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# **Information literacy level of international and domestic students**

**Master's Thesis in Governance of Digitalization**

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2019

# ACKNOWLEDGMENTS

I wish to thank DiWIL project and all members which provided me a great opportunity to be one of the members and gained valuable experiences and knowledge throughout this project.

I also wish to thank Dr. Shahrokh Nikou, my thesis supervisor, for his guidance, valuable advice, helpful suggestions, and kindness throughout the writing in my thesis. He always encourages and supervises me in the right direction in doing research and also my life.

I am also grateful to Professor Gunilla Widén my co-supervisor who has supported and contributed me through the master study.

Thanks, are also offered to other professors, teachers, staff, and classmates in the Governance of Digitalization master program at Åbo Akademi University.

Finally, I wish to thank my dear parents, for their encouragement, forbearance, and understanding throughout my study.

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# ABSTRACT

ÅBO AKADEMI UNIVERSITY – Faculty of Social Sciences, Business and Economic

<b>Subject:</b> Governance of Digitalization	
<b>Writer:</b> Sanaz Soltani	
<b>Title:</b> Information literacy level of international and domestic students	
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<p>Information literacy is often defined as discrete abilities that students require to have in order to find and assess information. Students who are information literate are better equipped for today's complex information environment than students consider: those who do not possess such skills and abilities (Mackey &amp; Jacobson, 2004). As information skills play such a prominent role in students' academic achievement, international students coming to continue their post-graduate studies in other countries such as Finland may face problems in using library services and information literacy skills.</p> <p>The purpose of this study was to examine the information literacy of international and domestic students. It assessed their current skills and investigated their challenges and needs. Understanding the challenges they face, and exploring the factors associated with these challenges can be helpful in understanding the academic needs of these two groups of students.</p> <p>The study was conducted on international and domestic students at universities and a university of applied sciences in Finland. The study used a mixed methods design. Quantitative data were collected through an online survey and qualitative data were collected through interviews with a selected number of both groups of students.</p> <p>The findings of the study indicated clearly that international graduate students have a relatively low level of information literacy skills. The study also showed domestic students have a better information literacy level than the information literacy level of international students. The study presented some implications and provided recommendations for future planning and library services for students.</p>	
<b>Key concepts:</b> Information Literacy, Library services, International students, Domestic Students	
<b>Date:</b> 17.11.2019	<b>Number of Pages:</b> 94

# 1. INTRODUCTION

Globalization and advancement in technology provide opportunities for people to travel and to study overseas. In the last few years, a considerable number of students worldwide have continued their post-graduate education abroad. International students reached 4.6 million in 2015, and the number is anticipated to reach eight million in 2025 (OECD, 2016). 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 decades. Student administration systems at the Finnish universities define students as “national” or “international” in respect of their fee-paying situation. Finnish, also the European Union (EU) and EEA students, belong to the “domestic” category, while “international” students comprise of those from outside the EU/EEA.

In the broader context of the contemporary information-prolific environment, the role of information literacy has become increasingly significant – as it creates the basis for lifelong learning (ACRL, 2000). Information literacy at higher education institutions is an essential issue at the local and national levels and information skills are now more crucial to a student’s survival and progress (Varga-Atkins & Ashcroft, 2004). The Association of College and Research Libraries (ACRL) declares that to be considered information literate, a person must be able to know when information is required and be able to find, assess, and utilize effectively the required information (ACRL, 2000). Information literacy is often defined as discrete abilities that students require to have in order to find and assess information. These skills are identified as essential for students to navigate the deluge of information they find. Nevertheless, information literacy may also be connected with disciplinary learning, or other factors that may impact learning in the classroom, such as student motivation (Maybee & Flierl, 2017). The ACRL asserts that to be recognized as an information literate, a person must be able to notice when information is required and be able to find, assess, and use efficiently the required information (ACRL, 2000).

Students who are information literate are better equipped for today’s complex information environment than students who does not possess such skills and abilities (Mackey & Jacobson, 2004). The ACRL asserts that information literate students are permanent learners, more self-directed, and are able to learn content, continue their studies, and consider greater control over their own learning (ACRL, 2000). As information skills play such a prominent role in students’ academic achievement, international students coming to continue their post-graduate studies in

other countries such as Finland may be at a problem. They experience more challenges than national students as the educational system in their home country might be different than from the Finnish systems. It is also the case that, in Finland, the stress is given on active learning by means of digital educational tools and applications, while in several other countries, the importance is placed on, e.g., teaching, that is, on memorization and imitation. Also, recent research infers that some difficulties earlier encountered by international students, such as technological difficulties (Lu et al., 2007). It has been argued that international students have unique demands and encounter different challenges in the foreign universities (Ademodi, 2011; Baron & Strout-Dapaz, 2001; Mu, 2007; Liu, 1993; Morrissey & Given, 2006; Natowitz, 1995; Song, 2004; Wang & Frank, 2002).

In general, international students' challenges are related to their information literacy and unfamiliarity of the academic setting and library services in which they have landed (Kettle, 2017; Leask, 2015). International students are not always informed of the full variety of information services suggested by library staff, including research help and online chat (Knight et al., 2010; Shaffer et al., 2010). In utilizing the information for the study, international students “share some of the same struggles as national students, but also encounter some different challenges” (Houlihan et al., 2017). In this respect, Finnish educational institutions, hold an orientation course annually for the students, in particular focusing on new degree students and other workshops. However, these kinds of courses are planned for students in general, and they do not target, in any way, foreign students who may have different expectations and different needs. Lacking research capability and information literacy skills, may hinder international students to effectively find, retrieve, and correctly use the available information for their research and academic studies. Hence, oftentimes this group of students may not effectively use the library resources and other platforms accessible for them and may produce a low level of motivation and self-efficacy in communicating with the librarians and the faculty staffs.

This thesis aims to examine whether students coming from a different educational background than EU/EEA students in Finland might be at a disadvantage due to the low level of information literacy.

### **1.1 Objectives and aims**

The need to study international students' information literacy is in part attached to the thought that they may have distinctive—and in some cases perhaps more important—information requirements than domestic students (Oh & Butler, 2016; Sin & Kim, 2013; Yoon & Chung,

2017). Being located in an unfamiliar environment, acculturative stress is not unusual (Berry, 2006). International students are more likely than domestic students to face gaps related to low-level information literacy. International students usually encounter significant challenges in information searching and understanding and using scholarly resources for research-based tasks (Hughes et al., 2018). The lack of information related skills has been determined to be as stressful and challenging. Studies comparing domestic and international students have been limited concerning information literacy.

Understanding the difficulties that international students encounter and examining the factors linked with these difficulties can help to gain valuable insights with regard to the academic requirements of this group of students. The core academic objective addressed by this thesis is to investigate whether the information literacy skills of international students who face difficulties negatively influence their information seeking, information retrieval, and managing information suitably in their research and academic studies. In this respect, Baruzzi and Calcagno (2015) claim that international students often have restricted knowledge about what is accessible to them through the library and may experience a very distinct type of library system at home.

In general, the constant growth of the international student population makes it particularly significant to study information literacy differences between domestic and international students and also the difficulties they deal with. Therefore, given the dynamic nature of the information environment in the digital age and the university student population, more research is demanded to better understand students' information literacy level and related barriers. Thus, in addition to the core objective specified above, this thesis aims to identify the similarities and differences between domestic and international students regarding their information literacy and investigates the barriers, which is an area that is seldom studied. On a more practical level, the findings of this thesis can help librarians and university officials on better planning and more efficiently delivering information services to meet students' information needs. To do so, this thesis aims to explore and investigate the information literacy skills, challenges, and needs of international and domestic students at the Finnish Universities.

## **1.2 Research questions**

The present study for better understanding the information literacy level of two groups of students and the challenging they have faced in learning information literacy and also the needs

they have in conducting library researches, aimed to find answers to the following three main questions:

1. What is the difference in the information literacy skills levels between international and domestic students, as measured by the B-TILED assessment?
2. What are the challenges that international and domestic students believe they face in learning information literacy skills?
3. What are the information literacy skills and library services that international and domestic students believe they need?

### **1.3 Methodology**

To address the research questions outlined above, the author of this thesis will design an empirical study and will conduct a semi-structured interview with domestic and international students. Moreover, participant will be asked to answer questions measuring their information literacy level which are derived from a literature review.

### **1.4 Expected result and contribution**

The problem addressed by this research is the perceived low level of information literacy skills of international students who encounter numerous challenges. For example, international students are not effectively using information resources properly in their academic writing which can have negatively affect their motivation and learning processes on campus. Understanding the challenges international students face and exploring the factors linked with these challenges can be important to understand the academic needs of this group of students. Universities and libraries have to give international students particular attention to meet their unique and involved needs. The findings of this thesis are expected to help the decision-makers and high-level executives at Finnish universities to recognize the characteristics of students and understand their learning techniques, language proficiency, and their topics of interests in order to design useful teaching materials and other study related activities for this group of students. Additionally, the findings are expected to help universities to design and implement some orientation programs that includes a number of information literacy modules providing students with information literacy classes and workshops and especially target international students who have unique and different needs to support their learning process. Indeed, this will help the university and the library to better understand the academic demands of this group of students

and support them in learning and mastering the information literacy skills they need to succeed in their academic studies. Therefore, they should incorporate information literacy skills into the curriculum of their courses in order to support students in general and international students in particular, to learn these necessary skills. Additionally, it can be helpful to improve their motivation, self-efficacy levels and academic performance and also help them to adapt to the environment of the country, new technologies, library services and resources.

### ***1.5 Structure of the thesis***

The study has six chapters. Chapter one presents the introduction, objectives and aims, research questions, methodology, expected results and contributions to the literature.

Chapter two presents an extensive review of related literature and prior studies of the international students' expectations, library services, information literacy, study performance, motivation, and self-efficacy.

The methodology and procedures used to gather data for the study are presented in chapter three. Chapter four presents the results provides a thorough discussion on the findings.

Chapter five presents the discussion, positioning the results, a review of the study findings, implications.

Chapter six presents the conclusion, recommendation, limitation and future researches.

## **2. Literature Review and Theoretical Background**

### ***2.1 Introduction***

The literature review presents literature and discusses sources that focus on international students, information literacy, library service, motivation, performance, and self-efficacy. The review begins with an overview of international students studying at Finnish universities and their characteristics and provides some research studies about international students. After that, library services and some studies and examples of library instruction program and services for international students have been presented. The review then, provides an introduction and previous studies to information literacy. Finally, the review continues with an introduction and research studies of motivation, performance, and self-efficacy.

### ***2.2 International students***

Globalization and advancement in technology provide opportunities for people to travel and to study overseas. In the last few years, a considerable number of students worldwide have continued their post graduate education abroad. International students reached 4.6 million in 2015, and the number is anticipated to reach eight million in 2025 (OECD, 2016). According to the Finnish National Agency for Education (2018), the notable number of foreign degree students in higher education are non-EU/EEA. In 2016, more than 21,000 international degree students were studying in Finnish higher education institutions. There are distinctions between Universities of Applied Sciences (UASs) and universities concerning where their students come from: universities have more students from the EU/EEA countries while UASs have more students from the non-EU/EEA countries.

Table 1 shows the most and the least number of foreign students in terms of their nationalities in universities and the university of applied sciences in Finland. The highest number of international students in Finnish universities and universities of applied sciences were respectively from China with 1083 and Russia with 1831 students, while the least number of foreign students in universities were from Estonia with 265 students and 73 Iranian students in the university of applied sciences. In total Russian students with a population of 2650 students

were in the first rank of the table, and 564 international students from Iran were at the bottom of the table.

*Table 1. The Most Common Nationalities Among Foreign Students in Finland*

	Universities	Universities of Applied Sciences	Total Higher Education
Russia	846	1714	2560
Vietnam	616	1831	2447
China	1083	526	1609
Nepal	309	801	1110
India	666	104	770
Estonia	265	426	691
Pakistan	542	136	678
Bangladesh	424	193	617
Germany	373	244	617
Iran	491	73	564

Source: (Finnish National Agency for Education, 2018)

The proportion of students from European countries and Africa has decreased in a long time and accordingly, the proportion of Asian students has increased. The largest number of students come from Russia, Vietnam, China, and Nepal. Especially the number of students from Vietnam has seen a dramatic increase over the past few years. The number of students from Nepal and Russia has also increased, while the number of students from China has diminished. Chinese and Indian students largely study at universities, while Russian, Vietnamese and Nepalese students mostly study at UASs (Finnish National Agency for Education, 2018).

Table 2 describes the percentage of foreign students in different levels of education in Finnish universities and university of applied sciences. In universities, 44% of students study a bachelor's degree and only 3% study as a master student. While the percentage of master, bachelor and doctorate students at universities were respectively 32, 3, and 18.

