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A Comparative Study of Electronic Information Literacy Levels of Researchers: Instances from the Universities of Kastamonu and Çankırı Karatekin in Turkey*

Araştırmacıların Elektronik Bilgi Okuryazarlığı Düzeyleri Üzerine Karşılaştırmalı Bir Çalışma: Türkiye'de Kastamonu ve Çankırı Karatekin Üniversitesi Örnekleri

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Abstract

With information and communications technologies (ICTs) and scientific developments, not only the nature and environment of information acquisition but also perception, learning and research have been reshaped and new tools, methods, and notions have arisen. With this study it is aimed to determine the electronic information literacy levels of researchers of two universities in Turkey: Kastamonu and Çankırı Karatekin. The study considers the challenges of whether the researchers have received any support from the related library; whether their electronic information literacy activities and skills are sufficient and whether there is any significant difference between the two universities or not. Determination of levels of research oriented information skills will help and enable the infant libraries of these two universities to review and include in their plans and strategies new services and models of information literacy practices. Related literature is reviewed and a structured survey was used as a technique for data collection. The data set of this study based on a descriptive and comparative methods is analyzed with MS Excel program. Findings showed that the electronic information literacy skills and levels of researchers are generally low and that there is no significant difference between the levels of researchers of the two universities. It was concluded that increase in effectiveness of electronic information literacy skills will increase the academic productivity of the researchers.

Öz

Bilgi ve iletişim teknolojileri (BİT) ve bilimsel gelişmelerle birlikte sadece bilgi edinmenin doğası ve çevresi değil, aynı zamanda algı, öğrenme ve araştırma da yeniden şekillenmiş, yeni araçlar, yöntemler ve kavramlar ortaya çıkmıştır. Bu çalışmada, Türkiye'deki Kastamonu ve Çankırı Karatekin Üniversitelerinin araştırmacılarının elektronik bilgi okuryazarlığı seviyelerinin belirlenmesi amaçlanmıştır. Çalışmada, araştırmacıların ilgili kütüphaneden herhangi bir destek alıp almadıklarının, elektronik bilgi okuryazarlığı etkinlikleri ve becerilerinin yeterli olup olmadığının ve iki üniversite arasında anlamlı bir fark olup olmadığının gösterilmesi hedeflenmiştir. Katılımcıların araştırmaya yönelik bilgi beceri seviyelerinin belirlenmesi, bu iki üniversitenin henüz yeni olan kütüphanelerinin kendilerini gözden geçirip planlarına ve

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Anahtar Sözcükler
Elektronik bilgi okuryazarlığı, Kastamonu Üniversitesi araştırmacıları, Çankırı Karatekin Üniversitesi araştırmacıları, elektronik bilgi hizmetleri, elektronik bilgi kaynakları

stratejilerine yeni hizmetleri ve bilgi okuryazarlığı uygulama modellerini dahil etmelerini sağlayacaktır. Çalışmada ilgili literatür gözden geçirilmiş ve veri toplama tekniği olarak yapılandırılmış bir anket kullanılmıştır. Tanımlayıcı ve karşılaştırmalı yöntemlere dayanan bu çalışmanın veri seti MS Excel programı ile analiz edilmiştir. Elde edilen bulgular, elektronik bilgi okuryazarlığı becerilerinin ve araştırmacı seviyelerinin genellikle düşük olduğunu ve iki üniversitenin araştırmacı düzeyleri arasında anlamlı bir fark olmadığını göstermiştir. Ankete verilen yanıtlar ışığında, elektronik bilgi okuryazarlığı becerilerinin etkinliğinin arttırılmasının, araştırmacıların akademik verimliliğini artıracağı sonucuna varılmıştır.

1. Introduction

The world is changing and information evolves everyday more. As the volumes of information and its varied resources are constantly increasing, researchers are posed with new challenges and it is critical that they learn new and key research skills that help them locate, evaluate and utilize information effectively, efficiently and ethically. With information and communications technologies (ICTs), scientific developments and the way we deal with these changes, not only the nature and environment of information acquisition but also perception, learning and research have been reshaped, and new tools, methods, and notions have arisen. Researchers now have access to global digital information resources that were previously only available through expensive on-site research visits. However, it is important to understand that availability and access to information is not sufficient to guarantee that a user will acquire the skills necessary to comfortably survive in an information world. It is obvious that users of information resources must possess information literacy skills in order to harness information resources at their disposal (Solomon, Wilson, and Taylor, 2012; Adeleke and Emeahara, 2016).

