FACTORS INFLUENCING FACULTY OF EDUCATION GRADUATE STUDENTS' ONLINE HELP SEEKING BEHAVIORS FOR THEIR THESES

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submitted by **YILDIZ UZUN** in partial fulfillment of the requirements for the degree of **Master of Science in Computer Education and Instructional Technology Department, Middle East Technical University** by,

Prof. Dr. Halil Kalıpçılar
Dean, Graduate School of **Natural and Applied Sciences** _____

Prof. Dr. Ömer Delialioğlu
Head of Department, **Comp. Edu. and Inst. Tech.** _____

Assist. Prof. Dr. Gülfidan Can
Supervisor, **Comp. Edu. and Inst. Tech., METU** _____

Examining Committee Members:

Assoc. Prof. Dr. Alaattin Parlakkılıç
Management Information Systems, Ufuk University _____

Assist. Prof. Dr. Gülfidan Can
Comp. Edu. and Inst. Tech., METU _____

Prof. Dr. Ömer Delialioğlu
Comp. Edu. and Inst. Tech., METU _____

Date: 04.09.2019

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Surname: Yıldız Uzun

Signature:

ABSTRACT

FACTORS INFLUENCING FACULTY OF EDUCATION GRADUATE STUDENTS' ONLINE HELP SEEKING BEHAVIORS FOR THEIR THESES

Uzun, Yıldız
Master of Science, Computer Education and Instructional Technology
Supervisor: Assist. Prof. Dr. Gülfidan Can

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The aim of this study is to investigate the factors that influence Faculty of Education graduate students' online-help seeking behaviors for their theses. For this aim, correlational research design was employed.

The participants are 182 graduate students from the Faculty of Education in Middle East Technical University which is a public research university in Turkey. An online questionnaire was administered, and data were collected from graduate students. To determine significant factors for predicting online help seeking behavior, multiple linear regression analysis was administered with the independent variables including demographic and academic characteristics (age, gender, education level, and total years in the program), face to face help seeking behavior, information resources, connectedness, and perceived research skills.

According to the results of multiple regression analysis, age, total years spent in the current program, face to face help-seeking behavior, and three of the perceived research skills (research governance and organization, personal effectiveness, and knowledge and intellectual abilities) were found as significant factors influencing graduate students' online help seeking behaviors for their theses. The findings of this study can guide graduate students, thesis supervisors, faculty members, and graduate

education institutions. The study can also contribute to the literature of online help seeking behaviors of graduate students. Future studies can be conducted with an intervention to support graduate students to improve their help seeking methods.

Keywords: Online Help Seeking, Graduate Students, Faculty of Education, Thesis

ÖZ

EĞİTİM FAKÜLTESİ LİSANSÜSTÜ ÖĞRENCİLERİN TEZLERİ İÇİN ÇEVRİMİÇİ YARDIM ARAMA DAVRANIŞLARINI ETKİLEYEN FAKTÖRLER

Uzun, Yıldız
Yüksek Lisans, Bilgisayar ve Öğretim Teknolojileri Eğitimi
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Bu araştırmanın amacı, Eğitim Fakültesi lisansüstü öğrencilerinin tezleri için çevrimiçi yardım arama davranışlarını etkileyen faktörleri araştırmaktır. Bu amaçla, ilişkisel araştırma tasarımı kullanılmıştır.

Çalışmaya Türkiye'de bir araştırma üniversitesi olan Orta Doğu Teknik Üniversitesi'nin Eğitim Fakültesi'nde eğitim gören 182 lisansüstü öğrencisi katılmıştır. Çevrimiçi anket kullanılarak veri toplanmıştır. Demografik ve akademik özellikler (yaş, cinsiyet, eğitim düzeyi ve programda geçirilen toplam yıl), yüz yüze yardım arama davranışı, bilgi kaynakları, bağlılık ve algılanan araştırma becerileri gibi faktörlerin lisansüstü öğrencilerin çevrimiçi yardım isteme davranışının birer yordayıcısı olup olmadıklarını belirlemek için çoklu doğrusal regresyon analizi kullanılmıştır.

Çoklu regresyon analizi sonuçlarına göre, yaş, programda geçirilen toplam yıl, yüz yüze yardım arama davranışı ve algılanan araştırma becerilerinden üç kategori (araştırma yönetimi, kişisel etkinlik ve entelektüel yetenekler) lisansüstü öğrencilerin çevrimiçi yardım isteme davranışını etkileyen önemli faktörler olarak bulunmuştur. Seçilen faktörlere ve çevrimiçi yardım arama davranışı üzerindeki etkilerine göre, bu çalışmanın bulguları lisansüstü öğrencileri, tez danışmanları, öğretim üyeleri, Eğitim

Fakülteleri ve tüm lisansüstü eğitim kurumları için yol gösterici olabilir. Araştırma sonuçları ayrıca, çevrimiçi yardım arama davranışı alanyazınına da katkı sağlayabilir. Gelecekteki çalışmalarda, uygulamalar ve etkinliklerle lisansüstü öğrencilerinin yardım arama yöntemlerini geliştirme amaçlı araştırmalar yapılabilir.

Anahtar Kelimeler: Çevrimiçi Yardım Arama, Eğitim Fakültesi, Lisansüstü öğrenciler, Tez

To my family…

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LIST OF ABBREVIATIONS

- Number

% - The Percent Sign

M- Mean

SD- Standard Deviation

f- Frequency

M.S. - Master of Science

M.A. - Master of Arts

Ph. D. - Doctor of Philosophy

Ph. D. on B.S. - Integrated Doctor of Philosophy

METU – Middle East Technical University

IBM SPSS V25- Statistical Package for the Social Sciences

CHAPTER 1

INTRODUCTION

This chapter addresses the background of the study and the significance of the study according to the gap in the literature and identified reasons of conducting this study in terms of importance. It also provided the purpose of the study and the research question.

1.1. Background of the Study

In recent decades, help seeking as self- regulated learning strategy has become valuable learning and developmental strategy for students (Pintrich & Zusho, 2002). Help seeking has helped them to be successful and to be self-regulated learners who have more control over their learning process and be master of it (Pintrich, 2000; Zimmerman, 1990). During help seeking process, social interaction is a key point to get desired help and overcome the encountered obstacles (Gall, 1985; Newman, 2002). Received help with the social interaction helps individuals to regulate their own learning and development (Newman, 2008).

As in every education level, help seeking is essential and important skill in graduate education because it requires students to acquire, produce, and share knowledge (Isika et al., 2013). One of the most advanced stages that graduate students experience this practice is during their thesis research for which they extensively do research and may require frequent help and guidance (Odena & Burgess, 2017). However, most of the time students are closed to getting help for many reasons like type of problem they encountered, students' personality, their attitudes to the people who are the sources of needed help, and other factors (Beisler & Medaille, 2016). Therefore, to get this required help and guidance, they should ask for help and be the self-regulated learners

to accomplish expected proficiencies from graduate education (Newman, 2008; Koç, 2014).

The main aim of the graduate programs in higher education is to train students to become future researchers with the essential qualities, knowledge and skills (Timmerman et al., 2013). To specify and develop these researcher skills, Higher Education Council of United Kingdom was prepared The Researcher Development Framework for academia (Vitae, 2011). The framework mainly provided guidelines to help researchers about improving and finding their potentials and become successful researchers. As Osmani, Weerakkody, and Hindi (2017) stated in their study, communication skills, teamwork, problem solving, self-management, technology usage and research skills were graduate student attributes which were important in higher education and need to be developed during graduate education.

Although, thesis supervision and peer support in the department can be effective, not all students adequately acquire the support they require to complete their thesis. Students who can attain needed support from their advisors, peers or faculty are the successful completers of their theses process (Lovitts, 2008). The lack of connectedness in the environment of the students can be a serious problem for students' retention and attrition (Liu, 2017). Especially when graduate programs started to be given as online programs, provided support and guidance to help students for their research can be more difficult (Dunn et al., 2014; Lee & Tsai, 2011). Previous research showed that the departmental connectedness and people who are asked for help inside or outside the university are related to students' help seeking behavior (Qayyum, 2018; Sloan & McPhee, 2013; Thomas et al., 2017). Therefore, understanding the connection between faculty- student and student- student can guide the department and students to shape the environment to support and give adequate help during their thesis research.

There are also studies reporting that demographic and academic characteristics of students like gender, age, education level and years spent in the program may be

influential on students' online help seeking behaviors (Blondeau & Awad, 2017; Hsu et al., 2018). Among these demographic and academic characteristics, age and gender are commonly studied factors on students' help seeking behavior. In a study conducted with distance education graduate students, Dunn et al. (2014) revealed that influence of age on online help seeking behavior was reverse. Older students were less likely to seek help. Also, Hao et al. (2016) and Blondeau and Awad (2017) examined the gender as an influential factor on online help seeking behavior of science major bachelor students. While findings of Hao et al. (2016) showed no significant influence of gender, Blondeau and Awad (2017) found that male undergraduate students tend to seek help online than females. Therefore, including the demographic and academic characteristics of students as a predictor provides valuable results to better understand the online help seeking behaviors of graduate students.

Moreover, information resources that students use for research purposes may be influential factor on students' online help seeking behavior. As derived from the literature, students start their research by using information resources (Hao, Barnes, Wright, et al., 2017). While this choice may include online or physical resources, the study of Balog et al. (2018) presented that students prefer online resources over physical ones. Also, the most used information resources are online databases, Google scholar, search engines, online journals and libraries (Cheng et al., 2017; Liyana et al., 2014). Hence, students' preferences of information resources may determine their online help seeking behaviors.

All the examined studies in the literature are the ground of this current study. Combination of variables were studied in the literature to investigate the online help seeking behaviors of graduate students. To provide better support systems and guidance for Faculty of Education graduate students for their thesis, it is important to understand the influence of these factors on online help seeking behavior and the complex relationship between these factors.

1.2. Problem Statement

According to the literature review, variables potentially influence students' online help seeking behaviors were examined in various combinations. However, previous research has not investigated the relationships of these variables together especially connectedness and perceived research skills.

Competencies, knowledge, and skills required to complete graduate education are different than those in undergraduate education. The reviewed studies rarely focused on graduate students. Also, studies about help seeking are widely conducted in time limited settings such as during one semester in one course. However, processes like thesis research requires more complicated settings, lasts longer period of time than a semester, and requires more self-regulated learning skills for graduate level students. Therefore, graduate students' online help seeking behaviors especially during their theses that they do extensive research should be investigated.

Also, needs of every graduate school and program can be different from each other. Previous studies mostly researched natural science programs such as engineering even though some of them studied social sciences. This study specifically focusses on graduate students registered to programs in Faculty of Education.

1.3. Significance of the Study

As a social science, discipline of Education is based on theory and practice unlike the other social sciences (Rupp-Serrano & Robbins, 2013). As Rupp-Serrano and Robbins (2013) mentioned in their study, it has multiple sub disciplines because of its nature including history, science, literature, sociology and psychology. Therefore, the research conducted in this field needs information of diverse sub disciplines. Retrieved knowledge and information are used for both research and practice (Wright, 2010). Understanding the dynamics of discipline while seeking information and help can give awareness to the graduate students who are the future academicians, researchers and practitioners of the field, members of the discipline and institutions (Wright, 2010; Timmerman et al., 2013; Osmani, Weerakkody & Hindi, 2017)).

In the field of Education, besides multiple sub disciplines, there are agents who take active part during graduate students' theses research process. These agents can be school teachers, administrators, Ministry of National Education, members of the Faculty and fellow students. Investigating the relationships between these agents and their roles in the process is necessary for graduate students of field of Education (Lovitts, 2008; Sloan & McPhee, 2013; Qayyum, 2018).

In this study, influence of factors including demographic and general academic characteristics, information resources, face to face help seeking behavior, connectedness and perceived research skills on online help seeking behavior of graduate students are investigated within the context of Faculty of Education.

The results of this study may help to better understand the relationship between online help seeking behaviors of graduate students and factors influencing this behavior and present useful information for graduate students, thesis supervisors, faculty members in the Faculty of Education and graduate education institutions as a whole. Recommendations and implication resulted according to the findings of this study can be a guide to improve and develop graduate students' abilities and knowledge during their thesis research as they may become researchers of the future.

1.4. Purpose of the Study

When the literature was reviewed, it was seen that online help seeking behavior and predictive factors of this behavior researched in this study are rarely investigated and, the relationship between online help seeking behavior of graduate students and predictive factors were examined in other disciplines for instance engineering or social sciences programs. This research aimed to investigate the factors influencing Faculty of Education graduate students' online help-seeking behaviors for their theses.

Considering the literature, research question of this study is:

- How well Faculty of Education graduate students' demographic and general academic characteristics, frequency of using information resources, face to face

help seeking behaviors, connectedness and perceived research skills predict their online help seeking behaviors for their theses (source and frequency)?

Specifically, the following factors have been explored in this study:

a. demographic and general academic characteristics (age, gender, education level, registered program and years spent in the program),
b. frequency of using online or printed information resources for their thesis research (including WWW, search engines, electronic journals, online databases, university library website, printed books, and dissertations-theses),
c. face to face help seeking behaviors for their thesis (source and frequency)
d. faculty- student and student – student connectedness,
e. perceived research skills ("personal effectiveness, knowledge and intellectual abilities, research governance and organization, engagement influence and impact")

1.5. Definitions of Terms

Graduate students in this study refers to people who registered to M.S., M.A., Ph.D., and Ph.D. on B.S programs with thesis.

Theses: In this study, "theses" refers to both Masters' theses and Doctoral dissertations.

Online and face to face help seeking behavior: In this study, help seeking behavior refers to asking for help after encountering an obstacle (Gall, 1985). Used media type can be face to face or online communication tools (George et al., 2006; Qayyum, 2018). In this study, online and face to face help seeking behavior refer to perceived behavior of a person based on self-report.

Faculty-student and student-student connectedness: In this study, connectedness refers to developing relationships, feeling bonded, connected and safe, and reaching necessary resources and knowledge from the environment (Rovai, 2002; Terrell et al., 2009). For graduate students, the connectedness among faculty members and other students were explored based on students' self-report.

Perceived research skills: These skills are defined by the Higher Education Council of United Kingdom as The Researcher Development Framework (Vitae, 2011). These skills are "personal effectiveness, knowledge and intellectual abilities, research governance and organization, and engagement, influence and impact."

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

This chapter of the study aimed to review the literature related to the topic of this research. Firstly, as a conceptual framework, self-regulation theory was explained and help-seeking behavior as one of self-regulated learning strategies was explained with related studies. Also, the purpose of this chapter was to present studies which investigated factors influencing help seeking behavior. Studies were reviewed to examine the relationship between online help seeking behavior and possible predictive factors: demographics and academic characteristics, information resources, face to face help seeking behavior, faculty-student and student-student connectedness, and perceived research skills to draw outline for the present research study.

2.2. Conceptual Framework

As the basis of this study, self-regulation theory was examined. According to Bandura (1991), self-regulation is a process that is constantly active and during the process, people can control their actions. In detailed definition, Zimmerman (1994) explained that self- regulation is a dynamic and constructivist learning process in which students set their own objectives. With the help of guidance of their objectives and features of environment around them, they control, organize and manage their cognition, motivation and behavior (Pintrich, 2000). Also, Bandura (1991) emphasized the importance of self-efficacy to control our emotions, thoughts and motivations and he explained self-efficacy as belief system of a person who believe s/he has the necessary skills and abilities to accomplish the required task.

Self-regulated learning means becoming master of individual's own learning process (Zimmerman, 1990). Developing self-regulated learning skills is important for

students. In academic settings, regulation of cognition, behavior, motivation-affect, and environment brings academic success to students (Pintrich & Zusho, 2002).

As a self-regulative strategy, help seeking process includes a lot of social interactions with others (Newman, 2002). With the received help from others, individuals regulate their own learning. Role of "others" in students' life is important while they become self-regulated learners. The phrases "self and others" are opposite to each other (Newman, 2008). However, according to Vygotsky (1978), social interaction is connected to cognitive development of a child. The help provided by the help-givers is reduced in time and child become "other" to "self- regulated" learners. Learner can need assistance in difficult task, but it is key to help-seeking and self-regulated learning when and how ask for help. At this point, effective process of asking for help includes self-reflection and self-related affective-motivational factors (Newman, 2008).

In the formation of help-seeking behavior, there is awareness after encountering an obstacle. In order to overcome this obstacle, individual starts to see people as valuable resources (Gall, 1985). For example, for graduate students, these people who are asked for help can be faculty members, research assistants and fellow students outside or inside of the campus, library staff, people from online communities and specialists/experts in the field (George et al., 2006). To reach out necessary human resources for help to solve the problem faced in the process, individual can use online or face to face communication tools (Qayyum, 2018). Also, online or printed information resources including WWW, search engines, electronic journals, online databases, university library website, printed books, and dissertations or thesis are important information resources alternative to human resources for research purposes (Balog et al., 2018; Cheng et al., 2017).

In this study, it was aimed to investigate the factors influencing graduate students' online help seeking behaviors for thesis research. To better interpret and understand the influence of factors to graduate students' online help seeking behavior, various

factors were included based on the reviewed literature. Considering the self-regulated learning theory and its valuable strategy help-seeking behavior as conceptual framework of this study, predictive factors and studies investigated these factors as a group or individually were presented in detail.

2.3. Research Studies about Help Seeking Behavior (Online or Face to Face)

Help seeking behavior as a self-regulated learning strategy can differ according to used media type it can be either face to face or online. In this context, online help seeking means asking help by using online tools. When the literature was examined, online help seeking behavior was separated three groups according to the online help giver. These were searching online from databases, online journals or forums, asking from teacher and peers online (Cheng & Tsai, 2011).

In comparison to face to face help seeking behavior, characteristic of online help seeking is unique and complicated (Karabenick, 2011). Offered opportunities and resources in online environment are wide and accessible from any place and any time. Also, anonymity of help seeking process in online help seeking is important for students with low self-esteem, they are confident while asking help in online over face to face (Hao et al., 2016).

In the help seeking literature, comparison of help seeking behavior in online and face to face learning settings was studied frequently. In one of these studies, Mahasneh, Sowan and Nassar (2012) revealed in the study conducted with undergraduate nursing student that students tended to ask help face to face over online learning setting. However, the research study of Lee and Tsai (2011) found that undergraduate and graduate students' perception in online learning environment were higher than face to face learning environment in terms of self-regulated learning and information seeking behavior. Also, there were significant differences between undergraduate and graduate students in perception of self-regulated learning, collaboration and time spent in online learning.

In the study, Huang and Law (2018) expressed that to improve the help seeking behavior, specific online applications, forums and web sites can be used. Also, parallel to Huang and Law's study, Chao et al. (2018) investigated the influence of online discussion forum which was used in a quasi-experimental research to ease the help seeking behavior with the qualified platform. Thirty-seven graduate students participated to the study. Online discussion forum had two versions; both versions had same features except in control group, there was no invitation opportunity. In control group, participants waited passively until someone responded their questions in the forum. To use the platform, participants were trained firstly in training session. In study session, they read the Basic English materials and joined the forum for their questions. The number of questions, comments and likes were gathered from the discussion forum and survey was administered the groups. The analysis of the gathered data revealed that attitudes of experimental group were positive for the help seeking and they participated more than control group. According to the results, help seeking rates and attitudes towards help seeking increased positively in interactive platform (Chao et al., 2018).

One of the distinctions between online and face to face help seeking behavior is the aim of using certain media type to seek required help. Liu (2017) investigated preservice teachers' online help seeking behaviors, the influence of psychological factors on online help seeking behavior, correlation between these factors and self-regulated learning. The results of the study revealed that self-efficacy, perceived benefits, and epistemological beliefs were the factors effecting online help seeking behavior. Also, the findings of the study suggested that self-regulated preservice teachers who had low epistemological beliefs and self-efficacy should use online communication as media type to seek help from external sources (Liu, 2017).

In conclusion, in terms of used media type, online and face to face help seeking behavior were reviewed in the literature. They were often studied together to investigate the differences. However, no related study was found that explored the

face to face help seeking behavior as a predictor of online help seeking behavior of graduate students.

2.4. Factors Influencing Online Help Seeking Behavior

Factors that potentially influence online help seeking behavior of graduate students reviewed in this part of the literature review. These factors include demographic and academic characteristics (age, gender, education level and total years), face to face help seeking behavior, information resources, faculty-student and student- student connectedness and perceived research skills. In face to face settings, help-seeking behavior has been studied. However, online help seeking research studies are fewer in the field, especially in the field of Education.

When the related literature about factors influencing online help seeking behavior of graduate students for thesis research was examined, the studies investigated the influence of these factors one by one or as a group. Mostly, age and gender as a demographic characteristic of students were studied to determine whether they related to online help seeking behavior or not. Also, information resources which can be physical or online resources like databases, journals or libraries were another factor which was investigated in the literature of online help seeking behavior. Moreover, connectedness between faculty-student and student- student was the factor as potential predictor of online help seeking behavior of graduate student. Investigation of the connectedness among people in the faculty especially in the Faculty of Education was necessary in this research study because according to the reviewed literature, relationship between connectedness and online help seeking behavior was investigated and resulted the importance of it for online help seeking behavior. Perceived research skills as a potential predictor of online help seeking behavior were also reviewed in the literature. Although there were studies about help seeking behaviors and relation to research skills that are required for graduate students as future academics, they mainly focused on development of these research skills. Researcher Development Framework (Vitae, 2011) was reviewed and used in this

study to determine whether knowledge and skills specified in this framework influence online help seeking behavior.