Table 2. Foreign Students in Higher Education Institutions by Level of Education

Bachelor's degree (UAS)	44 %
Master's degree (UAS)	3%
Bachelor's degree (university)	3%
Master's degree (university)	32%
Doctorate	18%

Source: (Finnish National Agency for Education, 2018)

Table 3 classifies the proportion of foreign students in higher education institutions by continent. The highest proportion of students were from Asia continent with 45% which was approximately two times higher than students from EU/EEA countries with 24%, and about three times higher than European students from non-EU/EEA countries. North America, Latin America, and the Caribbean continents allocated only 3% of students in the table.

Table 3. Foreign Students in Higher Education Institution by continent

Europe (EU/EEA)	24 %
Europe (non-EU/EEA)	14 %
Asia	45 %
Africa	10 %
North America	3 %
Latin America and the Caribbean	3 %
Oceania	0 %

Source: (Finnish National Agency for Education, 2018)

### 2.2.1 The number of foreign applicants in 2018

The number of applicants to higher education institutions were influenced by the tuition fees charged for non-EU/ EEA students in 2017. Fewer international students applied to degree programs starting in autumn 2017 in both University of Applied Science (UASs) and universities than the past year. Nevertheless, the number of international applicants to degree programs starting in autumn 2018 again saw a notable rise. There were more candidates now than in 2016, which was the last year before the tuition fees were included. The number of selected candidates and those who admitted a study place raised from the prior autumn in both UASs and universities, but the level of autumn 2016 was not reached. EU/EEA nationals accounted for 16% of the applicants to UASs and for 15% of the applicants to universities. The proportion of EU/EEA natives among the selected applicants were higher: they considered for

20% of the candidates selected to UASs and for 22% of those selected to universities. The proportion of EU/EEA countries has not raised (Finnish National Agency for Education, 2018).

### 2.2.2. Foreign Applicants, 10 most common nationalities

Table 4 describes the number of applicants in terms of nationalities and the percentage of selected applicants in autumn 2018 in Finnish university of applied sciences. The most and the least number of applicants were from Nepal with 1031 and Ghana with 356 applicants. The highest and the lowest percentage of selected applications were respectively from Vietnam with 61% and Ghana with 7% at universities of applied sciences in Finland.

*Table 4. Universities of Applied Science in Finland*

	<b>Applicants in autumn 2018</b>	<b>Of whom were selected, %</b>
Nepal	1031	26%
Bangladesh	908	30%
Nigeria	893	13%
Russia	620	40%
Vietnam	580	61%
Estonia	448	20%
Kenya	428	18%
Cameroon	424	25%
Pakistan	397	17%
Ghana	356	7%

Table 5 describes the number of applicants in terms of nationalities and the percentage of selected applicants in autumn 2018 in Finnish universities. The most and the least number of applicants were from Nigeria with 972 and Iran with 310 applicants. The highest and the lowest percentage of selected applications were respectively from China with 57% and Nigeria with 6% at universities in Finland.

Table 5. Universities in Finland

	<b>Applicants in autumn 2018</b>	<b>Of whom were selected, %</b>
Nigeria	972	6%
Pakistan	909	22%
Ghana	863	7%
Bangladesh	676	27%
India	573	32%
China	573	57%
Russia	517	51%
Vietnam	351	54%
Iran	310	25%

Source: (Finnish National Agency for Education, 2018)

International students, especially non-native speakers of English lack experience utilizing library online sources, such as the database, abstracts, online catalogs, and the Library of Congress Classification System (Liu, 1993). International students bring with them specific abilities, but they also present different difficulties for learning systems. Libraries play a crucial role in joining international students, not only to universities and colleges but also to information literacy abilities they require to achieve (Jackson & Sullivan, 2011).

Universities throughout Finland have profited financially and culturally from the increased presence of international students. Pandit (2013) highlights that there is a perception that international students are an important intellectual and economic asset, and that international students provide opportunities for national students to engage with students from various cultures, which allow them to obtain new views and intercultural abilities. Therefore, academic libraries play a crucial role in supporting the international students to adjust to the university environment and familiarize them with the information literacy skills they require to achieve.

International students' viewpoint of libraries services and librarians may be varied from what libraries look like in the Western world. 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. Hence, it is important to explain the role that librarians can play in their educational works (Jackson & Sullivan, 2011).

Research on international students' information literacy shows that this group of students need particular consideration from academic librarians to learn information literacy skills. Many researchers have investigated information literacy in general, but more attention should also be

taken to information literacy of foreign students. Baron and Strout-Dapaz (2001) mention that there is a need for solid library skills arranged for international students, and they state that as international students become more information literate, problematic concerns will be decreased. Studies investigating the information literacy needs of both national and international students have done to concentrate on the students' skills of information searching and retrieval (Mu, 2007; Knight, Hight & Polfer, 2010; Liu, 1993) instead of students' information literacy requirements in their research setting.

A good number of researches on international students' information literacy were conducted in various countries in the world. These studies concentrated principally on the information seeking behaviors of international students and their attitudes of library services. More study should also be done to the international and domestic students' library research and information literacy skills they need in their discipline research setting.

Liu (1993) conducted a study including fifty-four mainly Asian students registered at the University of California - Berkeley. The findings of the study showed that students had inadequate English proficiency and unfamiliarity with Library of Congress Classification.

Baron and Strout-Dapaz (2001) gathered data from 123 colleges and universities. The findings showed that both librarians and international students admitted that the main challenge international students encounter is language and communication problems, adapting to a new educational and library system, and general culture modifications. The study confirmed that international students meet specific challenges, and there is a need to satisfy their library and research requirements and that academic libraries need to provide training for international students.

Song (2004) investigated the attitudes and expectations of international students. The study concentrated on using electronic resources. The survey included 143 international students, and the results showed that a notable number of students did not have experience with electronic library services in their home countries and that they had library requirements.

Mu (2007) defined information literacy programs and activities proper to support the information demands of Asian international students and what teaching methodology should be applied with them. The study discovered that Asian international students had problems in using academic libraries. Students did not show a knowledge of the services and resources accessible for their research and study in a Western academic context.

Knight et al. (2010) conducted research regarding foreign 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 a role in promoting this group of students to use library resources and services.

Liestman (2000) mentions that international adult learners clearly have unfamiliarity with many U.S. library services and relevant issues. The author addressed the cultural diversity and highlighted that libraries can better satisfy the demands of international students by determining their requirements, which will improve library instruction.

Sin & Kim (2018), investigated whether international students differ from domestic students in their information needs and difficulties faced. Regression analysis was used for analyzing the data. In this study, two groups of students compared in terms of needs and barriers in general, not only research purposes and using library services. Results showed that International and domestic students are similar in their top-ranked needs and barriers.

Hughes et al. (2018), showed insights into first-year international and national students' skills of using library resources and services. Data were gathered via survey and semi-structured interviews and interpreted thematically. Results showed that: First-year international students' library and information use, and related challenges are generally similar to those of domestic first-year students and the difficulties international students encounter generally relate to the unfamiliarity of the environment and academic and library systems at their host university.

Click (2018) investigated how international students complete research tasks and use the library and other resources in the process. Half of the participants had received some sort of library instruction, but they did not have particularly positive responses to these sessions. The results of this study may be of use to academic librarians who wish to better understand international students and develop research support for this user population.

## **2.2 Library services**

International students, as a special library user group have different and varied research demands that academic libraries are taking into consideration in planning and expanding their outreach programs. Bishop (2015) mentions that academic libraries are frequently increasing their services and trying to outreach to particular user groups, including services to satisfy the

unique needs of students. To face the changing information literacy requirements of students and the unique demands of students, academic libraries are paying more consideration to the role of the academic librarians in the institution. Academic librarians are expected to have a better understanding of the changing and unique demands of the different groups of students. Hence, “to facilitate potential expansions or additions to existing library services librarians must first reach deeper insights about the attitudes, characters, and needs of constituent groups” (p. 6).

Librarians accept that foreign students encounter several problems in using the library, including language and communication problems, adapting to a new educational environment, the library system, and other cultural changes (Baron & Strout-Dapaz, 2001; Natowitz, 1995).

In this respect, Baruzzi and Calcagno (2015) claim that "international students often have limited knowledge about what is accessible to them through the library and may have experienced a very different type of library system at home" (p. 403).

In teaching library and information literacy to foreign students, academic librarians have a critical role to play in order to provide these learners with adequate library services and information literacy abilities. Therefore, to help this group of students to use library resources efficiently and learning information literacy skills, academic librarians have to give international students particular attention in order to reach their unique and complex academic demands. In this sense, Mu (2007) points out that "librarians require to consider the features 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". Additionally, librarians need to use effective and peculiar instruction techniques in teaching information literacy to international students. This is important in the process of assisting this group of library users. As Mayer (2011) argues about the science of instruction, he mentions that instructors should be able to define “which instructional methods work for teaching which kinds of knowledge to which kinds of students under which kinds of situations” (p. 13). During the course of the shift to studying at their host university, international students often face unfamiliar library processes and have to deal with new technologies. 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 instruction in higher education can take a diversity of forms: workbooks, 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 to specific, course-specific research classes for upper-level students (Baruzzi & Calcagno, 2015).

Some libraries have library services for special user groups such as the library services provided to students in general education programs and first-year experience programs. Some academic libraries provide courses to train information literacy capabilities. Some other libraries incorporate information literacy into the curriculum by multi-year instruction programs.

Hensley and Love (2011) explained how librarians at the University of Illinois created a complicated library instruction and outreach program for foreign students. The program consisted of six factors and considered the various academic demands of international students as they transition to a new campus community in a different language. The program also encouraged library faculty and staff to use the advantages of a diverse campus community. The six elements of the program included staff development, partnerships, outreach, instruction, student needs, and evaluation.

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. The online information page was an effort to satisfy the needs of international students. The paper showed that the Information Page for International Students has certainly reached a requirement and allowed the library to reach considerable numbers of students in a systematic way.

Harrison and Rourke (2006), for example, explained how the University of Guelph in Ontario provides a mentoring program that begins with students in their first year and continues as they move through their university life. Other library instruction programs create formal connections with academic departments on 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 program to develop an instructor-led, librarian promoted a way of integrating information literacy instruction into the English composition curriculum (Sult & Mills, 2006). At UCF, librarians emerged the "Introduction to Library Research

Strategy" course. It is an online course for students registered in English Composition II courses and Strategies for Progress courses, and it teaches students essential library and information literacy skills (UCF Libraries, 2016a).

### **2.3 Information literacy**

With the rapid rise in the amount of information and the growing availability of information technology (IT), information literacy has swiftly become one of the most essential sets of abilities for lifelong learning (Riedling, 2006). Bibliographic instruction had the origins for what is recognized today as 'information literacy.' The term was coined by Paul Zurkowski in 1974 to explain the skills and abilities to use information tools that he noticed would be necessary to deal with the accelerated increase in information (Saunders, 2011). The most widely used definition of information literacy states that information literate individuals are able to understand when information is required, they are also able to recognize, find, assess, and use the information to solve a specific problem (American Library Association, 1989).

According to the Association of College and Research Libraries (CILIP), an information literate person is one who can recognize 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).

In another definition, information literacy is a standardized concept that understands the information abilities of a person, who is capable to understand when information is needed and have the capability to identify, find, access, assess and make effective use of information to tackle and support particular and work-related problems (Bundy, 2004).

Furthermore, the Association of College and Research Libraries (ACRL, 2000), a division of the American Library Association (ALA) described information literacy as "a fundamental skill in the pursuit of knowledge. It includes identifying when information is needed and being able to efficiently find, correctly assess, efficiently use, and certainly convey information in different formats." Further, ACRL explained the Information Literacy Competency Standards for Higher Education and described the standards of an information literate person. Based on the standards (ACRL, 2000), "An information literate person is able to:

1. Define the type and extent of an information need

2. Access needed information efficiently
3. Assess the information and its resources critically and incorporates chosen knowledge into his or her knowledge base and values system
4. Utilize the information to perform a specific goal
5. Grasp the legal, economic, social, and ethical implications of information.

Thus, becoming information literate is necessary for a person to thrive both academically and professionally. In a report called "What matters to student success: A review of the literature", Kuh et al. (2006) recommended that information literacy is one of the emerging elements for student success. In this respect, "student dependence on the Internet to satisfy their information needs emphasizes the value in the ability to assess information critically and an understanding of how information is created and distributed" (Beile, O'Neil, 2005, p. 6). The International Federation of Library Associations and Institutions (IFLA)'s Guidelines on information literacy for lifelong learning states that information literacy abilities are key competencies in lifelong learning, and they are the first step toward attaining educational goals (Lau, 2006). 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.

Therefore, education has a responsibility to assist students to gain research abilities and attempts to develop students' information literacy skills in university need to happen at the institutional, curriculum, and classroom levels (Breivik, 2005). Exner (2014) discusses that "information literacy is the actual structure around which many academic libraries currently organize their instructional programs" (p. 460).

A good number of studies and scholars have examined the significance of teaching information literacy. For instance, Breivik (2005) claimed that education has the responsibility to assist students to obtain research abilities. She believes that attempts to strengthen students' information literacy skills in university need to happen at the institutional, curriculum, and classroom levels. As stated by her, at the institutional level, there needs to an agreement on the definition of information literacy and responsibility to information literacy as an essential competency for all students. Then, members of faculty require to incorporate these abilities into the overall education curriculum.