In the era of information, is vital the way we know what we know and what we are looking for, how we search what we need and how we deal with the information found. All and more of these actions and processess at all comprise what is called “information literacy”. Information literacy is becoming increasingly more important in our world that is rapidly evolving through the growth and proliferation of technological and information resources Information literacy is a vital ability for the modern information-intensive world, enabling personal, economic, social and cultural development. The ability to access, evaluate and use information is a prerequisite for lifelong learning and a basic requirement for the information society (Kurbanoğlu, 2010; Adeleke and Emeahara, 2016).

According to many researchers information literacy is a fusion of library literacy, computer literacy, media literacy, technology literacy, network literacy, critical thinking, ethical thinking and communication, which when acquired, would enable users of information to become independent lifelong learners. Perception of modern literacy has broadend in scope, as it is tied to technology and culture. There are many literacies that can be identified within varying social contexts and under varying social conditions from information literacy to politics or human literacy (Kurbanoğlu, 2010). The term “information literacy” is used in this paper to refer to the set of skills required and ability to identify, locate, access, evaluate information and use it effectively, efficiently, and ethically for problem solving and decision making.

2. Electronic and Digital Information Literacy

The search for information is increasingly becoming important, particularly for academic and research purposes. The worldwide web is increasingly increasing. At the same time, the ability to sift through the gamut of information available online to find reliable and accurate data is becoming more important every day. Digital literacy is a 21st century skill that comprises the awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate, analyse and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process (Martin and Grudziecki, 2006 ; Innovation & Business Skills Australia, 2010). The New Media Consortium (2005, p.2) states that digital literacy “includes the

ability to understand the power of images and sounds, to recognize and use that power, to manipulate and transform digital media, to distribute them pervasively and to easily adopt them to new forms."

Electronic information literacy (or e-information literacy) is an extension and a major component of information literacy. It deals with evaluation and effective use of electronic and digital information resources. The essence of electronic information literacy is to empower an individual to make knowledgeable judgements about what is found online and make best use of it for one or more academic purposes. Electronic information literacy has become a necessity to sift through the growing electronic information" (Bilawara and Pujar, 2016). Digital and electronic literacy helps users cope with information from a variety of electronic formats and provides techniques and methods of collecting digital resources The most essential aspect of digital and electronic literacy is the ability to make informed judgments about what is found online and other electronic formats. It creates awareness of issues like copyright, and intellectual property rights in an electronic environment" (Maharana and Mishra, 2007, p. 2). It is well recognized that the skill level of the electronic information literacy has a great deal to do with the final success of the modern researcher. In fact this requires knowledge about not just technology, but the domain of the application and the skills needed to determin "what is needed" and "how is used".

It is well recognized that the skill level of the electronic information literacy has a great deal to do with the final success of the modern researcher. In fact this requires knowledge about not just technology, but the domain of the application and the skills needed to determin what is needed and how is used. Therefore, in this paper the electronic information literacy is used to refer to the ability to identify electronic information sources, access, evaluate, and use it effectively, efficiently, and ethically.

3. Statement of the Problem

The need for this study was prompted after observing that many researchers in Kastamonu and Çankırı did not find relevant and current materials for their papers despite the fact that the University Library subscribes to and archives a large quantity of electronic resources and databases. Secondly, it was assumed that researchers, as pioneers in education, teaching and research process, should be knowledgeable and comfortable with electronic world and information usage. And thirdly, though there is a variety of studies on information literacy skills of different groups (e.g. Akkoyunlu, and Kurbanoğlu, 2002; Aldemir, 2004; Altun, 2005; Polat 2005; Ata, 2011; Besimoğlu, 2007; Demiralay, 2008; Doğan, 2007; Özel, 2013) review of literature did not reveal the level of electronic information literacy of researchers in rural universities, even though the studies highlighted the importance of electronic information literacy for lifelong learning and the role of libraries in enhancing and integrating the skills yo different curricula through a variety of information literacy programmes (e.g. McClure,1994; Samson and Granath, 2001; Kārkliņš, 2011).

