An assessment of academic library services

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An assessment of academic library services: international and domestic students perspectives

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Abstract

Purpose – Information literacy is defined as discrete abilities that a person requires to have in order to find, assess, use and share information. As information literacy skills play a prominent role in the students' academic achievement, students and in particular international students coming to continue their postgraduate studies in other countries may face problems in finding and using library services. The purpose of this paper is to explore and investigate the information literacy skills, challenges and needs of international and domestic students at the Finnish universities.

Design/methodology/approach – This paper uses a mixed-methods design. Quantitative data were collected through an online survey (82 respondents) and qualitative data were collected through semi-structured interviews with 10 international and 10 domestic students.

Findings – Academic library services are used but in different ways. The findings indicate that international students have a relatively low level of information literacy skills compared to domestic students and faces various challenges, especially in the beginning of their studies.

Research limitations/implications – The study was exploratory, and data were collected from limited number of Finnish universities and may not be representative of the underlying population.

Practical implications – Academic libraries should provide effective courses on research methods and library services to the international students while keeping in mind the international students language and cultural barriers.

Originality/value – This is one of the first attempts in information literacy research that focusses on international and domestic students' information literacy skills at the higher education environment. As such, the results provided in this paper can help librarians and decision-makers at the higher education environments to plan better and become more efficient in delivering information services meeting students' information needs and expectations.

Keywords Academic library, Information skills, International students, Library users

Paper type Research paper

1. Introduction

Prior research on academic library services have indicated that the impact of library services on information literacy could be determined through, e.g. Association of College and Research Libraries (ACRL, 2017) or according to the standards developed by a country (Głowacka, 2019, p. 587). For instance, academic libraries could use the information to assess whether a student is an information literate, or what areas should be addressed and what standards should be followed. In the digital era, the skills required of an information literate student include the ability to, e.g. formulate an information query, determine the type and format of

the information source, select the most effective search strategy, assess the quality of information, use and share information following the ethical and legal principles. Prior studies in academic library research have tended to focus on the students' needs and skills of information seeking and retrieval (Liu, 1993; Knight *et al.*, 2010) rather than students' information literacy needs in research context. In the broader context of the contemporary information-driven society and environment, the role of information literacy is not only important in research context but also it has become increasingly significant and important – as it creates the basis for lifelong learning (ACRL, 2000). As such, the emphasis of information literacy instruction in the academic library has become on teaching the process of research and providing lifelong learning skills needed for students, faculty members and staff members to function independently to meet their information needs (Grassian and Kaplowitz, 2001). Competency in such skills is essential to full participation in society and work because these skills are regarded as the core ability to maintain lifelong learning (Jeffrey *et al.*, 2011). Additionally, the ACRL states that information literate learners are lifelong learners, more self-directed, and are able to master content, extend their investigations and assume greater control over their own learning (ACRL, 2000).

Based on the ACRL (2000) definition to be considered an information literate, a person must be able to know when information is required and be able to find, assess and utilise effectively the required information. At the higher education environments, information literacy is often defined as discrete abilities that students require to have in order to find, assess (evaluate), use and share information ethically. Students who are information literate are better equipped for today's complex information landscape and environment than students who does not possess such skills and abilities (Mackey and Jacobson, 2004).

As information literacy skills play a prominent role in students' academic achievement, international students coming to continue their postgraduate studies in other countries may be at a problem due to lack of or insufficient literacy skills. They potentially experience more challenges than domestic students as the educational system in their home country might be different than from the host university systems. It has been argued that international students have different needs, demands and often encounter different challenges in the foreign universities (Ademodi, 2011; Baron and Strout-Dapaz, 2001; Liu, 1993; Morrissey and Given, 2006; Mu, 2007; Natowitz, 1995; Song, 2004; Wang and Frank, 2002).

Some authors such as Kettle (2017) argued that international students' challenges are related to their *(low)* information literacy skills and unfamiliarity of the academic setting and library services in which they have landed. In utilising the information for the study, international students share some of the same struggles as domestic students, but also encounter possibly new challenges (Houlihan *et al.*, 2017). For example, the lack of research capability and information literacy skills may hinder international students to effectively find, retrieve and correctly and ethically use the available information for their academic studies. As a result, this group of students may not be able to effectively use the available library resources and other platforms accessible to them and may produce a low level of motivation and self-efficacy in communicating with the librarians, administrative personnel and the faculty members (Ayoub, 2016). Thus, it could be speculated that understanding the challenges that these students face and exploring the factors associated with these challenges can help academic libraries to find solutions helping student to improve their motivation and self-efficacy and assist them to adjust to the campus culture (Ayoub, 2016). Moreover, Baron and Strout-Dapaz (2001) argued that the major challenges international students face is often associated with the language and communication problems, adjusting to a new educational as well as library system, and general culture adjustments (p. 314).

Moreover, globalisation and advancement in technology provide opportunities for people to travel and to study overseas. In 2016, more than 21,000 international degree students were

studying in the Finnish higher education institutions, and the number has increased dramatically during the last few years (Finnish National Agency for Education, 2018). According to the student administration systems at the Finnish universities and also the European Union (EU) and European Economic Area (EEA), Finnish and other EU/EEA students refer to "domestic" students, while "international" students refer to those coming from outside of the EU/EEA. We intent to keep this definition throughout this research.