In New Zealand, Mu (2007) found that Asian foreign students had problems in applying academic libraries. The students did not show experience of the services and resources accessible for their research and study in a Western academic context. This research clearly showed that librarians need to consider international students' personalities, learning styles, language knowledge, and subjects of interests in their education schedules.

Hughes and Bruce (2006) investigated international students' online information access and work in Australian universities. The authors highlighted the importance of discussing the cultural and lingual variety of student society in designing online information resources and in planning and delivering information literacy education. The authors suggested international friendly advances to online resources and stated that a general approach to information literacy education would be important to enhance the online use and academic results of both group of students.

Sackers et al. (2008) conducted a study on international students in Australian universities to study their preferences concerning library services and ways of communication and how the library can improve their learning skills. Findings of the study recognized some student demands and some library services favored by these foreign students.

Hughes (2010) conducted a study regarding international students' experiences and perceptions at two Australian university libraries and librarians. The findings of the study showed that international students had limited prior library use, causing some difficulties they encounter in utilizing the library at their host university. The findings also confirm that library specialists should be informed of foreign students and their library use and needs.

## **2.4 Self-efficacy**

Self-efficacy has become an important determinant of learning achievement. Indeed, this is necessary for a diversity of settings, spanning various learning steps and disciplines (Zimmerman, 2010). Self-efficacy includes the student's "... judgments of their abilities to organize and achieve a course of action needed to reach designated types of performances" (Bandura, 1986, p. 391). High self-efficacy has been correlated with high levels of self-motivation and, finally, independent study methods" (Zimmerman, 2000). The literature on international students and students, in general, shows that they may experience anxiety and may have a low sense of self-efficacy in using library resources. In this way, providing international students with library instruction and educating them on library resources and how to effectively

use these resources can be very effective to increase the motivation and self-efficacy level amongst this group of library users. Hence, academic librarians should engage international students through outreach activities and events that happen on campus to persuade them to come to the library and attend information literacy classes. As Bandura (1997) mentions, our self-efficacy exerts powerful impacts on our levels of motivation. When students assume, they are good at tasks, they work on them actively. All in all, the attitude of self-efficacy and its effect on the information literacy have been extensively investigated by previous research.

Nikou et al. (2018, 2019) investigated the impact of multidimensionality of literacy on the use of digital technology and found that self-efficacy has a positive effect on the intention to use digital technology.

Zhang et al. (2001) study found that distance learning self-efficacy, self-regulated learning skills, and information literacy skills are significant predictors of students' overall achievements in distance learning. Students will willingly engage and easily solve information problems if they are confident about their information literacy abilities (Kurbanoglu et al., 2006). While, individuals who hesitate their skills tend to seek information that is compatible with their views of themselves and interpret vague information in a manner compatible with these views (Swann, 1985; Swann, 1987).

Tella (2009) investigated the information-seeking behavior of 600 undergraduate students, and the results revealed that self-efficacy had the highest relationship with and the greatest important effect on undergraduates' information-seeking behavior.

Brown et al. (2001) examined working adults' information seeking behavior and concluded that “workers with high self-efficacy efficiently seek, combine, and use the information to increase role transparency and performance” (p. 1049). Zhu et al. (2011) reviewed the correlation between 295 vocational high school students' information seeking activities on the Internet, academic self-efficacy, and academic performance. They found that the positive impact of Internet information seeking students' academic performance is mediated by academic self-efficacy. Tella et al. (2007) study ascertained that students with high self-efficacy make better use of electronic information and have better academic performance. They also found that self-efficacy, use of electronic information, and academic performance were significantly connected. Ren (2000) concluded that Self-efficacy and electronic information searching will strengthen each other so that higher self-efficacy results in more common and effective electronic searching, in turn, further improve self-efficacy (p. 328). As with other forms of education, high self-efficacy often promotes greater student confidence and independence.

## **2.5 Motivation**

Information literacy is essential for student learning and can be connected with factors that may affect learning in the classroom, such as student motivation (Maybee & Flierl, 2017). Students may not be able to efficiently find, retrieve, and correctly use the information for their research and academic studies due to lacking study and information literacy abilities. Hence, oftentimes library users are not efficiently using library resources accessible for them and may produce a low level of motivation and self-efficacy in interacting with librarians and faculty. Besides, understanding the difficulties of these adult learners and examining the factors connected with these difficulties can be necessary to develop their motivation and self-efficacy levels and support them to adapt to the new technologies and library services. Thus, the librarians play an essential role to motivate students and assist them to develop a high feeling of self-efficacy and motivation in utilizing library resources, particularly online library resources. Hence, teaching research abilities is necessary, "how to motivate international students to utilize electronic sources that they have never used before must be carefully regarded when designing library instruction for them" (Song, 2004, p. 371).

Self-Determination Theory (SDT) which is a theory of motivation (Deci & Ryan, 2002), recommends that more autonomy-supportive learning settings are developed by the satisfaction of three essential psychological needs: autonomy, relatedness, and competence. When students understand that they can make important choices within a structure (autonomy), feel connected to students, the teacher, and the subject content (relatedness), and believe they are able to perform what is asked of them (competence), they tend to feel more innately motivated to learn and are more involved in their courses.

Creating a learning atmosphere conducive to positive student attitudes of these psychological requirements has been connected to SDT research with many positive results, including psychological wellness, increased striving, and endurance, and different academic attainment factors (Niemi & Ryan, 2009; Ryan & Deci, 2017).

Scholars have admitted that there is a correlation between student motivation and the achievement of information literacy skills. Motivation has been confirmed to be related to information literacy self-efficacy (Ross et al., 2016), and understood competence, an aspect of motivation, has been connected to an internalized interest in research (Arnone et al., 2009) and

better performance on information literacy abilities tests (Reynolds et al., 2009). Select motivational notions and models have been applied to recommend ways of creating information literacy guidance that motivates students to learn information skills, such as search methods, evaluation of sources, and so forth (Jacobson & Xu, 2002; Jacobson & Xu, 2004; Small et al., 2004).

Flierl et al. (2018), investigated the relationships between information literacy, student motivation and academic achievement in the context of disciplinary learning. The data recommended that the ways students involve with information may play an important role in student performance and motivation in the disciplinary classroom. The findings also recommended that efforts to advance Information Literacy in higher education should focus on engaging instructors to combine information literacy during their courses. Showing the relationship of information literacy to student motivation and student performance in the undergraduate classroom highlights the increase of information literacy to institutional aims for learning in higher education.

Maybee and Flierl (2016) presented a model for creating information literacy learning activities that motivate students. The results of the investigation outlined characteristics of motivating learning activities that facilitate learning subject content during the engagement with information. The model is designed to be utilized by librarians when working with classroom teachers to promote greater student learning gains by creative and reflective engagement with information.

## **2.6 Study Performance**

The special way students involve with information as they learn may influence disciplinary learning results (Limberg, 1999; Maybee et al., 2017). Students who have information literacy abilities are definitely better able to conduct a quality study and thrive in their academic studies. In this regard, Mackey and Jacobson (2004) mention that students who are information literate are better outfitted for today's complicated information environment than students who are not. The ACRL asserts that information literate students are lifelong learners, more self-directed, and are able to learn content, continue their investigations, and expect greater control over their own learning (ACRL, 2000). Efficient library research and information literacy abilities will increase students' academic success and promote lifelong learning.

Research studying the relationship between information literacy and student attainment also differs from the scale of the evaluation. Studies vary from small-scale studies of assignment-level performance gains (Kim & Shumaker, 2015; McMillan & Raines, 2011) to analyze data from over 5000 learners, investigating which special library services and resources in regard to increased freshmen GPA (Soria et al., 2014). While small-scale studies suggest details as to how students use the information for specific assignments, and large-scale studies demonstrate high-level patterns concerning library sources, services, and student success metrics, studies targeting course-level grades can provide critical clues about how information literacy regards student performance within disciplinary settings. Some studies investigated this correlation between information literacy and course-level grades (Coulter et al. 2007; Ferrer-Vinent et al. 2015; Shao & Purpur, 2016).

Various recent studies concentrating on the impact of information literacy on the academic performance of students showed that information literacy instruction and student information literacy abilities were positively associated with the student grade point averages (GPAs), retention and graduation percentages.

Shao (2016) explored the relationship between students' information literacy skills and their writing abilities and also their overall performance in a class. A main finding of the study was that information literacy skills were positively related to both students writing scores and final course grades.

Another study took place at the University of Wyoming (Bowles-Terry, 2012) where librarians used a mixed-method method to conclude whether a relationship existed between information literacy instruction and grade point average at graduation. Academic transcript analysis revealed a meaningful relationship between upper-level library instruction and higher GPA at graduation.

"Related studies confirm that using library services and resources enhances student information literacy skills and accordingly their overall academic performance" (Kot & Jones, 2014, Soria et al., 2014, Zhong & Alexander, 2007). Therefore, it is necessary for librarians to provide well-integrated library instruction programs and services to enhance student information literacy skills.

"Today's academic library, as a learning center on campus, does not just collect, store, and arrange the information. It also manages teaching, research, and creates knowledge" (ACRL, 2000). Moreover, the academic library supports students to develop transferable skills such as

critical thinking and efficient communication, which are much needed for their education and job. All in all, the library has become an essential part of student learning, progress, and achievement.

## **3. RESEARCH METHODOLOGY**

### **3.1 Purpose of the Study**

The purpose of this chapter is to present the research methodology. In this thesis, a mixed-methods approach is chosen to investigate and address the core issues discussed in previous chapters, issues such as the difference between international and domestic students regarding their information literacy skills, challenges, and needs at Finnish universities. The core theoretical objectives of this thesis are:

*1. To compare the international and domestic students in terms of their information literacy level and also highlighting the necessary skills they need to acquire to succeed in their research and academic studies.*

*2. To understand the unique academic needs of international and domestic students and examine the challenges they face in learning information literacy skills and utilizing library resources for different purposes in their academic studies.*

### **3.2 Study Design**

This thesis explores the information literacy skills of domestic and international students and how library services and library instruction are employed by them. A mixed-methods approach was used to collect quantitative and qualitative data from national and international students at Finnish universities and university of applied sciences. Mixed methods research is an approach for collecting and analyzing 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 national and international students of Finnish universities and UASs. According to Ayres (2008), The semi-structured interview is a qualitative data collection strategy in which the researcher asks interviewees a series of planned but open-ended questions. The researcher has more control over the topics of the interview than in unorganized interviews, but in contrast to structured interviews or questionnaires that use closed questions, there is no fixed range of answers to each question. (Para. 1).

In the first stage of the research, the author of this thesis developed a survey to collect data about information literacy of domestic and international students in Finland. A modified version of The Beile Test of Information Literacy for Education (B-TILED) (see Appendix 4) was used in the survey to evaluate the information literacy skills of both group of students. In the second stage of the study, semi-structured interviews with all audio-recorded were conducted with ten domestic and ten international students and NVivo which is a qualitative analysis software package, was used to analyze interviews of students who voluntarily agreed to participate in this research project. Based on the data collected and the findings of the study, some recommendations were given for consideration in future library research and information literacy instruction preparation and programming.

### **3.3 B-TILED instrument**

A modified version of the B-TILED was used (see Appendix 5) to collect some quantitative data. There are many information literacy tests available on Internet, this measurement method is standard and was chosen by other authors in various context to evaluate information literacy level of individuals. The B-TILED was developed by Beile O'Neil in 2005 for her Ph.D. dissertation. In the first phase, Beile O'Neil (2005) designed the instrument items, then in the second phase, she validated the test items. The original B-TILED assessment consists of 22 multiple-choice questions as well as 13 demographic and self-perception items. A panel of experts in Beile O'Neil's study agreed that a passing score of 55.5% was an acceptable level of information literacy; however, based on some percentage adjustments to include the test error measurement and minimizing the false negative scores, a final score of 57.5% was taken as an acceptable level of competency. The B-TILED assessment has been used in some other studies to assess the information literacy skills of both doctoral students and undergraduate students (Bishop, 2015, Calhoun, 2012; Cannon, 2007; Magliaro, 2010). For example, Cannon (2007), "used B-TILED measurement to evaluate the information literacy level of two groups of students who were studying education. Magliaro (2010), in her dissertation also used the same assessment method to assess the information literacy level of students in mid-sized Canadian universities. She modified the questions to several content questions. The B-TILED cut score (57.5%) means that an individual has either attained competency or not (Beile O'Neil, 2005). The data collected in the survey study evaluated and determined the information literacy skill levels of international and domestic students as measured by B-TILED assessment. The data

collected in this study is useful and important for answering the research question one to compare and evaluate the information literacy level of students at Finnish universities.

In this thesis, an online survey including the modified B-TILED questions as well as five demographic questions were used and was distributed to students of Finnish universities and (UASs). The five demographic questions were used to obtain the following information: a) academic classification, b) academic status, c) average score, d) country of origin and e) gender. The survey included an invitation to students to participate in a follow-up, audio-recorded interview with the researcher.