This study aims to determine the level of electronic information literacy skills possessed by the researchers of two universities in Turkey: Kastamonu and Çankırı Karatekin Universities. In this context it considers that "quite a large number of researchers have poor electronic information literacy competency" and "Increase in effectiveness of library and information services will increase the academic productivity of the researchers". Considering the challenges of whether the researchers have received any support from the related library; whether their electronic information literacy activities and skills are sufficient and whether there is any significant difference between the two universities or not, the study adopted a descriptive and comparative survey research design. The data for the study was collected using a structured questionnaire applied in the dissertation of Dr. Özel including questions regarding use of ITCs, use of electronic information sources and services, activities requiring information literacy skills and educational needs of the researchers (in Çankırı Universty it was delivered via internet).

When considering the social-economic, demographical, geographical nature of the cities where these universities are established and developed, one can understand the prominent role that the library plays in improving the efforts of scientists and researchers to use and generate information. The importance of the subject arises when assuming that researchers (here ranging from research assistants to professors) by nature of their professions and occupations are constantly nested with information and information sources and that information is the foundation of a research. In this context, determination of levels of

research oriented information and skills will help and enable the new libraries of these two universities to review and include in their plans and strategies new services and models of (electronic) information literacy practices.

4. Results and Discussion

A sample of 173 respondents (80 from Kastamonu and 93 from Çankırı Karatekin) from more than 30 departments in 8 faculties (including Faculty of Letters and Sciences, Engineering, and Economics for both, Faculty of Forestry and Fine Arts for Çankırı and Faculty of Tourism, Theology and Communication for Kastamonu) of these universities were obtained.

Faculty	**Kastamonu**		**Çankırı**	
	(N)	**(%)**	**(N)**	**(%)**
Faculty of Letters	-	-	23	**25**
Faculty of Pedagogy	-	-	-	-
Faculty of Communication	8	10	-	-
Faculty of Engineering	16	20	19	20
Faculty of Theology	3	3	-	-
Faculty of Forestry	-	-	9	10
Faculty of Fine Arts	-	-	4	4
Faculty of Economics	1	1	16	17
Faculty of Science	-	-	22	**24**
Faculty of Tourism	5	6	-	-
Faculty of Letters and Science	47	**60**	-	-
Total	**80**	**100**	**93**	**100%**

Table 1**.** Faculties of the researchers (N_K=80, $N_Ç$=93)

It is seen that reaserchers attending to the survey work mainly in the faculty of letters and sciences. It is noteworthy that more than half of the participants (60%) in Kastamonu University are academic staff of the faculty of science and literature. This rate is 49% in Çankırı Karatekin University in two different faculties. The minimum participation in the survey was from the faculties of economics and fine arts, respectively. On the other hand, the rate of responding to questionnaires in Çankırı Karatekin University Faculty of Fine Arts and Faculty of Economics and Theology of Kastamonu University was 100%. But the participation rate is very low at survey in these faculties.

Title	**Kastamonu**		**Çankırı**	
	(N)	**(%)**	**(N)**	**(%)**
Research Asistant (Arş. Gör)	**21**	**27**	17	18
Lecturer (Öğr. Gör.)	4	5	**22**	**24**
Prof. Assoc. (Yrd. Doç. Dr.)	**36**	**45**	**39**	**42**
Assoc. Prof. (Doç. Dr.)	9	11	8	9
Prof. Dr.	9	11	6	6
Other	1	1	1	1
Total	**80**	**100**	**93**	**100%**

Table 2. Title of the researchers (N_K=80, $N_Ç$=93)

The academic titles used in the survey period are included in the study. Regarding the title of the researchers it is clearly seen that most of the reserchers work as Prof. Assoc. The next most used title in Kastamonu is Research Asistant (Arş. Gör) 45%, whereas in Çankırı is Lecturer (Öğr. Gör.) 42%. These results let us say that there is a quite new generation working in these universities.