Table 2.1. *Factors related to help seeking behaviors of higher education students reported in the literature*

Author, year	Education level	Field of study	Type of study	Number of participants	Factors reported to influence online help seeking behaviors	Frequency and influence in relation to help seeking behaviors
(Mahasneh, Sowan & Nassar, 2012)	Undergraduate	Nursing	Mixed	31 in online and 25 in face to face learning setting	Online vs face to face help seeking behavior	Face to face help seeking > online help seeking
(Lee & Tsai, 2011)	Undergraduate and graduate	Business management and computer science	Quan	150	Collaboration, information seeking and self-regulated learning	High perception in online than face to face, Graduate students' perception>undergraduate
(Beisler & Medaille, 2016)	Undergraduate	Social Science programs	Qual	222	Help seeking behavior resource	Received help: family members and peers
(Liu, 2017)	Preservice teachers	Education	Quan	462	Self-efficacy, perceived benefits and epistemological beliefs	All factors: significant
(Chao et al., 2018)	Graduate	Not reported	Quasi-experimental	37	Attitudes, online help seeking frequency in forum	Experimental group: positive and higher than control group
(Dunn et al., 2014)	Graduate	Online Master of Teaching program	Quan	165	Age, critical thinking, self-regulation	Age: significant, reverse

Table 2.2. *Factors related to help seeking behaviors of higher education students reported in the literature*

Author, year	Education level	Field of study	Type of study	Number of participants	Factors reported to influence online help seeking behaviors	Frequency and influence in relation to help seeking behaviors
(Hao et al., 2016)	Undergraduate	Computer Science	Quan	203	Age, gender, prior knowledge, academic performance, epistemological belief, problem difficulty	Gender: not significant Problem difficulty: the more, online help seeking more Academic performance: significant, positive Epistemological belief: strong influence Prior knowledge: expert>novice
(Wu & Chen, 2012)	Graduate	Humanities, Social Sciences, and Science and Technology Departments	Qual	18	Perception of electronic resources (patterns and search behavior)	Science and Technology > other departments (frequency) Frequent usage of electronic resources
(Liyana et al., 2014)	Graduate	Computer Science and Information Technology	Quan	217	Information seeking and used resources	First choice: Search engines, doubt about quality Second choice: Libraries and online databases
(Balog et al., 2018)	Graduate (Ph.D.)	Electrical Engineering and Computing Faculty	Mixed	143	Information sources, help seeking	Online sources (databases or google scholar) > physical sources (frequency) Help seeking: face to face
(Cheng et al., 2017)	Graduate	Engineering	Qual	22	Information searching behavior (searching, reading and evaluating)	Searching: Web of Science, Scopus, IEEE Reading: title, abstract Evaluating: date, credibility, relatedness
(Hsu et al., 2018)	Adult learners	Division of Continuing and Extension Education Department	Quan	785	Age, gender	21-39 years old female> male (frequency)

Table 2.3. *Factors related to help seeking behaviors of higher education students reported in the literature*

Author, year	Education level	Field of study	Type of study	Number of participants	Factors reported to influence online help seeking behaviors	Frequency and influence in relation to help seeking behaviors
(Blondeau & Awad, 2017)	Undergraduate	Natural Sciences	Quan	180	Gender	Male>Female
(Qayyum, 2018)	Undergraduate	Not reported	Quan	438	Digital and physical communication tools	Help seeking: peers and classmates via phone application, in person Instructor first in person then e-mail/ social media
(Sloan & McPhee, 2013)	Graduate	Women's Studies, Psychology and Sociology Departments	Qual	32	People as information resources, information tools, place	Fellow students: first choice of help, M.A> Ph.D. Librarians: M.S>Ph.D. Place: Library, home Information tools: databases, library catalogue
(Thomas et al., 2017)	Undergraduate and graduate	Natural Science programs	Qual	15	Resources and consulted people	Resources: library databases Consulted people: faculty members and peers
(Lechuga, 2011)	Faculty members	Natural Science programs	Qual	15	Roles of faculty members	Roles: advisor, guide, employer and social agent
(Hao, Barnes, Wright, et al., 2017)	Undergraduate	Computer Science program	Quan	165	Online searching, help seeking from teacher	Searching online>seeking help from teacher, peers or other people
(Hao, Barnes, Branch, et al., 2017)	Undergraduate	Computer Science program	Quan	207	Proficiency level, knowledge about the subject, difficulty of the problem, interest and epistemological belief	Predictors: difficulty of problem and learning proficiency level significant

Table 2.4. *Factors related to help seeking behaviors of higher education students reported in the literature*

Author, year	Education level	Field of study	Type of study	Number of participants	Factors reported to influence online help seeking behaviors	Frequency and influence in relation to help seeking behaviors
(Disney et al., 2017)	Graduate (Ph. D.)	All disciplines	Mixed	110	Perceived research skills	At the conference organization: Skill development
(George et al., 2006)	Graduate	All disciplines	Qual	100	Information seeking behavior	Professors>other students> libraries (frequency of seeking help) Online information seeking + using printed version
(Al-Muomen, Morris, & Maynard, 2012)	Academics, graduate students, library staff, faculty staff	Not reported	Mixed	1033	Demographics, culture, information seeking process	Gender: Female>male (frequency) Age: 31-40 years < other ages in using search engines Level: M.S. > Ph.D. in using library Discipline: Science> humanities in use electronic sources
(Duman, 2015)	Graduate	All disciplines	Mixed	507	ICT use, microenvironment, SMT, social media attitude, impact as research skill, and degree completion	Factors: Significant İmpact as research skill: significant positive
(Marbouti & Lynch, 2014)	Graduate (Ph.D.)	Not reported	Quan	49	Four domains of Researcher Development Framework	Items in the domains: reported as important skills

2.4.1. Demographics and Academic Characteristics (Age, Gender, Education Level and Total Years) and Online Help Seeking Behavior

To determine predictors of graduate students' online help seeking behavior, the literature was examined, and it was found that demographics and academic characteristics of students were the most researched variables in the literature of help seeking behavior. They were included to this study and examined whether they were predictors of graduate students' online help seeking behavior or not in this context of the study.

In the literature, influence of age on help seeking behavior was investigated by the researchers through time. Therefore, age is one of the demographic factors potentially influence help seeking behavior. In the study of Dunn et al. (2014), the relationship between online help-seeking behavior of graduate students in distance education and learning strategies, critical thinking, and age was examined. Survey instrument was administered to collect data, and multiple regression was used to analyze data of 165 students in total. Results of the study revealed that relationship between age and online help seeking behavior was in reverse relationship. It means that older students tend to seek help less than younger students.

In the examination of different studies in the literature, another demographic factor that was investigated by the researchers was gender. It can be seen in a study was conducted by Blondeau and Awad (2017) to investigate the influence of student and professor' gender, and help-seeking behaviors on career development and guidance of graduate school. In total, 180 undergraduate students who were registered to the Faculty of Natural Science were surveyed. Results of the study revealed that female and male students equally asked help from their professors, but female students did not receive the guidance and help they needed. Also, if female students ask frequently for help from their professors, they get help, on the other hand, male students' help seeking action was not needed to get help or guidance from their professors. As

outlined from the study, professors favored the male students and engaged with them to provide guidance and help without asking.

Age and gender were basic demographic features that examined in exploration of help seeking behavior in the literature. In some of the research studies, they were analyzed together to reveal the influence. Hsu et al. (2018)'s research was one of these studies. In the study, it was aimed to investigate the influence of gender and age of adult learners on their help-seeking behaviors. The data were collected from 785 participants from the "Department of the Division of Continuing and Extension Education in Southern Taiwan" and collected data were analyzed by using descriptive statistics and multivariate analysis of variance. According to the results, 21–39 years-old adult learners help seeking behavior were differentiated by gender. Female adult learners in this age group tended to seek help more than male adult learners in same age group. Also, it was revealed that avoidance from help-seeking behavior was common below-20 female adult learners than those 21–39 years of age; avoidance of help-seeking behavior among male adult learners aged 21–39 was more common than those above 40 years of age.

When the study of Al-Muomen et al. (2012) was examined, it was seen that the study contributed the literature with employing different methods and combining these methods at a study to present the data from various angles. The aim of the study was to determine factors effecting information seeking behavior in Kuwait. To collect data, interviews, questionnaires and focus groups were applied to total 1033 people including, students, library staff, academics and faculty staff. The results of the study revealed that identification of need, deciding and finding sources, starting search and ending or giving feedback were influencing factors of information seeking. Also, effect of culture was huge in the study. In the country, males and females studied in different classes and this affected how they were educated in terms of subject area. As a result, males were able to ask peers and other people for help rather than females.

Also, academic characteristics of students were the potential predictors of online help seeking behavior. In the literature, the research conducted by Hao et al. (2016) investigated the online help seeking behavior of undergraduate computer science students. Predictors of online help seeking behavior including searching online, asking for help online from teachers and peers were tried to determine among these predictors; prior knowledge of the students, academic performance, learning proficiency level, epistemological belief, interests, problem difficulty, age and gender. According to the results of the study, the most important predictor of online help seeking behavior was problem difficulty for all types of online help seeking behavior; searching online, asking for help online from teachers and fellow students. However, results showed no significant effect of gender on undergraduate computer science students' online help seeking behaviors.

Demographic and academic characteristics of students included in this study to investigate the influence on graduate students' online help seeking behavior for thesis research were age, gender, education level and total years in the current program.

2.4.2. Information Resources and Online Help Seeking Behavior

Graduate students use printed or online information resources most frequently during their thesis research and writing process (including WWW, search engines, electronic journals, online databases, university library website, printed books, and dissertations-theses) (Thomas et al., 2017). In the literature of usage of information resources for academic purposes, many research studies were conducted and its relationship between help seeking behavior examined. One of these research belongs to Wu et al. (2012). The purpose of the research was to investigate perceptions of graduate students towards to electronic resources, graduate students search behaviors and usage patterns. To collect data, humanities, social sciences, and science and technology departments were chosen and interviews were conducted to eighteen graduate students in these departments. According to the results of the study, graduate students frequently used electronic resources especially during thesis-writing process. Also, there was

departmental differences in the results. Science and technology graduate students considered electronic resources more important for their studies than students from other departments (Wu et al., 2012).

Liyana et al. (2014) in the study examined how graduate students seek for information. A survey was conducted to 217 graduate students at "the Faculty of Computer Science and Information Technology, at the University of Malaya". Although the computer science graduate students' first choice as information source is the Internet Search Engine, they are in doubt about the information they retrieved from the search engines. Libraries and online databases were seen more reliable source of information (Liyana et al., 2014).

When it was examined the study with Electrical Engineering and Computing Faculty doctoral students conducted by Balog et al. (2018), it was aimed to investigate used information sources and information behavior for doctoral research. According to analysis of survey which was conducted to 138 students and interviews with 5 students, most of the doctoral students preferred online resources like databases or google scholar over physical resources like libraries. Also, it was revealed that they preferred to seek help and information face to face from their supervisors/ professors and peers when they needed (Balog et al., 2018).

In the literature of use of online resources, studies usually focused on searching and finding information from resources. Searching activities and process of retrieving information of graduate students was studied by few. Therefore, the aim of Cheng et al. (2017)' study was to investigate the importance of searching, reading and evaluating findings of search of graduate engineering students for their research. Twenty-two graduate students were interviewed to understand their strategies and, think-aloud protocol was used to get detailed information about their thinking process. The findings showed detailed information related to observed three aspects. First, graduate students shared their strategies used in information seeking and searching. These were appropriate keyword use, using quality resources (like Web of Science,

Scopus, IEEE etc.), reference tracking and communicating with others about found materials. Second, according to the results, to read and analyze the obtained material, graduate students chose strategies including title and abstract skimming, further reading in specific section, and detailed reading about the related area. Third, For information evaluation, engineering graduate students mainly looked whether the material and information are up to date, credible, published by pioneer author and related to subject intended to search (Cheng et al., 2017).

The purpose of this recent study conducted by Qayyum (2018) was to investigate the academic help seeking behaviors of college students with using digital and physical communication tools. As a method, survey design was used, and a survey prepared and conducted to four hundred thirty-eight college students in cohort classes which students took courses with same classmates. Analysis of collected data was revealed that peers and classmates were the first choice of college students to ask for help with using phone applications and in person. The reason was that they spent time on campus together. Rates of seeking help from instructor were also high and they preferred to communicate firstly in person and then, via e-mail and social media (Qayyum, 2018).

Related literature about one of the factors that potentially influence the online help seeking behavior of graduate students was information resources as reported in this section. Studies revealed that higher education students from different disciplines used various resources to retrieve necessary information for their research purposes including online or physical sources (George et al., 2006).

2.4.3. Faculty- Student and Student- Student Connectedness and Online Help Seeking Behavior

As a predictive factor for graduate students' online help seeking behavior, faculty-student and student- student connectedness is important for graduate students' continuity to the program and also, developing relationships with the faculty members especially advisors and peers can play major role in increase of their motivation and support of their studies (Lahenius, 2012).

In the study of George et al. (2006), when different departments and discipline were examined, it was found that professors were the first choice of graduate students to get help, advice and resources. In education of graduate students, relationship between faculty and student is essential to develop their educational and academic knowledge. In this point, the study conducted by Lechuga (2011) provided the valuable findings to the literature. In the study, the roles and duties of faculty mentors were researched and, also faculty mentor- graduate students' relationships were explored. Four main roles of faculty members were identified, and these were advisor, instructor, employer and social agent roles of a faculty member. It was concluded that as an advisor, guiding students through their academic life was essential part of faculty members' work. As an instructor, it was expected from faculty members to carry out teaching graduate students outside the class via seminars or organizations. Also, the relationship between faculty member and graduate student was defined as employer- employee. Each side had a responsibility and in completion of a task, they gave their best effort. Therefore, in the process, students made mistakes but eventually learnt. As a social agent, faculty members helped graduate students to develop social skills, like, public speaking, communicating and socializing with other people in academia (Lechuga, 2011).

According to the results of the study conducted by Thomas et al. (2017), most of the graduate students tend to consult peers to get required help for their research after faculty members. Also, other graduate students and faculty members were followed by librarians (Cho & Kim, 2013) and family members (Beisler & Medaille, 2016).

In the qualitative research study, Sloan & McPhee (2013) investigated the graduate students' information seeking behaviors from Women's Studies, Psychology and Sociology departments. The study presented that in all three disciplines, asking assistance of librarians was more likely among M.S. students than among Ph. D. students. This study revealed that beside faculty- student and student- student relationships, librarians were considered as a resource when it comes to seek help (Sloan & McPhee, 2013).

Type of media used when graduate students seek help from potential help givers can be differentiate according to the problem that they encountered during their research process. In the study conducted by Koc and Liu (2016), it was revealed that graduate students preferred online communication tools like e-mail, live chat or calling with mobile phone over face to face meeting to get help from their instructors and peers. On the other hand, Qayyum (2018) reported that as a type of media, students firstly seek help from their professors in person and then, they use e-mail or types of online communication tools. The results of the study were parallel with previous studies in terms of used media among students to ask for help; they also tend to communicate with using online tools.

Also, when the literature related to faculty-student and student-student connectedness was reviewed, students asked for help from their faculty members and peers about various subjects, personal to academic including course related subjects, writing, thesis research and social subjects (Lee, Anderson, & Burnett, 2017).

2.4.4. Perceived Research Skills and Online Help Seeking Behavior

In higher education, development of researchers in terms of necessary knowledge and skills is important for their future academic life (McAlpine & Asghar, 2010). Councils of Higher Education have studies to develop these knowledge and skills around the world to advance the quality of academia and to increase the number qualified researcher in academic settings (Gardner, 2009). One of the detailed frameworks was developed by Higher Education Council of United Kingdom (Vitae, 2011). It was aimed in The Researcher Development Framework to plan, encourage and support the researchers in terms of career, professional and personal development in academia. It helps to researchers about discovering their potential and become successful researchers (Gardner, 2009).

Perceived research skills as a potential predictor of online help seeking behavior of graduate students for thesis research were examined in this study. Four main domains of Researcher Development Framework were adopted and used by Duman (2015) to

determine factors influencing usage of social media tools of graduate students. As purpose of use, research process of thesis and dissertation was chosen. To collect the data, survey instrument was conducted to 507 graduate students in large university in Turkey. Findings of the study presented that six predictors were significant in social media usage of students. These predictors were information and communication technologies (ICT) use, microenvironment, weekly use of social media tools (SMT), social media attitude, impact as research skill, and degree completion (Duman, 2015). Therefore, in this study, groups and items related to perceived research skills in Duman's instrument were adopted and conducted to graduate students for rating. Domains in the framework used in the research were; "personal effectiveness, knowledge and intellectual abilities, research governance and organization, and engagement, influence and impact" (Vitae, 2011; Duman, 2015)

Developing frameworks for the researchers provided indeed guidelines and clear understanding about necessary knowledge and skills that researchers used in their research process (Vitae, 2011). However, implementation of these skills into research process and field of study was more valuable, otherwise it goes no further than being outcome skill and knowledge for researchers without utilization (Gilbert, 2004). Unlike the organized delivery, developing practical skills through experience is easier and more accessible for the researchers (Wheeler et al., 2011). Therefore, in the study, Disney et al. (2013) were organized a conference to experience and improve researcher skills outside the structures. According to the results, event developed different set of skills and promoted existing skills of researchers specified in the framework (Vitae, 2011). Since the participants of the conference were academics varied across disciplines and professionals from outside the academia, they exchanged experience, got feedback and help, had change to see the impact of their research and developed skills under the framework like communication, seeking founding, presentation, personal abilities, research governance and engagement (Disney et al., 2013; Vitae, 2011).

As related literature stated, preparing future researchers and academics with required abilities and experience with structured development curriculum (Gilbert, 2004) or through experience (Wheeler et al., 2011; Disney et al., 2013) was essential. Findings of a research conducted by Marbouti et al. (2014) revealed that Ph.D. students had problem with competency level; it was concerning whether Ph.D. students were ready for after graduation. Therefore, it was seen that examining perceived research skills and knowledge as a variable in this research was necessary to better interpret Faculty of Education graduate students' abilities as self – regulated learners and future academics.

2.5. Summary

In the help-seeking literature, there were various studies examining influence of different variables in different learning contexts. In this chapter, related studies were presented. In accordance with this research's aim, there were gaps in the literature of online help seeking behavior. Firstly, while online help seeking behavior was researched, most of the studies focused on field of science, engineering and technology. Few of them studied on social science, however, there were no conducted study to the Faculty of Education graduate students especially variables included to the study. Secondly, studies targeted the graduate students were fewer than the studies conducted with undergraduate students. Since the curriculum of these higher education levels and necessary skills expected to develop from these students are different, the results of this current research study contribute to the literature of graduate education. Therefore, the aim of the literature review was to comprehend the existing studies conducted in intended field of study. These studies were grounded and directed the current research. According to the reviewed literature, demographic and academic characteristics, face to face help seeking behavior, information resources, faculty- student and student-student connectedness and perceived research skills were selected as predictive factors of graduate students' online help seeking behavior for thesis research.

In the reviewed literature of factors influencing graduate students' online help seeking behavior for thesis research, it was resulted that variety of methods were used to investigate the help seeking behavior of students from diverse disciplines with including different variables. In this study, parallel methodology to the literature were used with including variables that were no sample of examination together in the reviewed literature and applied to Faculty of Education graduate students. In next chapter, details of methodology of this study together with research design, participant characteristics of the study, research context, data collection instrument, process and data analysis were presented.

CHAPTER 3

METHODOLOGY

3.1. Introduction

This chapter presents the research design of the study, context of the study, reflections and researcher role, collection of data, participant characteristics, instrument, data analysis, validity, and reliability of the study.

The research question of the study is:

- How well Faculty of Education graduate students' demographic and general academic characteristics, frequency of using information resources, face to face help seeking behaviors, connectedness and perceived research skills predict their online help seeking behaviors for their thesis (source and frequency)?

3.2. Research Design

To examine association between variables in this study, correlational research design was employed. When the research designs in the literature was inspected, it was seen that correlational design is useful in identifying relationships and generalizing the results to the population because of the large number of variables in the study (Cohen, Cohen, & West, 2003). Two types of correlational studies are relationship and predictive studies. In relationship type of correlational study, existence of relationship among one or more variable are determined, on the other hand, in predictive type of correlational study, whether one or more variables predict another variable is identified (Cohen, Cohen, & West, 2003; Saunders, Lewis, & Thornhill, 2007). This study aimed to explore predictive relationship between the dependent variable (online help-seeking behaviors of faculty of education graduate students) and independent variables (demographic and general academic characteristics, frequency of using

information sources for thesis research, face to face help seeking behaviors for thesis, faculty-student and student-student connectedness, and perceived research skills).

In this study, the predictive relationship between variables was investigated by gathering large amount of numbered data by an attempt to control researchers' bias. Collected quantifiable data were analyzed by using statistical techniques to draw conclusion with numbers (Creswell, 2014).

In generalization from sample to population, correlational research design with self-reported questionnaire enables the researcher to collect numerical data of attitudes, trends and opinions (Creswell, 2014). In this study, cross- sectional survey was used and it enabled gathering data from a sample of the population at a point in time. As a data collection type, e-mail was used, and an online questionnaire was sent to participants. Steps followed in the research were listed below:

- Instrument development: Items or groups of items from three different questionnaires and scales were combined, tested with three graduate students and examined by two content experts for its content validity.
- Data collection: Online questionnaire was sent to all faculty of education graduate students meeting the eligibility criteria for this research in METU (N=690).
- Data analysis: Data obtained from questionnaire was analyzed by using IBM SPSS Statistics v25 software. Descriptive statistics and multiple regression analysis were administered for the study.
- Interpretation of the results: The results of the analysis were expressed with numbers, presented in tables and interpreted. The results and future implications were discussed with the light of the literature.

3.3. The Population and the Sample

All the graduate students registered in the Faculty of Education programs with thesis in research universities in Turkey were the part of the population of this study. The

intention of this selection is to understand students' help seeking behaviors when they have all necessity resources around them. Therefore, the main purpose of selecting 'research universities' as population was funding, resources for research and projects provided by the government. For this study, it was important that graduate students' access of all the facilities and resources provided by the research university. According to Turkey Council of Higher Education statistics, there are 10 research universities in Turkey in 2019 offering graduate degrees and 57,538 Master students and 29,753 Doctorate students were registered in these universities (Total number of students (Council of Higher Education) 2019). As presented in Table 3.1, among these research universities, most graduate students are in the İstanbul University with 19,439 students (13,570 Master and 5,869 Doctorate students). The fewest graduate students are in the İzmir Institute of Technology with 1,433 students (1,015 Master and 418 Doctoral students). Also, all 10 research universities have graduate programs with graduate students currently registered in the field of Education.

Table 3.1. *Population: Research Universities in Turkey and the number of graduate students*

University	Master	Doctorate	Total
İstanbul University	13,570	5,869	19,439
Ankara University	8,746	5,688	14,434
İstanbul Technical University	9,213	3,763	12,976
Hacettepe University	7,250	4,129	11,379
Gazi University	7,044	3,256	10,300
Middle East Technical University	4,913	3,131	8,044
Erciyes University	5,790	1,640	7,430
Gebze Technical University	3,093	799	3,892
Boğaziçi University	2,694	1,060	3,754
İzmir Institute of Technology	1,015	418	1,433
Total	57,538	29,753	87,291

METU is a public research university with a total of 8,138 graduate students in 2019, in the year of data collection. Due to its rankings in internationally accepted measures of quality (QS 2019 Rankings), METU Faculty of Education were assumed to provide necessary support systems for their graduate students. With this assumption, METU Faculty of Education was selected to represent the population.

3.4. The Context of the Study

METU Faculty of Education opened its first undergraduate programs under the name of Department of Education in 1974 and at first, it offered teaching certificate courses

and elective courses. In 1982, Faculty of Education was established to train teachers for secondary school. In 2019, 1,381 undergraduate students and 756 graduate students were registered in the Faculty of Education (History of the faculty of education, 2018). While 9 of its programs connected to Social Science institute, 6 under Natural and Applied Sciences Institute. In terms of the degree type, 306 of the graduate students were in the M.S. with thesis programs, 82 of the students were in the M.A. with thesis programs, 352 of them were in Ph.D. and 16 of them were in Ph.D. on B.S. programs. When the Table 3.2 was interpreted, it was seen that majority of the students with 15.21 % were in the English Language Teaching Program which was connected to Social Science Institute. It was followed by Curriculum and Instruction Program which was also connected to Social Science Institute. In Human Resources in Education Program, there was only one student (0.13%). There were also 85 academic staff in the faculty, among which 75 were actively supervising theses in 2019.