### **3.4 Study Participants**

Domestic and international students at the universities and universities of applied sciences (UASs) in Finland participated in this phase. Participants in the interview stage of the study were selected from some international and domestic students who agreed to participate in this research.

### **3.5 Quantitative Analysis**

The data were collected in the course of seven weeks in July-August 2019. The survey data were downloaded from an online platform, i.e., Webropol and imported into IBM SPSS version 24 and Microsoft Excel file for data analysis. The quantitative data analysis includes data from questions 10-20 of the modified B-TILED online survey, these questions were used to answer the first research question. A minimum competency for mastery on the B-TILED was 57.5%, which infers that an individual has either attained competency or not (Beile O'Neil, 2005). The cut score requires correct answers to 7 of the 12 multiple-choice questions.

The first research question asked about the difference in information literacy levels between international students and domestic students. The mean B-TILED score for domestic students ( $M=56.61\%$ ,  $SD=14.90\%$ ) was higher than the mean score for international graduate students ( $M=39.79\%$ ,  $SD=15.70\%$ ). A  $t$ -test was conducted to evaluate the statistical significance of the difference in the scores. The analysis showed a statistically significant difference between domestic students and international students at the 95% confidence level,  $p = 0.00$ .

Further analysis between international male and female students was conducted and indicated international males ( $M= 40.27\%$ ,  $SD = 11.87\%$ ) and international female students ( $M= 39.51\%$ ,

$SD = 17.73\%$ ). The same analysis also conducted between domestic male and female students and indicated ( $M=44.79\%$ ,  $SD=17.21$ ) for male and ( $M=61.33\%$ ,  $SD=61.33$ ) for female students which are higher than international students.

### **3.6 Qualitative Data Collection**

Qualitative data were collected through semi-structured interviews with students at Finnish universities and UASs. The interviews were recorded and transcribed. NVivo, a qualitative analysis software package, was used to analyze the interviews.

#### **3.6.1 Qualitative Procedures**

Qualitative research interviewing can be utilized to listen to what participants themselves tell about their experiences, characters, and ideas to have a better understanding of their feelings, beliefs, assumptions and their viewpoint (Kvale & Brinkmann, 2015; Seidman, 2006). "We interview people to find out from them those things we cannot directly observe" (Patton, 2002, p. 340). Interviewing is a process where the interviewer and the participants create knowledge, and "the quality of interviewing is assessed by the depth and value of the knowledge produced" (Kvale & Brinkmann, 2015, p. 20). Interviews are an important data collection strategy that allows 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 & Tashakkori, 2009).

The purpose of conducting audio recorded interviews in this thesis was to gather further information and obtain insights about the experiences of the domestic and international students concerning their information literacy needs and the utilization of library services and instruction. Interviewing both group of students is the best method to know their background, and to gain deep knowledge about their experiences with libraries in their home countries and Finland. Semi-structured interviews were conducted with all participants and all interviews were audio-recorded. In each interview, participants were allowed to describe their experiences, thoughts, and the meanings they attributed to the questions.

#### **3.6.2 Qualitative Sample**

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 during face-to-face meetings at Åbo Akademi University, ten interviews in other agreed places with interviewees and four students interviewed via Skype. The following steps were used to collect qualitative data for this study:

1. International and domestic students were invited to participate in an audio-recorded interview and asked them to fill out an interview consent form to confirm the terms.
2. Audio recorded interviews included eleven open-ended questions.
3. Interviews lasted approximately thirty to forty-five minutes (see Appendix 1)
4. Interview dates and locations were confirmed via email, and interviews were scheduled based on the preferences of students.
5. The author began each interview by providing an introduction and stating the purpose of the study.
6. Due to library-related terminology used in the interview questions and unfamiliarity to some interviewees, the definition of some terms (see Appendix 3) such as "information literacy", "digital literacy", "library services" and "International students" were explained to each participant to establish a shared meaning of the terms.

### **3.6.3 Qualitative Analysis**

For analysis, the interviews were transcribed and transformed into a written text. Students interviewed were given numbers as alias names (D1, D2, D3, etc. for international and I1, I2, I3, etc. for domestic students) to protect their identity. In presenting and analyzing the interview data, NVIVO 12 software was used to interpret and categorize the raw interview data. Ten themes categories were identified from the participants' responses to the open-ended interview questions.

## 4. RESULTS

The present study aimed to find answers to the following main research questions:

1. What is the difference in the information literacy skills levels between international and domestic students, as measured by the B-TILED assessment?
2. What are the challenges that international and domestic students believe they face in learning information literacy skills?
3. What are the information literacy skills and library services that international and domestic students believe they need?

### 4.1 Description of Survey Participants

The quantitative results of the study are based on the responses of the 83 participants. Tables 6-8 show some demographic information of the participants who completed the online survey.

Table 6 describes the population and percentage of participants in terms of student's classification. The highest number of participants were master students with 55 students and 66.3%, while the least number of participants classified as other with 2.4% of students.

*Table 6. Characteristics of Survey Population and Participants by Student Classification*

<b>Student Classification</b>	<b>N</b>	<b>%</b>
Bachelor	12	14.5
Master	55	66.3
Ph.D.	14	16.9
Other	2	2.4
Total	83	100

Table 7 describes the population and percentage of participants in terms of gender. Totally 83 students answered the questionnaire. The percentage of female, male, and other gender were respectively 67.5%, 31.5%, and 1.2%.

*Table 7. Characteristics of Survey Population and Participants by gender*

<b>Gender</b>	<b>N</b>	<b>%</b>
Female	56	67.5
Male	26	31.3
Other	1	1.2
Total	83	100

Table 8 describes the population and percentage of participants in terms of academic status. The rate of international students with 59% was higher than domestic participants with 41% of students.

*Table 8. Characteristics of Survey Population and Participants by academic status*

<b>Academic Status</b>	<b>N</b>	<b>%</b>
International	49	59
Domestic	34	41
Total	83	100

Table 9 shows the number and proportion of correct answers by the question. The most percentage of the correct answers was by question 15 that 62 students correctly answered, while both questions 10 and 17 with 21.68% correctness, allocated the least proportion of correct answers (For key answer see Appendix 6).

*Table 9. Number and Proportion of Correct Answers by Question*

<b>Question</b>	<b>N</b>	<b>%Correct</b>
9	31	37.34
10	18	21.68
11	44	53.01
12	35	42.16
13	52	62.65
14	37	44.57
15	62	74.69
16	40	48.19
17	18	21.68
18	44	53.01
19	50	60.24
20	34	40.96

## **4.2 Comparison of International and Domestic Information Literacy**

This part of the results refers to research question 1, "What is the difference in the information literacy skills levels between international and domestic students at Finnish universities as measured by B-TILED assessment?"

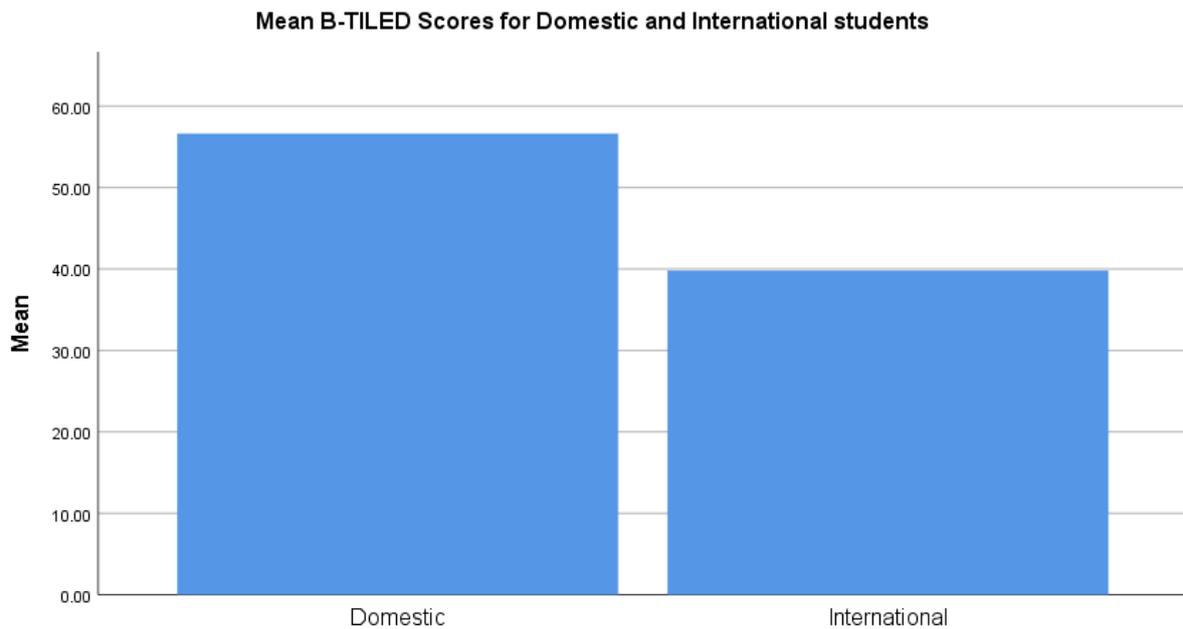
Questions 10 through 20 were used to answer this question (see Appendix 4). The mean B-TILED score for domestic students ( $M=56.61\%$ ,  $SD=14.90\%$ ) was higher than the mean score for international students ( $M=39.79\%$ ,  $SD=15.70\%$ ). The passing rate was 14.28% for international students and 61.76% for domestic students. Table 10 below shows the mean B-TILED scores and the passing rate for each group.

Table 10. Description of B-TILED Scores and Passing Rate for domestic and International Students

Academic Status	N	Mean (%)	Passing Rate (%)
International	49	39.79	14.28
Domestic	34	56.61	61.76

Figure 1 describes the mean B-TILED Scores for Domestic and International students. The mean B-TILED score for domestic students ( $M=56.61\%$ ) was higher than the mean score for international students ( $M=39.79\%$ )

Figure 1. Mean B-TILED Scores for Domestic and International students



According to table 11, a 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,  $p = 0.00$ . As a result, we can say with 95% confidence that the level of information literacy skills of domestic students is higher than the information literacy skills level of international students. Table 11 shows the *t*-test summary for the mean B-TILED scores for both group of students.

Table 11. Independent Samples Test

		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
<b>Mean</b>	<b>Equal variances assumed</b>	.014	.906	4.899	81	.000	16.82173	3.43402	9.98911	23.65435
	<b>Equal variances not assumed</b>			4.946	73.466	.000	16.82173	3.40124	10.04379	23.59967

Also, both domestic male and female students scored higher than international male and female students.

Table 12 shows the mean B-TILED scores for international students by gender. The number of female students with 31 students was higher than male students. The mean B-TILED score for male students is 40.27% and slightly higher than the female mean B-TILED score.

Table 12. International

Gender	N	Mean (%)
Male	18	40.27
Female	31	39.51

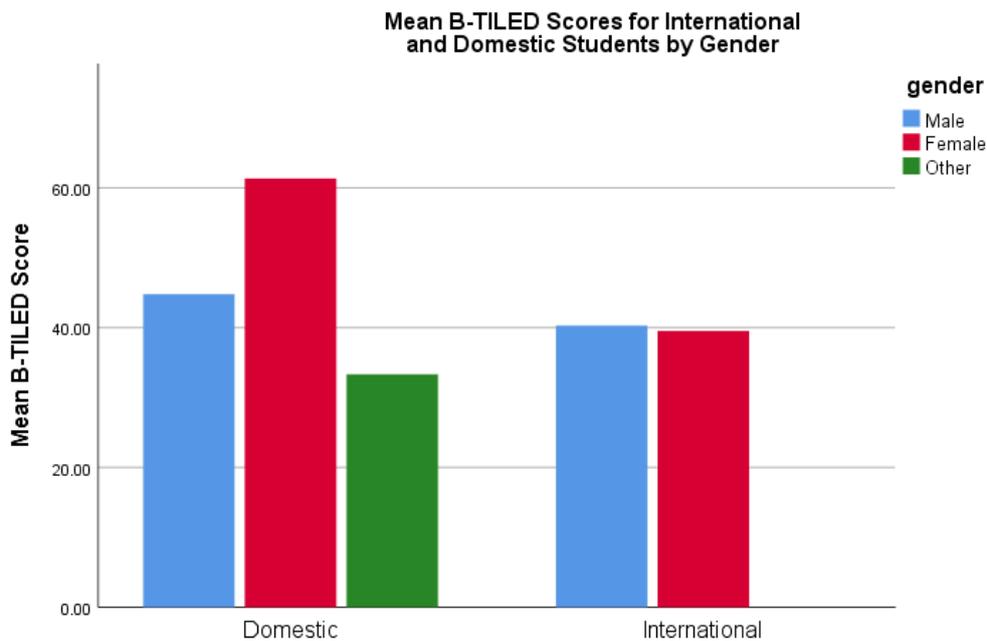
Table 13 shows the mean B-TILED scores for domestic students by gender. The number of females, males and other were respectively 25, 8, and 1. The mean B-TILED score for female students was 61.33% and higher than the male mean B-TILED with 44.79% score and other with 32%.