Level of Education	**Kastamonu**		**Çankırı**	
	(N)	**(%)**	**(N)**	**(%)**
Master	10	12	15	16
Ph.D.	24	30	61	66
Post Doc	46	58	17	18
Total	**80**	**100**	**93**	**100%**

Table 3. Level of education of the researchers (N_K=80, $N_Ç$=93)

Most of the reseachers have a Ph.D. degree (cumulative 88% for Kastamonu and 84% for Çankırı). In Kastamonu University, the main group of participants are post-doctoral academicians (58%). The weighted group of Çankırı Karatekin University are academicians with a doctoral level (66%). Most of these researchers can be defined as a professional information researcher due to their thesis studies.

Frequency of computer and internet use	**Kastamonu**		**Çankırı**	
	(N)	**(%)**	**(N)**	**(%)**
Don’t use	-	-	-	-
Rarely	-	-	-	-
Some times a year	-	-	-	-
Some times a month	-	-	-	-
Some times a week	1	1	-	-
Everyday	**79**	**99**	**93**	**100**
Total	**80**	**100**	**93**	**100%**

Table 4. Frequency of computer and internet use (N_K=80, $N_Ç$=93)

It is seen that all researchers use computer and internet everyday. The only exception is the "some times a weekly" response from Kastmonu University.

To establish the electronic information literacy skills possessed by respondents, a number of computer skills/packages, which are prerequisites to using electronic information resources was given to the respondents to choose from. Because, a number of computer skills/packages, are prerequisites to using electronic information resource. The data obtained were evaluated together with these requirements.

Tools & Apps	Don't know		Don't use		Insufficient		Somewhat Suficcient		Sufficient	
	K.U[1]	Ç.U[2]	K.U	Ç.U	K.U	Ç.U	K.U	Ç.U	K.U	Ç.U
Use of web sites	1	-	-	-	14	-	19	15	**66**	**85**
Search engines (Google, Yahoo etc.)	-	-	-	-	-	-	29	13	**71**	**87**
Word proccesors (MS Word etc.)	-	3	1	-	18	-	21	13	**60**	**84**
Spreadsheets programs (MS Excel etc.)	-	-	17	3	12	3	23	34	**48**	**60**
Database programs (MS Access etc.)	16	12	16	25	20	26	**38**	**19**	10	18
Paint and graphic programs (Photoshop)	16	9	16	18	20	19	**38**	**35**	10	19
Presentation programs (MS power point	-	-	2	-	21	-	21	26	**56**	**74**
Communication (e-mail etc.)	-	-	-	-	1	-	19	10	**80**	**90**
Web based learning systems (Blackboard, Moodle)	11	**31**	28	23	25	27	**30**	13	6	6
Web conference (Skype etc.)	22	7	12	**34**	20	16	**34**	18	12	25
Web page design (Dreamweaver etc.)	**33**	16	22	**46**	**36**	6	15	16	15	16
Desktop publishing (Scribus, Quark etc.)	24	**45**	**31**	29	19	12	25	7	1	7
Reference programs (EndNote etc.)	19	10	20	13	20	19	**32**	22	9	**36**
Open course materials	7	15	9	34	11	7	**44**	**34**	29	10
Interactive (smart) board	19	7	27	**45**	14	9	14	25	**26**	14
Discussion platforms/forums	14	3	6	**38**	**37**	3	35	34	8	22
Digital resource production	13	10	22	**40**	**46**	21	14	13	5	16
Digital scanner	8	-	4	13	**36**	16	31	22	20	**49**
Creating digital sounds	28	15	21	**50**	**35**	10	15	10	1	15
Uploading digital files	10	-	7	8	21	11	11	11	**51**	**70**
Download digital files	1	-	5	6	20	10	8	22	**66**	**62**

Table 5. Level use of computer and internet tools & apps (N_K=80, $N_Ç$=93)

These findings lead us conclude that researchers use somewhat sufficiently the computer and internet tools and applicatons in their research processes. Researchers seem to feel theirselves more sufficiently competent in the use of web sites, search engines, MS Office programs (word-processing, presentation, and spreadsheets programs), uploading and downloading of files. Also there are data revealing researchers to have low habits in desktop publishing, web based learning systems, web page design, database management, and programming. Also there are important tools that both universities say don't use such as creating digital sounds, web conference (Skype etc.), open course materials, interactive (smart) board, digital resource production, discussion platforms/forums.

There are slight differences between Kastamonu and Çankırı researhers. While Kastamonu feels insufficient reference programs (EndNote etc.), digital resource production and digital scanner the Çankırı researchers say they don't use digital resource production, discussion platforms/forums and creating digital sounds.