Table 3.2. *Accessible Population*

Graduate Program	Institute	M.S.	M.A.	Ph.D.	Ph.D. on B.S.	Total	Percentage
Computer Education and Instructional Technology	Natural and Applied Science	28	-	37	9	74	9.78
English Language Teaching	Social Science	-	53	62	-	115	15.21
Elementary Science and Mathematics Education	Natural and Applied Science	33	-	-	-	33	4.37
Curriculum and Instruction	Social Science	41	-	40	1	82	10.85
Elementary Education	Natural and Applied Science	-	-	36	2	38	5.03
Psychological Counseling and Guidance	Social Science	21	-	23	-	44	5.82
Secondary Science and Mathematics Education	Natural and Applied Science	15	-	34	1	50	6.61
English Literature	Social Science	-	29	43	-	72	9.52
Early Childhood Education	Social Science	36	-	30	2	68	8.99
Physical Education and Sports	Social Science	25	-	22	-	47	6.22
Educational Administration and Planning	Social Science	37	-	4	-	41	5.42
Educational Sciences	Social Science	2	-	6	1	9	1.19
Science Education	Natural and Applied Science	39	-	6	-	45	5.95
Mathematics Education	Natural and Applied Science	28	-	9	-	37	4.89
Human Resources in Education	Social Science	1	-	-	-	1	0.13
Total		306	82	352	16	756	100

It should be noted that, during the instrument development process, the list of graduate programs was included in the questionnaire based on the website of the Faculty of Education. However, it was reported that the program names had changed, and the website was not updated in 2019. Therefore, the program names provided in Table 3.2 are the names of programs before the changes applied. In the questionnaire, there was an "other" option for program name, however except for one program students (Early Childhood Education), none of the other participants reported any other program name, and they instead selected one of the program names listed in the questionnaire.

The requirements for degree completion for M.S. with Thesis programs include must and elective courses requiring 21 minimum credits, one seminar course, thesis work and the defense of the thesis before an examining committee and a minimum total of 120 ECTS-credits. For M.A with thesis programs, must and elective courses requiring 21 minimum credits, one seminar course, thesis work and the defense of the thesis before an examining committee and a minimum total of 120 ECTS-credits are required. For Ph.D. programs, the students are required to successfully complete necessary must and elective 7 courses requiring 21 minimum credits, one seminar course, the doctoral comprehensive examination, the thesis proposal, thesis work and the defense of the thesis before a jury and at least 240 ECTS credits. In Ph.D. on B.S. programs, students should complete must and elective courses with minimum 42 credits, one seminar course, the doctoral comprehensive examination, the thesis proposal, thesis work and the defense of the thesis before a jury and at least 300 ECTS credits. In the M.S. program without thesis, students are required to achieve 30 credits (10 courses with 3 credits each)/ 60 ECTS credits and term project/ internship with non-credit, evaluated as "Successful" or "Unsuccessful" (METU Rules and Regulations Governing Graduate Studies, 2019).

The language of instruction in METU is in English. All courses and thesis studies were accomplished in English language. Therefore, in preparation and application of instrument, English language was chosen.

3.5. Sample Selection and Sample Characteristics

After selecting Faculty of Education in METU as accessible population to collect data, graduate students' list, email addresses, programs, and registration status were obtained from the faculty secretary.

In the list there were 756 students. Four criteria for inclusion in the sample were;

1. Inclusion of students with active registration: The graduate students needed to be active and registered students in the Spring semester 2018-2019. For the aim of the study, the graduate students should be active participants of the courses or should be active in their thesis process.
2. Inclusion of students registered to programs with thesis: They should be in the programs with thesis since the purpose of the study was to determine help-seeking behaviors of the graduate students specifically for their theses.
3. Exclusion of ERASMUS students: They should not be in the Erasmus program. In the Erasmus program, the graduate students were studying with different faculty members and using sources of other universities which does not meet the population.
4. Exclusion of Scientific Preparation Program students: They should not be in the scientific preparation program. In the scientific preparation program, mostly undergraduate courses were offered to students to prepare them to the program.

Among 756 students, 66 students did not meet these criteria and therefore eliminated. Among these students, 22 of them were on leave, 22 were in scientific preparation program, 15 were not registered, 3 were graduated, 3 were in the Erasmus program, and 1 was in non-thesis program. The remaining 690 graduate students enrolled in the 17 different graduate programs in 2018/2019 Academic Year Spring Semester.

525 (76%) of those students were female and 165 (24%) of them were male. As education level, 347 of them were master students (MS or MA), 329 of them were PhD, and 14 of them were PhD on B.S students.

Demographic characteristics of the participants were collected by using Faculty of Education Graduate Students' Online Help Seeking Behaviors for Thesis Research Questionnaire. The number of graduate students who participate were 182 out of 690 graduate students who currently registered to a program. The participation rate was 26%.

According to the results of the questionnaire, demographics and academic information of the participants were listed in following tables including gender, age, education level, registered graduate program and total years spent in the current program.

Table 3.3. *Frequencies of Participants' Gender and Age*

Gender	f(*n*=182)	Percentage
Female	136	74.73
Male	46	25.27
Total	182	100

Age	f(*n*=182)	Percentage
25 or under	45	24.73
26- 30	84	46.15
31- 35	37	20.33
36- 40	11	6.05
41 or over	5	2.75
Total	182	100

M=29.04, SD=5.56

As Table 3.3 indicated, among 182 participants, there were 136 female (74.73%) and 46 male (25.27%) students which reflect the ratio (percentage) between female and male in the sample. As seen in the table, the mean of participants' age was *29.04* (*SD=5.56*). Age of 46.15% of the participants was in 26- 30 years.

Table 3.4. *Frequencies of Participants' Total Years in the Current Program and Education Level*

Years	f(*n*=182)	Percentage	
1	27	14.84	
2	51	28.02	
3	45	24.73	
4	23	12.64	
5	9	4.95	
6 years or above	17	14.84	
Total	182	100	
M=3.25, SD=1.93			
Education Level	f(*n*=182)	Percentage	Participation Rate (*n*=690)
M.S with thesis or M.A with thesis	117	64.29	16.96
Ph. D	60	32.97	8.70
Ph. D on B. S	5	2.75	0.73
Total	182	100	26.39

As presented in Table 3.4, the mean of years in the current program was *M= 3.25* (*SD=1.93*). with 28.02%, most of the participants were in second years in the current program. Moreover, 64.29% of them were registered to master's program, 32.97% were Ph.D. program and 2.75% were Ph.D. on B.S program. Total participation rate was 26.39% and 16.96% participation rate constituted master's programs which presented the sample in terms of ratio (percentage) among three education levels.

Table 3.5. *Frequencies of Participants' Registered Graduate Program*

Graduate Program	Institute	M.S.	M.A.	Ph. D.	Ph.D. on B.S.	f(*n*=182)	Percentage in Sample %	Participation Rate %
Computer Education and Instructional Technology	Natural and Applied Science	13	-	16	2	31	17.03	41.89 (*n*=74)
English Language Teaching	Social Science	-	20	11	-	31	17.03	26.95 (*n*=115)
Elementary Science and Mathematics Education	Natural and Applied Science	22	-	3	-	25	13.74	75.75 (*n*=33)
Curriculum and Instruction	Social Science	12	-	5	1	18	9.89	21.95 (*n*=82)
Elementary Education	Natural and Applied Science	10	-	6	1	17	9.34	44.73 (*n*=38)
Psychological Counseling and Guidance	Social Science	8	-	6	1	15	8.24	34.09 (*n*=44)
Secondary Science & Mathematics Education	Natural and Applied Science	8	-	5	-	13	7.14	26.00 (*n*=50)
English Literature	Social Science	-	9	3	-	12	6.59	16.67 (*n*=72)
Early Childhood Education	Social Science	6	-	1		7	3,85	10.29 (*n*=68)
Physical Education and Sports	Social Science	3	-	4	-	7	3.85	14.89 (*n*=47)
Educational Administration and Planning	Social Science	6	-	-	-	6	3.30	14.63 (*n*=41)
Total		88	29	60	5	182	100	

Table 3.5 indicated the distribution of registered graduate program. Most of the participants were registered into Computer Education and Instructional Technology program (17,03%). The participants rate with 3.30 % which were lowest participation rate were registered to Educational Administration and Planning. Also, more than half of the programs with 52.75% were connected to Social Science Institute and rest of the programs (47.25%) were connected to Natural and Applied Sciences Institute.

3.6. Instrument

To investigate the factors that influence online help-seeking behaviors of Faculty of Education graduate students for thesis research, an online questionnaire was formed by the researcher named as "Faculty of Education Graduate Students' Online Help Seeking Behaviors for Thesis Research Questionnaire".

It was developed by combining and adapting sections of three different questionnaires with established validity and reliability (Duman,2015: Terrell et al. 2009: Al-Muomen et al. 2012). Also, the items were added to the questionnaire according to literature and frameworks on help-seeking behaviors of graduate students.

The questionnaire included five main sections.

1. Demographic and general academic information items (gender, age, education level, registered graduate program, years spent in the program)) were formed and added to the instrument mostly by adapting the items from Duman's survey.
2. Related to the frequency of using online or printed information resources for thesis research, one question with 7 items were adopted from Al-Muomen et al.'s questionnaire. In original instrument, information resources were in 7-point Likert type format. Therefore, to make unity in the format of items, these items were changed into 5-point Likert type. The main question has been revised to include "for thesis research". Moreover, some examples were added to the items for clarification.

3. The items related to help-seeking behaviors for thesis (online and face to face) were written by the researcher.
4. Faculty- student and student – student connectedness scale items were taken as it is from Terrell et al. 's scale. The main direction to complete the scale has been revised slightly. The items were used without any change.
5. Perceived research skills items were taken without any revisions from Duman's survey instrument. The main direction has been added without any revision; however, the following direction has been added at the end: "If it is not applicable, please choose "very poor" ".

The questionnaire was prepared in English and items were not translated into Turkish because English was the language of instruction in METU.

After selection of questions and items according to the research question of the study, first draft of the instrument was reviewed by two content experts who were in the Computer Education and Instructional Technology and 3 graduate students and feedbacks were gathered with cognitive interviews. One of these graduate students was graduated from the field of Computer Education and Instructional Technology in the same faculty in METU, and the other two students were studying in programs in Social Science institute in another university. During the interview processes, participants examined the questions in the instrument by reading and thinking aloud, and the researcher recorded the comments and after records of cognitive interviews were examined, the researcher was made the listed changes:

- Question sentences of demographics were shortened like in first version, it was "what is your age", after the changes it was "age".
- Help-seeking behavior questions originally were formed as four different sections due to technical difficulties in used survey platform. These four questions were asking help from people by using online communication tools in METU and outside METU, and face to face in METU and outside METU. According to suggestions, to shorten the questionnaire, items in the sections were merged into

two sections as asking help from people by using online communication tools and face to face. Phrases (in METU and outside METU) were added into the items in each section.

- In the sections related to research skills, to emphasize the skill and differentiate each skill from each other, name of the skill in the question sentence was underlined.

Final version was established and was entered to METUSurvey which is a free online survey platform and it is used by university faculty, staff, and students. To standardize the questionnaire, same font size, color and style was used. Also, in one question (help-seeking behavior), to separate the question and highlight the important part in the question sentence (online communication tool or face to face), related words were painted with different color.

The online instrument started with the consent form which included aim of the study, anonymity of participation and answers to the items, contact information of the researcher and appreciation for participating the study. Moreover, the consent form was approved with yes/no question to get the agreement for voluntary participation.

The questionnaire consists of five different type of item group, 14 main questions and 84 total items;

1. Demographic and general academic information questions:

   There were 6 items in the group. These included age (text box), gender (drop down selection), education level (drop down selection), graduate program (drop down selection), total years in the current program (text box), completion level of requirements for degree program (dichotomous radio button)).

2. Frequency of using online or printed information resources for their thesis research:

   Seven items were rated for usage of research tools (five-point Likert-type 1-Never 2 Rarely 3-Sometimes 4-Often 5-Always).

3. Help-seeking behaviors:

   There were 2 main sections in the group with 23 total items. These were face to face and online help seeking sources and frequencies. Both were five-point Likert-type items with 1-Never 2-Rarely 3-Sometimes 4-Often 5-Always options.

4. Faculty- student and student – student connectedness:

   There were 18 five-point Likert-type items related to connectedness with 1-Strongly Disagree 2-Disagree 3- Neutral 4-Agree 5-Strongly Agree options.

5. Perceived research skills:

   There were 4 main sections with 30 items in the group. These were research knowledge and skills in the personal effectiveness, knowledge and intellectual abilities, research governance and organization, and engagement, influence and impact. Items were five-point Likert-type items with 1-Very Poor 2-Poor 3-Acceptable 4-Good 5-Very Good options.

Table 3.6. *Instrument Characteristics*

Questionnaire Sections	Number of Questions	Type/ Scale	Source of items	Original Cronbach's Alpha	Cronbach's alpha in this study
Demographic and general academic characteristics	6	Textbox, Drop-down selection, Radio button	Duman	-	-
Frequency of using online or printed information resources for thesis research	7 items	5-point Likert Type; 1-Never 2-Rarely 3-Sometimes 4-Often 5-Always	Al-Muomen et al.	.83	.67
Help seeking behaviors	2 main sections, 23 total items	5-point Likert Type; 1-Never 2-Rarely 3-Sometimes 4-Often 5-Always	Written by the researcher	-	.88
Faculty- student and student – student connectedness	18 items	5-point Likert Type; 1-Strongly Disagree 2-Disagree 3- Neutral 4-Agree 5-Strongly Agree	Terrell et al.	.87	.94
Perceived research skills	4 main sections, 30 total items	5-point Likert Type; 1-Very Poor 2-Poor 3-Acceptable 4-Good 5-Very Good	Duman	ranged from .82 to .90	.93

3.6.1. Validity and Reliability

To minimize the error rates in the instrument that used in this study, in the research design, it is important to consider the possible problems related to measurement (Creswell, 2014). In this correlational study, instrument, quantified data and the results of the study were examined to evaluate the validity and reliability scores.

To ensure valid and reliable instrument goal, questions and items used in the questionnaire were selected carefully based on the research question. Cronbach's Alpha (Cronbach, 1951), which is commonly used reliability measure in the field of social science, reliability values were examined to select the appropriate items. The reliability scores for the adopted items in the original studies were: a) for the items about connectedness between students and faculty members which were adapted from Terrell et al. 's (2009) study, Cronbach's Alpha value was .87, b) in Duman's (2015) study, value of Cronbach's Alpha varied from .82 to .90 for the items about research skills c) in Al-Muomen et al.'s (2012) study, Cronbach's Alpha value was .83 for the items related to usage of information resources.

After developing the questionnaire instrument with items composed of valid and reliable scales, the questionnaire was evaluated by two experts in terms of content validity whether intended content was measured. Through cognitive interviews with both the experts and the graduate students, feedbacks and recommendations were recorded by the researcher. According to provided reviews and feedback, revisions were made in the instrument. The final version was approved by the same experts.

Cronbach's Alpha value of the current study was .93 for the reliability of all the items, representing internal consistency. Table 3.7 shows the α values of each section in detail.

Table 3.7. *Dependent and independent variables with Cronbach alpha values in the present study*

Variables	Items	*M*	*SD*	α
Online Help Seeking Behavior	12	1.94	.57	.81
Connectedness	18	3.24	.77	.94
RS Impact	8	3.18	.82	.89
RS Research Governance	6	2.94	.64	.76
RS Personal Effectiveness	7	3.11	.71	.84
RS Intellectual Abilities	9	3.80	.62	.90
Face to Face Help Seeking Behavior	11	1.92	.55	.77
Information Resources	7	4.17	.55	.67

3.6.2. Factor Analysis

As presented in Appendix F, even though the groups of items in the questionnaire had strong internal consistencies (Cronbach's alpha ranging between 0.67 to 0.94), Factor analysis was conducted to explore the factors further for this study.

3.7. Data Collection

To understand the factors that influence graduate students online help-seeking behaviors for thesis research, data collection process started with the approval of METU Applied Ethics Research Center related approval document is in Appendix B.

After preparing the questionnaire and getting necessary approval, the online questionnaire in METUSurvey platform was activated by METU Applied Ethics Research Center, it was a regulation to be followed.

The online questionnaire (Appendix A) was sent to each student's official school e-mail address which was obtained from Faculty secretary in total 690 participants by using official school e-mail address (Dillman, 2000). Personal message text was used to be friendly. For example, greeting personalized by name "Hello Yıldız,". It was

aimed to increase the participation rate (Appendix D presents message texts). In the second email, the researcher used additional greeting: “Hello Yıldız Hocam” and indicated that the research study still needs more participants (Appendix E).

The researcher divided the group into the four and sent the e-mails in 4 days because of daily sent limit of the METU e-mail account. The first email resulted in 87 participants. Because, for a regression study this number was not adequate, a second email was sent one week after the first email which resulted in additional 96 participants. The second email sent after 7 days resulted in 183 final responses.

3.8. Data Analysis

In the data analysis part of this study, collected quantitative data with questionnaire instrument were analyzed by the researcher. To analyze the data, it was used descriptive statistics and multiple regression analysis as data analysis methods.

The Statistical Package for the Social Sciences (IBM SPSS Statistics v25) program was used to analyze the quantitative data. Before running test, raw data were downloaded from the METUSurvey application, cleaned and prepared and then, the cleaned data were uploaded to the software.

Among 690 students, 183 graduate students participated in the questionnaire. For the generalizability of the results, minimum number of sample size should be met. In the calculation of sample size, more than one guideline was explained in the literature. According to one of these guidelines, to represent the sample and reflect the characteristics of this sample, at least 138 (20% of the sample) graduate students was expected to participate this study (Wilson Van Voorhis & Morgan, 2007: Algina & Olejnik, 2003). Moreover, one of the calculation formulas for sample size was $N>50+8m$ (m: number of independent variables) (Tabacknick & Fidell, 2013). Required sample size with 11 independent variables was 138. Therefore, the number reached in the study fulfilled the required sample size.

When the data collected from questionnaire were checked for missing data, the participants could not be able to provide missing data since the questionnaire conducted in online environment. However, some of the questions were misunderstood. Some of the participants could not be able to find applicable information for them in the list of items, so they chose the "other" option and filled their answers in there. The information obtained from "other box", evaluated and added to appropriate answer list accordingly. In the education level question, one of the participants typed the level as "Bachelor". Since the sampling of this study included only graduate level students, entry was omitted from the list of quantitative data. None of the items required to be reversed coded as all of them were positive statements.

3.8.1. Descriptive Statistics

In the study, the graduate students' use of research tools was explained by analyzing descriptive statistics. The results were reported with the tables including number of participants, frequencies, percentages and cumulative percentages. Also, the numerical results of the variables like mean, standard deviation were presented in the table format to show the distribution.

3.8.2. Multiple Linear Regression Analysis

The study's aim was to determine whether identified 11 factors predict the graduate students online help-seeking behaviors for thesis research. For this purpose, as dependent variables; online help seeking behaviors and as independent variables; demographic and general academic characteristics (age, gender, education level, registered program and time spent in the program), frequency of using online or printed information resources for thesis research, faculty- student and student -student connectedness and perceived research skills were determined and they were prepared for the analysis as explained in the below:

- Demographic and general academic information of graduate students (age, gender, graduate program, education level, level of completing the program):

these variables were categorical variables. Before including categorical variable “Education Level” to the multiple linear regression analysis, it was defined as dummy variable which is numerical representation of categorical variable with 0 and 1 (Cohen et al. 2003). Since there were three different values in the Education Level variable - Masters, Ph.D. and Ph.D. on B.S, two dummy variables were defined (k-1, k: different values).

- Use of online or printed information resources for thesis research: average of items in the question were calculated and then the average was included the multiple linear regression analysis.
- Online and face to face help seeking behaviors: average of items under each item group was calculated. Also, under each group, items were divided into two which were “in METU” and “outside METU” and their average scores were calculated separately.
- Faculty- student and student – student connectedness: average of 18 items were calculated and included the analysis process
- Perceived research skills: items of four groups were collected and average scores were calculated separately.

To control the effect of independent variables or predictors (continuous or categorical) on continuous dependent variable, multiple linear regression analysis was run. This analysis method was used to estimate relationship between independent and dependent variables and to predict the effect of these variables (Cohen, Manion & Morrison, 2007: Mertler & Vannatta, 2002).

In the study, The Enter method for standard multiple linear regression analysis was used. In this method, all independent variables enter the analysis at the same time and no elimination technique is used in the process (Pallant, 2007). In order to report the results of the analysis, adjusted R square value provided in the table and to report the statistical significance, ANOVA table was used. Also, from the table of Coefficients, a number of values are reported in a table as B, SEB (standard error of B) and β R square p-value (Field, 2009).

Before the multiple regression analysis, necessary multiple linear regression assumptions (Tabacknick & Fidell, 2013) were checked by the researcher. These assumptions were listed below:

- Normality, Linearity and Homoscedasticity of Residuals:

  To check the assumptions normality, linearity and homoscedasticity of residuals, P-P plot and Scatterplots that were resulted at the end of the regression analysis were examined. The normality of P-P plot of residuals was checked (Related graphs in Appendix G). The residuals were distributed normally since the dots were closer to the diagonal line (Figure 3.2). Also, this result showed the linearity of the variables. Variance of the residuals was checked from the scatterplots and as seen in the Figure 3.1, standardized residual plots vs standardized predicted value plots were same in each point and shown no sign of funneling (Tabacknick & Fidell, 2013).

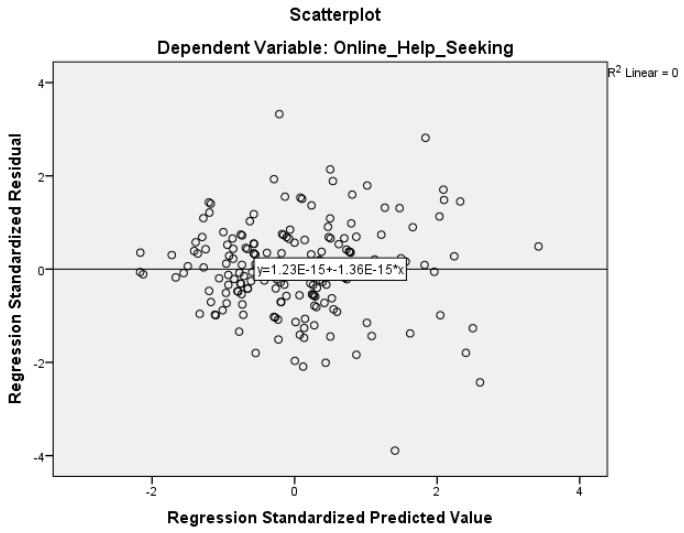

Figure 3.1. Scatterplot of Dependent Variable

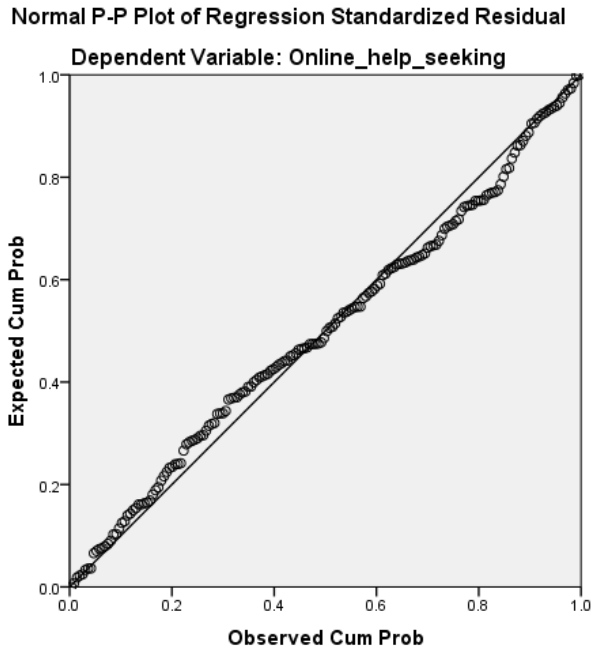

Figure 3.2. P-P Plot of Regression Standardized Residual

- Multicollinearity: VIF scores and tolerance scores were checked. VIF scores were below 10 and the tolerance scores were above 0.2 (Pallant, 2007). Collinearity statistics were presented in Table 3.7.