Table 13. Domestic

Gender	N	Mean (%)
Male	8	44.79
Female	25	61.33
other	1	32

Figure 2 shows the B-TILED scores for students by gender. The mean B-TILED score for domestic male, female and other are respectively 44.79%, 61.33% and 31% while, the mean B-TILED score for international male, female was respectively 40.27% and 39.51%.

Figure 2. B-TILED scores for international and Domestic students by gender.



### 4.3 Qualitative Results

#### 4.3.1 Description of Interview Participants

Ten international and ten domestic students interviewed;

Table 14 provides demographic information about the audio-recorded interviews. The highest number of international volunteers and participants are respectively 6 and 5 female students, while bachelor male and Ph.D. female students were not volunteered and interviewed.

Table 14. Description of Audio Recorded Interviews Completed with International Students

<b>Student Classification</b>	<b>Interview Volunteers</b>	<b>Interview Participants</b>
PhD Male Students	2	2
PhD Female Students	0	0
Masters Male Students	4	2
Masters Female Students	6	5
Bachelor Male Students	0	0
Bachelor Female Students	1	1
Total	13	10

Table 15 provides demographic information about the audio-recorded interviews. The highest number of domestic volunteers and participants were respectively 6 and 5 male students. While bachelor female, bachelor, and Ph.D. male students were not volunteered and interviewed.

Table 15. Description of Audio Recorded Interviews Completed with Domestic Students

<b>Student Classification</b>	<b>Interview Volunteers</b>	<b>Interview Participants</b>
PhD Male Students	0	0
PhD Female Students	1	1
Masters Male Students	6	5
Masters Female Students	4	4
Bachelor Male Students	0	0
Bachelor Female Students	0	0
Total	11	10

#### **4.4 Interview Results**

Questions used in the interviews (see Appendix 2) asked participants to describe their information literacy skills and how they search for information in the library and what library resources they utilize while searching for information. The author of this thesis also asked students about their perceptions of library resources and services and what library instruction services they would like to be offered for students. Participants were also asked to provide their perceptions about their information literacy needs and the challenges they face in learning information literacy skills and using the library. Also, the interviewees were asked about their perception of self-efficacy, motivation, ease of use and usefulness of library services and digital tools. Overall, students described how they searched for information and how they used the information in their research papers and academic studies.

#### 4.5 International and Domestic Students' Themes

Tables 16 -25 include descriptions of the themes which were identified from the qualitative data analyses using NVivo 12 software.

Table 16. *International and Domestic Students Theme 1*

Information Resources	International	Domestic
Search engine (Google)	5	6
Databases & Library databases	7	6
Google Scholar	8	6
Printed Book	4	5
ResearchGate	0	2
Teacher Slides & articles	1	1
Wikipedia	1	1
ScienceDirect	1	0
Journal Articles	0	1
Keyword searching	0	1
duckduckgo	1	0

Table 16 describes the **information resources** theme and sub-themes which were identified. The question was "**what types of research tools do international and domestic students usually use for their assignments?**" Four sub-themes with the most frequencies are (Google search engine, Library databases, Google scholar and printed books) and the information resources with the least frequencies are (ScienceDirect, journal articles, keyword searching and duckduckgo). In the following, the comments concerning information resources with the highest frequencies are outlined.

##### ***Information Resource: "Search engine (Google)"***

D3 in terms of information resources, he noted that every time he uses Google and it is always a good tool in his perspective. 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." D10 reported his first kind of gateway, when he is doing his assignment is Google. I4 stated "Google is the most popular website all around the world and it is mentioned that approximately all of the files that you can find on the internet are indexed by Google if you know how to use Google then basically you can find whatever you're looking for so like many other students I use Google as

a search engine." I6 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."

### **Information resource: "Library databases"**

As D1 stated, "First of all, I prefer online books, so I go for library website and I can easily read e-books. " D3 in respect of information resources he uses, commented, he usually goes for online library services to Alma or Fina and he tries to similar terms when he uses to Google and try them to the Alma to see what happens. D5 stated, "I like the university library database for finding electronic articles." 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)." I5 uses mainly library databases for her assignment because it seems more reliable. I8 reported, if he has an assignment, he will use foremost, the library search system, because they have more information the teacher uses more.

### **Information resources: "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. I7 mentioned Google scholar is the easiest one and it is very handy, and I can access everything.

### **Information resources: "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. "I1 reported, "If she has an assignment and she is preparing for that so she will search in the library and search for some books to see if the book has reserved or not, if it is available or not. I5 noted that when she researches a new topic, she prefers to start with some printed books.

Table 17. International and Domestic Students Theme 2

<b>Learning Way</b>	<b>International</b>	<b>Domestic</b>
Orientation course	5	5
Depend on themselves for searching the information	2	5
Librarian	2	3
Friends or teammates	2	2
Compulsory course	1	2
Tutor	0	2
Teacher	0	1
Internship	1	0

Table 17 describes the theme in relation to **learning way** which were identified by using NVivo software. The question was "**how did you learn about using library services and resources?**" Eight sub-themes were identified that four of them are with the most references (orientation course, depend on themselves for searching the information, librarian, and friends or teammates) and the learning way with the least frequencies are (teacher and internship). In the following, the comments of students about the learning way theme with the highest frequencies are outlined.

#### **Learning way: "orientation course"**

When asked D5 how she learned 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." D7 also commented he had a course in his studies, which was about finding papers on PubMed and the databases. Librarians told them which databases they can use and how to use keywords and statements or the terms and what services to use, if they want to find some paper on certain topics, at his second year of studies with this kind of course, he learned about new databases, like the PubMed and some others, which he hasn't used since." When asked I3 how he learned about using library resources, he stated, "I got good information in the orientation week I do not remember the name of the person, but somebody came there and just introduced us the website how can we get a library card. How we can search a book or eBook or any kind of this and I didn't have any problem regarding information I mean Library information." Also, I8 commented, "It was like a course. The teacher taught us about everything include the library and she actually explained most of the things about the library in that class like how it works how your library card works, and then if you need more information,

you can come straight to the library and then ask from the librarian. So, for the first month, it was easy for her because already most of the material was provided by the teacher." Concerning the learning way, 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."

### **Learning way: "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." D3 in this regard also commented, usually, she does not ask the librarian to find information or article to her, she mentioned Finnish people like to find by themselves and do not disturb the librarian. D5 noted that she has not asked of a librarian for help at all during her studies, and that's because she likes to find out things from herself because she believes everything is available online for her. D6 about the learning way mentioned, she learned by herself and she commented, she is a Ph.D. student so, it is quite different than if you come for a master. I5 believes that it is very similar to Google search because the interface is very intuitive and convenient.

### **Learning way: "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.

### **Learning way- "Friends and teammates"**

D2 noted that he learned how to use library resources from friends and teammates. As I3 stated, "Most of the assignment should be done in group work and I usually get good information from my groupmates."

Table 18. International and Domestic Students Theme3

<b>Student Challenges</b>	<b>International</b>	<b>Domestic</b>
Searching skills and library terminology	6	6
Problem with finding valid and relevant information	6	3
Locating books	4	4
Unavailable articles and thesis	5	2
Language barrier	5	1

References	3	0
Inefficient library databases	1	1
Buying key for Library entrance	1	0
Booking system	1	0

Table 18 describes **the student challenges** theme and sub-themes which were identified by using NVivo software. The question asked international and domestic students regarding the "**challenges they have faced in learning information literacy and library services**". Ten subthemes were identified for student challenges theme that seven of them are with the most references (searching skills, finding valid and relevant information, locating books, unavailability of some articles, language barrier, lack of enough books for the course and references) and the student challenges with the least references are (buying key for library entrance and booking system). In the following, the comments of students concerning student challenges with the highest frequencies are outlined.

#### **Student Challenges: "Searching skills and library terminology"**

With respect to the challenges D4 faces in library research and learning information literacy skills, she noted that the most problem for her is to narrow it down the terms. She doesn't know how to search exactly." As D6 stated, "Sometimes the keywords that I put into toolbar are not helpful. So, I end up finding articles or journals and pieces of books that are not really what I am looking for and I spend the time reading it and, in the end, it is not really what I want. When asked about the challenges D8 faces in learning information literacy and conducting research in the library, he noted that it takes too much time to get the results that he wants. he starts from his vocabulary when he is searching. D10 stated concerning challenges that, "Maybe I have some space for improvement in terms of using the advanced search queries on Google as a search engine."

I2 responded to the question about the challenges he faces in learning information literacy skills by stating that, she usually tries different keywords, but she believes there is a way to faster when she knows better the keywords that she should use. I4 noted that the most important thing is to be able how to search for advance and what terms and the statement he should use to get better results. I9 related that the challenges reported that sometimes she doesn't know how to use the key terms. As I10 stated "It is difficult to find something if the topic is too 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 summarizing 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.

**Student challenges: "Problem with finding valid and relevant information"**

D1 elaborated on the challenges she faces in learning 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. D3 stated, "I am writing my master thesis now, of course, I have many challenges, but I think it is information overload, so many theories which might be the same, and difficult to select proper ones. I think it needs quite a lot of time and it is stressful. To be honest, in some points, I usually think, whether this certain article is that I found is good enough or not?"

D10 reported that the harder part will be knowing when to stop and determining when he had the correct information. 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. As I6 stated, "the main problem is how to select reliable and related information among the high volume of information."

**Student challenges: "Locating books"**

When asked about the challenges: D3 faces in learning information literacy and using library resources, he reported that he has problem with shelf marking, it means where the book should be located, he was looking for a book and the shelf name was MOB, he tried to look for, it took about 50 minutes and then he went to the ask what does MOB mean and librarian took him to find the shelf. As D6 stated, "I have some problem with locating the books. Because you want a specific book, and it is not always easy to find.

I1 responded to the question about the learning information literacy challenges by stating that, "sometimes I know the name of the book, but I cannot find. Sometimes I need to go and find a specific book for a course and then I need to ask for help and after that to learn how to do it. It is difficult for me the classification and location of the books because sometimes you

search and there are some instructions where the book and I get a little bit confused about the names, numbers, and colors. The first time the librarian explained pretty fast and I did not understand what the meaning of colors for example economics is could be red, but I have no idea so all the time that I need to take a book from the stands I asked someone there to help me.

**"Student Challenges: "Unavailable articles and thesis"**

When asked about the challenges D6 faces in learning information literacy, she stated, "Because the university doesn't have a contract for all publishers, sometimes the articles are not available, so usually you send email to the author and ask." I1 commented that sometimes he finds an article that seems to be useful for his research, but it is not available. I6 noted that they did not have access to all articles, she believes she can improve her performance if she has easy access to all articles."

I9 elaborated on the challenges she faces in learning information literacy and conducting research in the library, stating that, "There was an article I wanted to read but I Couldn't download it because of some agreement between the university with that publisher. So, some articles are only accessible. I cannot download the whole article, only I can see the abstract from the website."

**Student challenges: "Language barrier"**

I10 concerning the challenges he faces in learning 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. I8 commented, because English is not her first language, she does not know what term or statement she should use for better results.

**Student challenges: "References"**

When asked about the challenges I4 faces in learning 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 19. International and Domestic Students Theme 4

Student Needs	International	Domestic
Courses and workshops	3	3
Market services by library	2	2
Unified system in library	0	2
Electronic & printed version of books	0	2
Guidelines & Instructions	2	0
More staff for personal helping	1	0
More PC in science places	1	0

Table 19 describes **the student needs** theme and sub-themes which were identified by using NVivo software. The question asked international and domestic students about "**their perceptions of library resources and services and what library instruction services for students they would like to see offered in the library**". Seven subthemes were identified for the student needs' theme that two of them are with the most references (courses and workshops and market services by the library) and the student needs with the least references are (more staff for personal helping and more PC in science places). In the following, the comments of students with respect to student needs with the highest frequencies are mentioned.

#### **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. D6 emphasized the need for library orientation for Ph.D. students, she commented that the Ph.D. requires a lot of research and it would be nice to have a workshop for library resources and using them.

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. I3 talked about his information literacy needs as an international student and noted that library orientation should be considered especially for international students in the first year.

### **Student needs: "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. D6 discussed his library and information literacy needs and noted that he is not sure what library can offer the students. He commented that the library should market and promote library resources to students. As I1 stated, "You need to have a resource available because sometimes you do not know what you need exactly and you face a problem and you need to have this kind of resources more available to you, where you can find, with who you can talk. I do not know some resources." 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 gave and ask for help for a particular topic librarian are less likely to help him that way.

Table 20. International and Domestic Students Theme 5

<b>Library Services</b>	<b>International</b>	<b>Domestic</b>
Services	9	10
Satisfied with librarian and library services	7	5

Table 20 describes the **library services** theme and sub-themes that were identified by using NVivo software. The question asked international and domestic students about "**what types of assistance have you received at the library or from librarians related to using library resources and services**". Two subthemes were identified (services and satisfied with librarian and library services). In the following, the comments of students are mentioned.

