as academics in IM education are not familiar with student-centred (constructivist) education because teacher-centred (instructivist) education is still prominent in the tertiary level IM education sector in Sri Lanka. One administrative level member of the IM education provider category said:

“...in Sri Lankan culture, learning means mostly teacher centred. Students will have to meet and see the teacher, face to face contact, talk to each other.”

According to existing e-learning providers, teacher-centred education is also practised even in their e-learning programs. One of the directors of the e-learning provider category said:

“I think we are using teacher centred mechanism and even online. We just give the content only and we think OK there are contents so it’s up to the students to study.”

The perceptions and comments above suggest there may be a lack of opportunities for students to learn by engaging in activities that may involve collaborative work, and problem solving. One of the senior academic staff members in the IM education provider category in this study claimed that students may be exposed to relatively unfamiliar demands: collaborative work, problem solving and open access to electronic resources at an early stage in their academic career. He said:

“Students sometimes maybe they know about programming and other things. They might have heard of that, but if you ask them to find some information using internet they don't know how to do it. They don't know how to work collaboratively and they lack problem solving skills. So, basic skills are missing. So that's also a problem. Even that has to be started at the school level”.

It seems that there is no intention to develop information literacy skills among learners even at the school level. This because of the teacher centred education and teachers may not be given the chance for students to explore themselves in the classroom. This situation affects students’ tertiary level education especially when they are involved with e-learning. E-learning courses with constructivist approaches will lead students to self-directed learning (Macdonald, 2004). Constructivist philosophy accommodates a family of closely related pedagogies, which optimize the potential of e-learning environments. These include collaborative learning (McConnell, 2001), activity based learning (Macdonald & Twining, 2002), resource-based learning (Macdonald, Heap, & Mason, 2001) and problem based learning (Ronteltap & Eurelings, 2002). All these pedagogies are providing opportunities for students to learn by engaging in activities that may involve collaborative work, or problem solving, or open access to electronic resources. It is clear that lack of familiarity with student centred education affects information workers as learners in IM education to develop information literacy skills and therefore they are not capable enough to perform well in e-learning.

4.2 Information literacy and the use of e-learning for academics

4.2.1 Lack of information literacy plus lack of understanding of constructivist-based pedagogy

This study found that some academics in Sri Lanka IM education are not advanced in either information literacy or constructivist-based pedagogy. Academics may be responsible for the development and implementation of e-learning. However, academic staff members in the IM education provider category claimed that academics are not in a position to build a better e-learning environment for their students. One academic stated:

“...there are academic subject gateways. Not only students but sometimes lecturers also haven't any idea about this. Without having a simple understanding about these kinds of things how can lecturers apply e-learning on their teaching? Also, they don't know how to evaluate web sites. Actually firstly we have to provide a proper information literacy awareness program for lecturing staff. Otherwise we can't go further.”

Similarly, another academic said:

“Senior people even maybe in the higher education institute are there who are suffering phobia. So that could be the problem because they don't have the information literacy like many people. That would be a basic problem to use e-learning.”

This suggests that a crucial area must be the information literacy level of staff that are responsible for the development and implementation of e-learning. A similar view is exhibited by another academic when he said:

“Lecturers should know about how to apply available online resources for their teaching. Before that lecturers should have capability to search relevant online resources. They are experts in ICT but they don’t know how to apply this for teaching.”

According to academic staff members’ perception, they do not have the opportunity to learn about how to use ICT for their teaching. One academic staff member said:

“...government introduce various e-learning procedures. They have provided every facilities and infrastructure and everything. They don’t promote any kind of programs to teach academic staff members to link ICT for lecturing. If we want to link ICT and lecturing, information literacy is the hub or information literacy is the nut to join this. Government provide elegant facilities for lecturing. Since most lecturers do not have awareness about information literacy they do not link ICT with lecturing part. If you want to link lecturing part information literacy is the linkage. Also, if you want to link the information literacy, lecturer and the librarian want to link together. Then librarian is also an educator. Then these collaborative learning is essential for implement the e-learning.”

The evidence above suggests that the lack of information literacy skills, or e-literacy skills, prevents academics and other support staff from being able to fully engage and exploit library resources in the e-learning system. For example, they do not have enough understanding about which journals are available in electronic format to build an online reading list or add stable links to journal articles. As identified in 4.1.2, academics in IM education are not familiar with the student-centred education because instructivist-based pedagogy is still prominent in the tertiary level IM education sector. Therefore, academics do not know how the teacher’s role can become a facilitator, tutor, or mentor while the student’s role becomes the centre of learning and participant in community of practice. It affects their understanding about how to use ICT for their teaching. It seems that there is a lack of staff awareness about information skills and lack of training opportunity for academics about constructivist-based pedagogy and it is a barrier for use e-learning in IM education in Sri Lanka. Finally, all these barriers mean that the lack of information literacy skills or e-literacy skills and lack of understanding about constructivist-based pedagogy affect academic staff’s ability to build up valuable e-learning courses for their students. Nevertheless, academics believe that librarians’ support is also essential for collaborative e-learning.

4.3 Information literacy and the use of e-learning for librarians –

4.3.1 Lack of understanding about pedagogy

The study found that librarians at the providers of IM education do not have a good understanding of pedagogy. Librarians have always played a vital part in learning by helping learners find, evaluate and exploit resources. Therefore, it is predictable that changes in education are being felt in the library profession. Due to the increasing number of electronic/digital resources, librarians have a crucial role as information professionals as well as teachers. So, they require teaching skills as well, but learning theories, pedagogy, and even e-learning are not yet incorporated into the curriculum in IM education in Sri Lanka. Therefore, graduate librarians do not have the full set of skills that they are required to teach. This poses a major barrier for them in relationship to teaching information literacy skills, whether face-to-face or via e-learning.