Table 3.8. *Collinearity Statistics*

Variables	VIF Scores	Tolerance Scores
Face to Face Communication	.80	1.24
Age	.66	1.52
RS Research Governance	.50	1.99
RS Personal Effectiveness	.62	1.62
Information Sources	.80	1.24
Education Level	.73	1.36
RS Impact	.55	1.82
Connectedness	.85	1.18
Gender	.87	1.15
Total Years	.74	1.34
RS Intellectual Abilities	.55	1.82

- Independent residuals: The Durbin- Watson statistics were checked whether the value close to 2. According to the assumption check results, value of Durbin- Watson was 1.98. It was close to 2 and assumption was met (Tabacknick & Fidell, 2013).

Multiple linear regression analysis results were explained in detail in the next chapter.

3.9. Ethical Considerations

In the study, questionnaire instrument was approved by the METU Applied Ethics Research Center (Appendix B). Also, after transferring the final version of the instrument to the online METUSurvey tool, it was reviewed and accepted one more time by the METU Applied Ethics Research Center. Participants were informed with the consent form in the beginning of the questionnaire. Then, the participants approval was taken with a yes/no question which asked, "I have read the above information and agree to this work completely voluntarily.". All the participants in this study gave permission and continued the questionnaire.

After data were collected from the participants, to make sure anonymity, data transferred to IBM SPSS Statistics v25 software without any credentials and data were analyzed.

3.10. Assumptions

In this research, it was assumed that;

- All the participants filled the questionnaire correctly and provided necessary information without any exclusion.
- The population was represented by the selected sample.
- The data were gathered and analyzed correctly.
- The selected university provide at least the basic support and help opportunities for graduate students.

CHAPTER 4

RESULTS

4.1. Introduction

This part presents the results of multiple linear regression analysis to answer the research question. Results were categorized into two sections: descriptive statistics and multiple linear regression analysis results.

4.2. Descriptive Statistics Results

The results of descriptive statistics were presented in the following tables with the frequencies of graduate students, mean scores, and standard deviation scores. Independent variables regarding to participants' demographic and general academic characteristics (age, gender, education level, registered program, and years spent in the program) were presented in the previous chapter in Table 3.3, Table 3.4, and Table 3.5. This section presents the descriptive statistics results of the other variables including frequency of using online or printed information resources for their thesis research, face to face and online help seeking behaviors for their thesis (source and frequency), faculty- student and student – student connectedness, and perceived research skills.

Table 4.1. *Frequency of using online or printed information resources for their thesis research*

	Never	Rarely	Sometimes	Often	Always	*M*	*SD*
Online Databases (e.g. Web of Science Google Scholar)	1	3	5	45	128	4.63	.68
Electronic Journals	0	5	8	46	123	4.58	.71
Search Engines (e.g. Google, Yandex)	3	11	21	41	106	4.30	1.00
World Wide Web	4	9	27	32	110	4.29	1.03
University library website	1	10	24	58	89	4.23	.92
Dissertations/ theses	4	23	39	56	60	3.80	1.10
Printed books	7	36	58	46	35	3.36	1.12

n =182, Never=1, Rarely=2, Sometimes=3, Often=4, Always=5

As presented in Table 4.1, most frequently used information resource was online databases (*M*= 4.63, *SD*= .68) for thesis research of graduate students. Electronic journals (*M*= 4.58, *SD*= .71), Search engines (*M*= 4.30, *SD*= 1.00), world wide web (*M*= 4.29, *SD*= 1.03) were also frequently used for research purposes. Printed books (*M*= 3.36, *SD*= 1.12) was used moderately by the graduate students.

Table 4.2. *Online help seeking behaviors for their thesis*

		Never	Rarely	Some times	Often	Always	*M*	*SD*
In METU*	Thesis Supervisor	7	18	42	49	66	3.82	1.14
	Other Graduate Students	48	45	59	26	4	2.41	1.09
	Research Assistants	65	43	44	26	4	2.24	1.15
	Other Faculty/ Instructors	86	47	35	12	2	1.88	1.01
	Thesis Jury Members/ Co-advisor	103	35	26	14	4	1.80	1.09
Outside of METU**	Online Academic Communities (e.g. Research Communities, Forums)	106	33	34	2	7	1.74	1.05
	Other Experts/ Specialists	99	51	23	6	3	1.70	.93
	Thesis Jury Members / Co-advisor	119	33	17	9	4	1.60	1.00
	Other Graduate Students	117	33	24	6	2	1.59	.92
	Other Faculty/ Instructors	113	47	14	6	2	1.55	.86
	School Teachers, Administrators, Ministry of National Education	123	34	18	4	3	1.52	.88
	Research Assistants	127	34	14	6	1	1.46	.82

**M*= 2.43, *SD*=.71, ***M*= 1.59, *SD*=.57, *M*= 1.94, *SD*=.57, *n* =182, Never=1, Rarely=2, Sometimes=3, Often=4, Always=5

Table 4.2 indicated that graduate students mostly seek help from their thesis supervisor in METU for thesis research (*M*=3.82, *SD*= 1.14) by using online communication tools. Also, other graduate students (*M*=2.41, *SD*= 1.09) was reached for help in METU. However, research assistants (*M*=2.24, *SD*= 1.15), other faculty/ instructors (*M*=1.88, *SD*= 1.01) and thesis jury members/ co- advisor (*M*=1.80, *SD*= 1.09) were the least visited people to ask for help in METU.

Compared to help seeking frequency in METU, students rarely asked for help from other sources outside of METU. Among them the highest frequency is online academic communities (*M*=1.74, *SD*= 1.05), Other experts /specialist (*M*=1.70, *SD*= .93) was also preferred for online help-seeking. Thesis jury members/ co- advisor (*M*=1.60, *SD*= 1.00), other graduate students (*M*=1.59, *SD*= .92), other faculty/ instructors (*M*=1.55, *SD*= .86), school teachers, administrators, Ministry of National Education (*M*=1.52, *SD*= .88) and research assistants (*M*=1.46, *SD*= .82) were least communicated to ask help for thesis research outside of METU.

When the results of two section inside and outside METU were compared by graduate student's online help seeking behavior (source and frequency), students asked for help inside METU (*M*=2.43, *SD*=.71), more frequently than they ask for help outside METU (*M*=1.59, *SD*=.59). However, it was found that, students rarely ask for help regardless of the location (*M*=1.94, *SD*=.57).

Table 4.3. *Face to face help seeking behaviors for their thesis*

		Never	Rarely	Some times	Often	Always	*M*	*SD*
In METU*	Thesis Supervisor	3	13	40	53	73	3.99	1.03
	Research Assistants	68	38	44	23	9	2.27	1.23
	Other Graduate Students	64	49	42	22	5	2.20	1.13
	Other Faculty/ Instructors	91	42	32	14	3	1.88	1.06
	Thesis Jury Members/ Co-advisor	105	27	24	19	7	1.88	1.21
Outside of METU**	School Teachers, Administrators, Ministry of National Education	124	31	14	8	5	1.57	.99
	Other Graduate Students	125	30	20	5	2	1.51	.88
	Thesis Jury Members / Co-advisor	130	27	16	5	4	1.49	.93
	Other Experts/ Specialists	126	38	11	5	2	1.46	.82
	Research Assistants	125	38	14	4	1	1.45	.78
	Other Faculty/ Instructors	128	37	15	1	1	1.41	.71

**M*= 2.44, *SD*=.75 , ***M*= 1.48, *SD*=.51, *M*= 1.91, *SD*=.55, *n* =182, Never=1, Rarely=2, Sometimes=3, Often=4, Always=5

As Table 4.3 showed that graduate students mostly seek help from their thesis supervisor face to face in METU for thesis research (*M*=3.99, *SD*= 1.03). Also, research assistants (*M*=2.27, *SD*= 1.23), other faculty/ instructors (*M*=1.88, *SD*= 1.06) and thesis jury members/ co- advisor (*M*=1.88, *SD*= 1.21) were the least visited people to ask for help in METU.

Similarly, the frequencies are lower for outside of METU sources compared to inside of METU. School Teachers, Administrators, Ministry of National Education (*M*=1.57, *SD*= .99) was mostly asked for help in first place but it was rated as rarely. Other graduate students (*M*=1.51, *SD*= .88) also was preferred for face to face help-seeking.

Thesis jury members/ co- advisor (*M*=1.49, *SD*= .93), other experts/ specialists (*M*=1.46, *SD*= .82), research assistants (*M*=1.45, *SD*= .78) and other faculty/ instructors (*M*=1.41, *SD*= .71) were least communicated to ask help for thesis research outside of METU.

The results of two section inside and outside of METU were compared by graduate students face to face help seeking behavior (source and frequency). As a result, students asked for help for their theses inside METU (*M*=2.44, *SD*=.75) more than outside METU (*M*=1.48, *SD*=.51).

When sources are compared regardless of location and the media, the only source that received a mean score of 3.00 and above were the thesis supervisors in METU. Moreover, students preferred to ask for help from their thesis supervisors both using online (*M*= 3.82, *SD*=1.14) and face to face (*M*=3.99, *SD*=1.03). It is also notable that some students never ask for help from their thesis supervisors face to face (3 students) or online (7 students). Two of these students never ask for help either face to face or online.

As a source of help outside of METU, School Teachers, Administrators, Ministry of National Education were mostly preferred by using face to face as media type (*M*=1.57, *SD*= .99). However, when it came to the online media type, students preferred online academic communities more (*M*=1.74, *SD*= 1.05) as a source of help than School Teachers, Administrators, Ministry of National Education.

Table 4.4. *Faculty- student and student – student connectedness*

	Total Disagree	Neutral	Total Agree	*M*	*SD*
When I ask questions or submit work to my thesis advisor, I feel like I receive timely feedback.	26	25	131	3.88	1.13
I feel that the feedback I receive from the faculty is valuable.	17	34	131	3.85	.98
I feel I can trust the faculty while I am working on my thesis (e.g., rely on faculty members to follow through on commitments, keep confidences, treat people with respect and help me learn).	29	41	112	3.58	1.01
I feel that I am encouraged to ask questions to the faculty about the thesis process.	34	44	104	3.49	1.03
I feel like I can easily communicate with other students about the thesis.	33	41	108	3.47	1.00
I feel like I can easily communicate with other students who are working on their theses.	35	40	107	3.45	1.02
I feel like I can easily communicate with faculty about the thesis.	33	56	93	3.41	1.04
I feel that students currently working on their theses care about each other.	37	51	94	3.37	1.04
I feel confident that the faculty will support me while I am working on my thesis.	43	47	92	3.35	1.12
I feel I can trust other students who are working on their theses.	38	67	77	3.20	1.01
I feel that I am receiving adequate support from the faculty while I am working on my thesis.	56	52	74	3.14	1.81
I feel connected to other students in the program who are working on their theses.	60	40	82	3.11	1.18
I feel like I can rely on other students who are working on their theses for support.	43	60	69	3.06	1.04
I feel a spirit of community between the faculty and myself while I am working on my thesis.	70	54	58	2.87	1.11
I communicate with faculty members about the thesis process on a regular basis.	76	48	68	2.84	1.16
I feel a spirit of community between other students and myself while I am working on my thesis.	72	60	50	2.81	1.07
I communicate regularly with other students who are working on their theses.	83	46	53	2.76	1.06
I feel like fellow students who are working on their theses are like a family.	85	53	44	2.62	1.15

M= 3.24, *SD*=.77, *n*=182, Total Disagree=1-2, Neutral=3, Total Agree=4-5

Table 4.5. *Faculty- student and student – student connectedness*

		Total Disagree	Neutral	Total Agree	*M*	*SD*
Faculty-student*	When I ask questions or submit work to my thesis advisor, I feel like I receive timely feedback.	26	25	131	3.88	1.13
	I feel that the feedback I receive from the faculty is valuable.	17	34	131	3.85	.98
	I feel I can trust the faculty while I am working on my thesis (e.g., rely on faculty members to follow through on commitments, keep confidences, treat people with respect and help me learn).	29	41	112	3.58	1.01
	I feel that I am encouraged to ask questions to the faculty about the thesis process.	34	44	104	3.49	1.03
	I feel like I can easily communicate with faculty about the thesis.	33	56	93	3.41	1.04
	I feel confident that the faculty will support me while I am working on my thesis.	43	47	92	3.35	1.12
	I feel that I am receiving adequate support from the faculty while I am working on my thesis.	56	52	74	3.14	1.81
	I feel a spirit of community between the faculty and myself while I am working on my thesis.	70	54	58	2.87	1.11
	I communicate with faculty members about the thesis process on a regular basis.	76	48	68	2.84	1.16
Student-student**	I feel like I can easily communicate with other students about the thesis.	33	41	108	3.47	1.00
	I feel like I can easily communicate with other students who are working on their theses.	35	40	107	3.45	1.02
	I feel that students currently working on their theses care about each other.	37	51	94	3.37	1.04
	I feel I can trust other students who are working on their theses.	38	67	77	3.20	1.01
	I feel connected to other students in the program who are working on their theses.	60	40	82	3.11	1.18
	I feel like I can rely on other students who are working on their theses for support.	43	60	69	3.06	1.04
	I feel a spirit of community between other students and myself while I am working on my thesis.	72	60	50	2.81	1.07
	I communicate regularly with other students who are working on their theses.	83	46	53	2.76	1.06
	I feel like fellow students who are working on their theses are like a family.	85	53	44	2.62	1.15

*M= 3.38, SD=.86, **M= 3.09, SD=.85, n=182, Total Disagree=1-2, Neutral=3, Total Agree=4-5

Table 4.4 presented related information about faculty-student and student-student connectedness rates of graduate students. Most of the students agreed on that when graduate students asked a question or send a work to their thesis advisors, they felt they received timely feedback (*M*=3.88, *SD*=1.13). Also, graduate students agreed on value of feedback received from faculty (*M*=3.85, *SD*=.98). With the least mean score of 2.62 (*SD*=1.15), graduate students were neutral about feeling like fellow students who are working on their theses are like a family.

In Table 4.5, faculty- student and student-student connectedness items separated to show the differences between two groups. Both group's mean scores were nearly 3.00 which indicated that students were neutral on existence of connectedness between faculty-student and student- student.

Table 4.6. *Perceived research skills (Personal Effectiveness)*

	Very Poor	Poor	Acceptable	Good	Very Good	*M*	*SD*
Continuing Professional Development	3	15	60	79	25	3.59	.89
Career Management	10	25	65	64	18	3.30	1.01
Preparation and Prioritization	8	33	70	55	16	3.21	.99
Academic Networking	14	43	65	50	10	2.99	1.02
Time Management	14	46	69	44	9	2.93	1.00
Academic Reputation and Esteem	16	39	78	39	10	2.93	1.00
Work- Life Balance	19	51	59	50	3	2.82	1.01

M=3.11, *SD*=.71, *n*=182, Very poor=1, Poor=2, Acceptable=3, Good=4, Very Good=5

As Table 4.6 resulted the perceived research skills in personal effectiveness domain, the item- continuing professional development (*M*=3.59, *SD*=.89) was rated as highest performance. Also, performance rates on career management (*M*=3.30, *SD*=1.01),

preparation and prioritization (*M*=3.21, *SD*=.99) and academic networking (*M*=2.99, *SD*=1.02) were acceptable.

Table 4.7. *Perceived research skills (Knowledge and Intellectual Abilities)*

	Very Poor	Poor	Acceptable	Good	Very Good	*M*	*SD*
Academic Reading	-	7	37	80	58	4.04	.82
Information Seeking	-	4	40	89	49	4.01	.76
Critical Thinking	-	6	47	85	44	3.92	.79
Problem Solving	-	5	51	87	39	3.88	.77
Subject Knowledge	2	5	50	97	28	3.79	.77
Information Literacy and Management	-	10	57	78	37	3.78	.83
Theoretical Knowledge on Research Methods	1	15	50	91	25	3.68	.83
Academic Writing	1	22	49	76	34	3.66	.94
Practical Application on Research Methods	3	23	64	74	18	3.45	.90

M= 3.80, *SD*=.62, *n*=182, Very poor=1, Poor=2, Acceptable=3, Good=4, Very Good=5

As Table 4.7 resulted the perceived research skills in knowledge and intellectual abilities domain, Academic reading (*M*=4.04, *SD*=.82) was rated as highest performance. Also, performance rates on information seeking (*M*=4.01, *SD*=.76), critical thinking (*M*=3.92, *SD*=.79), problem solving (*M*=3.88, *SD*=.77), subject knowledge (*M*=3.79, *SD*=.77), information literacy and management (*M*=3.78, *SD*=.83), theoretical knowledge on research methods (*M*=3.68, *SD*=.83), academic writing (*M*=3.66, *SD*=.94) and practical application on research methods (*M*=3.45, *SD*=.90) were rated as acceptable by the graduate students.

Table 4.8. *Perceived research skills (Research Governance and Organization)*

	Very Poor	Poor	Acceptable	Good	Very Good	*M*	*SD*
Reference Management	2	17	47	85	26	3.58	.98
Research Management	4	11	61	87	19	3.58	.84
Multimedia Management	8	18	55	78	23	3.49	.99
Financial Management	23	35	80	37	7	2.84	1.02
Seeking Scholarship	55	69	45	12	1	2.09	.93
Seeking Funding	58	70	42	10	1	2.04	.91

M=2.94, *SD*=.64, *n*=182, Very poor=1, Poor=2, Acceptable=3, Good=4, Very Good=5

As Table 4.8 resulted the perceived research skills in research governance and organization domain, reference management (*M*=3.58, *SD*=.98) and research management (*M*=3.58, *SD*=.84) were rated as good. Seeking Scholarship (*M*=2.09, *SD*=.93) and seeking funding (*M*=2.04, *SD*=.91) were poor research skills in research governance and organization.

Table 4.9. *Perceived research skills (Engagement, Influence and Impact)*

	Very Poor	Poor	Acceptable	Good	Very Good	*M*	*SD*
Communication	7	20	53	81	21	3.49	.97
Teaching	19	11	53	68	31	3.45	1.16
Team Working	15	20	49	66	32	3.44	1.15
Collaboration	9	20	62	64	27	3.44	1.03
People Management	14	27	54	70	17	3.27	1.07
Supervision	21	23	63	55	20	3.16	1.14
Present at Conferences/ Events	29	53	41	45	14	2.79	1.20
Publication	38	63	51	25	5	2.43	1.05

M= 3.18, *SD*=.82, *n*=182, Very poor=1, Poor=2, Acceptable=3, Good=4, Very Good=5

As Table 4.9 resulted the perceived research skills in engagement, influence and impact domain, communication (*M*=3.49, *SD*=.97) was rated as highest performance on research knowledge and skills. The graduate students also rated the performance on teaching (*M*=3.45, *SD*=.1.16), team working (*M*=3.44, *SD*=1.15), collaboration (*M*=3.44, *SD*=1.03), people management (*M*=3.27, *SD*=1.07) and supervision (*M*=3.16, *SD*=1.14) as acceptable. Also, performance rates on present at conferences/ events (*M*=2.79, *SD*=1.20) and publication (*M*=2.43, *SD*=1.05) were poor.

When four groups of perceived research skills were compared, the highest mean score was 3.80 (*SD*=.62) in the group of knowledge and intellectual abilities. Students rated their research skills in terms of knowledge and intellectual abilities as good. It was followed by engagement, influence and impact (*M*=3.18, *SD*=.82) and personal effectiveness (*M*=3.11, *SD*=.71). The least mean score belonged to research governance and organization (*M*=2.94, *SD*=.64).

Regardless of the categorization, perceived research skill that received the highest mean score was academic reading (*M*=4.04, *SD*=.82) in knowledge and intellectual

abilities group. It was followed by information seeking (*M*=4.01, *SD*=.76) from same group. For both research skills, none of the students rated the skill as very poor. Moreover, without any categorization, perceived research skill that received the least mean score was seeking funding (*M*=2.04, *SD*=.91) in research governance and organization group and it was rated as poor.

4.3. Multiple Linear Regression Results

In order to answer the research question, a standard multiple linear regression analysis was administered.

Table 4.10. *Model Summary*

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.74[a]	.55	.52	.40

a. Predictors: (Constant), Information Resources, Age, Connectedness, RS Personal Effectiveness, Gender, Face to Face Help Seeking, Education Level1, Education Level2, Total Years, RS Intellectual Abilities, RS Impact, RS Research Governance

Table 4.11. *Anova*

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	32.42	12	2.70	17.18	.00[b]
Residual	26.57	169	.16		
Total	58.99	181			

a. Dependent Variable: Online Help Seeking
b. Predictors: (Constant), Information Resources, Age, Connectedness, RS Personal Effectiveness, Gender, Face to Face Help Seeking, Education Level1, Education Level2, Total Years, RS Intellectual Abilities, RS Impact, RS Research Governance

The standard multiple linear regression model with eleven predictors was used. Overall regression model resulted a significant adjusted R^2=.52 (F (12,169) =17.18, p<.001) for the predictors of graduate students' online help seeking behaviors for thesis research. Predictors as a group predict online help seeking behavior significantly with the 52% of total variance.

Table 4.12. *Multiple Regression Analysis Summary*

Variables	B	Std. Error	β	*t*	Sig.
Face to Face Help Seeking Behavior*	.72	.06	.69	11.88	.00
Age*	.02	.01	.22	3.37	.00
RS Research Governance*	.13	.07	.15	2.00	.05
RS Personal Effectiveness*	.11	.05	.14	2.04	.04
Total Years*	-.04	.02	-.13	-2.13	.04
RS Intellectual Abilities*	-.15	.06	-.17	-2.39	.02
Gender	.09	.07	.07	1.23	.22
Information Resources	.05	.06	.05	.86	.39
RS Impact	-.03	.05	-.04	-.64	.53
Connectedness	-.03	.04	-.04	-.75	.45
Education Level1	-.02	.19	-.02	-.08	.89
Education Level2	-.04	.19	-.03	-.21	.84

*p<.05, Education Level1: Master's, Education Level2: Doctoral.

When the relationship between predictors and dependent variable was examined, information resources (t=.86, p=.39), education level (Level1: t=-.08, p=.89, Level2: t=-.21, p=.84), RS impact (t=-.64, p=.53), connectedness (t=-.75, p=.45), and gender (t=1.23, p=.22) were not significant predictors of graduate students' online help seeking behaviors for thesis research.

On the contrary, face to face help seeking behavior (t=11.88, p=.00), age (t=3.37, p=.00), RS research governance (t=2.00, p=.05), RS personal effectiveness (t=2.04, p=.04), RS intellectual abilities (t=-2.39, p=.02) and total years (t=-2.13, p=.04) were the significant predictors of dependent variable online help seeking behavior of graduate students. As seen in the Table 4.12, best predictor of graduate students' online help seeking behavior for thesis research was determined by analyzing β-

standardized regression coefficient value. Face to face help seeking behavior (β= .69) was the best predictor. Age (β= .22), RS research governance (β= .15), RS personal effectiveness (β= .14) were the other predictors in order. Also, total years in the current program (β= -.13) and RS intellectual abilities (β= -.17) were predictors of dependent variable, but there was a significant negative relationship between predictors and dependent variable.

Additionally, to simplify the regression model, stepwise backward method regression analysis was executed. This commonly used method detailed with including all the independent variables into model, then variables that were not significant predictors of dependent variable were removed from the model one by one. Resulted from the execution of this method, six predictors significantly predicted the online help seeking behaviors of graduate students for thesis research. In Model 7, these predictors were face to face help seeking behavior, age, RS research governance, RS personal effectiveness, RS intellectual abilities and total years in the current program. The predictors from model 6 resulted an adjusted R^2=.52 (F (6, 175) =34.101, p<.05). The model was statistically significant with 52% variance to explain dependent variable. Also, correlation values were presented in the Table 4.14 and in Figure 4.1. The relationship between independent variables and dependent variable were presented in Table 4.15.