In general, the constant growth of the international students pursuing their education in other countries than their home universities and specially in the EU region, makes it particularly significant and relevant research endeavour to study information literacy amongst domestic and international students. Therefore, given the dynamic nature of the information environments in the digital age and the population growth of international students, more research is demanded to better understand students' information literacy capabilities and related barriers. Thus, this paper aims to identify the similarities and differences between domestic and international students regarding their information literacy level and investigates the barriers and needs, which is an area that is seldom studied.

To this end, the present study aims to find answers to the following two main questions:

RQ1. What is the difference in the information literacy levels between international and domestic students and what challenges students believe they face in developing information literacy skills?

RQ2. What kind of supports and services students expect to receive from universities' library staff members?

To address the research questions outlined above, a mixed-methods approach will be used. Through a quantitative approach, a number of semi-structured interviews will be conducted with the domestic and the international students at some of the Finnish universities. Moreover, through a quantitative approach, we developed and distributed a survey questionnaire asking participants to answer a set of questions which are developed to measure their information literacy levels. Understanding the challenges students face and exploring the factors linked with these challenges are important to understand the academic needs of students. The findings of this paper are expected to help the decision-makers at the universities and the library staff members to better understand the academic demands of the students and support them in learning and mastering the information literacy skills they need to succeed in their academic studies.

The rest of this paper is structured as follow: next section provides a thorough overview of the information literacy and academic library services. Next, the research methodology is presented followed by the illustration of the results. Finally, the discussion, conclusion and direction for the future research are provided.

2. Literature review
2.1 Information literacy
With the rapid rise in the amount of information and the growing availability of information sources through information technology (IT), information literacy has swiftly become one of the most essential sets of abilities for lifelong learning (Riedling, 2006). The ACRL (2006) defines information literacy broadly as a set of abilities to identify the need for information, procure the information, evaluate the information and subsequently revise the strategy for obtaining the information, use the information and use it in an ethical and legal manner, and to engage in lifelong learning. Moreover, according to the Chartered Institute of Library and Information Professionals (CILIP, 2004), an information literate person is one who can recognise the need for information, the sources available, how to obtain information, the need to assess outcomes, how to work with or employ results, ethics and accountability of use, how

to interact or share one's findings and how to control the findings (CILIP, 2004). Mackey and Jacobson (2004) describe that information literacy is a necessary skill set that provides students for critical thinking in the university, the workplace and everyday life. They go on and argue that students who are information literate are better outfitted for today's complicated environment than students who are not. Thus, becoming information literate is necessary for a person to thrive both academically and professionally.

Exner (2014) discusses that "information literacy is the actual structure around which many academic libraries currently organise their instructional programs" (p. 460). A good number of studies and scholars have examined the significance of teaching information literacy asserting that IL addresses wide range abilities with various implications. For instance, in the context of higher education, Breivik (2005) claimed that education has the responsibility to assist students to obtain research abilities. The author believes that attempts to strengthen students' information literacy skills in university need to happen at the institutional, curriculum and classroom levels. In New Zealand, Mu (2007) found that Asian students had problems in using academic libraries. The findings of the Mu's research clearly showed that librarians need to consider international students' personalities, learning styles, language knowledge and subjects of interests in their education schedules. Hughes (2010) conducted a study regarding international students' experiences and perceptions at two Australian university libraries and librarians. The findings showed that international students had limited prior library use, causing some difficulties they encounter in utilising the library at their host university. Prior studies have shown, international students suffer from low information literacy skills (Ayoub, 2016; Gunnarsson *et al.*, 2014; Jackson and Sullivan, 2011)

2.2 International students at the Finnish higher education

Globalisation and advancement in technology provide opportunities for people to travel and to study overseas. According to the Finnish National Agency for Education (2018), the notable number of foreign degree students in higher education are non-EU/EEA students. In 2016, more than 21,000 international degree students were studying in Finnish higher education institutions. The highest number of international students in Finnish universities are from China, Russia and Vietnam (Finnish National Agency for Education, 2018).

International students' perception of libraries services and librarians in the Western world may be varied from what libraries look like in their home university. Many of these students have not had librarians available to help them with their research in their home counties and are often unfamiliar with the library sources of the Western library systems (Jackson and Sullivan, 2011). Therefore, academic libraries play a crucial role in joining international students, not only to universities but also to information literacy abilities they require to achieve (Jackson and Sullivan, 2011). A good number of research studies on students' information literacy were conducted in various countries in the world. These studies (Knight *et al.*, 2010; Liu, 1993; Mu, 2007) concentrated principally on the information-seeking behaviours of students and their attitudes towards library services. Song (2004) investigated the attitudes and expectations of international students on using electronic library resources. The results showed that a notable number of students did not have experience with electronic library services in their home countries. Knight *et al.* (2010) conducted research regarding international students' use of academic libraries at three various college campuses. The study examined why international students do or do not attend the library. Results verified the fact that academic librarians can play an important role in promoting this group of students to use library resources and services.

Moreover, Sin and Kim (2018), investigated whether international students differ from domestic students in their information needs and difficulties faced. The results showed that

international and domestic students are similar in their top-ranked needs and barriers. Finally, Hughes *et al.* (2018) provided insights into first-year international and domestic students' skills of using library resources and services. The results showed that the difficulties international students encounter generally relate to the unfamiliarity of the academic environment and library systems at their host university.

In summary, it can be concluded that literature lacks research on the international and domestic students' perceptions of library services, the barriers preventing students to use library services and how information literacy skills can help students to achieve better academic performance. In the next section, we elaborate on the nature of the academic library services.