### **Library services: "Services"**

When asked about library services and assistance, D1 stated that "librarians have helped me set up my account to get my card. They explained to me how to reserve, pick up and return the books." As D2 noted regarding library resources, librarians helped him to get a library card, how to print stuff and how to filter different topics and what terms should be used while searching. I3 concerning library services noted that the librarian completely explained her about

searching, borrowing the books. She continued to say that the librarian learned to work with the library website and told her about E-books and online services that the library provides to students. As I2 stated with respect to library services, "At the first session as I remember there was a classroom equipped with computers, librarians explained how to search something specific topics step by step and checking any questions and asked students' questions. They explained to me how to borrow the book, how to use FRID technology, how to return the book..." I9 reported that "Sometime when you can't find the shelf or the book, or he was not familiar with the system and couldn't find the printed book and librarian took him to the place and try to find the book with him."

### **Library services: "Satisfied with librarian and library services"**

D7 was happy with the services and resources available for the students and stated that "There is a possibility to loan a laptop. If I do not have my laptop with me, I can loan for doing my thesis. I'd be very satisfied with the library in general. I have good experiences when I had gone with my fellow students with a group we want to study together and discuss some topics that have been a possibility to book a room in a library. That has been a very good thing. I have good experiences with that when they're so small meeting room, just for us, and we can book it on the Internet for group discussions and group assignments. Many times, there's also a big TV or computer, which we can use to display some documents or pictures to everyone. That has been a very good experience."

I1 commented positively about the library services and available resources, also she compared library services in Finland and her home country. She noted that, in Finland, she has more freedom and ability to go and search whatever she needs, and the university provides many sources and many databases. The library is always available. Even when there's no one she can go and try by yourself and the librarians are always trying to be nice and kind. I5 also was happy with the resources and technology available in the library and the help he received in the library and reported that there are many materials from many different resources from journals, Online journals, online magazines and she commented it's a lot of information. It is good but at the same time, she faced information overload.

I9 also positively commented about the library services and stated, "Once I wanted a book and the book was not available in the library. I asked the library somehow; they have a system

maybe like email or something like that. So, I sent that thing to them, they bought that book for the university. That's why I think it's nice so far for me, no challenge is there for that I told you."

Table 21. International and Domestic Students Theme 6

Themes	International	Domestic
Usefulness & ease of use	7	7

Table 21 describes **usefulness and ease of use** theme which was collected through the interviews with international and domestic students by using NVivo software. The question asked the participant's perception regarding ease of use and usefulness of library services. In the following, the comments of students are mentioned.

### "Usefulness & ease of use"

As D6 stated with respect to usefulness and ease of use of library services, noted that "library website is pretty straightforward. She just put the keywords in the search bar and clicks search. As D8 stated, "I think it was easy. All the user interface is easy. For the needs that I have had, they have been useful and that's why I do it. So even though I haven't had any problems. I am always succeeded to do what I want. Technology is ready to do everything easier for the user." When asked about the usefulness and ease of use of library services, D9 reported that the library websites and databases are useful and also ease of use. He believes using digital platforms and searching is quite easy.

I1 commented that, with university VPN, she can have easy access to articles and journals and also an online version of books. I8 elaborated on usefulness and ease of use of digital tools and stating that "Sometimes it is difficult and sometimes it is easy to use. I think it depends on the library and how it works, but with the system, in general, it is really easy to use because they have all the categories and we can have extended research."

Table 22. International and Domestic Students Theme 7

Themes	International	Domestic
Relationship between IL level and academic performance	10	10

Table 22 describes **the relationship between information literacy level and academic performance** theme which was collected through interviews with international and domestic

students by using NVivo software. The question asked the participant's perception concerning the correlation between their information literacy level and the study performance. In the following, the comments of students are mentioned.

### **"Relationship between IL and level and academic performance"**

**D3 respecting the relationship between IL level and academic success noted that** there is a strong correlation. He continued to say that if students have poor information literacy, they would use poor resources and they would find irrelevant information and results in poor grades." D5 stated, "I think it's important to be able or have the ability to refer different kinds of sources for information and knowledge. I think it's very important in the academy to find many perspectives, to find many perspectives, you need to be to use these search tools also, you need to sort out articles or information that it's maybe not valid anymore. You need to have a critical view. I think they will reflect on your studies."

Concerning the relationship between IL and performance, I1 noted that there is a relationship between them. High information literacy level leads to using good terms, statements, and better research abilities and also better results. I10 reported, if students have a better knowledge about how to use the search terms, where to find the articles and what articles to find, all This knowledge helps to filter down and pinpoint those resources that are directly linked with their academic performance." I9 stated, "It helped me a lot so far, I could not write my assignment or essay without the search engines like Google scholar or the libraries facilities like books or the online searching stuff because without those things I have no idea what to do."

Table 23. International and Domestic Students Theme 8

<b>Themes</b>	<b>International</b>	<b>Domestic</b>
Level of self-efficacy	9	10

Table 23 describes **the level of self-efficacy** theme which was collected through interviews with international and domestic students by using NVivo software. The question asked about the participant's self-efficacy level while using library services. In the following, the comments of students are outlined.

### **"Level of self-efficacy"**

D5 described her level of self- efficacy and noted that she has not had any major challenges about finding articles. She is pretty confident and, when she faces some problems, she can solve

by herself without asking libraries for help. D7 noted that he used different library services from 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 high level. I1 stated, "I think my level of self-efficacy is a bit above average but when I start to face the problems like, when I start getting the information that I need or I do not know how to proceed, I start to doubt myself, not just the system because I think everybody has been using why I cannot do it." *When asked about the I2 self-efficacy level*, he noted that for using library services he is not confident enough and because of that the library services are the last option for him, he approaches by searching for information from Google and search engines, because it is easy to use and faster as well.

Table 24. International and Domestic Students Theme 9

Themes	International	Domestic
Level of motivation	9	9

Table 24 describes the **level of motivation** theme which was collected through interviews with international and domestic students by using NVivo software. The question asked about the participant's motivation level while using library services. In the following, the comments of students are outlined.

### "Level of motivation"

D1 *about* her motivation in using library services stated, "It depends what I need to do if something is fun and I can find quickly. That's nice I can do. If it takes a long time, I am less motivated." D3 mentioned that his motivation in using the digital services on a scale of 1 to 10, he would give himself 10. He explained it is much faster and he can sit at home do everything. he enjoys and prefers digital services. D7 noted that using digital tools is very easy because she can use them from her laptop or PC. She uses them a lot and believes they are very useful. She is motivated to use the tools provided and day to day in her work or studies. When asked about the motivation level of I2, she stated, "I try to use the library services because of the credibility of the source, as well because it's so accessible and the quality of the tools. I am motivated to use digital tools and library services.

Table 25. International and Domestic Students Theme 10

Themes	International	Domestic
Information literacy level (student's perception)	9	9

Table 25 describes the **information literacy level** theme which was collected through interviews with international and domestic students by using NVivo software. The question asked about the perception of participants concerning their information literacy level. In the following, the comments of students are outlined.

**"Information literacy level (student's perception)"**

D1 described her information literacy skills as good and noted that, if she gets a task, she usually knows how to look for it, she knows how to use the advanced search and she believes she can find stuff that she needs to find. D3 reported that his information literacy skills are good, and stated, "I am pretty good at using Google and also I can understand and criticize all kinds of sources, but if I think about scientific sources in journals and for example ProQuest, I find it somewhat complicated". D6 described his information literacy skills and noted that he can use research toolbars and he usually get what he is looking for. He believes, his skills are at a good level.

I4 reported that his information literacy skills are improving over time. The first year when he came to Finland and he had to write a report, he considered his information literacy 2 or 3 out of 10. But now he would give himself 6 or 7 out of 10 and he needs to improve it. As I6 stated, "I had good searching abilities before I came to Finland because this is my second master degree, I used to search a lot of different materials on the web so I think I have good skills of information literacy, I can easily use technological tools to find materials. What I need on the web or different sources of information." I10 discussed his information literacy skills and noted that during the first year of his study in Finland using digital tools and websites was difficult for him to understand because they were new. But his information literacy enhanced over time.

## 5 Discussion

This chapter presents a discussion of the findings from quantitative and qualitative data analyses of the information literacy skills of domestic and international students at Finnish universities.

In this mixed-methods research, the data helped in obtaining a comprehensive understanding of the information literacy skills, challenges, and needs of international and domestic students and presented important insights about their attitudes about library services. According to the findings of this thesis, recommendations are offered to be used in future information literacy plans and library programs concerning students.

### 5.1 Findings and Implications

This thesis examined the information literacy skills of international and 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. In the following, key findings and implications are outlined in relation to research questions that are addressed in this thesis.

**Finding 1:** There was a statistically significant difference between the mean B-TILED score for domestic students ( $M=56.61\%$ ) and the mean B-TILED score for international students ( $M=39.79$ ). Domestic students' mean B-TILED score was close to 57.5 B-TILED cutting score, showing that domestic students relatively, as a whole, have obtained information literacy proficiency level. Ayoub (2016), investigated the level of international and domestic students in terms of information literacy. Results of quantitative data analysis showed that the mean B-TILED score of international students is 45.24% which is lower than mean B-TILED score of domestic students (61.73%), therefore, international students need unique needs to improve searching skills and use library services properly.

**Implication1:** This shows that domestic students can be regarded as information literate proficient, while international students are not according to the mean B-TILED scores for both groups of students. Based on Ayoub (2016), international students are not information literate and there are differences between two groups of students in terms of information literacy level.

**Finding 2:** Interviews with the domestic students indicated that they have relatively good searching skills for information and using library resources for their research compared to international students. For instance, 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 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 utilizing library online sources, such as the database, abstracts, online catalogs (Liu, 1993).

**Finding 3:** International student's information literacy scored lower than domestic students based on B-TILED scores:

**Implication 3:** International students may wrongly assume that their information literacy skills are at a good level, and they do not require to ask for help to improve their information literacy skills. But, the B-TILED scores show that international students would benefit from learning opportunities regarding searching skills and library resources. According to Mu (2007), librarians need to consider international students' personalities, learning styles, language knowledge, and subjects of interests in their education schedules.

**Finding 4:** In interviews, domestic students indicated a higher self-efficacy level and interest in using library resources and services compared to the international students. For example, when asked from I1 with respect to her self-efficacy level, she stated that, "I think my level of self-efficacy is a bit above average but when I start getting the information that I need or I do not know how to proceed, I start to doubt myself, not just the system because I think everybody has been using the same system why I cannot do it. Also, I2 noted that for using library services, he is not confident enough and because of that the library services are the last option for him, he approaches by searching for information from Google and search engines, because it is easy to use and faster as well.

**Implication 4:** This may be attributed to the fact that information literacy skills and library research are deeply linked to the fact that domestic students were more exposed to digital tools and library services and resources in their previous studies or throughout their lives in general. This may indicate that domestic students are more experienced in using library resources.

International students are not familiar with the new technologies and library search engines. Possibly, they were not exposed to a huge amount of data and information in their home country and they are not accustomed to use a large amount of information. So, the inability to filtering the diverse resources has impacted negatively the level of self-efficacy and motivation among international students. Some library orientation and workshops could potentially provide benefits in helping international students to improve their information literacy skills.

**Finding 5:** International students found the 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 he would prefer to use Google scholar rather than library databases because it is much easier.

**Implication 5:** 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 6:** 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. As well as, they reported some difficulties with reference methods. Also, the majority of the international students noticed the differences between the educational system and technology level in their home country and in Finland and indicated that these are challenging issues.

According to Baron and Strout-Dapaz (2001) both librarians and international students admitted that the main challenge international students encounter is language and communication problems, adapting to a new educational and library system, and general culture modifications.

**Implication 6:** This indicates, as expected, that language is an important factor in learning information literacy skills. It was notable that domestic students obtained their previous studies from universities where the language of instruction and courses were in English. That makes it comfortable for them to learn information literacy skills, especially when they do not have to deal with the challenges that using English language might imposes. 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 English language skills. The library may consider their language problems and take their needs into consideration while planning information literacy courses and also develop some workshops concerning referencing methods. International students had inadequate English proficiency and unfamiliarity with Library of Congress Classification (Liu, 1993)

**Finding 7:** 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 domestic students.

**Implication 7:** 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 for them in the library, and they may have not had similar technologies in the library in their home country.

**Finding 8:** A considerable number of international and domestic students noted that there is a direct relationship between information literacy levels and academic success. Additionally, students with high level of self-efficacy and motivation show better performance and act successfully.

**Implication 8:** Librarians should engage international students with library services and offer them quality research services and encourage them to enhance their self-efficacy and improve their motivation level in learning and using library resources. As Bandura (1997) believes, our self-efficacy exerts strong effects on our levels of motivation. When students understand they are good at assignments, they work on them firmly.

**Finding 9:** The majority of the international and domestic students reported that they have difficulties with the library classification systems and are not able to find a book from a correct bookshelf. Students have inadequate proficiency with Library of Congress Classification (Liu, 1993)

**Implication 9:** Both groups of students can benefit from the workshops which explain regarding library categorizing system to tackle the mentioned problem.

