INFORMATION TECHNOLOGY AND INFORMATION LITERACY:
USE OF INFORMATION LITERACY IN SINGAPORE SCHOOLS AND SUGGESTIONS FOR EFFECTIVE IMPLEMENTATION

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ABSTRACT
With the rapid development and increasing use of technology in this twenty-first century, it is important for schools to equip students with both Information Technology (IT) and Information Literacy (IL) skills. Although both IT and IL were Ministry of Education (MOE)-based initiatives, IT initiatives were often adopted and implemented in schools as compared to IL initiatives. It was found in existing research that the lack of IL instructions in schools was mainly due to teachers’ lack of IL knowledge. This paper thus reviewed and analysed IL programmes that were being implemented overseas since the use of IL is clearly lacking in the Singapore context. The suggestions for effective implementation of IL skills in Singapore schools were to introduce an IL course in teacher education and to implement a library period programme for students that is integrated with the school curriculum.

Keywords – Information technology; Information literacy; Education; Schools; Singapore

INTRODUCTION
With the prevalent use of media and technology in the twenty-first century, teaching and learning in schools are often associated with the use of advanced computers and technology-enabled platforms. They now take place in many different modes as compared to the past where the main resources used in classrooms were predominantly textbooks and teachers. The importance of Information Technology (IT) and Information Literacy (IL) skills are strengthened because of the constant change in technological developments that affect how we do work, business and connect in everyday lives (Rodney-Wellington, 2014). The use of technology in schools these days thus equips students with the necessary knowledge and skills so as to better prepare them to meet the society demands.

Over the past few years, there are a number of studies that have addressed the use of IT and/or IL in Singapore schools (Foo, Majid, Mokhtar, Zhang, Chang, Luyt & Theng, 2014; Lin, Mokhtar & Wang, 2015; Mokhtar, Foo & Majid, 2007; Tan & Theng, 2006). However, it was found that although both IT and IL were Ministry of Education (MOE)-based initiatives, IT initiatives were more widely accepted and adopted in the education system as compared to IL initiatives (Mokhtar et al., 2007). To the best of my knowledge, little research has been done on finding how IL can be used actively and effectively in schools to complement the use of IT. In addition, according to MOE, one of the enablers for the 4th masterplan for Information and Communications Technology (ICT) in education is teachers as designers of learning experiences and environments (MOE, 2015). Being an educator myself, I understand the correlation between the teachers and the students level of IL, whereby a teacher’s high level of IL would enable students to engage in better information literacy tasks. Thus, it is important to note that teachers have an imperative role in designing lessons and choosing the appropriate tools and methods to ensure that both IT and IL are utilised appropriately and meaningfully in schools.

This research would then critically review current literature on the use of IL in schools, and also to determine how the use of IL by teachers in Singapore schools can be used to benefit the students’ learning. In addition, this research would also refer to some programs used overseas as a reference to see how IT and/or IL are being implemented in their schools and if any feasible practices can be adopted in Singapore schools.
METHODOLOGY

Due to the nature of the research, secondary data such as journals and research papers were used as references. There was a myriad of resources available online with regards to the use of IT and/or IL in schools. However, because they were in abundance, much time was needed to carefully read through them so that I can sieve out the relevant and useful information that is needed for my research. In addition, many of the previous studies focused on either IT or IL in isolation. Thus much time was needed to gather and piece the different information together in this research paper. I have also turned to newspaper articles and the MOE website with regards to the use of technology in Singapore schools as they are useful and reliable resources. I have also included my own experiences and opinions wherever needed in the paper.

FINDINGS AND DISCUSSION

INFORMATION TECHNOLOGY AND INFORMATION LITERACY IN SINGAPORE SCHOOLS

Many schools in Singapore have incorporated the use of IT such as computers, tablets and internet with the hope that it can fuel the current technology era. This is especially so when MOE started to launch the masterplan for IT in education back in the year 1997, where a comprehensive strategy for IT teaching and learning in schools was laid out. Steps were also taken by the ministry to enhance learning through IT by selecting five future schools in Singapore that leverage on IT in the implementation of education programs (MOE, 2007). This may exemplify that Singapore schools are moving towards a more IT-integrated curriculum where the five future schools are planned to “pave way for the seamless and pervasive integration of IT into the curriculum for engaged learning in schools” (MOE, 2007).