2.3 Library services

Academic librarians are expected to have a better understanding of the rapidly changing and demands of the different groups of students. Thus, in educating information literacy to students, academic librarians have a critical role to play in order to provide these learners with adequate library services and information literacy abilities. It has been argued that librarians accept that international students encounter several problems in using the library services, including language and communication problems, adapting to a new educational environment, the library system and other cultural changes (Baron and Strout-Dapaz, 2001; Natowitz, 1995). In this respect, Baruzzi and Calcagno (2015) claimed that "international students often have limited knowledge about what is accessible to them through the library services and may have experienced a very different type of library systems at their home university libraries" (p. 403).

Therefore, to help this group of students to use library resources efficiently and improving information literacy skills, academic librarians have to give international students particular attention in order to fulfil their unique and complex academic demands. In this sense, Mu (2007) pointed out that "librarians require to consider the characteristics of this group of students and know their learning styles, language ability, and their subjects of interests in order to design practical teaching materials for this group of library users" (p. 578). Consequently, "library professionals who are attuned to the strengths and difficulties of international students can play an essential role in empowering them to become prosperous library users and learners" (Hughes, 2010, p. 77).

Library instructions in the higher education institutions can take a diversity of forms, such as workbooks and course-related education (Eisenberg *et al.*, 2004). Academic libraries suggest myriad choices of drop-in and scheduled classes for undergraduate students, ranging from a fundamental introduction to the library or to specific course-specific research classes for upper-level students (Baruzzi and Calcagno, 2015). McClure and Krishnamurthy (2007) discussed how specialists at the University of Alabama designed the University of Alabama's online Information Page for International Students to solve the cultural and linguistic barriers and clarify the library experience. Harrison and Rourke (2006), for example, explained how the University of Guelph in Ontario provides a mentoring programme that begins with the students in their first year and continues as they move through their university life. Other library instruction programmes create formal connections with academic departments on the campus. For example, some libraries arrange with English composition courses to deliver information literacy instruction, and librarians cooperate with English instructors to assure that students receive information literacy instruction. A good example of this is what librarians at the University of Arizona did. They co-operated with the university's English composition programme to develop an instructor-led, librarian promoted a way of integrating information literacy instruction into the English composition curriculum (Sult and Mills, 2006). Therefore, it can be concluded that academic librarians play a major

role in promoting students in general and international students and in particular to use library resources and services. Thus, the role of library and library assistance is vital to improve information literacy skills of students and using library resources.

3. Research methodology

In this paper, a mixed-methods approach is chosen to investigate and address the difference between international and domestic students regarding their information literacy skills, challenges and needs at the Finnish universities. Mixed-methods research is an approach for collecting and analysing both quantitative and qualitative data within a single study to present a broader understanding of the research problem (Creswell, 2009). Quantitative data were collected via an online survey and the qualitative data were collected via audio-recorded interviews with the both group of students (international and domestic) at the Finnish universities. The semi-structured interview is a qualitative data collection strategy in which the researcher asks interviewees predefined but open-ended questions. Interview is an important data collection strategy enabling the interviewer and the interviewees to have a one to one communication. Furthermore, interviews provide interviewers with the chance to ask for explanations of obscure answers or to provide clarification if a question is not apparent (Teddlie and Tashakkori, 2009). The researcher has more control over the topics of the interview than in unorganised interviews, but in contrast to structured interviews or questionnaires that use closed questions, there is no fixed range of answers to each question. Therefore, we applied both quantitative and qualitative methods to investigate the phenomenon under study.

3.1 Quantitative data collection

In the first phase of data collection, we adopted the existing model from literature to develop a survey questionnaire aiming at measuring information literacy levels and skills of the domestic and the international students in Finland. A modified version of The Beile Test of Information Literacy for Education (B-TILED: O'Neil, 2005) was adopted. However, it should be noted that literature provides alternative methods and models to assess IL skill. For example, multiple-choice evaluation model which only evaluates specific knowledge or skills covered in a library instruction session (e.g. Houlson, 2007; Samson and Millett, 2003). Other model such as The Information Literacy Test (ILT) with lengthy (60) questions in the test have been used by Cameron *et al.* (2007) and Gross and Latham (2007). Considering the objectives and the context that this research is taking place, we opt for B-TILED as it deemed appropriate model for our research. The B-TILED test was developed by Beile O'Neil in 2005 and has used by others (see, e.g. Ayoub, 2016; Bishop, 2015; Magliaro, 2011) to evaluate library and information skills. In the development of the B-TILED, O'Neil (2005) aimed at the specific ACRL information literacy objectives to develop four content areas including: (1) identifying, evaluating and selecting tools, (2) demonstrating knowledge of general search strategies, (3) evaluating and selecting sources, and (4) demonstrating knowledge of legal and ethical practices. A modified version of the B-TILED online survey with 20 questions (see Appendix 1) was used in this research. Q1–Q8 were aimed at gathering demographic characteristics of the respondents and Q9–Q20 were used to measure library and information skills with multiple choice questions. According to the B-TILED measurement model, a minimum competency for mastery on the B-TILED is 57.5%, which infers that an individual scored lower than this value does not attain competency (O'Neil, 2005). The cut score requires a respondent provides seven correct answers out of the 12 multiple-choice questions.

We collected data in the course of seven weeks in July–August 2019 from four universities in Finland. We used convenience sampling approach and respondents were invited to

participate through advertisements in the social media platforms, authors' social media groups and announcements in the university bulletin boards. The criteria for participation were (1) being university students [domestic or international] and (2) using library services at the universities. We sent out 350 invitations and in total 83 students fulfilled the selection criteria (see Table 1) with this the response rate is 23.7%.