Its important to notice that the number of persons "not knowing" any of the tools and applications. It is not too high but not too low at the same time.

[1] Kastamonu University
[2] Çankırı University

Frequency of use of Web 2.0 tools	**Kastamonu**		**Çankırı**	
	(N)	**(%)**	**(N)**	**(%)**
Don't use	-	-	9	10
Rarely	-	-	17	18
Some times a year	10	12	-	-
Some times a month	3	4	11	12
Some times a week	18	23	9	10
Everyday	**49**	**61**	**47**	**50**
Total	**80**	**100**	**93**	**100%**

Table 6. Frequency of using web 2.0 tools & applications (Wikipedia, Facebook, Youtube etc.) (N_K=80, $N_Ç$=93)

Most of the resarchers use web 2.0 tools almost everyday. In Kastamonu University, there was no participant responding to the use of web 2.0 tools "rarely" or "don't us". The biggest group of responders is the "everyday" (49%) responders. The same answer is the largest group for Çankırı Karatekin University (47%). At this university, the only option that has not been is "some times a year". Looking at the table, it can be said that academicians have a general habit of using web 2.0. Web 2.0 is one of the most important information search environments today. For this reason, web 2.0 has become extremely important in terms of information literacy skills.

Web 2.0 tools & applicaitions	**Don't know**		**Don't use because I find it useless**		**Didn't use but don't think it is useless**		**Have used but find it useless**		**Want to use but need help**		**Use and find it useful**	
	K.U	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**
Blogs (Blogger, WordPress etc.)	29	25	5	3	9	13	7	10	6	21	**44**	**28**
Wikis (Wikipedia etc.)	3	3	-	3	4	-	11	12	11	10	**71**	**70**
Social networks (Facebook, Myspace, etc.)	-	3	5	9	5	7	16	27	4	7	**70**	**47**
RSS/Web/Newsfeed	21	34	3	3	8	3	**38**	3	9	7	21	**50**
Podcasts	**43**	**66**	4	-	5	3	9	10	29	6	10	15
Social bookmarging sites (Delicious)	**49**	**72**	5	7	7	3	5	3	13	12	11	3
Tagging applications (Tagging)	**40**	**50**	15	10	5	3	7	6	9	3	24	28
Video sharing sites (Youtube etc.)	1	-	5	7	9	7	1	3	6	9	**78**	**74**
Picture sharing sites (Flickr etc.)	20	18	5	25	16	13	9	3	**30**	7	20	**34**
Slide sharing sites (SlideShare etc.)	27	15	4	-	14	3	-	3	9	19	**46**	**60**
Document sharing sites (Google Docs etc.)	9	18	9	-	6	-	4	-	5	7	**67**	**75**

Table 7. Perception and level of use of web 2.0 tools and applications(N_K=80, $N_Ç$=93)

It is seen that majority of the respondents use mostly Youtube, Facebook, Wikipedia, Google docs, blogs and RSS. And what is most unkown to the researchers here are Delicious, Podcasts, and Tagging. The web 2.0 reserachers need help to learn are Flickr, Podcasts and blogs. These results lead us say that resarchers are more aware and use more the social networks, video and slide sharing, document sharing sites and wikis, whereas they are less aware of the other tools and applicatios such as Blogs (Blogger, WordPress etc.), Podcasts, Social bookmarging sites (Delicious), Tagging applications (Tagging), Picture sharing sites (Flickr etc.) and somewhat Slide sharing sites (SlideShare etc.)

With the ICTs libraries and their servicies have changed a lot. Especially types and amount of electronic sources has increased and different tools have the dimension of information retrieval. These and more developments have impacted directly the use of the physical library as well. Table 8 shows the frequency of using the physical library and it clearly reveals out that most of the researchers (Kastamonu 35% and Çankırı 51%) visit the library rarely. While there are a few persons in Kastamonu (6%) who visit the library everday, in Çankırı no one visits it everday.