**Finding 10:** Several participants from both groups of students interviewed in this study may not be aware of 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 international students have problems in using academic libraries. Students did not show a knowledge of the services and resources accessible for their research and study in a Western academic context (Mu, 2007)

**Implication 10:** This indicates that the library may not be efficiently advertising available services to students. During the interviews with students, they reported their wish to take part in more classes and workshops taken in the library. This may show that the library should consider a more proactive strategy in improving library services to students. Liestman (2000) mentions that international adult learners clearly have unfamiliarity with many U.S. library services and relevant issues. The author addressed the cultural diversity and highlighted that libraries can better satisfy the demands of international students by determining their requirements, which will improve library instruction.

**Finding 11:** Both group of students need more library orientations, classes, and workshops to improve their information literacy skills. "Library instruction in higher education can take a diversity of forms: Classes, online tutorials, workbooks, course-related education, or course-integrated instruction" (Eisenberg et al., 2004).

**Implication 11:** This may show that students are interested in learning searching skills and are willing to participate in library orientations, classes, and workshops given to them, especially if these classes and workshops are regarding their language problems. This may indicate that the library should consider planning more classes and workshops targeting international students.

## 6 CONCLUSIONS

In this thesis, the B-TILED was used to examine and assess the international and domestic student's information literacy skills. In addition to the quantitative data gathered through the online survey, qualitative data were also gathered to provide a better understanding of the phenomenon under investigation. The qualitative data were analyzed by making use of the NVivo software to determine the themes and sub-themes. The following will answer the research questions.

RQ1: What is the difference in the information literacy skills levels between international and domestic students, as measured by the B-TILED assessment?

The mean B-TILED score for domestic students ( $M=56.61\%$ ,  $SD=14.90\%$ ) was higher than the mean B-TILED score for international students ( $M=39.79\%$ ,  $SD=15.70\%$ ). When we examined the pass/fail rate for two groups of students, 42 international students scored below the 57.5% B-TILED threshold and only 7 out of 49 international students passed and achieved proficiency level, resulting in an overall pass rate of 14.28% for international students. On the contrary, 13 domestic students scored below the 57.5% B-TILED threshold and 21 out of 34 domestic students passed and achieved proficiency level, resulting in an overall pass rate of 61.76% for domestic students. The results indicated that international graduate students have a low level of information literacy skills. A *t-test* was conducted to assess the statistical significance of the difference in the scores. The analysis determined a statistically significant difference between the two groups at the 95% confidence level,  $p = 0.00$ . Comparison of the B-TILED scores between domestic and international students by student gender indicated that domestic students at both the male and female scored higher than international students.

RQ 2: What are the challenges that international and domestic students believe they face in learning information literacy skills?

During the qualitative interviews, students indicated that they face some challenges in learning information literacy skills and using the library services. Five international students and one domestic student reported that they faced some challenges related to language at the beginning, and as they learned more and received the necessary library instruction, they became more confident and comfortable in using the library and using library resources. Besides, some of the

international students highlighted the difference between the educational system in their home country and the education system used in Finland and how that can be challenging at the beginning. Answers from both groups of students showed that they have challenges in searching and utilizing library resources effectively. In addition to this, six domestic and six international students reported that they have poor searching skills in using professional terms to find or to locate the articles and topics they are looking for. Moreover, six international and three domestic students noted that finding valid and relevant information is a real challenge. In equal numbers, four international and four domestic students noted that finding the location of printed books is a challenge and they found it difficult to understand the library classification systems to find the book on the right shelf. Three international students encountered difficulties concerning referencing methods and citations and they were able to improve it over time. Overall, the qualitative data analysis showed that international and domestic students face some challenges in learning information literacy and using library resources and services.

RQ 3: What are the information literacy skills and library services that international and domestic students believe they need?

During the interviews, domestic and international students were asked to give their perceptions about their information literacy needs and what library services they like to see suggested to them. Both groups of students (three international and three domestic) wanted more workshops and orientation on library services and guidelines as to how to use them. A considerable number of students reported they had orientation at the beginning of the study but too much, yet complicated information in limited time were provided. So, structured workshops for different groups of students to help them in searching skills, building the search strategy, and searching the databases adequately reported as a need. Moreover, students also expressed their need to be more aware of library services. Two international and two domestic students wanted to see library services more advertised to stimulate students to come to the library. They suggested that the library should inform students of the library services and resources available for them by sending emails. Overall, the qualitative data analysis showed that international and domestic students had some information literacy challenges and needs. Therefore, both groups of students might benefit from a general review in information literacy skills to improve their skills and achieve proficiency level.

## **6.1 Recommendations**

The library could pay more consideration to the challenges and needs of students in general and international students in particular. They have some complicated and unique research needs, and they encounter some challenges in utilizing the library for research and academic goals. This problem impacts different groups of people on campus namely themselves as a student, faculty members who deal with students and librarians who deal with students and attempted to provide adequate library services to students. Hence, finding the right solutions to this problem will positively influence and reflect on different parts at the university. Based on the findings from the quantitative and qualitative data analyses about the information literacy of international graduate students, the following will discuss what libraries should and could do to promote the information literacy of both domestic and international students. This is essential to better understand international students. International students may have different understanding of the library services at the Finnish libraries, which may cause inappropriate use of library sources. Therefore, librarians can play a crucial role in facilitating them to become successful library users and learners, for instance, academic libraries:

1. Should develop some courses and workshops that are planned for students in general and international students in particular at the start of every semester to encourage them to come to the library and use the library services and resources available for them.
2. Should also advertise library services and programs through the library website and distribute brochures and posters in different places on campus, student villages, and important places.
3. May also partner with faculty in different departments and encourage them to lead their students to the library and familiarize them with the library services and resources available for them.
4. 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.
5. Should suggest more information literacy workshops and classes to encourage students to come to the library and assist them in learning information literacy skills. Additionally, to these classes and workshops, the library should offer other workshops special for international students. Such workshops can focus on efficient searching skills for information and using library websites, conducting literature reviews, and referencing methods.

Nearly all students interviewed in this thesis expressed their desire to see more workshops suggested about research and efficient searching skills and utilization of library services.

Workshops should also address the library classification system and make the students comfortable how they can find books on the shelves. These classes and workshops could be taught in different languages such as Chinese, Russian, and other important languages with a higher number of students.

6. Should provide effective research methods and library services to international students. They should be understanding and aware of the international students' language and cultural barriers.

7. Should develop several prints and online guides and instructions for students or produce some videos on the library website. These instructions and videos could include information about how to use the library, how to access library resources and websites, how to use the particular databases. The library can produce more research guides and videos that are focusing on international students, and some of them could be translated into different languages. The library could also produce some brochures regarding the essential services in the library and translate them into different languages, such as Chinese, Russian, and other important languages.

## **6.2 Theoretical Contribution**

Information literacy has extensively been investigated in the prior studies, but more attention should also be given to the information literacy level of international and domestic students. In this thesis, the challenges and needs of both group of students are taken into consideration and a mixed-methods approach was used to collect quantitative and qualitative data from international and domestic students at Finnish universities. A good number of researches on international students' information literacy were conducted in different countries in the world but there is a lack of research focusing on both groups of students in the literature. More study should be done to the both group of students' library research and information literacy skills and the similarities and differences between two groups of students and the challenges and needs which have encountered.

For example, Song (2004) investigated the expectations of international students and the study concentrated on using electronic resources and, the results showed that a notable number of students did not have experience with electronic library services in their home countries and they had library requirements. A significant number of international students in this thesis also mentioned the differences between the library services and technologies in their home countries and Finland and the difficulties they have faced to adjust with digital tools.

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 a major role in promoting this group of students to use library resources and services with confirming the result of the thesis, as many students stated the role of library and library assistance is vital to improve information literacy skills and using library resources.

The finding of Baron and Strout-Dapaz (2001) indicated that both librarians and international students agreed that the major challenges international students face are language and communication problems, adjusting to a new educational and library system, and general culture adjustments. The study confirmed that international students face certain challenges, and there is a need to meet their library and research needs and the academic library needs to provide training for international students. In this thesis, the language barrier results as one of the challenges that international students encounter.

Liestman (2000) indicated that international students have unfamiliarity with library services. The author addressed the cultural differences and stressed that libraries can better satisfy the needs of international students by defining their needs, which will enhance library instruction. The author also highlighted staff training to improve the ability of library staff to interact with this special user group. The result of this study also confirms the finding of the thesis in terms of student needs.

Mackey and Jacobson (2005) explained that collaboration among faculty and the library is essential for information literacy initiatives to be successful. It is mentioned as one of the recommendations to the library for improving the search skills and information literacy of students.

Pamela A. Jackson (2005), evaluated international students' library and computer experience to ascertain their current library needs. Study results concluded that international students have high levels of computer literacy and that most students have employed a library in their home country. While, in this thesis, the information literacy level of international students is not at an acceptable level and they face numerous problems with respect to search skills and using library services.

Sin & Kim (2018), investigated whether international students differ from domestic students in their information needs and difficulties faced. Regression analysis was used for analyzing the data. In this study, two groups of students compared in terms of needs and barriers in general, not only research purposes and using library services. Results showed that International and

domestic students are similar in their top-ranked needs (e.g., career information) and barriers (e.g., irrelevant and non-credible information).

Hughes et al. (2018), showed insights into first-year international and national students' skills of using library resources and services. Data were gathered via survey and semi-structured interviews and interpreted thematically. Results showed that: First-year international students' library and information use, and related challenges are generally similar to those of domestic first-year students and the difficulties international students encounter generally relate to the unfamiliarity of the environment and academic and library systems at their host university. While in this thesis there is a significant difference between two groups of students in terms of information literacy level.

Click (2018) investigated how international students complete research tasks and use the library and other resources in the process. Half of the participants had received some sort of library instruction, but they did not have particularly positive responses to these sessions. The results of this study may be of use to academic librarians who wish to better understand international students and develop research support for this user population. Therefore, the results confirm the finding of the thesis with respect to the student's needs.

### **6.3 Future Research**

Based on the findings from this thesis and the review of the literature, the following suggestions are proposed for future research:

1. Future research should be conducted with program members and librarians to obtain their perceptions about students' needs related to library research and information literacy skills.
2. Future research should be conducted from different programs at the universities to potentially generalize results.
3. Future research should be conducted with program faculty to obtain their perceptions about students' needs and challenges related to library research and information literacy skills.

### **6.4 Limitations**

The analyses and results described in this thesis were focused on the information literacy level of both group of students at the Finnish universities. Some limitations need to be considered regarding the generalizability of the results presented.

1. This research was conducted among ten international and ten domestic students' and may not include an accurate representation of the entire students at the Finnish universities.
2. The distribution of the interviewed group was done in a random basis. Although it has attempted to reach all the universities equally such as the Helsinki university, which had only two participants in the entire group of interviewees, in contrast to the Turku university that had 6 participants. Therefore, the result obtained may not represent a generalized perspective for all students at the Finnish universities.
3. Despite the rigorous and frequent efforts to guarantee the validity of the results presented in this thesis, it is necessary to recognize the possibility that the questionnaire and the researcher may subjectively have influenced the answers of the interviewees. Reaffirming here that both the interview questions and the researcher used clear and transparent language, allowing the free expression of those who proposed to participate in the study. However, it must be acknowledged among the limitations of this thesis that both written language and verbal communication are liable to misinterpretation.

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# Appendix 1

## INTERVIEW CONSENT FORM

**Project Title: “Information literacy Skills of Domestic and International Students at Finnish Universities”.**

**Research Interviewer:** Sanaz Soltani

**Academic Supervisor:** Shahrokh Nikou

Each interview is estimated to take approximately **45min** of your time. Your participation does not take any risks, but in any case, you can stop the interview or withdraw your participation from the research at any time. For the in-depth analysis, the interview conversation will be recorded, and I would like to confirm your permission for that. I also would like you to confirm if you have received and read the consent form and if you agree with the terms.

- ✓ I..... voluntarily agree to participate in this research study.
- ✓ I understand that I can withdraw permission to use data from my interview within two weeks after the interview, in which case the material will be deleted.
- ✓ I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.
- ✓ I understand that I will not benefit directly from participating in this research.
- ✓ I agree to my interview being audio-recorded.
- ✓ I understand that all information I provide for this study will be treated confidentially.

- ✓ I understand that in any report on the results of this research my identity will remain anonymous.
  
- ✓ I understand that disguised extracts from my interview may be quoted in academic papers, the educational websites and in other media related to the institution or the research, when the research is mentioned. Such as verbal presentation or other feedback events.
  
- ✓ I understand that under freedom of information legalization I am entitled to access the information I have provided at any time.
  
- ✓ I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

I agree with all the terms specified above and understand that by submitting this consent form I have this agreement formalized.