3.2 Qualitative data collection
In the second stage of the data collection, qualitative data were collected through semi-structured interviews with 10 domestic and 10 international students from four Finnish universities (Åbo Academy University, Tampere University, University of Helsinki and Turku university). Students were from the faculty of humanity, economic or business and social science. These 20 respondents were randomly selected and they all participated in the first phase of the data collection too. Initially, 13 international and 11 domestic students were agreed to participate in the interview. However, in the final stage, three international and one domestic student were not able to participate. Six interviews were held by face-to-face meetings at the Åbo Akademi University, 10 interviews were conducted in other agreed places and four interviews were conducted via Skype. International and domestic students were asked to fill out an interview consent form to confirm the terms. All interviewed domestic students were from Finland (Finnish and Swedish speakers), while international participants were from Iran (four), Vietnam and Russia (each two), Bangladesh and Macedonia (each one), respectively.

All interviews were recorded, the purpose of conducting audio-recorded interviews in this paper was to gather further information and obtain insights about the experiences of the domestic and international students concerning their information literacy needs and the utilisation of library services and instructions. Interviewing both group of students is the best method to learn about their background, and to gain deep knowledge about their experiences with the academic libraries in their home countries and Finland. The interviews were recorded and transcribed, and each interview lasted 30–45 min in average. Students were given numbers as alias names (D1, D2, D3, etc. for the domestic students and I1, I2, I3, etc. for the international students) to protect their identity and anonymity. A qualitative analysis

International	Frequency	Percent	Domestic	Frequency	Percent
Iran	18	20.5	Finland	23	27.7
Vietnam	6	7.2	Portugal	3	3.6
Bangladesh	5	6.0	Estonia	2	2.4
China	5	6.0	Poland	2	2.4
Russia	3	3.6	Sweden/Finland	1	1.2
Ghana	2	2.4	Hungary	1	1.2
Brazil	2	2.4	Netherlands	1	1.2
India	1	1.2	Spain	1	1.2
Kazakhstan	1	1.2	*Total*	34	*41%*
Kenya	1	1.2			
Nepal	1	1.2			
Pakistan	1	1.2			
Serbia	1	1.2			
Sri Lanka	1	1.2			
Taiwan	1	1.2			
Total	49	*59%*			
Note(s): Grand Total 83 (100%)					

Table 1.
Characteristics of survey population and participants by country

software package (NVivo, v.12), was used to code and analyse the transcripts. Due to library-related terminology used in the interview questions and unfamiliarity of some of the interviewees, the definition of terms was explained to each participant to establish a shared understating of the terms.

4. Descriptive results

The quantitative data were imported into IBM SPSS v.24 for the data analysis. To examine the instrument, we performed an exploratory analysis, i.e. factor analysis. A four-factor solution with eigenvalues above 1 has been extracted with 50.11% explained covariance among the items. The first factor accounted for 16.2% of variance. However, similar to Morner (1993), we could not find distinct subscales for our test as some items were loaded in more than one construct. Presumably, with more observations or more items a better factor structure result can be obtained. To examine the internal consistency of the data, we ran the reliability test. Kehoe (1995) argued that when there are as few as 15 items, internal consistency value as low as 0.50 can be moderately considered as satisfactory. In our assessment of internal consistency, this value 0.53. As the items were measured with multiple choice questions, K-R 20 which is similar to Cronbach's alpha was assessed. The obtained values were moderate for four content area (1) identifying, evaluating and selecting finding tools was 0.133, for content area (2) demonstrating knowledge of searching techniques was 0.301, value for content area (3) evaluating and selecting sources was 0.447 and finally value for content area (4) knowledge of legal and ethical practices was 0.148.

Table 1 shows the population of the respondents and the country where they came from. The highest number of international students were from Iran, while most of the domestic students were from Finland ($n = 23$). Of 83 respondents, 34 were from EU/EEA or Switzerland degree students (domestic), while the rest participants ($n = 49$) were non-EU/EEA students (international).

Based on the demographic characteristics of the respondents, the majority of the participants were master's degree students ($n = 55$), while there were also PhD students ($n = 14$), bachelor's degree students ($n = 12$), and two participants classified as other. Of 83 students answered the questionnaire, 68.7% were female (domestic: $n = 26$ and international: $n = 31$), and 31.3% were male (domestic: ($n = 8$) and international: ($n = 18$)). In terms of academic status, 59% of the participants ($n = 49$) were international students and 41% were domestic students ($n = 34$).

The following section reports the results referring to the first part of research question 1, "*what is the difference in the information literacy skills levels between international and domestic students at the Finnish universities*" as measured by B-TILED assessment. To assess and examine the participants' information literacy skills, we used Q9–Q20 of the questionnaire (multiple-choice questions). The mean B-TILED score for domestic students ($M = 56.61\%$, $SD = 14.90\%$) which was higher than the mean score for the international students ($M = 39.79\%$, $SD = 15.70\%$). Considering the minimum rate of competency for mastery on the B-TILED which is 57.5% (O'Neil, 2005), the results show that the passing rate was 14.28% for the international students. This means that out of 49 international students who participated in the survey, only seven students scored above the B-TILED cutting score of 57.5 and have; therefore, attained competency (Berk, 1986). As for domestic students, we observed a better performance such that 21 students (61.76%) out of 34 students scored above the B-TILED cutting score of 57.5.