Frequency	**Kastamonu**		**Çankırı**	
	(N)	**(%)**	**(N)**	**(%)**
Don't use	12	15	9	10
Rarely	**28**	**35**	**47**	**51**
Some times a year	7	9	17	18
Some times a month	20	25	14	15
Some times a week	7	9	6	6
Everyday	**6**	**7**	-	-
Total	**80**	**100**	**93**	**100%**

Table 8. Frequency of using the physical library (N_K=80, $N_Ç$=93)

Most of the resarchers visit the library rarely. While there are a few persons in Kastamonu (6%) who visit the library everday, in Çankırı no one visits it everday. These data are extremely striking. Because there is no similar trend in using a digital library. Another remarkable information is that there are academicians who do not use any libraries at both universities (Kastamonu 15%, Çankırı 10%). It is difficult to interpret this information in terms of information literacy. It is noteworthy that the period of use in both universities is high at "some times at month".

Next table (Table 9) shows the frequency of using different digital facilities and servicies provided by their libraries.

Digital library tools/resources/servicies	**Don't use**		**Rarely**		**Some times a year**		**Some times a month**		**Some times a week**		**Everyday**	
	K.U	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**
Online library catalogs	1	16	32	20	8	6	21	**36**	**35**	16	3	6
Library web site	1	13	29	16	9	13	21	**37**	**36**	18	4	3
Library's social media tools (facebook etc.)	4	**37**	**49**	15	6	10	21	28	19	10	1	-
Online reference services	11	**40**	**39**	34	25	13	9	10	15	-	1	3
E-reference sources (dictionary, etc.)	2	7	33	18	1	13	11	15	**40**	**32**	13	15
E-books	2	3	9	13	26	15	**22**	**28**	**23**	**34**	18	7
E- journals	2	3	14	10	19	3	16	22	**31**	**40**	18	22
E-theses	5	3	13	6	**26**	**25**	16	**38**	21	28	19	-
Audio books	**40**	**69**	**35**	**25**	15	-	1	6	8	-	1	-
Open Access system	13	15	11	19	6	10	9	**31**	**41**	15	21	10
Online databases	6	18	7	16	1	6	19	**25**	**38**	22	29	13

Table 9. Frequency of using the digital library (N_K=80, $N_Ç$=93)

Both university libraries offer significant digital services. While most of the Kastamonu researchers use the library catalog and its website sometimes a week, in Çankırı most use them sometimes a month. Most researchers of both universities use the electronic reference sources such as dictionaries, encyclopaedias etc., e-books, e-journals, offered by their libraries some times a week. E-theses are used

mostly some times a year. Both Kastamonu and Çankırı resarches don't use or use rarely the audio boks. While Kastamonu researchers use the open Access system and online databases some times a week (41%), in Çankırı most of the researchers (31%) use them sometimes a month. It is seen that academicians do not have too much habit about the use of digital books, journals and theses. The table in question suggests that a training is required in universities of this subject. The information in Table 10 confirms this requirement.

Digital library tools/resources/services	**Yes**		**No**	
	K.U	**Ç.U**	**K.U**	**Ç.U**
Online library catalogs	**72**	41	28	59
Library web site	**69**	31	31	69
Library's social media tools (facebook etc.)	**79**	**60**	21	40
Online reference services	**81**	38	19	62
E-reference sources (dictionary, etc.)	**57**	28	43	72
E-books	**76**	25	24	75
E- journals	**74**	24	26	76
E-theses	**79**	22	21	78
Audio books	**76**	29	24	71
Open Access system	**66**	28	34	72
Online databases	**72**	38	28	62

Table 10. Need for training in using the digital library tools/resources/services (N_K=80, $N_Ç$=93)

The participants were given 11 situations for the use of digital libraries. These situations were selected among the most common digital library services. The data obtained are different and very remarkable. The main difference between the two universities is that while the Çankırı Karatekin University researchers need training and orientation only in using the social media of their libraries, researches in Kastamonu need training for everything related to digital library tools, recources and services.

When asked whether they have attended any training support from their related library results revealed that 62% of the researchers in Çankırı and 80% of the researchers in Kastamonu didn't attend to any library education. The ones that have attended Both Çankırı and Kastamonu researchers stating to have attended to orientations said to have attended to seminars on use of referencing databases such as EndNote, İthenticate Sci-Finder, article writing seminar of Tailor&Francis and use of the digital library (mainly search in the databases).This may lead us think that researchers of both universities think they can handle with the research proccesses by theirselves -based on their individual experiences- without needing a library orientation or the help of a librarian. This problem may be due to a lack of library user services or information literacy training.