Besides the use of IT in schools, another component that complements the use of IT and should be inculcated in students is IL. According to the American Library Association (1989), IL is the ability to recognise the need for information and to access, evaluate and use information as needed from different sources effectively. Being information literate is an essential component in the students’ learning these days as access to technology is easily available and that information is becoming increasingly digitised and complex. Students would require the necessary skills that IL can equip them with to help them engage with the digital information environment. They would then be able to sieve out the reliable and relevant information that they may need for school and to segregate the pile of information that are readily available from the web.

IL has also been recognised as a crucial foundation for learning in the twenty-first century (Bruce, 2004). However, the fact that Mokhtar et al. (2007) notes that IL initiatives were not commonly adopted in Singapore schools, it may pose a problem as the primary source to equip people with the twenty-first century skills is through education. Lately, IT and IL can be seen as a minefield for students. If these are lacking in our education system, the generation that is being brought up may suffer in time to come. Thus the best people to produce information literate individuals would be the teachers in schools. Teachers play a significant role in integrating information and communication technology (ICT) in schools, and motivated teachers reflect higher levels of ICT use in their classroom (Uluvol & Sahin, 2014).

As there is the presence of IT being used in the education system, it is only right that IL should be implemented together in schools as IL is being built upon the use of technologies. IT and IL can be seen as related skills but IL has extensive implications for the individual, the education system and the society (American Library Association, 1989). IL is a competency that should be developed in the students as the use of IT skills alone would not suffice. With IT being commonly used in our education system and even back home, students may have developed some form of fluency with the use of IT. This fluency should be built on with IL – the assessment and evaluation of information (which is absent in our education system) so that students can sustain and extend lifelong learning.

LACK OF INFORMATION LITERACY INSTRUCTION IN SINGAPORE SCHOOLS

It may be important to find out the root of the issue as to why IL initiatives were unpopular in Singapore schools so that ways to combat this can be proposed. Mokhtar et al. (2007) carried out an interview to find out the perceptions of educators on the use of IT and IL. It was found that one of the reasons for the lack of IL instruction in schools was due to the teachers’ lack of knowledge in carrying out IL effective lessons. It is also worth mentioning that half of the educators being interviewed were unsure of what IL is. This may show that much needs to be done on educating the teachers about what IL is prior to teaching it to the students.

Another relevant point to note in the interview is that the interviewees felt that both IT and IL are complementary to each other and that they are important components in teaching and learning. It may be heartening to know that the teachers do see the importance of both IT and IL so that they would not feel reluctant if asked to attend the relevant training. This is also a good stepping stone for teachers as with the right mindset, they may naturally be more willing to incorporate the use of both IT and IL in their classroom.
effectively. According to Bruce (2004), IL can be seen as the foundation for learning in our environment with continuous technological change. Therefore, all teachers should be duly trained in this area so as to benefit the students.

However, apart from equipping teachers with the necessary IL knowledge, it may be useful to refer to IT/IL programs being implemented in overseas schools as a reference since the use of IL is absent in our local context. While it may not be possible to completely duplicate the whole program, feasible ideas can be adopted and customised so as to make it applicable to our local school context.

**OVERSEAS PROGRAMS WITH THE USE OF INFORMATION TECHNOLOGY AND/OR INFORMATION LITERACY**

In the twenty-first century, IL skills are essential to students and even more so for teachers themselves. As mentioned in Bougatzeli, Papadimitriou and Togia (2015), “Teachers cannot facilitate their students to understand and fully exploit information sources for their own learning outcomes, unless they are information literate themselves” (p. 17). This is especially true with reference to the interview carried out by Mokhtar et al. (2007) as mentioned earlier, where half of the educators were unable to fully comprehend what IL means. This can exemplify the point that teachers require the necessary education on IL before they can pass on the skills to their students. With regards to this, we may be able to adopt a feasible practice in Greece as it is applicable in our local context. All of the undergraduate students of the Primary Education Department in Greece have to attend a compulsory course titled “Information Literacy and the sources’ use” in a university (Bougatzeli, Papadimitriou & Togia, 2015). It was made flexible for the student teachers as they may choose to attend it at any time during their course of study although they are strongly encouraged to attend it in the first year. It is also worth mentioning that it is a non-credit course with a pass/fail system which Robins et al. (1995) assert that it encourages cooperation among students and also allows students to pursue interests in depth without fear of jeopardising standings.