As shown in Table 2 two-sample *t*-test was conducted to evaluate the statistical significance of the difference in the scores. The analysis showed a statistically significant difference between the domestic students, who had a higher score, and international students at the 95% confidence level. As a result, we can infer with 95% confidence that the level of

| | Levene's test for equality of variances | | t-test for equality of means | | | | | 95% confidence interval of the difference | |
	F	Sig	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
Mean									
Equal variances assumed	0.014	0.906	4.899	81	0.000	16.82173	3.43402	9.98911	23.65435
Equal variances not assumed			4.946	73.466	0.000	16.82173	3.40124	10.04379	23.59967

Table 2.
Independent samples test

information literacy skills of the domestic students is higher than the information literacy skills level of the international students. Table 2 shows the *t*-test summary for the mean B-TILED scores for both group of the students.

4.1 Description of interview participants

Table 3 provides demographic information about the interviews. The highest number of the international and the domestic participants are five male students and five female students, respectively, at the master level. Additionally, all domestic students were from Finland (Finnish and Swedish speakers), while the number of international participants were four, two and two from Iran, Vietnam and Russia, Bangladesh and Macedonia (each one), respectively. Moreover, interviewees who volunteered to participate were studying at four Finnish universities (Åbo Academy University, Tampere University, University of Helsinki and Turku university) from the faculty of humanity, economic or business and social science.

4.2 Interview results

Interviewees were asked to describe their information literacy skills and how they search for information in the library and what library resources they utilise while searching for the information. In addition, the interviewees were also asked about their perceptions of library resources and services and what library instruction services they would like to be offered for their studies. Four main themes (1) information resources, (2) preferred learning methods, (3) students challenges and (4) students' need were identified from the qualitative data analysis. Using a qualitative data analysis software, i.e. NVivo 12, Table 4 shows the themes along with the sub-themes and interviewees' remarks and comments. For instance, regarding the information resource, interviewees mentioned the use of search engine (Google) is preferred method compared to the use of the library databases and printed book. With regard to preferred learning methods, some of the interviewees (especially international students) mentioned that orientation courses at the beginning of the academic year are needed, while some indicated that they prefer asking directly from the librarians. It is necessary to indicate that these results, however, should be interpreted with caution, due to the limited number of interviews as well as the context where this study took place. Thus, the generalisability of our results must be carefully considered.

4.3 Similarities and differences of both group

Table 4 demonstrates a lack of IL skills across all students and the comparison between the two groups (similarities and differences). It presents various similarities such as, the use of Google and Google Scholar, the use of printed books and library. In addition, international and domestic students expressed that they need additional IL courses and workshops. However, language barriers and dealing with referencing standards are the main problems that only international students encountered.

Student classification	Domestic	International
PhD male students	0	2
PhD female students	1	0
Masters male students	5	2
Masters female students	4	5
Bachelor male students	0	0
Bachelor female students	0	1
Total	10	10

Table 3.
Descriptive information of the interviewees

Themes	Sub-themes	Interviewees' comments
Information resource	Search engine (Google)	D5 stated "If I do not find enough information, I tend to go Google which I have easy access to articles. I do not need to pay for them"
		I6 regarding information resources he uses mentioned, "The easiest way to start searching anything about the topic is Google and it gives you some primary feedbacks about topics for going to the next level"
	Library databases	As D7 reported, he uses some databases very much which is made by the Finnish association to keeps it up to date about different diseases and different topics on medicine
		I1 stated, "If I did not get access to the needed information and I could not find it on Google Scholar then I can go to the library and use library databases (E-library)"
	Google scholar	In terms of information resources: D10 uses for her assignment, she stated, "I usually use Google Scholar to find relevant scientific papers."
		I5 reported, he usually uses Google scholar and it's the first tool where he looks for information
	Printed books	In respect of information resources: D5 uses, he stated, "If I cannot find the relevant article. I prefer to go to the library and see what kinds of books they have
		I5 noted that when she researches a new topic, she prefers to start with some printed books
Preferred learning methods	Orientation course	When asked D5 how she learnt about conducting library research, she stated, "when I started studying the university, the library had a course, like a short course about one hour they presented the databases and how to do the search and how to find the following materials. And they explained about search tools"
		I10 stated, "We had a one-hour lecture. How to use the websites, how to use the libraries. How to borrow and return books and so on and more importantly what accesses do we have in different databases? It was a library orientation"
	Depend on themselves for searching the information	When asked about how D1 learned to conduct library research skills, she stated, "I use library services more independently, I did not ask for searching because I could learn myself"
		I5 believes that using library services is very similar to Google search engine because the interface is very intuitive and convenient
	Librarian	With respect to learning way, D8 mentioned: "I just walked to the library and ask help. I asked from the librarians"
		I7 also reported, in the beginning, he went to the library and asked the librarian how he can search for articles

Table 4.
Qualitative results

Themes	Sub-themes	Interviewees' comments
Student challenges	Searching skills and library terminology	With respect to the challenges D4 faces in library research and developing information literacy skills, she noted that the most problem for her is to narrow it down the terms. She does not know how to search exactly I9 related that the challenges reported that sometimes she does not know how to use the key terms As I10 stated, "It is difficult to find something if the topic is new and it is important how you use the search terms and everything. Today, we have plenty of sources and databases. You have too much information, but then the summarising is somewhat difficult. You have to do it yourself at the abstract, so it is difficult to summarize all these articles that you're reading. So, it is a lot of information. You feel overwhelmed which one to use, how you know and how you filter them down"
	Problem with finding valid and relevant information	D1 elaborated on the challenges she faces in developing information literacy and conducting research in the library, noting that determining the validity or find recent enough relevant academic information is a challenge for her I5 responded to the question about the challenges that it is very difficult for her: finding a good article is the major challenge for me. What should I read? She would like to learn how to find how to understand that this is a good article about how to choose the information and structure and combine them
	Language barrier	I10 concerning the challenges he faces in developing information literacy skills, she noted that, she did have some linguistic barriers; she doubts about academic terms she needs to use. She believes knowing the language and then knowing those terms in a particular topic of information and the terminology are important and somebody with low English efficiency might not be familiar with terms I7 reported, because of the language barrier, he prefers to ask the librarian to help him
	References	When asked about the challenges I4 faces in developing information literacy, he stated that, "At the first assignment was hard for me because I did not know even about the referencing methods because everything should have reference in the papers, articles, and thesis, whatever you write, and most important challenge was to find the best and most correct method of referencing in my article"

Table 4.