4.3.2 Lack of partnership between librarians and academics

The study found that partnership between librarians and academics is rarely seen in tertiary level IM education in Sri Lanka. When we asked librarians to explain their nature of support for academic staff in order to conduct their internal and external courses, the reply was,

“Number one is we offer our own modules. [A] couple of years ago we conducted a number of programs. But now there is no actual demand. If there is a demand we are actually capable to doing that... to make them familiar with the systems available, searching and so forth.”

Good partnering is required between the classroom and library, when it comes to helping students master information skills (Breivik, 2005). For example, the classroom and library can collaborate to determine the kind of assignments that can best facilitate students' mastering of the information literacy skills (p.26). This is essential when it comes to the e-learning environment. It is clear that librarians at providers of IM education conduct information literacy programs in isolation. That means they are not collaboratively working with academics to conduct information literacy programs and it is not successful. Also, they did not recognise their role as crucial players in this growing profession of learning support staff, working in partnership with learning technologists, instructional designers, IT staff and education staff. Because, although academics have started e-learning programs at the internal level in the universities, librarians are still not working collaboratively with them. For example, one librarian said:

“Still we have not come to that much of collaboration because of there is lot of logistical constraints. We have to sort out those kinds of things. This is [e-learning] completely new area also. This is not the traditional area where we are very much use. So we have to find our own mechanism and this will take little time. This is completely new experiment... Apart from my own traditional role as a provider of information sources we have not ventured into other areas in e-learning concept.”

This shows that academics and librarians are working separately and this lack of collaboration is a problem for building valuable e-learning courses. Also, this may be a reason why information literacy programs are not successful in the universities and all these barriers affect the use of e-learning in IM education in Sri Lanka. However, academics want to work with librarians because they consider that curriculum mapping as one of the important areas for them but they think librarians do not have enough understanding about that. For example, one academic said,

“...librarians should have proper idea about the curriculum mapping. Without curriculum mapping they can't do a good job. Curriculum mapping means lecturers wants to map their teaching plan. It may be for one semester. For example, imagine I am an education psychology lecturer and this is my lesson topics for this semester. Then librarian wants to get other lecturers lesson plans also. Then this is psychology, this is education, this is information management like that. So, librarian knows these are the things lecturers are teaching as well as students are learning in this semester. Then lecturers also know this is the map we want to do in this semester. According to that curriculum mapping librarian wants to arrange learning materials. That is call curriculum mapping. It is the planning lesson - curriculum mapping.”

Academics also understood that curriculum mapping is one of the important ways to collaboratively work with librarians. The same academic said:

“Curriculum mapping is highly elegant one. It is also call collaborative learning. Now todays lecturers can't teach individually. Lecturers want to collaborate with librarians. That is call collaborative teaching because online is there. And lecturer is expert in the subject. And librarians are expert in information. Then these two people want to get

together. Otherwise we can't go forward. Today we are collaborative teachers. Librarian also teacher and he/she is not a store keeper.”

It seems that learning how to teach is a skill many librarians need to master on the job or through their continuing professional development and this is lacking in Sri Lanka. Therefore, this is a barrier for them to support IM education providers to use e-learning. As we identified in sections 4.1 and 4.2, information literacy is a barrier for using e-learning in information management education in Sri Lanka. Due to the lack of understanding about learning technology support librarians are unable to involve practically in e-learning through information literacy programs for example to develop and provide interactive online information literacy tutorials and to give many accessible for collection of digital resources from the desktop, anywhere at any time.

5. Conclusions and implications

This paper sought to explore how information literacy impacts on the use of e-learning in IM education in Sri Lanka. The study found that information workers need information literacy to engage with their lifelong learning process. Learners in IM education are not advanced in information literacy and therefore, it is a critical factor affecting their online participation. For example, due to the ready availability of information rich sources on the web, students may need to develop competency and self-direction especially in the e-learning environment. This study further found that lack of familiarity with student centred education affects information workers as learners in IM education in developing information literacy skills and therefore they lack the capabilities required to perform well in e-learning.

This study also found that information literacy amongst academic staff responsible for the development and implementation of e-learning is crucial. Lack of staff awareness about information skills, lack of understanding about constructivist-based pedagogy and lack of training opportunity for academics are also barriers for the use of e-learning. Moreover, this study found that learning theories, pedagogy, and even e-learning are not yet incorporated into the curriculum in IM education in Sri Lanka. Therefore, graduate librarians do not have the full set of skills that they require to teach. That becomes a major barrier for them in teaching information literacy skills, either face-to-face or via e-learning.

Another key finding of this study is the lack of partnership between librarians and academics in tertiary level IM education in Sri Lanka. Librarians conduct information literacy programs in isolation and these are not successful. This lack of collaboration is both a problem for conducting successful information literacy program in the university and a barrier to the successful use of e-learning in IM education in Sri Lanka.

Based on the study findings, the following implications can be made:

- Effort should be made to have proper information literacy programme collaboration between academics and librarians in tertiary level IM education in Sri Lanka.
- It is important to increase the awareness of constructivist-based pedagogy/student centred education among academics, librarians, and IM workers.
- It is essential to update curricula in IM education to incorporate learning theories, pedagogy and also e-learning.
- Librarians may need professional development to develop teaching skills with regard to information literacy programmes.

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