Table 4.13. *Results of multiple linear regression analysis with backward method- Model 7*

Model	Predictors	Eliminated predictors	Adjusted R^2	Sig.
1	12	--	.52	.00
2	11	Education level1	.52	.00
3	10	Education Level2	.52	
4	9	RS Impact	.53	.00
5	8	Connectedness	.53	.00
6	7	Information resources	.53	.00
7	6	Gender	.52	.00

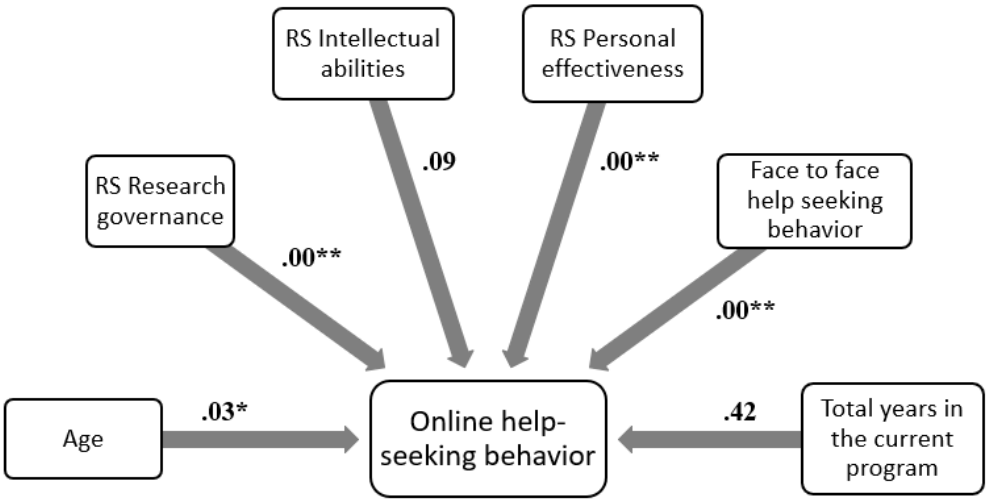

Figure 4.1. Correlations between independent variables and online help seeking behavior

Table 4.14. *Correlations of Model 7*

Model 6 Correlation	Online Help Seeking Behavior	Age	RS Research Governance	RS Intellectual Abilities	RS Personal Effectiveness	Face to Face Help Seeking Behavior	Total Years
Online Help Seeking Behavior	--	.031*	.000*	.087	.002*	.000*	.423
Age	.031*	--	.004*	.072	.043*	.300	.000*
RS Research Governance	.000*	.004*	--	.000*	.000*	.003*	.007*
RS Intellectual Abilities	.087	.072	.000*	--	.000*	.006*	.028*
RS Personal Effectiveness	.002*	.043*	.000*	.000*	--	.051	.249
Face to Face Help Seeking Behavior	.000*	.300	.003*	.006*	.051	--	.189
Total Years	.423	.000*	.007*	.028*	.249	.189	--

*p<.05

Table 4.15. *Pearson Correlation Matrix of All Variables*

	1	2	3	4	5	6	7	8	9	10	11	12
1.Online Help Seeking	--	.099	.139*	.015	.159*	.236**	.685**	.144*	.211**	.101	.258**	.227**
2. Gender	.099	--	-.207*	-.155*	-.007	.176**	.107	.039	-.123*	-.054	-.155*	-.132*
3. Age	.139*	-.207*	--	.417**	.414**	.000	-.039	-.035	.127*	.109	.193**	.225**
4.Total Years	.015	-.155*	.417**	--	.262**	.100	.066	-.219**	.051	.142*	.182**	.122
5.Education Level	.159*	-.007	.414**	.262*	--	.144*	.157*	-.119	.087	.251**	.196**	.220**
6.Information Resources	.236*	.176*	.000	.100	.144*	--	.287**	.066	.128*	.305**	.254**	.234**
7.Face to Face Help Seeking	.685**	.107	-.039	.066	.157*	.287**	--	.214**	.122	.186**	.207**	.267**
8.Connectedness	.144*	.039	-.035	-.219*	-.119	.066	.214**	--	.116	.026	.053	.172*
9.RS Personal Effectiveness	.211*	-.123	.127*	.051	.087	.128*	.122	.116	--	.477**	.548**	.488**
10.RS Intellectual Abilities	.101	-.054	.109	.142*	.251**	.305**	.186**	.026	.477**	--	.582**	.521**
11.RS Research Governance	.258**	-.155*	.193*	.182*	.196**	.254**	.207**	.053	.548**	.582**	--	.560**
12. RS Impact	.227*	-.132*	.225*	.122	.220**	.234**	.267**	.172*	.488**	.521**	.560**	--

*p< .05, **p<.01

4.4. Post Analyses

Considering the contribution of face to face help seeking behavior on online help seeking behavior, a series of post-analyses were conducted to understand the relationship between these variables and the other predictor variables. Table 4.16 shows the matrix of the analyses conducted for post analyses.

Table 4.16. *Matrix of Post analyses and their results*

Analyses	Dependent Variables	Predictors	Result: Significant Predictors	Adjusted R^2
Main Analysis	Online help seeking behavior	• Face to Face Help Seeking Behavior* • Age* • RS Research Governance* • RS Personal Effectiveness* • Information Resources • Education Level • RS Impact • Connectedness • Gender • Total Years* • RS Intellectual Abilities*	• Face to Face Help Seeking Behavior* • Age* • Total Years (-)* • RS Research Governance* • RS Personal Effectiveness* • RS Intellectual Abilities (-)*	52%
Post Analysis 1	Online help seeking behavior	• Age • RS Research Governance • RS Personal Effectiveness • Information Resources* • Education Level • RS Impact • Connectedness • Gender • Total Years • RS Intellectual Abilities*	• Information Resources* • RS Intellectual Abilities (-)*	12%
Post Analysis 2	Face to face help seeking behavior	• Online Help Seeking Behavior* • Age* • RS Research Governance • RS Personal Effectiveness • Information Resources • Education Level • RS Impact • Connectedness* • Gender • Total Years* • RS Intellectual Abilities	• Online Help Seeking Behavior* • Age (-) * • Connectedness* • Total Years*	54%

Post Analysis 1: Removal of Face to face help seeking behavior as the predictor

To understand the individual contribution of face-to-face help seeking on online help seeking behaviors of Faculty of Education graduate students, a post-analysis was conducted. By removing the variable "face to face help seeking" from the analysis, multiple regression was repeated with all other variables with Enter method. Below tables show the multiple regression results. It was found that, when face to face help seeking variable is removed, the remaining predictor variables explained 12% of variance in online help seeking behaviors.

Table 4.17. *Model Summary*

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.42[a]	.17	.12	.54

a. Predictors: (Constant), Information Recourses, Age, Connectedness, RS Personal Effectiveness, Gender, Education Level1, Education Level2, Total Years, RS Intellectual Abilities, RS Impact, RS Research Governance

Table 4.18. *Anova*

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	10.23	11	.93	3.24	.00[b]
Residual	48.77	170	.21		
Total	58.99	181			

a. Dependent Variable: Online Help Seeking
b. Predictors: (Constant), Information Recourses, Age, Connectedness, RS Personal Effectiveness, Gender, Education Level1, Education Level2, Total Years, RS Intellectual Abilities, RS Impact, RS Research Governance

Table 4.19. *Multiple Regression Analysis Summary when face to face help seeking is removed*

Variables	B	Std. Error	β	*t*	Sig.
Information Resources*	.18	.08	.17	2.28	.02
RS Intellectual Abilities*	-.18	.09	-.19	-2.04	.04
Age	.01	.01	.09	.98	.33
RS Research Governance	.17	.09	.19	1.92	.06
RS Personal Effectiveness	.10	.07	.12	1.35	.18
Total Years	-.02	.02	-.07	-.70	.49
Gender	.16	.10	.12	1.61	.11
RS Impact	.06	.07	.08	.86	.39
Connectedness	.07	.06	.01	1.34	.18
Education Level1	-.09	.25	-.08	-.36	.72
Education Level2	.06	.25	.05	.22	.83

*p<.05, Education Level1: Master's, Education Level2: Doctoral.

As seen in Table 4.19, information resources (t=2.28, p=.02) and RS Intellectual abilities (t=-2.04, p=.04) were the significant predictors of online help seeking behavior when the face to face help seeking behavior was removed from the model as predictor variable.

Post Analysis 2: Examination of the predictors of face to face help seeking behavior

Considering that the predictor variable "face to face help seeking behavior" had the highest correlation with the dependent variable and being the most important predictor, this predictor was examined further. Multiple regression analysis was conducted with face to face help seeking behavior both with online help seeking behavior variable as the predictor variable. Tables below show the results of the multiple regression analysis when face to face help seeking behavior is the dependent

variable instead of online help seeking behavior. Overall, with the 54 % of total variance, predictors as a group predicted the face to face help seeking behavior of Faculty of Education graduate students.

Table 4.20. *Model Summary*

Model	R	R^2	Adjusted R^2	Std. Error of he Estimate
1	.75[a]	.57	.54	.34

a. Predictors: (Constant), Information Recourses, Age, Connectedness, RS Personal Effectiveness, Gender, Education Level1, Education Level2, Total Years, RS Intellectual Abilities, RS Impact, RS Research Governance, Online Help Seeking

Table 4.21. *Anova*

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	30.74	12	2.56	18.39	.00[b]
Residual	23.55	169	.14		
Total	54.29	181			

a. Dependent Variable: Face to Face Help Seeking
b. Predictors: (Constant), Information Recourses, Age, Connectedness, RS Personal Effectiveness, Gender, Education Level1, Education Level2, Total Years, RS Intellectual Abilities, RS Impact, RS Research Governance, Online Help Seeking

Table 4.22. *Multiple Regression Analysis Summary when Face to Face Help seeking behavior is the dependent variable*

Variables	B	Std. Error	β	*t*	Sig.
Online Help Seeking Behavior*	.64	.05	.66	11.88	.00
Connectedness*	.10	.04	.14	2.59	.01
Total Years*	.04	.01	.14	2.40	.02
Age*	-.03	.01	-.25	-3.99	.00
RS Research Governance	-.06	.06	-.07	-.88	.38
RS Personal Effectiveness	-.09	.05	-.10	-1.54	.12
RS Intellectual Abilities	.08	.06	.09	1.30	.20
Gender	-.01	.07	-.00	-.08	.94
Information Resources	.07	.06	.07	1.17	.24
RS Impact	.09	.05	.13	1.89	.06
Education Level1	-.04	.17	-.03	-.20	.84
Education Level2	.10	.18	.08	.55	.58

*p<.05, Education Level1: Master's, Education Level2: Doctoral.

According to multiple linear regression analysis results when face to face help seeking behavior was the dependent variable as specified in Table 4.22, online help seeking behavior was best predictor of face to face help seeking behavior with .66 β coefficient value (t=11.88, p=.00). Also, connectedness (t=2.59, p=.01) was the one of the significant predictors of face to face help seeking behavior on the contrary to main analysis results. Other significant predictors resulted from post analysis were total years spent in the current program (t=2.40, p=.02) and age (t=-3.99, p=.00). Age had significant negative influence on face to face help seeking behavior.

4.5. Summary

To determine the factors that affects online help seeking behavior of graduate students for thesis research, an online questionnaire distributed and reached 182 graduate students from the sample in total. As resulted from the descriptive statistics, most frequently used information resource of graduate students was online databases (*M*= 4.63, *SD*= .68) for their thesis research purposes. Electronic journals, search engines, world wide web followed the online databases. Printed books (*M*= 3.36, *SD*= 1.12) was preferred least.

Moreover, graduate students firstly seek help from their thesis supervisor in METU for thesis research (*M*=3.82, *SD*= 1.14) by using online communication tools. Also, results clearly distinguished that they preferred people from METU over outside of METU to get help for their research. Outside of METU, online academic communities (*M*=1.74, *SD*= 1.05) was mostly used to ask help by using online communication tools.

Graduate students mostly seek help from their thesis supervisor face to face in METU for thesis research (*M*=3.99, *SD*= 1.03). Outside of METU, School Teachers, Administrators, Ministry of National Education (*M*=1.57, *SD*= .99) was mostly asked for help face to face for thesis research.

To determine the predictors of online help-seeking behavior of graduate students for thesis research, a multiple linear regression analysis was administered. Enter method and stepwise backward method regression analysis were executed with 11 independent variables. According to the results of model analysis, the online help seeking behaviors of graduate students for thesis research was statistically significantly predicted by the six of the predictors in Model 7. These predictors were face to face help seeking behavior (*t*=11.95, *p*=.00), age (*t*=3.45, *p*=.00), RS research governance (*t*=2.00, *p*=.05), RS personal effectiveness (*t*=2.06, *p*=.04), RS intellectual abilities (*t*=-2.42, *p*=.01) and total years (*t*=-2.13, *p*=.01). As a result, predictors explained 52% total variance.

To investigate relationship between other variables beside online help seeking behavior variable, post analyses were conducted. Firstly, from the main analysis, face to face help seeking behavior was removed and multiple linear regression analysis was administered. After this analysis, influence of predictive factors on face to face help seeking behavior was examined with multiple linear regression analysis. The results of these post analyses were revealed that removing face to face and online help seeking behavior from the analysis changed the total variance of each analysis separately. Also, findings of post analysis which face to face help seeking behavior was dependent variable were showed that four predictors were found as significant predictors; online help seeking behavior (t=11.88, p=.00), connectedness (t=2.59, p=.01), total years (t=2.40, p=.02) and age (t=-3.99, p=.00), and predictors explained 54% total variance.

CHAPTER 5

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

In this chapter, results of the study were discussed in terms of research question based on the information reviewed from the literature. Also, conclusion, implications of the results and recommendations for future research studies were presented.

It was aimed in the study to investigate influential factors on Faculty of Education graduate students' online help seeking behaviors for their thesis. For this purpose, correlational research design was used, and data were collected by using online questionnaire instrument which was administered to the Faculty of Education graduate students in Middle East Technical University. The collected data was analyzed to determine the predictors of graduate students' online help seeking behavior.

5.1. Discussion about Factors Influencing Graduate Students' Online Help-Seeking Behaviors

When the multiple linear regression analysis results were examined, six factors were statistically significant to predict the online help seeking behaviors of graduate students for thesis research. These predictors were face to face help seeking behavior, age, research governance, personal effectiveness and intellectual abilities which were knowledge and skills specified in researcher development framework, and total years in the current program. On the other hand, predictors: gender, perceived research skill impact, education level, connectedness and information resources had no statistically significant influence on online help seeking behavior.

The results of this study showed that the best predictor of online help seeking behavior was face to face help seeking behavior for graduate students' thesis research. In the reviewed literature, both face to face and online help seeking behavior was studied and compared to each other (Lee & Tsai, 2011). Some of the studies revealed that students tend to choose face to face help seeking rather than online (Mahasneh, Sowan

& Nassar, 2012). To better analyze the results of current study, face to face help seeking behavior of graduate students divided into two location; seeking help from resources inside METU and outside of METU. Regardless of location, graduate students often seek help from their thesis supervisor which is consistent with reviewed literature (George et al., 2006; Lechuga, 2011; Thomas et al., 2017). However, it was noted that few of the participants specified they never asked help from their thesis supervisors. If they enrolled the program newly and yet started study about their theses, they would not need help and ask for it. Considering the Faculty of Education graduate students' research studies, School Teachers, Administrators, Ministry of National Education was first preferred source of help outside of METU, but most of the students rated their asking frequency as "rarely". Hence, there was significant positive relationship between online and face to face help seeking behaviors. One-unit change in the face to face help seeking behavior was explained by .69 change in the online help seeing behavior. It can be concluded as when graduate students seek help from people outside or inside METU face to face, they can also reach them by using online communication tools.

The multiple regression analysis was resulted that age was significant predictor of online help seeking behavior for thesis research. In this current study, findings indicated that when the graduate students' age increases, tendency of online help seeking behavior for thesis research purposes increases. Most of the participants' age ranged from 22 to 30 in the study who were adult learners. Literature review presented the studies which examined the relationship between help seeking behavior and age. Although one of the research studies concluded that there was reverse relationship between these variables (Dunn et al., 2014), research of Hsu et al. (2018) revealed the positive effect of age on help seeking behavior of adult learners. In the current study, the results were consistent with Hsu et al. (2018)'s findings. Participants' age range in their study was wide but results of the study including same age group (21- 39 years) presented a positive relationship. Therefore, age as a demographic factor was a predictor of graduate students' online help seeking behavior. Graduate students who

are older tend to seek help by using online communication tools when they need help during their theses.

Total years spent in the registered graduate program was found significant predictor of online help seeking behavior of graduate students for thesis research. Results indicated that there was reverse relationship between total years and online help seeking behavior; the more years spent in the current program, the less online help seeking behavior (Sloan & McPhee, 2013). To specifically explain the results and other factors concluding this result, post analysis was conducted, and the findings was investigated. According to the post analysis results, it was revealed that there was significant positive relationship between face to face help seeking behavior and total years spent in the current program. Graduate students who spent more time in the faculty and with peers, can be more connected and instead of asking help via using online communication tools, they may prefer getting help in person.

It was found that there was a significant relationship between online help seeking behavior and three of four research knowledge and skills explained by the Researcher Development Framework (Vitae, 2011). These three predictors were research governance, personal effectiveness and intellectual abilities as perceived research skills. Among these three perceived research skills, research governance and organization were the highest prediction rate on online help seeking behavior. When we close look the items under this domain, they are related to reference management, research management, multimedia management and participants rated those skills as good. Another predictive perceived research skill was personal effectiveness which expresses qualities of a person to be active researcher (McAlpine & Asghar, 2010). Among the items under this domain, continuing professional development was about being aware of person's own capabilities and taking necessary steps to develop them and it was rated as good by most of the graduate students in accordance with the literature (Gardner, 2009). Knowledge and intellectual abilities as perceived research skill were last predictive skill according to the framework; however, there was negative relationship between this research skill and online help seeking behavior.

Also, according to the findings, among four domains, knowledge and intellectual abilities had highest mean score, most of the graduate students rated their knowledge and intellectual abilities with eight out of nine items as good. Items under this domain were related to necessary abilities to be successful in academia and items are academic reading, information seeking, critical thinking, problem solving, subject knowledge, academic writing and research methods. Because of the negative correlation, it can be concluded that higher the perceived knowledge and intellectual abilities, lower the online help seeking behavior. Also, when the items were examined regardless of the categorization, academic reading in the knowledge and intellectual abilities domain was rated highest (Vitae, 2011). Then, information seeking from same domain followed it. Therefore, it can be said that the domains of perceived research skills and their related items were the predictors of online help seeking behavior of graduate students for their thesis research.

The findings showed that the Researcher Development Framework domain; engagement, influence and impact research skill was not significant predictor of online help seeking behavior. Under this domain, there were items such as communication, teaching, team working, collaboration, presenting at conferences/event and publication which were practical skills of future researchers and academics (Gilbert, 2004; Wheeler et al., 2011). All related items require physical interaction to accomplish. Therefore, although this domain was the one of the high rated knowledge and abilities, it was not a predictor of online help-seeking behavior.

As resulted in the study, gender was not a significant predictor of online help seeking behavior of graduate students for thesis research. The results were consistent with the study of Hao et al. (2016) which concluded that there was no significant effect of gender on online help seeking behavior. However, there were studies revealed a significant relationship between gender and help-seeking behavior (Blondeau & Awad, 2017; Hsu et al., 2018). These studies concluded that seeking help from people especially from professors can be difficult for female students because of gender differences. Male students are more likely to receive intended or unintended help. In

accordance to this problem, cultural barriers can influence female and male students' help seeking behaviors (Al-Muomen et al., 2012).

The results of this study showed that connectedness was also not a significant predictor of online help-seeking behavior of graduate students for thesis research. In development of graduate students, intellectually and academically, faculty- student and student- student connectedness plays an important role (Lahenius, 2012). At this point, the literature showed that students mostly seek help from their faculty members, peers and librarians (George et al., 2006; Sloan et al., 2013; Thomas et al., 2017). Roles of faculty members can be defined as advisor, instructor, employer and social agent (Lechuga, 2011). Also, peers or fellow students are agents to seek help and exchange information (Lee et al., 2017). Moreover, according to the findings in the literature, instead of asking teacher for help by using online communication tools, students tend to search online (Hao, Barnes, Wright, et al., 2017). In line with this study, findings of present research showed that connectedness was not a predictor of online help seeking behavior. To explore behind this result, the relationship between connectedness and other variables was investigated and post analysis was conducted. According to the results of post analysis, it was seen that there was a significant relationship between faculty- student and student- student connectedness and face to face help seeking behavior of graduate students. The reason of this can be instead of online communication tools, graduate students choose to ask for help from students and faculty members via face to face on the contrary to the research of Koc & Liu (2016). When we consider the context of this research study, METU is a campus university, all the faculties are in the same place. Students can spend time with fellow students socially and academically in common places. Therefore, in a different context, the results may differ so there is need for further investigation.

Factors that influencing online help seeking behavior of graduate students for thesis research were examined in the study and according to the results, information resources was not a significant predictor. When the literature related to information resources used for seeking information both online and physical was overviewed,

graduate students' preferences and tendencies were revealed. As a result, studies showed that students mostly started their research by using online resources like online databases (Scopus, Web of Science, or IEEE), Google Scholar, and search engines (Balog et al., 2018; Cheng et al., 2017; Cizmesija & Vidacek-Hains, 2017; Liyana et al., 2014; Wu et al., 2012). Furthermore, in the literature, while graduate students were preferring the online information resources for their theses, there were also opposite results concluded from the related studies. Physical information resources were first choice of graduate students to start their research process such as libraries and printed books (George et al., 2006; Thomas et al., 2017). Moreover, in the current study, when the frequency of using information resources was asked to graduate students for thesis research purposes in a given list with 5-point Likert scale, most of the students specified that they always used online databases (e.g. Web of Science, Google Scholar) and electronic journals. Beside these resources, search engines, World Wide Web, university library website, and dissertations/thesis were often used resources by the Faculty of Education graduate students for thesis research.

Also, education level was not significant predictor of graduate students' online help seeking behavior for thesis research as result of the current study. Education levels examined in the study were M.S. and M.A., Ph.D. and Ph.D. on B.S. To further investigate and better understand the reason behind this result, post analysis was run, and results of post analysis displayed that there was significant relationship between education level and face to face help seeking behavior, and between education level and faculty-student/ student-student connectedness. Especially, in M.S. and M.A., and Ph.D. level of education, there were significant positive relationship. Therefore, in the Faculty of Education, graduate students connected to faculty and other students and tend to seek help via face to face rather than online when they needed help.

According to the results of main and post analysis which was administered to investigate the influence of variables further on online and face to face help seeking behavior, significant predictors were slightly different in each multiple regression analysis result. When face to face help seeking behavior was the dependent variable

instead of online help seeking behavior, online help seeking behavior, connectedness, age, and total years were the significant predictors. The findings revealed that both face to face and online help seeking behavior were the best predictor of each other. Also, when the results of main and post analyses compered, it was seen that faculty-student and student-student connectedness was the significant predictor of face to face help seeking behavior. However, it was not a predictor of online help seeking behavior. These results can be concluded as graduate students who are connected to faculty and students tend to seek help face to face. Also, findings of post analysis revealed that perceived research skills had no significant influence on face to face help seeking behavior unlike online help seeking behavior.