(continued)

Themes	Sub-themes	Interviewees' comments
Student needs	Courses and workshops	D4 elaborated on her library and information literacy needs by emphasizing the library orientations and noted that, there was one lecture in the master seminar but not course. She continued to say that it was too much information for one lecture. It would be good to have a course because that lecture was too complicated
		As I1 reported, introductory lecture about library and research methods at the beginning was not so good, there were a lot of students and they share the information, but she did not feel comfortable to try when more than one person trying together, she emphasized the need for a special course for international students from the library to teach them how to use library resources
	Market services by library	D4 commented on his information literacy needs, noting that, the library should increase the awareness of students about the resources and how they can use the resource. He commented that the library should market and promote library resources to students
		I10 talked about his information literacy needs as an international student and noted that he is not familiar with the services that library provides to students and he continued to say that, he is in doubt that even if he asks for help for a particular topic, librarian is less likely to help him that way

Table 4.

5. Discussion

5.1 Findings and implications

In this section the main results, in the form of findings and implications are discussed and elaborated.

Finding 1: There was a statistically significant difference between the mean B-TILED score for the domestic students ($M = 56.61\%$) and the mean B-TILED score for the international students ($M = 39.79$). Domestic students' mean B-TILED score is closer to 57.5 B-TILED cutting score, showing that domestic students relatively, as a whole, have acceptable information literacy skills/levels.

Implication 1: This result shows that although the IL level in domestic students is close to 57.5 and there is a significant difference between mean score of international and domestic students; however, we cannot consider domestic students as information literate proficient either. This conclusion is based on the results obtained through both quantitative data and the qualitative data.

Finding 2: In spite of the fact that both groups scored lower than acceptable level of competency for mastery, students from EU/EEA performed significantly better than non-EU/EEA. The results of the interview analysis show that domestic students believe they have relative searching skills for information and using library resources for their research. For instance, one of the interviewees "D7" noted that he used different library services from his childhood, and it is very familiar for him. He continued to say that, using library services is easy and convenient and evaluated his self-efficacy at a very high level.

Implication 2: The plausible reason could be the fact that domestic students are more adapted to the educational environment of their country, systems, advanced technologies and the university that international students might find challenging and negatively impacting

their learning of information literacy abilities. International students lack experience utilising library online sources, such as the database, abstracts, online catalogues (Liu, 1993).

Finding 3: International students found using library services challenging and they believe that using Google is easier than library databases. In this regard I8 noted that, she would be more motivated to first search from Google because she is familiar with that and it is easier, if she needs some particular information, she will go to the library system or I10 reported that he would prefer to use Google Scholar rather than library databases because it is much easier. While on the one hand our finding supports earlier finding of (Rafi *et al.*, 2019, p. 203) who indicated that there is a strong association between students' technological skill with using digital tools, utilisation of database resources and browsing networked information on the web. On the other hand, this finding differs from previous findings of (Samsuddin, *et al.*, 2019) who indicated that libraries are considered as useful social instruments and also act as social exchange tools especially for the special community under privileged and immigrants, to provide an equal opportunity to access economic, political and public resources (p. 41).

Implication 3: These comments most likely stem from the unfamiliarity with the new technology or a system, also lack of searching skills and using proper library terminology, making international students reluctant to use library websites or library databases and will result in a low level of self-efficacy in using the library services.

Finding 4: International students stated that language is a barrier for them and has a negative effect in their learning of information literacy skills and using library services and resources. Also, the majority of the international students noticed the differences between the educational systems and ICT as mediating tools for learning literacy competences in their home country and in Finland and indicated that these are challenging issues. According to Baron and Strout-Dapaz (2001) the main challenges that international students encounter are language and communication problems, adapting to a new educational and library systems.

Implication 4: This finding indicates, as expected, that language is an important factor in using library services, potentially impacting the students' self-efficacy perceptions towards their information literacy skills. It was notable that domestic students obtained their previous studies from universities where the language of instruction and courses were thought in English, making it comfortable for them to learn how to use library services and gaining confidence with respect to their information literacy skills, especially when they do not have to deal with the challenges that lack of sufficient English language skills might impose.

This is essential for understanding and completing the advanced coursework needed for their research and academic education and this can be regarded as a reason why they could achieve better score in B-TILED test. Consequently, international students might benefit from developing their information literacy skills based on their English language skills. The library may consider their language problems and take their needs into consideration while planning information literacy courses and also, e.g. developing workshops concerning referencing methods. International students had inadequate English proficiency and unfamiliarity with the Library of Congress Classification also (Liu, 1993)

Finding 5: Both group of students found using proper library terminology and finding valid and relevant information challenging. It should be noted that the number of international students who found it difficult to use valid and relevant articles is twice as the domestic students.