Researchers face many problems in their research management. Table 11 shows the level of these steps and issues faced and what the degree of need for education regarding these problems.

Research proccesses	No idea		Strong difficulties		Neutral		Moderate difficulties		No difficulties	
	K.U	Ç.U	K.U	Ç.U	K.U	Ç.U	K.U	Ç.U	K.U	Ç.U
Know where and how to start	1	6	10	15	4	3	20	10	**65**	**66**
Define what is needed (reseach subject)	1	6	11	10	3	6	20	22	**65**	**56**
Limit the subject	1	3	11	10	8	10	10	34	**70**	**43**
Determine key words	1	-	-	3	8	6	40	22	**51**	**69**
Use Boole operators (AND, OR, NOT)	16	34	**48**	6	10	6	15	3	11	**50**
Use effectively the search engines (advanced search, limitations etc.)	-	3	28	3	14	3	14	22	**44**	**69**
Use and understand the library catalog	-	17	27	3	1	10	28	13	**44**	**57**
Use the databases of the library (EBSCO, ebrary, JSTOR etc.)	5	10	**34**	3	1	3	24	25	**36**	**59**
Retrieval of web resources (Wikipedia, Google etc.)	-	3	-	-	12	-	13	12	**75**	**85**
Use and get services from other libraries	1	12	25	7	8	7	20	28	**46**	**46**
Retrieval current information resources	-	-	25	6	9	3	14	22	**52**	**69**

Table 11. Level of difficulties during the research processes (N_K=80, $N_Ç$=93)

Though most of the researchers feel to not have any difficulty in all these processes, use of the Boole operators (AND, OR, NOT) (48%),use of databases of the library (EBSCO, Ebrary, JSTOR etc., (34%), effectively use of the search engines (28%), ILL services and (25%) and current information resources retrieval (25%) seems to be an important issue for the Kastamonu researchers.

Whereas the Çankırı researchers may have some moderate difficulties in limiting the subject (34%), ILL services (28%), Use of the databases of the library (EBSCO, ebrary, JSTOR etc.) (25%), defining what is needed (reseach subject), (22%), determining key words, (22%), effectively using the search engines and (22%) and retrieval of current information resources (22%).

Research proccesses	**No idea**		**Strong difficulties**		**Neutral**		**Moderate difficulties**		**No difficulties**	
	K.U	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**	**K.U**	**Ç.U**
Know the meaning of the extentions of the web sites (.com, .gov. etc.)	-	6	-	3	3	-	12	3	**84**	**88**
Sorting irrelevant results	6	3	**31**	3	9	3	20	22	**34**	**69**
Synthetising information retrieved through various sources and aplications	-	7	29	3	2	10	**39**	17	30	**62**
Evaluate the reliability, accuracy, validity, objectivity, currency of the information retrevied	-	6	23	-	21	10	**29**	34	27	**50**
Reading the retrieved sources	-	3	29	3	6	3	21	12	**44**	**79**
Taking notes and /or summarise	-	3	25	7	5	3	12	18	**58**	**69**
Interpret tables, graphs, etc.	-	3	6	3	33	7	31	15	30	**72**
Writing the report (article, theses etc.)	-	3	6	7	9	3	54	30	31	**57**
Oral presentation of the results	-	3	16	3	11	7	**38**	15	35	**72**
Show citations	1	3	**9**	9	2	3	**43**	14	**45**	**71**
Show the references	6	3	6	13	2	-	**40**	18	**48**	**66**
Referencing according different rules (APA, MLA, etc.)	2	22	10	6	15	16	**50**	25	23	**31**
Know the institutional policies, procedures and regulations related to information retrieval and use	1	15	10	10	3	13	**56**	31	30	**31**
Know the property rights, copyrights, privacy	1	22	9	6	9	13	**49**	**31**	32	28
Know and apply plagiarism and ethical concepts	3	12	9	10	4	3	35	21	**49**	**54**

Table 12. Level of difficulties during the research processes-2 (N_K=80, $N_Ç$=93)

While Kastamonu researches show strong difficulties in sorting irrelevant results and evaluating of the reliability, accuracy, validity, objectivity, currency of the information retrevied both Kastamonu and Çankırı researches have difficulties in referencing according different rules (APA, MLA, etc.), knowledge about the institutional policies, procedures and regulations related to information retrieval and use, the property rights, copyrights, privacy and plagiarism and ethical concepts.