5.2. Conclusion

Online help seeking behavior as a self-regulated learning strategy was examined in this study and predictors of graduate students' online help seeking behavior for thesis research were investigated. Age was one of these predictors. There is positive relationship between age and online help seeking behavior; when the age of graduate student increase, they tend to seek help online. Also, total years in the current program was one of the predictors of online help seeking behavior. However, spent years have reverse influence on online help-seeking behavior. The research results indicated that students who spent more years in the program develop their relations with the potential help givers (faculty members and peers) and when they need help, they ask for help via face to face instead of using online communication tools. Moreover, according to the findings, face to face help seeking behavior was best predictor of online help seeking behavior. Significant relationship between face to face and online help seeking behavior can be explained with the context of this study. In the Faculty of Education, graduate students can ask for help face to face and online. Perceived research skills and knowledge; research governance, personal effectiveness and intellectual abilities were also found as predictors of online help seeking behavior according to the results of current study. While there was significant positive relationship between graduate students' online help seeking behavior and research

governance and personal effectiveness, the relationship between intellectual abilities and online help seeking behavior was significant but negative. When the perceived intellectual abilities of graduate students increase, frequency of their online help seeking behavior decreases.

According to the results of this study, there were five predictors which had no significant influence on online help seeking behavior of graduate students for their theses research. These predictors were gender, education level, information resources, connectedness and impact as perceived research knowledge and skills.

5.3. Implications

The findings of this research provide an understanding of graduate students' online help seeking behavior as a self-regulated learning strategy and factors influencing this behavior. As a result, it can be proposed some implications for thesis supervisors and faculty that provide necessary facilities to utilize proposed implications alongside graduate students.

According to the results of this study, graduate students mostly seek help from their thesis supervisor in METU both using online and face to face communication tools. To provide adequate help that graduate students required for their thesis research when they needed, thesis supervisors can facilitate this help seeking process via foreseeing the necessary steps which graduate students go through and guiding them with the resource and information sharing and communicating through the whole process with both using face to face and online communication tools. Thus, graduate students can easily complete intricate thesis research process, it can be especially more important for novice researchers.

The results of this study showed that graduate students' online help seeking behavior for thesis research can be influenced by the perceived research skills from the Researcher Development Framework (Vitae, 2011) which are knowledge and intellectual abilities, research governance and organization and personal effectiveness. To improve these knowledge and skills, guidance and trainings should be provided to

the graduate students who are future academicians. Therefore, it can be suggested that development of research skills like presenting at conference, publication, academic writing or academic networking should be a priority for the faculties and institutions in higher education,

The findings of this study revealed that as information resources, graduate students tend to use online resources more frequently like online databases and electronic journals because they provide wide and enough resources from across the world and thus fulfill graduate students' requests. Therefore, it can be suggested that novice researchers should be trained how to use online databases efficiently with appropriate search commands. Training should include selecting keywords for search, using Boolean operators (and- or), different form of operators (+ * "") and searching the article according to year, author or topic.

5.4. Limitations

In this study, to investigate the factors influencing online help seeking behavior of Faculty of Education graduate students, correlational research design was used and to collect data online questionnaire instrument was administered. Rate of participation to the study was 26 % and it was represented the accessible population who was Faculty of Education graduate students in METU (Tabacknick & Fidell, 2013). This research should be applied to larger population to compare the outcomes. Although all the participants participated the study voluntarily, self- reported questionnaire was the only source of data and this can have an influence on validity and reliability of the study. Although the groups of items used in the multiple regression analysis had strong internal consistency and the factor analysis resulted in similar number of factors as expected in the study, the questionnaire needs further improvement and testing with larger groups.

To collect detailed and further information about online help seeking behavior of graduate students, interviews can be conducted to graduate students and especially faculty members who were advisors or potential source of help for graduate students

during their thesis research process. Therefore, when the method used in this study was considered, the results of this research should be generalized to the population carefully.

5.5. Recommendations

This study contributes to the literature by examining the different factors influencing online help seeking behavior of graduate students for thesis research together. Discussed influence of these factors including age, gender, education level, total years in the current program, information resources, face to face help seeking behavior, faculty-student and student-student connectedness and perceived research skills can be researched in the future studies.

The data collection process took part in METU, Turkey, to examine the factors influencing graduate students' online help seeking behaviors for thesis research purposes. Also, quantitative data were gathered. Therefore, in the light of findings of this study, further investigation can be applied in different universities and contexts with the factors examined in this research by using both quantitative and qualitative data collection instruments such as semi-structured interviews.

Also, graduate students were the only participants of this study. According to the reviewed literature, face to face or online, help seeking behavior of graduate students can be influenced by searching processes including different agents like faculty members, supervisors, librarians or institutions, and resources such as online or physical information resources, journals, libraries or online communities. Especially, including these agents to the research can bring different perspectives and understanding to the online help seeking behavior and influencing factors. Hence, in future studies, agents should take part of the study for further investigation via interviews and questionnaire.

Moreover, the language of instruction was English in METU where this research study was employed. Although English language is second language of the participants, they are capable of writing and reading in English very well. They may find resources in

English without difficulty or seek help online from people across the world without language barrier. Therefore, repeating this study in different language can be outcome different results. Also, considering cultural factors can be significant in future studies.

In future studies, technology enhanced learning and instruction can be included to this research. Investigation of its relationship with online help seeking behavior can contribute to the help seeking literature. Especially, variables investigated in this study can be further investigated with technology enhanced learning and instruction.

In this research, the relationship between the factors and online help seeking behavior of graduate students was investigated. Online communities and forums like ResearchGate can be also considerable resources of information which graduate students use to seek help. Therefore, the research can be conducted on forum data logs, asked questions and answers to track online help seeking behavior. The results of the content analysis can provide valuable insights to improve support systems and to develop and utilize more efficient online platforms to help graduate students during their thesis process.

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APPENDICES

A. FACULTY OF EDUCATION GRADUATE STUDENTS' ONLINE HELP-SEEKING BEHAVIORS FOR THESIS RESEARCH QUESTIONNAIRE

Dear Graduate Student,

This questionnaire is conducted as part of a thesis research study in the Department of Computer Education and Instructional Technology at Middle East Technical University.

The aim of this study is to identify the factors that predict the online help-seeking behaviors of graduate students for thesis research. Your participation in the research should be entirely voluntary. You are not required to provide any identifying information.

As a token of appreciation, the researcher will do a drawing of 25TL online D&R gift card for 10 participants.

Your answers will be kept strictly confidential and will only be evaluated by the researchers. The information to be obtained from the participants will be evaluated collectively and used in scientific publications.

The questionnaire does not include questions or practices that may cause personal discomfort in general. However, if you feel uncomfortable while completing the questionnaire, you are free to quit any time.

Your contribution is highly appreciated, and I would like to thank you in advance. If you have any questions, please send an e-mail to me: yildiz.uzun@metu.edu.tr

M.S. Student Yıldız Uzun, CEIT, METU

* **I have read the above information and agree to this work completely voluntarily.**

○ Yes ○ No

Part I. Demographic Information

* **Gender**

Please choose...

* **Age**

* **Education level**

Please choose...

* **Graduate program**

Please choose...

* **Total years in the current program**

Part II. Help Seeking Behavior

Please rate completion level of the following requirements for your degree program.

	Successfully Completed	Not Completed
Master's Courses	○	○
Master's Thesis	○	○
Doctoral Courses	○	○
Doctoral Proposal Defense	○	○
Doctoral Comprehensive Exam	○	○
Doctoral Thesis	○	○

*** In general, how often do you use the following information sources for your thesis research?(If it is not applicable, please choose "Never")**

	Never	Rarely	Sometimes	Often	Always
World Wide Web	○	○	○	○	○
Search Engines (e.g. Google, Yandex)	○	○	○	○	○
Electronic Journals	○	○	○	○	○
Online Databases (e.g. Web of Science, Google Scholar)	○	○	○	○	○
University library website	○	○	○	○	○
Printed books	○	○	○	○	○
Dissertations, theses	○	○	○	○	○

* **In general, how often do you ask for help from the following sources for your thesis, using Online Communication Tools? (If it is not applicable, please choose "Never")**

	Never	Rarely	Sometimes	Often	Always
Thesis Supervisor	○	○	○	○	○
Thesis Jury Members / Co-advisor in METU	○	○	○	○	○
Thesis Jury Members / Co-advisor in other universities	○	○	○	○	○
Other Faculty/ Instructors in METU	○	○	○	○	○
Other Faculty/ Instructors in other universities	○	○	○	○	○
Research Assistants in METU	○	○	○	○	○
Research Assistants in other universities	○	○	○	○	○
Other Graduate Students in METU	○	○	○	○	○
Other Graduate Students in other universities	○	○	○	○	○
School Teachers /Administrators/ Ministry of National Education	○	○	○	○	○
Other Experts/ Specialists	○	○	○	○	○
Online Academic Communities (e.g. Research Communities, Forums)	○	○	○	○	○

* **In general, how often do you ask for help from the following sources for your thesis, Face to Face? (If it is not applicable, please choose "Never"**

	Never	Rarely	Sometimes	Often	Always
Thesis Supervisor	○	○	○	○	○
Thesis Jury Members / Co-advisor in METU	○	○	○	○	○
Thesis Jury Members / Co-advisor in other universities	○	○	○	○	○
Other Faculty/ Instructors in METU	○	○	○	○	○
Other Faculty/ Instructors in other universities	○	○	○	○	○
Research Assistants in METU	○	○	○	○	○
Research Assistants in other universities	○	○	○	○	○
Other Graduate Students in METU	○	○	○	○	○
Other Graduate Students in other universities	○	○	○	○	○
School Teachers /Administrators/ Ministry of National Education	○	○	○	○	○
Other Experts/ Specialists	○	○	○	○	○

* **Please rate each sentence from Strongly Disagree to Strongly Agree.**

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel that students currently working on their theses care about each other.	○	○	○	○	○
I feel that I am encouraged to ask questions to the faculty about the thesis process.	○	○	○	○	○
I feel connected to other students in the program who are working on their theses.	○	○	○	○	○
I feel a spirit of community between the faculty and myself while I am working on my thesis.	○	○	○	○	○
I feel like I can easily communicate with other students about the thesis.	○	○	○	○	○
When I ask questions or submit work to my thesis advisor, I feel like I receive timely feedback.	○	○	○	○	○
I communicate with faculty members about the thesis process on a regular basis.	○	○	○	○	○
I feel like fellow students who are working on their theses are like a family.	○	○	○	○	○
I communicate regularly with other students who are working on their theses.	○	○	○	○	○
I feel I can trust other students who are working on their theses.	○	○	○	○	○
I feel that I am receiving adequate support from the faculty while I am working on my thesis.	○	○	○	○	○
I feel that the feedback I receive from the faculty is valuable.	○	○	○	○	○
I feel a spirit of community between other students and myself while I am working on my thesis.	○	○	○	○	○
I feel confident that the faculty will support me while I am working on my thesis.	○	○	○	○	○
I feel like I can rely on other students who are working on their theses for support.	○	○	○	○	○
I feel I can trust the faculty while I am working on my thesis (e.g., rely on faculty members to follow through on commitments, keep confidences, treat people with respect and help me learn).	○	○	○	○	○
I feel like I can easily communicate with other students who are working on their theses.	○	○	○	○	○
I feel like I can easily communicate with faculty about the thesis.	○	○	○	○	○

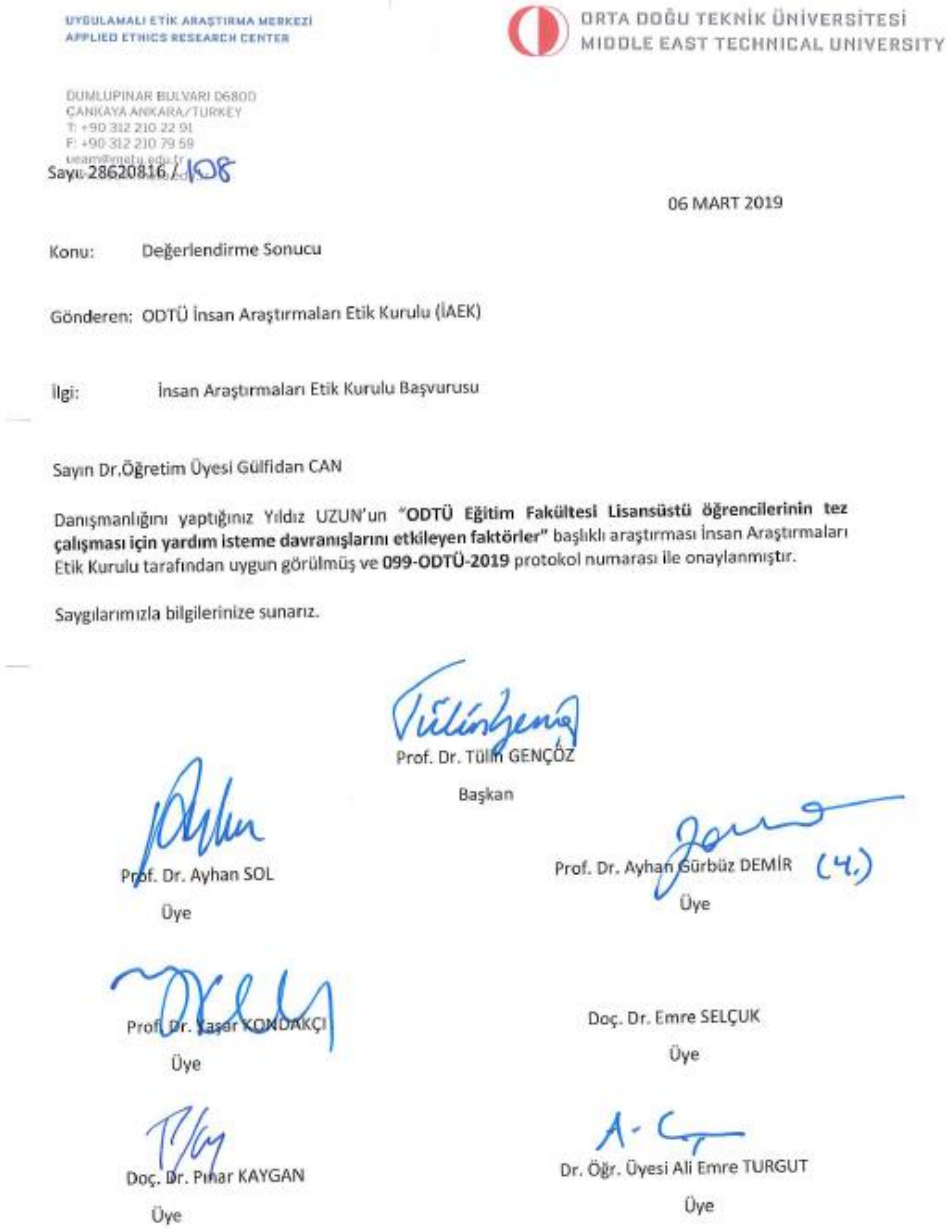
* **Please rate your current performance on the following research knowledge and skills (Personal Effectiveness) (If it is not applicable, please choose "very poor")**

	Very Poor	Poor	Acceptable	Good	Very Good
Career Management	○	○	○	○	○
Continuing Professional Development	○	○	○	○	○
Academic Networking	○	○	○	○	○
Academic Reputation and Esteem	○	○	○	○	○
Work- Life Balance	○	○	○	○	○
Time Management	○	○	○	○	○
Preparation and Prioritization	○	○	○	○	○

* **Please rate your current performance on the following research knowledge and skills (Knowledge and Intellectual Abilities)(If it is not applicable, please choose "very poor")**

	Very Poor	Poor	Acceptable	Good	Very Good
Subject Knowledge	○	○	○	○	○
Theoretical Knowledge on Research Methods	○	○	○	○	○
Practical Application on Research Methods	○	○	○	○	○
Information Seeking	○	○	○	○	○
Information Literacy and Management	○	○	○	○	○
Academic Reading	○	○	○	○	○
Academic Writing	○	○	○	○	○
Critical Thinking	○	○	○	○	○
Problem Solving	○	○	○	○	○

B. MIDDLE EAST TECHNICAL UNIVERSITY APPLIED ETHICS RESEARCH CENTER APPROVAL FORM



UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

ORTA DOĞU TEKNİK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

DUMLUPINAR BULVARI D6800
ÇANKAYA ANKARA/TURKEY
T: +90 312 210 22 91
F: +90 312 210 79 59

Sayı: 28620816 / 108

06 MART 2019

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Dr.Öğretim Üyesi Gülfidan CAN

Danışmanlığını yaptığınız Yıldız UZUN'un **"ODTÜ Eğitim Fakültesi Lisansüstü öğrencilerinin tez çalışması için yardım isteme davranışlarını etkileyen faktörler"** başlıklı araştırması İnsan Araştırmaları Etik Kurulu tarafından uygun görülmüş ve **099-ODTÜ-2019** protokol numarası ile onaylanmıştır.

Saygılarımızla bilgilerinize sunarız.

Prof. Dr. Tülin GENÇÖZ
Başkan

Prof. Dr. Ayhan SOL
Üye

Prof. Dr. Ayhan Gürbüz DEMİR (4.)
Üye

Prof. Dr. Yaşar KONDAKÇI
Üye

Doç. Dr. Emre SELÇUK
Üye

Doç. Dr. Pınar KAYGAN
Üye

Dr. Öğr. Üyesi Ali Emre TURGUT
Üye

C. CONSENT FORM FOR VOLUNTARY PARTICIPATION (TURKISH)

Bu araştırma, ODTÜ Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümü Yüksek Lisans öğrencisi Yıldız Uzun tarafından Dr. Öğretim Üyesi Gülfidan Can danışmanlığındaki yüksek lisans tezi kapsamında yürütülmektedir. Bu form sizi araştırma koşulları hakkında bilgilendirmek için hazırlanmıştır.

Araştırmanın amacı, lisansüstü öğrencilerinin tez çalışması için yardım isteme davranışlarını etkileyen faktörleri belirlemektir. Araştırmaya katılımınız tamamen gönüllülük temelinde olmalıdır. Çalışmada sizden kimlik veya kurum belirleyici hiçbir bilgi istenmemektedir. Cevaplarınız tamamıyla gizli tutulacak ve sadece araştırmacılar tarafından değerlendirilecektir. Katılımcılardan elde edilecek bilgiler toplu halde değerlendirilecek ve bilimsel yayımlarda kullanılacaktır.

Anket, genel olarak kişisel rahatsızlık verecek sorular veya uygulamalar içermemektedir. Ancak, katılım sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz anketi yarıda bırakıp çıkmakta serbestsiniz.

Çalışma hakkında daha fazla bilgi almak için Bilgisayar ve Öğretim Teknolojileri Eğitimi Bölümü öğrencisi Yıldız Uzun (E-posta: yildiz.uzun@metu.edu.tr) ile iletişim kurabilirsiniz.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

(Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

İsim Soyad Tarih İmza

---/----/-----

D. FIRST E-MAIL SENT TO PARTICIPANTS (TURKISH AND ENGLISH)

Konu: Tezim için Anket Desteği

Merhabalar **<isim>,**

ODTÜ-BÖTE Yüksek Lisans tezim için bir anket uyguluyorum. Analizim için çok sayıda katılımcıya ihtiyacım var. Anket yaklaşık 10 dk. sürer. Çekilişle 10 kişiye, 25 TL değerinde Online D&R hediye kartı vereceğim (Anketi tamamladığınızda, katılım için gerekli bilgiyi görebilirsiniz). Yardımcı olabilirseniz çok sevinirim ☺

Link: https://survey.metu.edu.tr/index.php?sid=74955&newtest=Y&lang=en

Çok teşekkürler! ☺
Yıldız

Title: Could you please help me with my thesis by filling a questionnaire?

Hello <**name>,**

I am collecting data using a questionnaire for my Masters' thesis. My data analysis requires a high participation rate. The questionnaire will take about 10 minutes. I will do a drawing and give 25 TL Online D&R gift cards to 10 participants (You can see information about drawing at the end of the questionnaire). I would appreciate your help ☺

Link: https://survey.metu.edu.tr/index.php?sid=74955&newtest=Y&lang=en

Thank you very much! ☺
Yıldız

E. SECOND E-MAIL SENT TO PARTICIPANTS (TURKISH)

Konu: Tezim için Anket Desteği

Merhabalar **<<isim>> hocam,**

ODTÜ-BÖTE Yüksek Lisans tezim için bir anket uyguluyorum. Eğer daha önce doldurduysanız e-mail tekrarı için özür dilerim. Maalesef ihtiyacım olan katılımcı sayısına henüz ulaşamadım. Anket yaklaşık 10 dk. sürer. Çekilişle 10 kişiye, 25 TL değerinde Online D&R hediye kartı vereceğim (Anketi tamamladığınızda, katılım için gerekli bilgiyi görebilirsiniz). Yardımcı olabilirseniz çok sevinirim ☺

Link: https://survey.metu.edu.tr/index.php?sid=74955&newtest=Y&lang=en

Çok teşekkürler! ☺
Yıldız Uzun

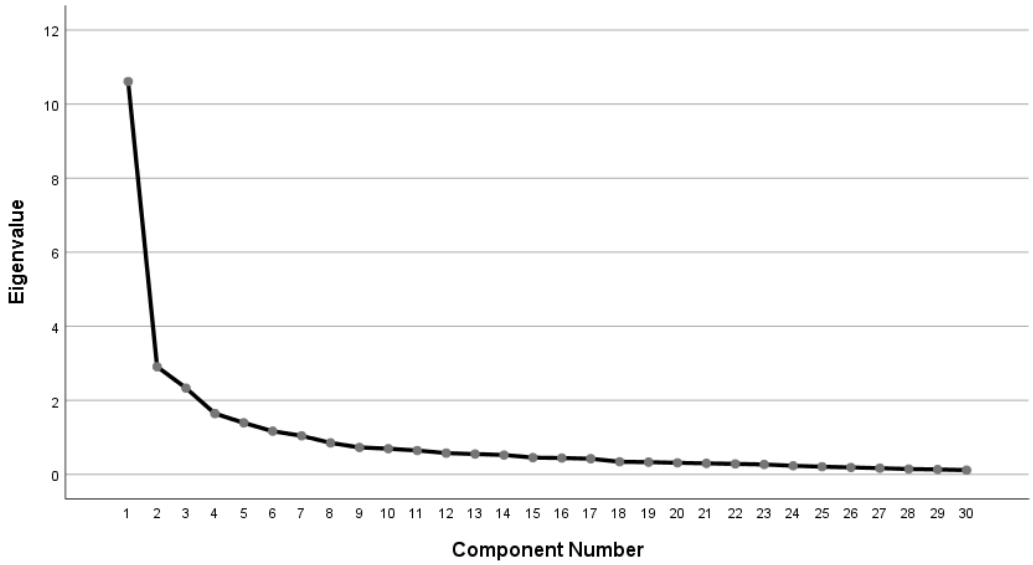
F. FACTOR ANALYSIS

1. Research Skills Scale

Principal Component Analysis with Varimax rotation was used. Seven-factor model explained 70.31% of the variance in research skills. The results showed that, all four areas of research skills were represented in the factor analysis, however Effectiveness and Impact dimensions were divided into two different factors. Moreover, due to cross-loadings, a total of 6 factors were found. Scree plot showed 4 factors.