During the course, the student teachers get to assume the roles of students by going through the steps that students would take in completing a project work. In addition, the educational context that the student teachers have gone through in the past as a student themselves involved mainly the use of printed resources such as textbooks. They may thus have little experience in carrying out the IL skills. The course would then be beneficial to student teachers to equip them with the necessary pedagogy in the implementation. To the best of my knowledge, there are no such courses that focus solely on IL skills in the undergraduate program for student teachers in Singapore’s National Institute of Education (NIE). From my experience, there is only a course titled “ICT for meaningful learning” where its main objective is to introduce student teachers to the potential and implementation of ICT tools in the classrooms. Therefore, an implementation of an IL course apart from the existing IT ones for our local student teachers may then be viable so as to better equip and assist our students in thriving in this twenty-first century.

Another feasible program that Singapore may adopt is the library period that is being implemented in the schools in Nigeria (Onyenuchi & Ngwuchukwu, 2013). One of the reasons that results in the difficulty in picking up IL skills by students is the time constraint that teachers faced in trying to finish the curriculum (Onyenuchu & Ngwuchukwu, 2013; Uluvol & Sahir, 2014). This is not uncommon in Singapore context as our local teachers can always be seen complaining about not having enough time to finish the syllabus. The library period can then be used to integrate with the school curriculum so as to cut down on the extra time needed for IL instructions and also allow students to explore their daily school work using a variety of ways/methods using the IL skills. Library period can consist of formal library instruction where students are taught how to search for information. This may help equip students with research skills and habituate them with lifelong learning. According to my experience as a teacher, I am aware of the existence of library periods in some schools. However, their library periods are merely time where students visit the library as a class to borrow books, which defeats the purpose of using precious curriculum time when students can actually visit the library to borrow books themselves during their free time.

According to Onyenuchi and Ngwuchukwu (2013), this implementation has been proven to be feasible as “There was a significant difference between the information literacy skills of those participating in the library period program and those not participating” (p. 119). However, in order for the library period implementation to be successful, the role of the school librarian is crucial. In a study carried out by Mokhtar and Majid (2005), they discovered that many of the school media resource libraries in Singapore have untrained librarians manning them. With reference to this, I have seen that the role of school librarians is usually taken up by parent volunteers who have children studying in the same school. This can pose a problem to the implementation of the library period as the school librarian would require the necessary professional library training and pedagogical knowledge to plan and integrate the school curriculum seamlessly with the use of IL. Having parent volunteers as the school librarian may also give rise to biasness where they may not abide to rules when dealing with
their children or their child’s classmates/friends in the library.

Being a teacher myself, I feel that the above would benefit fellow teachers as a trained librarian can help to gather appropriate and useful resources for the different subject teaching. This helps to take off some time from the teachers’ already hectic workload and at the same time not compromising on the students’ learning as the resources that the trained librarian provide would be beneficial to the students. More importantly, the IL skills developed through the library period can activate the students’ critical thinking, create confidence in managing their own learning and cultivate good research and information skills. This would help to mould them into independent and effective learners.

CONCLUSION

Although it is best that all teachers are well-trained in IT and IL, for a start, there can be a couple of teachers in each school to be specialising in IT and IL teaching and learning, as much as having teachers teaching only one subject such as Music or Art. Having teachers who teach only IT and IL skills may be beneficial so as to make them experts in the field. This would also in turn prevent teachers from being taxed with additional duties apart from their already hectic workload. In addition, the introduction of an IL course in the student teachers’ duration of study would be useful to equip them with the basics.

There is a need to at least have a qualified school teacher-librarian in each school so that professional knowledge and skills regarding IT and IL can be sought from. It should also be seen that having teachers who are professionally trained with library competencies and pedagogical knowledge are valuable assets to the school. It would also be appropriate if these teacher experts in IT and IL be in charge of the school library so that they can assemble good resources for the benefit of the students’ learning and oversee the IT-IL program in the school.

REFERENCES