Implication 5: Students should be able to understand the database commands and search terminology, and if they do not have a good searching skill, they may not be able to effectively use the database to search and find the relevant information they want. Another thing is that students may not be familiar with the various advanced systems and technologies available

to them in the library, and they may have not had experienced similar technologies in the library in their home country.

Finding 6: Several participants from the both groups of students interviewed in this study may not be aware of the library information literacy services. International students' viewpoint of libraries services and librarians may be varied from what libraries look like in the Western world. Asian students have problems in using academic libraries, as such they did not show a knowledge of the services and resources accessible for their research and study in a Western academic context (Mu, 2007)

Implication 6: This indicates that the library may not be efficiently advertising available services to the students. During the interviews with students, they reported their wish to take part in more classes and workshops provided, if any, by the academic library. This may show that the library should consider a more proactive strategy in improving library services to the students. Similar to this finding, Liestman (2000) mentioned that international adult learners clearly have unfamiliarity with many the US library services and the relevant issues. The author addressed the cultural diversity and highlighted that libraries can better satisfy the demands of the international students by determining their requirements, which will improve library instruction.

Finding 7: Both group of students need more library orientations, classes and workshops to improve their information literacy skills. Eisenberg *et al.* (2004) argued that library instruction in higher education can take a diversity of forms such as classes, online tutorials, workbooks, course-related education or course-integrated instruction.

Implication 7: This may show that students are interested in learning searching skills and are willing to participate in the library orientation events, classes and workshops given to them, especially if these classes and workshops help students to overcome the challenges they face due to their English proficiency and problems. This may indicate that the library should consider planning more classes and workshops targeting mainly international students.

6. Discussions
This paper examined the information literacy skills of the international and the domestic students and how library services are used by both groups of students at the Finnish universities. Besides, the attitudes, thoughts and expectations of students about library services and information literacy abilities, challenges and needs were examined. The library staff members could pay more attention to the challenges and the needs of the students in general and the international students in particular. Many of the students have unique research needs, and they encounter some unique challenges in utilising the library services for research and academic activities. Hence, finding the right solutions to this problem will positively impact the students' academic performances. Based on the findings from the quantitative and qualitative approaches employed in this research in relation to information literacy of the international students, librarians can play a crucial role in enabling students to become successful library users and learners. For instance, academic libraries should develop some courses and workshops that are explicitly designed for the students in general and the international students in particular, preferably at the start of every semester encouraging students to use library services and resources available for them. Moreover, academic libraries should also advertise library services and programmes through the library website and distribute brochures and posters in different places on the campus, the student dormitories and the common places (e.g. open learning spaces).

Academic libraries may also form partnerships with the different departments and encourage them to lead their students to the library and familiarise them with the library services and resources available for them. Academic libraries should cooperate with the

faculty members which allow librarians to incorporate library terminology and concepts in the curriculum of the subjects. Students should be obliged to go to the library to accomplish particular assignments or tasks. It is also important that academic libraries arrange more information literacy workshops and classes to encourage students to visit libraries and learn more about possible ways to enhance their information literacy skills. Additionally, to these classes and workshops, the library should offer other workshops specially designed for the international students. Such workshops can focus on enhancing students' searching skills to locate information and using library websites, conducting literature reviews and learning the referencing methods.

Academic libraries should provide effective courses on research methods and library services to the international students, keeping in mind the international students' language and cultural barriers. Finally, academic libraries should develop online guides and instructions for the students or produce some video materials accessible through the library website. These instructions and videos could include information about how to use the library, how to access library resources and the websites, and how to use the particular databases. The library can produce more research guides and videos that are focussing on the international students, and some of them could be translated into different languages, if possible. The library could also produce some brochures regarding the essential services in the library and translate them into different common languages, such as Chinese, Russian and other important languages.

7. Conclusion

This study compares the information literacy level of the domestic and the international students and investigates the expectations, needs and challenges students face in utilising library services. Using the B-TILED (O'Neil, 2005) test, the results indicate that domestic students (both male and female) scored higher than the international students. But neither of the group could be referred to an information literate person. Moreover, the interview analysis results show that international students encounter challenges in using library services due to their English language proficiency, especially at the beginning of their academic studies. Also, the results show that international students became more confident and comfortable in using the library and library resources if they will be provided the necessary library instructions at the beginning of their postgraduate studies. Both groups of students show that they have encountered challenges while searching and utilising library resources, thus affecting their performance. In addition to this, both group of students report that they have poor searching skills in using professional terms to find or to locate the documents (e.g. research articles) and topics they are looking for. Moreover, they indicate that finding valid and relevant information is a real challenge. International students encounter difficulties concerning referencing methods and citations, but are able to improve it over time, should more training be provided. They also want and demand for more workshops and orientation courses focussing on the library services and guidelines as to how to use them. Moreover, students express their need to be more aware of the available library services; for instance, through the university webpages or social media platforms. Overall, the qualitative data analysis shows that international and domestic students face some challenges in developing information literacy and using library resources and services.

All in all, the results of this research suggest that policymakers to consider developing students into lifelong learners and preparing them to develop information literacy skills for the wider environment of work and life.

7.1 Future research

Based on the findings from this paper and the review of the literature, the following suggestions are proposed for the future research. Future research should be conducted with

the programme members and librarians to obtain more insights about students' needs in relation to the library research and information literacy skills. Also, future research should be conducted with the faculty member to obtain their viewpoints about students' needs and challenges related to the library research and information literacy skills.