When 4-factor model was extracted and Maximum Likelihood with Direct Oblimin rotation was used, the results showed that the 4-factor model explained 52.43% of the total variance in the scale. Again, all four research skills were represented in the model.

Scree Plot of Research Skills Scale



Rotated Component Matrix of Research Skills Scale

	Component						
	1	2	3	4	5	6	7
I_Abilities_8	.826						
I_Abilities_6	.762			.318			
I_Abilities_5	.739						
I_Abilities_7	.712						
I_Abilities_2	.682				.347		
I_Abilities_9	.674	.412					
I_Abilities_4	.657				.334		
RGovernance_1	.609						.360
I_Abilities_3	.603				.507		
I_Abilities_1	.585		.421				
Impact_5		.840					
Impact_4		.803			.372		
Impact_6		.790					
Impact_3		.731			.370		
Impact_7		.711					
Impact_8		.683					
P_Effectiveness_2			.738				
P_Effectiveness_1			.714	.335			.315
P_Effectiveness_3		.322	.592				
P_Effectiveness_4			.574		.373		
P_Effectiveness_6				.846			
P_Effectiveness_5				.701			
P_Effectiveness_7	.371			.665			
Impact_2					.767		
Impact_1					.730		
RGovernance_6						.902	
RGovernance_5						.880	
RGovernance_4							.664
RGovernance_3	.467						.638
RGovernance_2	.301	.439					.576

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Pattern Matrix of Research Skills Scale

	Factor			
	1	2	3	4
I_Abilities_4	.800			
I_Abilities_2	.798			
I_Abilities_3	.765			
I_Abilities_5	.763			
I_Abilities_8	.760			
I_Abilities_6	.703			
RGovernance_1	.694			
I_Abilities_7	.626			
I_Abilities_1	.608			
I_Abilities_9	.568	-.240		
RGovernance_3	.562			
Impact_2	.438	-.305		
Impact_1	.414	-.266		
Impact_4		-.932		
Impact_5		-.928		
Impact_3		-.781		
Impact_6		-.705		
Impact_7		-.607		
Impact_8		-.588		
RGovernance_2	.293	-.355		
P_Effectiveness_3		-.300	.222	.236
RGovernance_5			.893	
RGovernance_6			.878	
RGovernance_4			.237	.230
P_Effectiveness_6				.882
P_Effectiveness_5				.686
P_Effectiveness_7	.204			.685
P_Effectiveness_1				.493
P_Effectiveness_2	.271			.412
P_Effectiveness_4		-.225	.217	.233

Extraction Method: Maximum Likelihood.

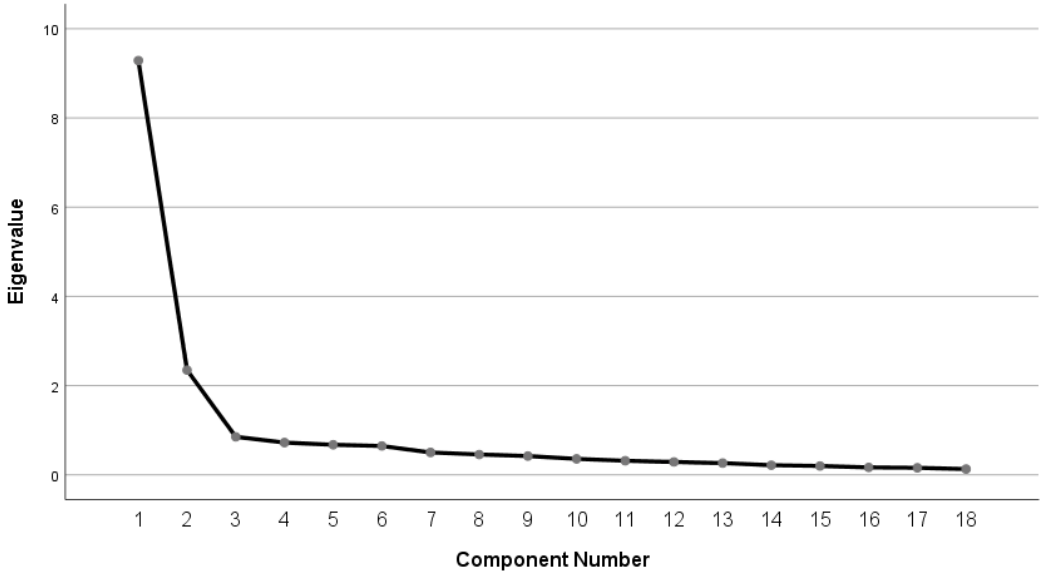
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 9 iterations.

2. Connectedness Scale

Principal Component Analysis with Varimax rotation resulted in 64.63% total variance explained with 2-factor solution. Scree plot also showed 2-factor model. When Maximum Likelihood method was used with Direct Oblimin rotation, the results were similar. Two-factor model explained 60.33% variance.

Scree Plot of Connectedness Scale



Rotated Component Matrix of Connectedness Scale

	Component	
	1	2
C_13- student- student connectedness	.800	.297
C_9- student- student connectedness	.790	
C_10- student- student connectedness	.785	
C_15- student- student connectedness	.782	.253
C_17- student- student connectedness	.780	.242
C_3- student- student connectedness	.773	.259
C_8- student- student connectedness	.761	.226
C_5- student- student connectedness	.687	.375
C_1- student- student connectedness	.675	
C_11- faculty to student connectedness	.232	.861
C_18- faculty to student connectedness	.334	.823
C_14- faculty to student connectedness	.331	.809
C_16- faculty to student connectedness	.331	.762
C_2- faculty to student connectedness	.271	.738
C_12- faculty to student connectedness	.285	.718
C_6- faculty to student connectedness		.698
C_7- faculty to student connectedness	.232	.677
C_4- faculty to student connectedness	.443	.648

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Pattern Matrix of Connectedness Scale

	Factor	
	1	2
C_11- faculty to student connectedness	.889	
C_18- faculty to student connectedness	.838	
C_14- faculty to student connectedness	.828	
C_16- faculty to student connectedness	.748	
C_2- faculty to student connectedness	.700	
C_12- faculty to student connectedness	.695	
C_6- faculty to student connectedness	.684	
C_7- faculty to student connectedness	.606	
C_4- faculty to student connectedness	.538	.307
C_9- student- student connectedness		.827
C_13- student- student connectedness		.796
C_10- student- student connectedness		.795
C_15- student- student connectedness		.777
C_8- student- student connectedness		.771
C_17- student- student connectedness		.764
C_3- student- student connectedness		.762
C_1- student- student connectedness		.647
C_5- student- student connectedness		.629

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.

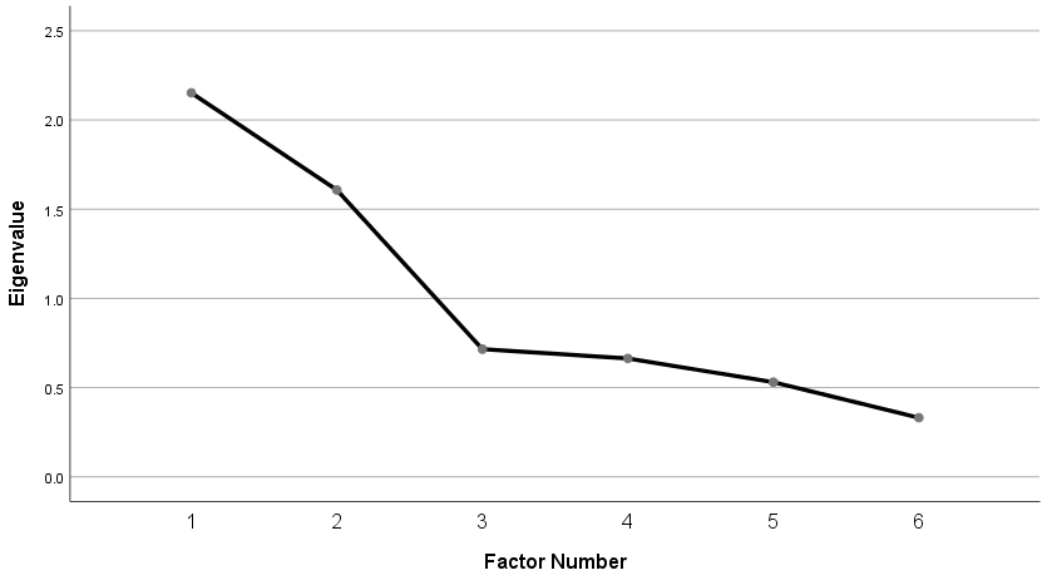
a. Rotation converged in 8 iterations.

3. Information Resources

Principal Component Analysis with Varimax rotation resulted in 2-factor model explaining 57.76% of the total variance. When normality was examined, one of the items did not meet multivariate normality assumption (Skewness<2, Kurtosis<7) (West, Finch, & Curran, 1995, p.68). Information Resources Item 4 had skewness= -2.32. This item cross-loaded on both of the factors. When this item was removed, and Maximum Likelihood Extraction with Direct Oblimin rotation was used, 2-factor model explained 46.89% of the total variance.

Information Resource 3 and 4 were general resources for search including search engines and WWW. On the other hand, the other information resources were most specific to the academic field.

Scree Plot of Information Resources



Rotated Component Matrix of Information Resources

	Component	
	1	2
I_Resources_5- University library website	.751	
I_Resources_6- Dissertations/ theses	.718	
I_Resources_3- Search Engines	.688	
I_Resources_7-Printed books	.669	
I_Resources_4- World Wide Web	.478	.426
I_Resources_1- Online Databases		.894
I_Resources_2- Electronic Journals		.883

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Pattern Matrix of Information Resources

	Factor	
	1	2
I_Resources_1- Online Databases	.874	
I_Resources_2- Electronic Journals	.763	
I_Resources_5- University library website		.694
I_Resources_6- Dissertations/ theses		.642
I_Resources_7- Printed books		.531
I_Resources_3- Search Engines		.527

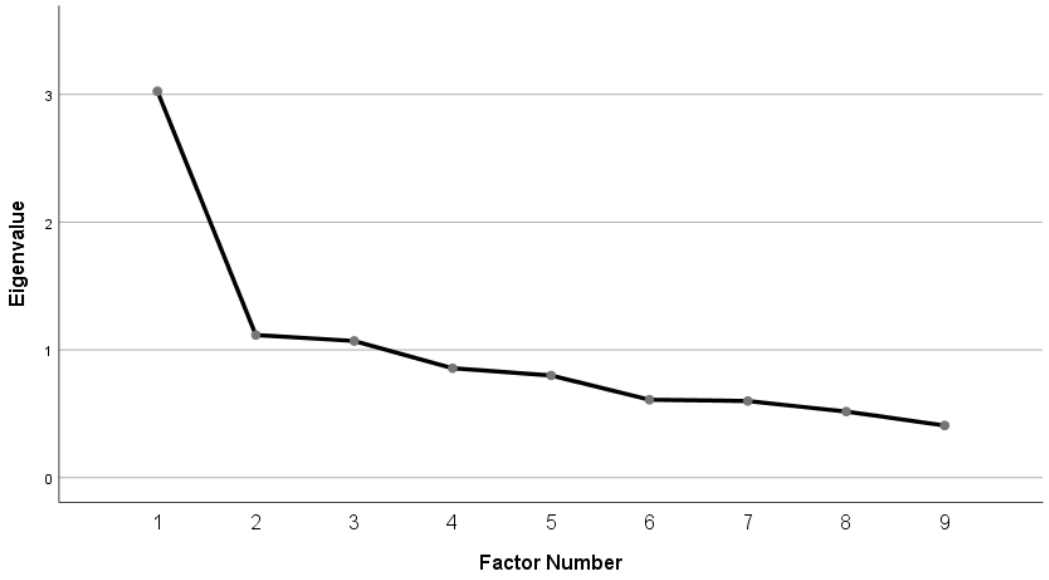
Extraction Method: Maximum Likelihood.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 3 iterations.

4. Face to face Help Seeking Behavior

Three-factor model explained 52.52% of the variance when Principal Component Analysis is used with Varimax rotation. However, due to cross-loading, analysis resulted in two factors.

When normality was examined, two items were eliminated from factor analysis because they did not meet multivariate normality assumption (Skewness<2, Kurtosis<7) (West et al., 1995, p.68). These items were FF3_Thesis Jury Members or Co-advisor in other universities (skewness=2.06) and FF11_ Other Experts or Specialists (skewness=2.10). After removing these two items, Maximum Likelihood with Direct Oblimin rotation was used. Resulted solution explained 39.72% of the total variance with one factor when loadings under 0.40 were not included in the factors.

Scree Plot of Face to Face Help Seeking Behavior



Rotated Component Matrix of Face to Face Help Seeking Behavior

	Component		
	1	2	3
F_F_3- Thesis Jury Members / Co-advisor in other universities	.744		
F_F_2- Thesis Jury Members / Co-advisor in METU	.694		
F_F_5- Other Faculty/ Instructors in other universities	.634	.275	
F_F_4- Other Faculty/ Instructors in METU	.621		.294
F_F_11- Other Experts/ Specialists	.482	.280	
F_F_9- Other Graduate Students in other universities		.765	
F_F_8- Other Graduate Students in METU		.724	.297
F_F_7- Research Assistants in other universities		.667	
F_F_6- Research Assistants in METU	.370	.466	.409
F_F_1- Thesis Supervisor			.796
F_F_10- School Teachers /Administrators/ Ministry of National Education	.432	.341	-.454

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Pattern Matrix of Face to Face Help Seeking Behavior

	Factor		
	1	2	3
F_F_6- Research Assistants in METU	.671		
F_F_4- Other Faculty/ Instructors in METU	.635	-.249	.212
F_F_8- Other Graduate Students in METU	.528		-.378
F_F_2-Thesis Jury Members / Co-advisor in METU	.410		
F_F_1- Thesis Supervisor	.370		
F_F_10- School Teachers /Administrators/ Ministry of National Education			
F_F_5- Other Faculty/ Instructors in other universities		-.815	
F_F_9- Other Graduate Students in other universities			-.747
F_F_7- Research Assistants in other universities			-.369

Extraction Method: Maximum Likelihood.

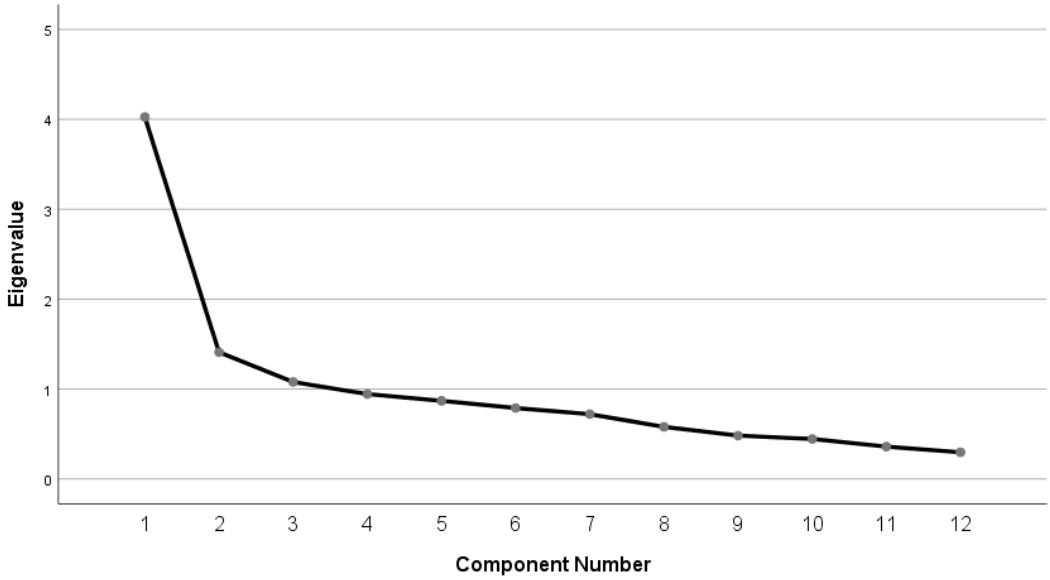
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 11 iterations.

5. Online Help Seeking Behavior

Principal Component Analysis with Varimax rotation resulted in total variance of 54.28% with 3-factor solution. However, Maximum Likelihood with Direct Oblimin rotation resulted in total variance of 44.36% with only one factor when cross-loading items were ignored.

Scree Plot of Online Help Seeking Behavior



Rotated Component Matrix of Online Help Seeking Behavior

	Component		
	1	2	3
Online_3- Thesis Jury Members / Co-advisor in other universities	.866		
Online_2- Thesis Jury Members / Co-advisor in METU	.723	.219	
Online_5- Other Faculty/ Instructors in other universities	.586	.210	.238
Online_4- Other Faculty/ Instructors in METU	.527		.525
Online_9- Other Graduate Students in other universities		.776	
Online_7- Research Assistants in other universities	.263	.772	
Online_10- School Teachers /Administrators/ Ministry of National Education		.625	.252
Online_8- Other Graduate Students in METU		.565	.503
Online_1- Thesis Supervisor			.662
Online_6- Research Assistants in METU	.241	.370	.558
Online_12- Online Academic Communities (e.g. Research Communities, Forums)	.294	.243	.549
Online_11- Other Experts/ Specialists	.424	.201	.482

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Pattern Matrix of Online Help Seeking Behavior

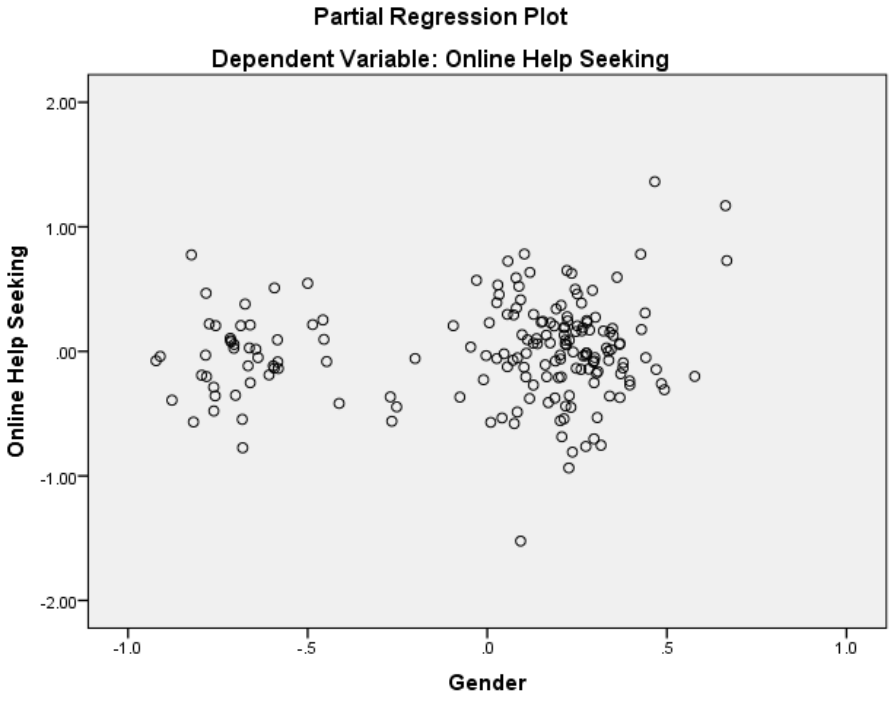
	Factor		
	1	2	3
Online_3- Thesis Jury Members / Co-advisor in other universities	1.008		
Online_2- Thesis Jury Members / Co-advisor in METU	.463		.292
Online_9- Other Graduate Students in other universities		1.018	
Online_7- Research Assistants in other universities		.380	.244
Online_6- Research Assistants in METU			.714
Online_4- Other Faculty/ Instructors in METU			.561
Online_11- Other Experts/ Specialists			.550
Online_8- Other Graduate Students in METU	-.209	.228	.542
Online_12- Online Academic Communities (e.g. Research Communities, Forums)			.519
Online_10- School Teachers /Administrators/ Ministry of National Education			.475
Online_5- Other Faculty/ Instructors in other universities			.463
Online_1- Thesis Supervisor			.308

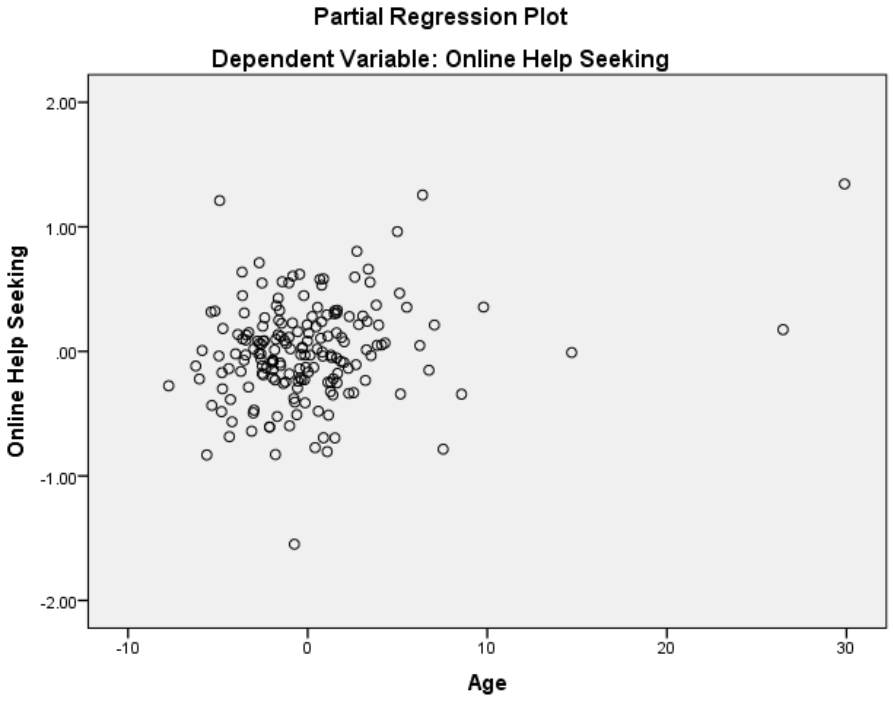
Extraction Method: Maximum Likelihood.

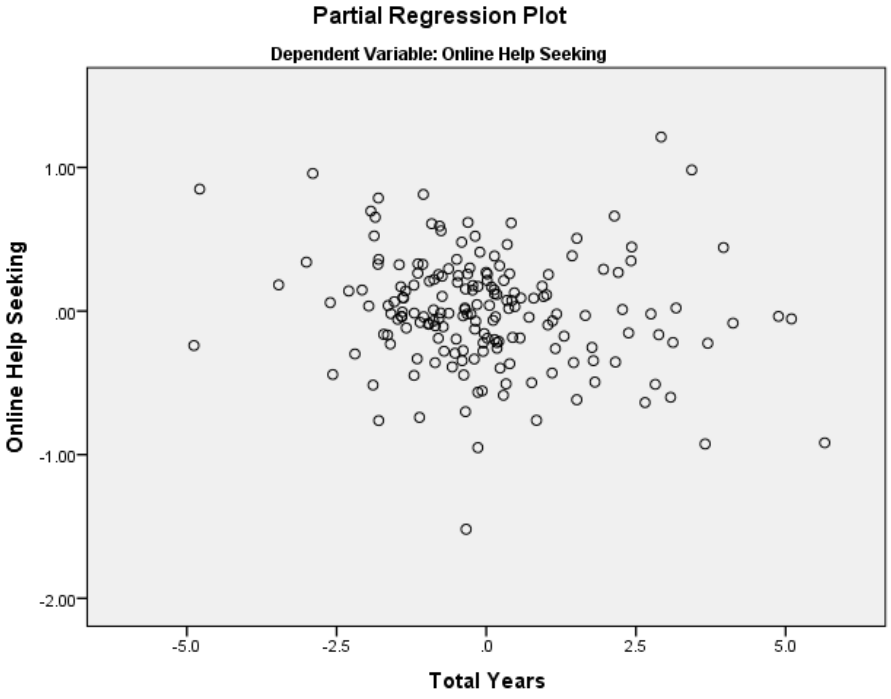
Rotation Method: Oblimin with Kaiser Normalization.