**Full Name:**

**E-mail:**

**Date:**

The content of the question in this interview has been reviewed and approved by a supervisor indicated by Åbo Akademi University. If you have any concerns about this study, please contact Sanaz Soltani by email: [sanaz.soltani@abo.fi](mailto:sanaz.soltani@abo.fi). Do not hesitate to get in contact for any concerns about this research or any concerns about how it is being conducted.

# Appendix 2

## INTERVIEW GUIDE

This interview is part of my master's thesis research focusing on **“information literacy skills of domestic and international students at Finnish Universities”**. Thank you for your participation in this interview. This study aims to compare the skills and knowledge of domestic and international students in terms of multidimensions of literacy, in particular information literacy to understand the unique academic needs of students (domestic and international) and examine the difficulties they might encounter during their educations and learning.

1. How do you describe your information literacy or research abilities to find information?
2. How did you learn about using library services and resources?
3. What types of information do you usually use for your assignments? What research tools and research strategies do you usually use for these assignments?
4. What are some of the challenges you often face in learning; for example, information literacy or research abilities as a student (international or domestic)?
5. How do you describe the role of the library and librarian in meeting your information literacy and research needs (domestic and international students)?
6. What types of assistance have you received at the library or from librarians related to using library resources and services?
7. How do you describe the library information services and instruction offered to students and what other services you would like to see offered by the library?
8. Describe some of your experiences you have had with academic library services and the challenges you have faced.
9. What is your idea about ease of use and usefulness of library resources? To what extent do you perceive the usefulness of the library services and resources? To what extent do you perceive the ease of use of the library services and resources (how easy or difficult is to use the services and resources)?
- 10a. How do you describe your level of self-efficacy in using library services and resources as well as digital tools?
- 10b. How do you describe your level of motivation in using library services and resources as well as digital tools?

11. How do you describe the relationship between your information literacy level and academic success or performance?

# Appendix 3

## Definition of Terms

**Literacy:** is the ability to use language, numbers, images, computers, and other basic means to understand, communicate, gain useful knowledge, solve mathematical problems and use the dominant symbol systems of a culture.

**Information literacy:** is a set of skills requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.

**International Student:** any higher education student who is in the Finnish universities on a student visa.

**Library services:** refers to library services that include reference services, library instruction, research consultation assistance, embedded librarian services, online ask a Librarian service, Document Delivery service, and orientation and outreach services.

**Library instruction:** instruction provided for students by academic librarians. It includes face-to face instruction, online instruction, and research consultations.

**Self-efficacy:** is an individual's belief in their innate ability to achieve goals.

**Digital literacy** is the knowledge, skill, and attitude of individuals to utilize and operate the digital tools in proper way. A digital literate person is able to complete tasks and solve problems in the digital workplace in order to have a variety of technical, cognitive and sociological skills.

**Perceived usefulness** refers the degree to which a person believes that using a particular system would enhance his or her performance.

**Perceived ease of use** refers the degree to which a person believes that using a particular system would be free from effort.

# Appendix 4

## B-TILED TEST

B-TILED Test of Information Literacy for Education (B-TILED)

*The library is gathering information to evaluate the effectiveness of its instruction program. This questionnaire consists of demographic questions and a library and information skills quiz. Please fill in the most correct choice on your answer sheet. Fill in the most correct choice on your Scantron form.*

1. Overall, how would you rate your ability to search library databases to find information?
  - a. excellent
  - b. good
  - c. average
  - d. poor
2. Overall, how would you rate your ability to search the Internet to find information?
  - a. excellent
  - b. good
  - c. average
  - d. poor
3. Have you attended a tour or physical orientation of the library?
  - a. yes
  - b. no
  - c. do not know
4. Have you attended a library instruction session held in your classroom?
  - a. yes
  - b. no
  - c. do not know
5. Have you attended a library instruction session held in the library?
  - a. yes
  - b. no
  - c. do not know
6. Have you had one on one intensive instruction with a librarian?
  - a. yes

- b. no
- c. do not know

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7. Which of the following characteristics best indicates scholarly research?

- a. available in an academic library
- b. indexed by ERIC
- c. reviewed by experts for publication
- d. written by university faculty

8. Your professor has assigned a paper on the whole language movement. 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. a book on the topic, such as *Perspectives on whole language learning: A case study*
- b. a general encyclopedia, such as *Encyclopedia Britannica*
- c. an article on the topic, such as "Whole language in the classroom: A student teacher's perspective."
- d. an education encyclopedia, such as *Encyclopedia of Education*

9. Research or periodical databases are designed to include items based on which of the following criteria?

- a. found on the Internet
- b. not found on the Internet
- c. owned by your library
- d. relevant subject matter

10. ERIC is the most appropriate database to search to locate:

- a. education article citations and documents
- b. education publications from 1877 to current
- c. full-text education articles
- d. US Department of Education statistics

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

- a. add Boolean or search connectors between terms
- b. enter multiple search terms
- c. search by keyword
- d. search multiple terms by field

12. Research studies in education are generally first communicated through:
- books published by education associations
  - education encyclopedia entries
  - newsletters of education associations
  - professional conferences and journal articles
13. You have been assigned to write a short class paper on effective instruction techniques for teaching English as a Second Language (ESL) students. Your professor indicated three recent scholarly sources would be sufficient. Which strategy is best to locate items?
- search a general academic and an education database for journal articles
  - search an education database for journal articles
  - search the library catalog for books
  - search the library catalog for encyclopedias
14. 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
15. 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...
16. While researching a paper on character education, you find that it is also sometimes called *values education* or *moral education*. You decide to look for information on the subject in a research database, and to save time you write a search statement that includes all three terms. Which of the following is the best example to use when you have fairly synonymous terms and it does not matter which of the terms is found in the record?
- character and values and moral
  - character or values or moral
  - character, values and moral
  - character, values or moral

17. 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?

- a. examine, peruse, reader, reading
- b. peruse, read, reader, reading
- c. read, reader, reads, readmit
- d. read, reader, reading, reapply

18. You have a class assignment to investigate how group work impacts student learning. A keyword search in ERIC on “group work” has returned over 600 items. To narrow your search, which of the following steps would you next perform?

- a. add “impacts” as a keyword
- b. add “student learning” as a keyword
- c. limit search results by date
- d. limit search results by publication type

19. 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, & D. C. Knill (Eds.), *Cognition: Conceptual and methodological issues* (pp. 51-84). Washington, DC: American Psychological Association.

- a. a book
- b. a chapter in a book
- c. a journal article
- d. an ERIC document

20. 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 catalog to locate the actual article?

- a. author search: Shayer
- b. journal title search: Learning and Instruction
- c. journal title search: Not just Piaget, not just Vygotsky
- d. subject search: Piaget and Vygotsky

21. The following item was retrieved from an ERIC database search. What kind of source is it?

Title: Pre-service Elementary Teachers' Self-Efficacy Beliefs

Author(s): Cakiroglu, Jale; Boone, William J.

Publication Year: 2001

Abstract: The purpose of this study was to examine pre-service elementary teachers' self-efficacy beliefs in teaching science.

Notes: Presented at the Annual Meeting of the American Educational Research Association (Seattle, WA, April 10-14, 2001).

Number of Pages: 24

ERIC Number: ED453084

- a. a book
- b. a book chapter
- c. a conference paper
- d. a journal article

22. Using this result from an Internet search engine, who is the “owner” of this Web site?

State policies on planning, funding, and standards. Does the state have technology requirements for students?

<http://www.edweek.org/reports/tc98/states/fl.htm>

- a. business or commercial entity
- b. college or university
- c. other organization
- d. state government agency

23. While developing a lesson plan on the U.S. legislative system, you find the following story on the Internet:

Congress Launches National Congress-Awareness Week WASHINGTON, DC—Hoping to counter ignorance of the national legislative body among U.S. citizens, congressional leaders named the first week in August National Congress Awareness Week. "This special week is designed to call attention to America's very important federal lawmaking body," Speaker of the House Dennis Hastert said. The festivities will kick off with a 10-mile Walk for Congress Awareness.

The item is from a newspaper Web site, which states it is “America's Finest News Source.”

Given this, the following action is in order:

- a. you can use the story as it's obviously from a reputable news source
- b. you decide to investigate the reputation of the publisher by looking at their Web site
- c. you decide to investigate the reputation of the publisher by looking at other Web sites
- d. you should not use the story because Web information is not always trustworthy

24. 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.

- a. 1
- b. 2
- c. 3
- d. 4

25. When is it ethical to use the ideas of another person in a research paper?

- a. it is never ethical to use someone else's ideas
- b. only if you do not use their exact words
- c. only when you give them credit
- d. only when you receive their permission

26. You are planning an open house for your students' parents. Browsing the Internet, you find the report *Child Safety on the Internet*, which is a US Department of Education publication. If you distribute 30 copies of the report to parents at the open house, which of the following copyright choices is the proper action?

- a. permission is not needed as the report is from a government agency.
- b. permission is not needed as the report was found on the Internet.
- c. permission is not needed as you are only distributing 30 copies.
- d. permission to distribute 30 copies of the report must be acquired.

27. You have an assignment that requires you to use course management software to practice setting up a class grade book. Your school has purchased the software and loaded it in the computer lab, but you have a difficult time getting to the lab due to work conflicts. A friend loans you the software and you load it on your computer. Is this legal?

- a. no, because this action constitutes a violation of copyright.
- b. yes, because it is already freely available in the lab.
- c. yes, because it is education software and therefore able to be shared.
- d. yes, because your friend owns it and can share as he wants.

28. 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?

- a. copyright
- b. fair use
- c. freedom of information
- d. intellectual freedom

29. Which of the following most closely describes the level you want to teach?

- a. early childhood
- b. elementary
- c. middle school
- d. high school

30. What is your student classification?

- a. freshman
- b. sophomore
- c. junior
- d. senior

31. How long have you been continuously enrolled at UCF?

- a. less than 1 year
- b. 1 to 2 years
- c. 3 to 4 years
- d. more than 4 years

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32. Have you ever attended another university or college?

- a. yes (go to question 33)
- b. no (skip to question 34)

33. How long ago did you attend another university or college?

- a. 0-1 year
- b. 2-3 years
- c. 4-5 years
- d. more than 5 years

34. What is your gender?

a. male

b. female

35. Please indicate those racial or ethnic groups that apply to you. (Select all that apply.)

a. White or European American

b. Hispanic or Latino

c. Black or African American

d. Asian or Asian American

e. Other (write in on Scantron)

Thank you!

# Appendix 5

## B-TILED Test (Modified)

### Dear Participant!

This test is part of my master's thesis research focusing on "information literacy skills of domestic and international students at Finnish Universities". This study aims to compare the skills and knowledge of domestic and international students in terms of multidimensions of literacy, in particular information literacy to understand the unique academic needs of students (domestic and international) and examine the difficulties they might encounter during their educations and learning. Thank you for your participation.

1. What is your student status?

- a. Bachelor's degree student
- b. *Master's degree student*
- c. *Doctoral degree student*
- d. *Other (please note status \_\_\_\_\_)*

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

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

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

- a. (4-5)
- b. (3-3.99)
- c. (2-2.99)
- d. (1-1.99)
- e. others (specify.....)

4. What is your country of origin?

.....

5. What is your gender?

- a. male
- b. female
- c. other

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

- a. Excellent
- b. Good
- c. Average
- d. Poor
- e. I do not know

7. Overall, how would you rate your ability to search the Library to find information?

- a. Excellent
- b. Good
- c. Average
- d. Poor
- e. I do not know

8. Have you attended an orientation event organized by your educational institution or library instruction session held in your classroom or library?

- a. Yes
- b. No
- c. I am not sure

9. Which of the following characteristics best describes scholarly research?

- a. Available in an academic library
- b. Indexed by bibliographic databases
- c. Reviewed by experts for publication
- d. 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. A book on the topic
- b. A general encyclopaedia
- c. An article on the topic
- d. 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?

- a. Found on the Internet
- b. Not found on the Internet
- c. Owned by your library
- d. 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?

- a. Adding Boolean or search connectors between terms
- b. Entering multiple search terms
- c. Search by keyword
- d. 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?

- a. Drug therapy, health risks, hyperactivity
- b. Drug therapy, health risks, students
- c. Drug therapy, hyperactivity, students
- d. Drugs, hyperactivity, therapy

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

- a. Colleges, universities, community colleges...
- b. Gen X, students, undergraduates...
- c. Graduate students, freshmen, sophomores...
- d. 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?

- a. Examine, peruse, reader, reading
- b. Peruse, read, reader, reading
- c. Read, reader, reads, readmit
- d. Read, reader, reading, reapply

16. The following citation is for:

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- b. A chapter in a book
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- b. 2
- c. 3
- d. 4

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

- a. It is never ethical to use someone else's ideas
- b. Only if you do not use their exact words
- c. Only when you give them credit
- d. 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?

- a. Copyright
- b. Fair use
- c. Freedom of information
- d. Intellectual freedom

# Appendix 6

## Test key answer

Question 9	C
Question 10	D
Question 11	D
Question12	D
Question 13	A
Question 14	C
Question 15	C
Question 16	B
Question 17	B
Question 18	D
Question 19	C
Question 20	B