7.2 Limitations

The analyses and results described, in this paper, were mainly focussed on the information literacy level of both international and domestic students at the Finnish universities. Some limitations need to be considered regarding the generalisability of the results presented in this paper. This research was conducted amongst 10 international and 10 domestic students and the findings may not represent an accurate representation of the entire students at the Finnish universities. The distribution of the interviewed group was done on a random basis. Although we attempted to reach as different Finnish universities as possible, we were only managed to collect data from four different universities. Therefore, the result obtained here may not be generalisable to all students at the Finnish universities. Despite the rigorous and frequent efforts to guarantee the validity of the results presented in this paper, it is necessary to recognise the possibility that the survey questionnaire used in this research and the researchers may subjectively have influenced the answers of the interviewees. Reaffirming here that both the interview questions and the researchers used clear and transparent language, allowing the free expression of those who proposed to participate in this research. However, it must be acknowledged amongst the limitations of this study that both written language and verbal communication are liable to misinterpretation.

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Appendix 1

B-TILED Test (Modified)

(1)   What is your student status?

- bachelor's degree student.
- master's degree student.
- Doctoral degree student.
- Other (please note status _____)

(2)   Which of the following best describes your academic status as a student?

- I am an EU/EEA or Switzerland degree student.
- I am an EU/EEA or Switzerland exchange student.
- I am a non-EU/EEA or Switzerland exchange student.
- I am a non-EU/EEA student (International student).

(3)   Which of the following is closest to your average score?

- (4–5)
- (3–3.99)
- (2–2.99)
- (1–1.99)
- Others (specify…………..)

(4)   What is your country of origin?

- …………………………….

(5)   What is your gender?

- male
- female
- other

(6)   Overall, how would you rate your ability to search the Internet to find information?

- Excellent
- Good
- Average
- Poor
- I do not know

(7)   Overall, how would you rate your ability to search the library to find information?

- Excellent
- Good
- Average
- Poor
- I do not know

(8) Have you attended an orientation event organised by your educational institution or library instruction session held in your classroom or library?

- Yes

- No

- I am not sure

(9) Which of the following characteristics best describes scholarly research?

- Available in an academic library.

- Indexed by bibliographic databases.

- Reviewed by experts for publication.

- Written by university faculty.

(10) Your professor has assigned you a paper. You are not familiar with the topic, so you decide to read a brief history and summary about it. Which of the following sources would be best?

- A book on the topic.

- A general encyclopaedia.

- An article on the topic.

- An encyclopaedia related to your major of study.

(11) Research or periodical databases are designed to include items based on which of the following criteria?

- Found on the internet.

- Not found on the internet.

- Owned by your library.

- Relevant subject matter.

(12) Most research and periodical databases have basic and advanced searching interfaces. Which of the following can you do ONLY in advanced searching?

- Adding Boolean or search connectors between terms.

- Entering multiple search terms.

- Search by keyword.

- Search multiple terms by field.

(13) Select the set of search terms that best represent the main concepts in the following: What are the health risks associated with the use of drug therapy for hyperactive students?

- Drug therapy, health risks, hyperactivity.

- Drug therapy, health risks, students.

- Drug therapy, hyperactivity, students.

- Drugs, hyperactivity, therapy.

(14) Select the set that best represents synonyms and related terms for the concept "college students."

- Colleges, universities, community colleges. . .

- Gen *X*, students, undergraduates. . .

- Graduate students, freshmen, sophomores . . .

- University, adult learners, educational attendees . . .

(15) You are using a research database that uses an asterisk (*) as its truncation symbol. When you type in *read*** you would retrieve records that contained which of the following words?

- Examine, peruse, reader, reading.
- Peruse, read, reader, reading.
- Read, reader, reads, readmit.
- Read, reader, reading, reapply.

(16) The following citation is for: Massaro, D. (1991). Broadening the domain of the fuzzy logical model of perception. In H. L. Pick, Jr., P. van den Broek and D. C. Knill (Eds), *Cognition: Conceptual and methodological issues* (pp. 51–84). Washington, DC: American Psychological Association.

- A book.
- A chapter in a book.
- A journal article.
- An Eric document.

(17) Your professor suggested you read a particular article and gave you the following citation: Shayer, M. (2003). Not just Piaget, not just Vygotsky. *Learning and Instruction, 13*(5), 465–485. Which of the following would you type into the library's catalogue to locate the actual article?

- Author search: Shayer.
- Journal title search: Learning and Instruction.
- Journal title search: Not just Piaget, not just Vygotsky.
- Subject search: Piaget and Vygotsky.

(18) Based on the following paragraph, which sentence should be cited? (1) Technology use in the schools is often characterized as a potentially dehumanizing force. (2) Perhaps the fear that the virtual world may lead to passivity and isolation, at the expense of literal social interaction, is valid. (3) Certainly, educators must ask *which* uses of technology result in increased learning and a better quality of life. (4) To address these issues, Hunter has proposed that students work in groups with the computer peripheral to the group and the teacher acting as facilitator.

- 1
- 2
- 3
- 4

(19) When is it ethical to use the ideas of another person in a research paper?

- It is never ethical to use someone else's ideas.
- Only if you do not use their exact words.
- Only when you give them credit.
- Only when you receive their permission.

(20) Browsing a weekly news magazine, you come across an article that discusses the future of space exploration. As you are teaching this topic you decide to make copies of the article and share it with your class. Which of the following concepts makes it legally permissible to reproduce portions of works for educational purposes without permission?

- Copyright.
- Fair use.
- Freedom of information.
- Intellectual freedom.

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