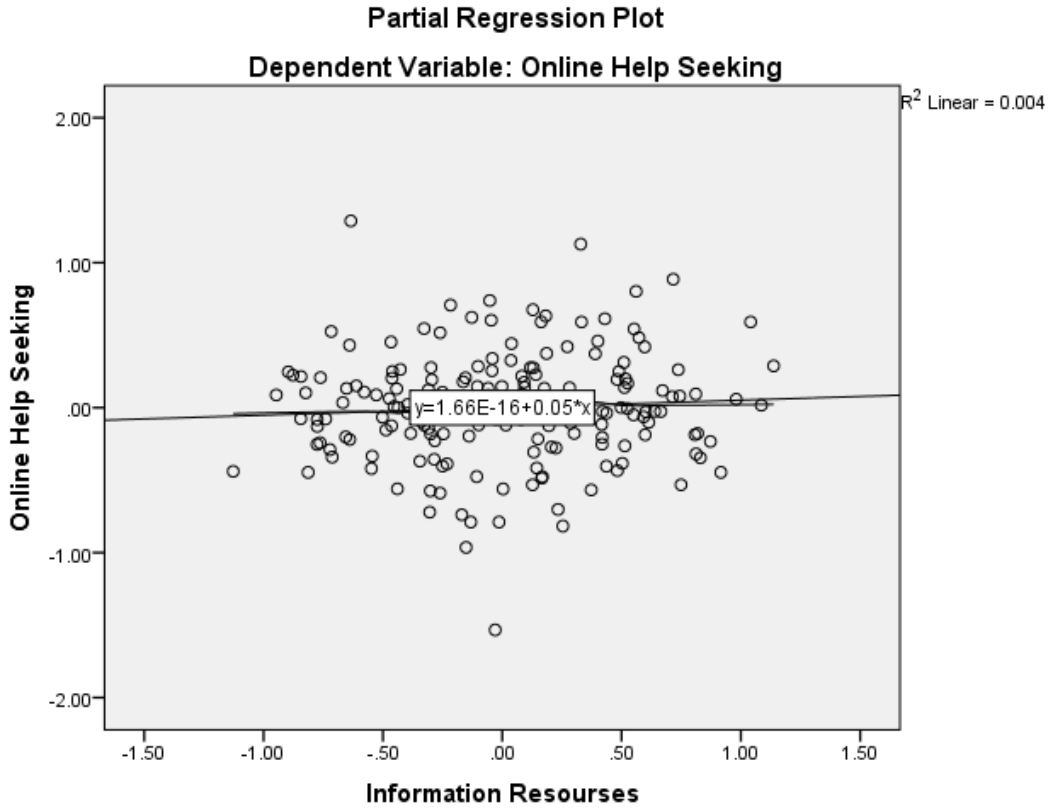
a. Rotation converged in 11 iterations.

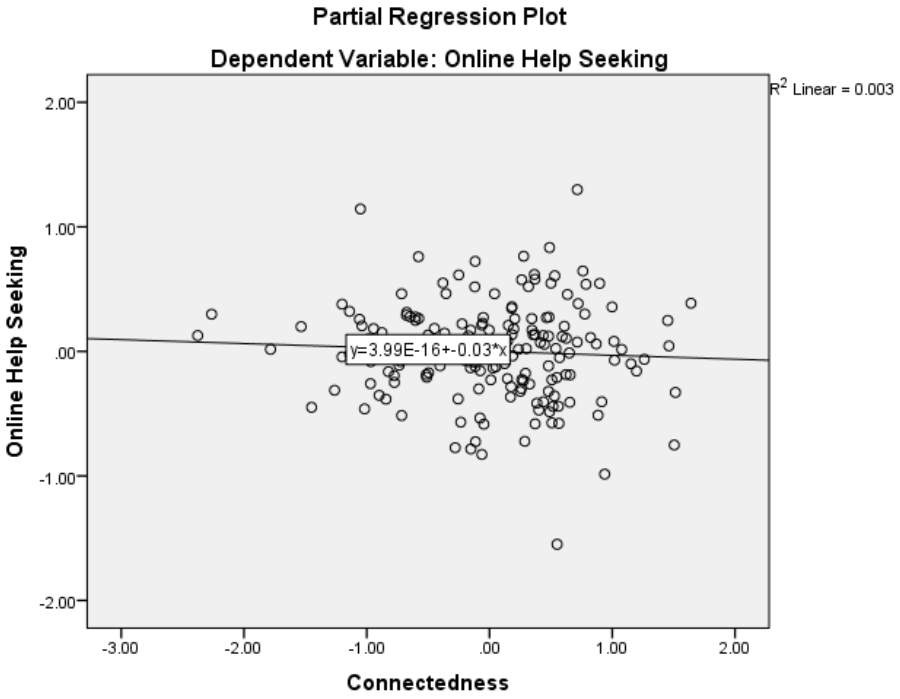
G. PARTIAL REGRESSION PLOTS

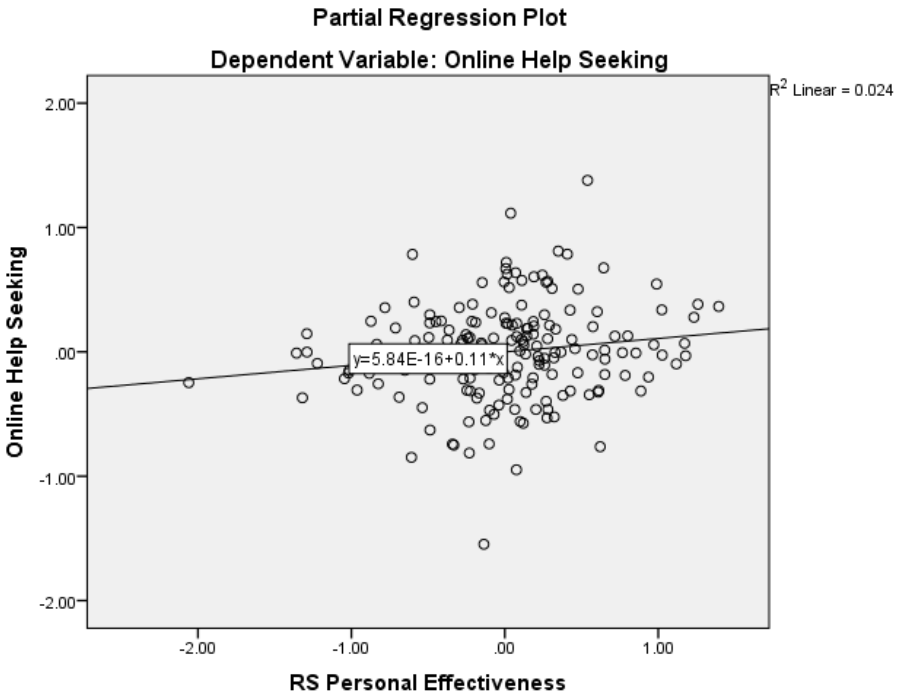


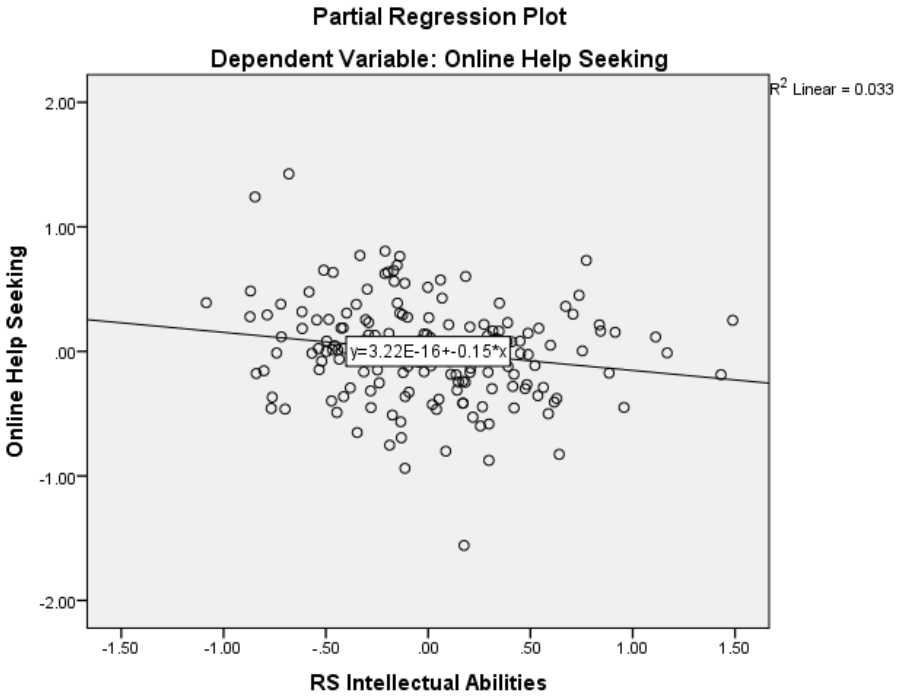


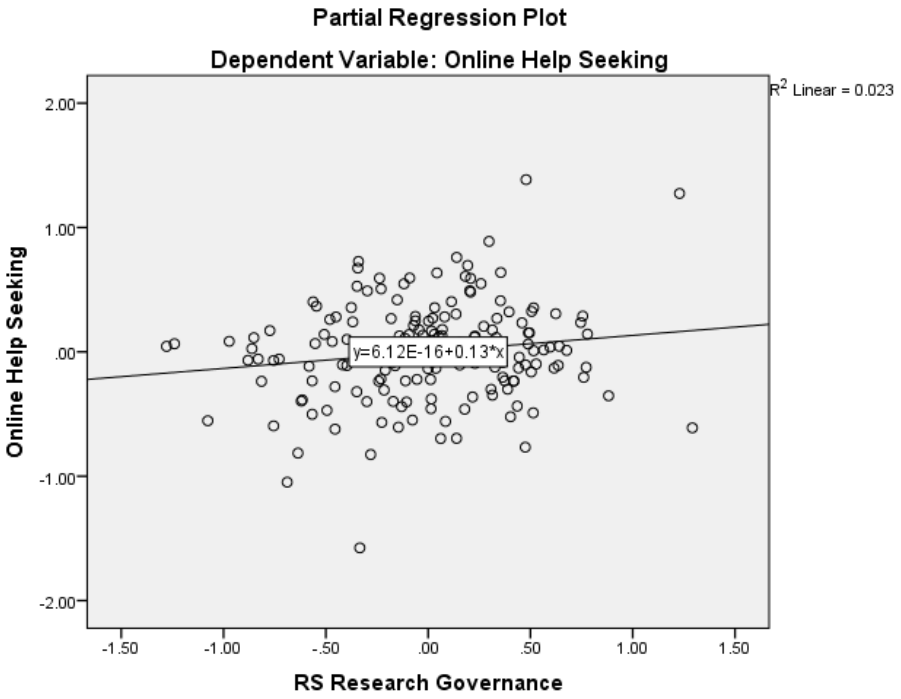

Partial Regression Plot
Dependent Variable: Online Help Seeking
Online Help Seeking
1.00
.00
-1.00
-2.00
-5.0
-2.5
.0
2.5
5.0
Total Years

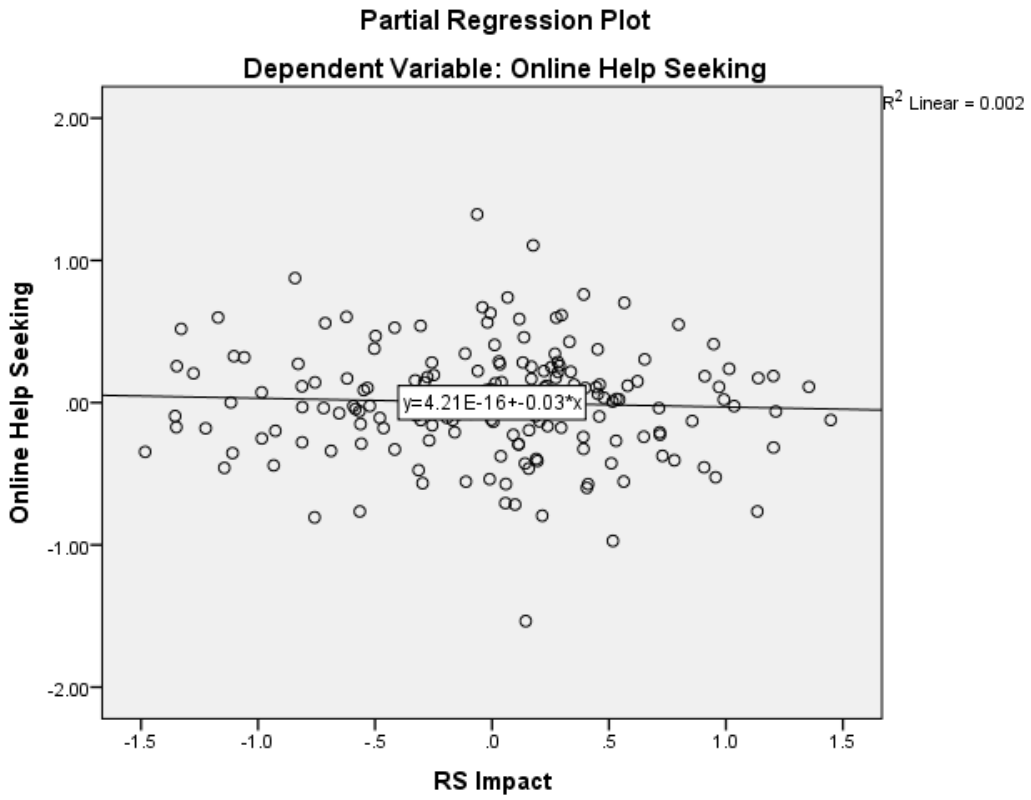

Partial Regression Plot
Dependent Variable: Online Help Seeking
R2 Linear = 0.004
y=1.66E-16+0.05*x
Online Help Seeking
2.00
1.00
.00
-1.00
-2.00
-1.50
-1.00
-.50
.00
.50
1.00
1.50
Information Resourses

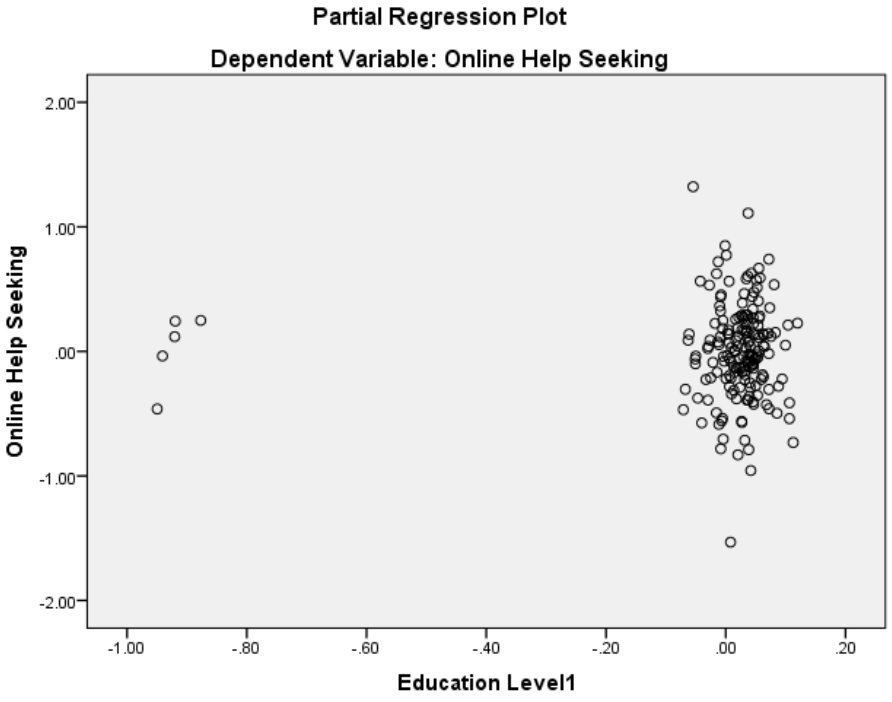

Partial Regression Plot
Dependent Variable: Online Help Seeking
R2 Linear = 0.003
y=3.99E-16+-0.03*x
Online Help Seeking
Connectedness
2.00
1.00
.00
-1.00
-2.00
-3.00
-2.00
-1.00
.00
1.00
2.00

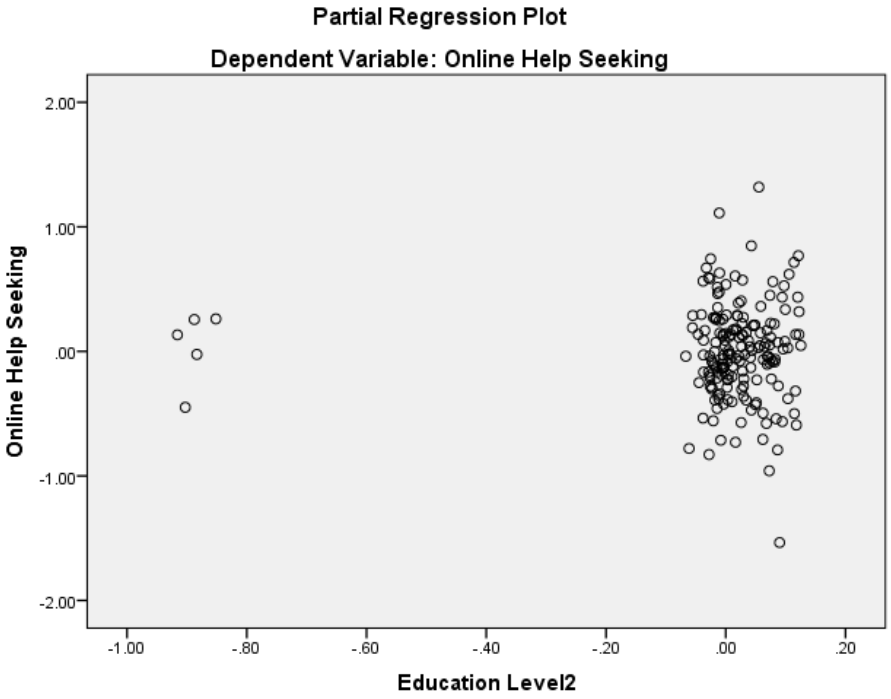

Partial Regression Plot
Dependent Variable: Online Help Seeking
R2 Linear = 0.024
y=5.84E-16+0.11*x
Online Help Seeking
RS Personal Effectiveness
2.00
1.00
.00
-1.00
-2.00
-2.00
-1.00
.00
1.00

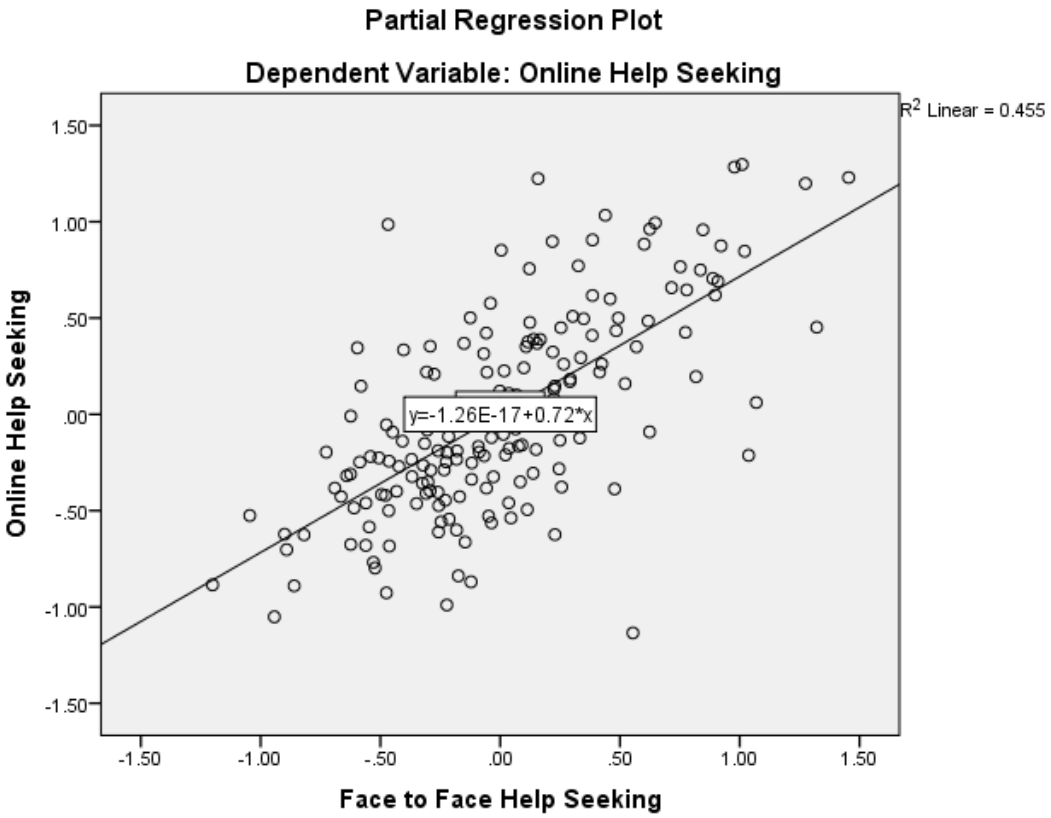

Partial Regression Plot
Dependent Variable: Online Help Seeking
R² Linear = 0.033
y=3.22E-16+-0.15*x
Online Help Seeking
RS Intellectual Abilities
2.00
1.00
.00
-1.00
-2.00
-1.50
-1.00
-.50
.00
.50
1.00
1.50


Partial Regression Plot
Dependent Variable: Online Help Seeking
R² Linear = 0.023
y=6.12E-16+0.13*x
Online Help Seeking
RS Research Governance
2.00
1.00
.00
-1.00
-2.00
-1.50
-1.00
-.50
.00
.50
1.00
1.50


Partial Regression Plot
Dependent Variable: Online Help Seeking
R² Linear = 0.002
y=4.21E-16+-0.03*x
Online Help Seeking
RS Impact
2.00
1.00
.00
-1.00
-2.00
-1.5
-1.0
-.5
.0
.5
1.0
1.5


Partial Regression Plot
Dependent Variable: Online Help Seeking
Online Help Seeking
Education Level1
2.00
1.00
.00
-1.00
-2.00
-1.00
-.80
-.60
-.40
-.20
.00
.20


Partial Regression Plot
Dependent Variable: Online Help Seeking
Online Help Seeking
2.00
1.00
.00
-1.00
-2.00
-1.00
-.80
-.60
-.40
-.20
.00
.20
Education Level2


Partial Regression Plot
Dependent Variable: Online Help Seeking
R2 Linear = 0.455
y=-1.26E-17+0.72*x
Online Help Seeking
1.50
1.00
.50
.00
-.50
-1.00
-1.50
-1.50
-1.00
-.50
.00
.50
1.00
1.50
Face to Face Help Seeking