Most of the Çankırı researchers think their skills in utilizing research steps for academic purposes are high or at least don't have difficulties. From these components of research skills, ability in access and retrieval of electronic information ranked highest, whereas the researchers' skills in organising information accounted for the lowest.

The training requirements of the academicians regarding the research process are given in two tables. Table 13 and Table 14. Research methods and techniques are taken into consideration in the creation and grouping of tables.

Research proccesses	Yes		No	
	K.U	Ç.U	K.U	Ç.U
Know where and how to start	34	34	**66**	**66**
Define what is needed (reseach subject)	35	33	**65**	**67**
Limit the subject	31	34	**69**	**66**
Determine key words	30	18	**70**	**82**
Use Boole operators (AND, OR, NOT)	**85**	43	15	**57**
Use effectively the search engines (advanced search etc.)	**64**	31	36	**69**
Use and understand the library catalog	**67**	34	33	**66**
Use the databases of the library (EBSCO, JSTOR etc.)	**80**	37	20	**63**
Retrieval of web resources (Wikipedia, Google etc.)	19	28	**81**	**72**
Use and get services from other libraries	**56**	51	44	**49**
Retrieval of current information resources	**54**	25	46	**75**

Table 13. Need for training related to research processes-1 (N_K=80, $N_Ç$=93)

In the first table, there are 11 situations related to the subheading. At Kastamonu University, academicians need to be informed about how to use the most restrictive markers (and, or, not). Other significant usage difficulties are related to the use of library databases. The most important support requirement of Çankırı Karatekin University academicians is related to determining keywords. Browsing web resources and accessing verified resources appear to be other important issues.

Research proccesses	Yes		No	
	K.U	Ç.U	K.U	Ç.U
Know the meaning of the web extentions (.com, .gov. etc.)	22	10	**78**	**90**
Sorting irrelevant results	**55**	25	45	**75**
Synthetising information retreived through various sources and aplications	**56**	31	44	**69**
Evaluate the reliability, accuracy, validity, objectivity, currency of the information retrevied	**75**	40	25	**60**
Reading the retrieved sources	**66**	25	34	**75**
Taking notes and /or summarise	**57**	28	43	**72**
Interpret tables, graphs, etc.	**61**	18	39	**82**
Writing the report (article, theses etc.)	**71**	31	29	**69**
Oral presentation of the results	**70**	30	30	**70**
Show citations	**69**	31	31	**69**
Show the references	**65**	34	35	**66**
Referencing according different rules (APA, MLA, etc.)	**77**	46	23	**54**
Know the institutional policies, procedures and regulations related to information retrieval and use	**71**	**59**	29	41
Know the property rights, copyrights, privacy	**74**	**62**	26	38
Know and apply plagiarism and ethical concepts	**61**	**52**	39	41

Table 14. Need for training related to research processes-2 (N_K=80, $N_Ç$=93)

Table 13 and table 14 show that while most of the Çankırı researchers don't need training most of the Kastamonu researchers need training. In general there are many resarchers that need education regarding a great part of the research processes but especially ethical issues and policies are of more importance. This situation can be considered as a negative picture in terms of searching, benefiting and sharing digital information. The situation is also a disadvantage for information literacy

An important difference is seen between Kastamonu and Çankırı resarchers': while most of the Çankırı researchers don't need training related to many subjects or steps, most of the Kasmaonu researchers admitt to need help and training for their research abilities. One important conclusion is that both university researchers need help and training regarding especially ethical issues and policies.

5. Conclusion And Recommendations

Researchers are faced with challenges due to the new information and communication development and changes. The process of identifying and selecting information has become complex. New technologies create opportunities for learners and researchers but they must be approached critically and used correctly. It seems that potentials and limits, benefits and costs of information technologies are neglected. Everyone uses computer and internet but quite a large amount of them uses the libraries digital facilities. The study shows that some of the available resources, facilities and tools have not been utilized at all. This means that users are not aware of the availability of such resources, they do not know how to access them, or they do not know what the resources offer. All this calls for embracing complexity and continued information literacy programs. The moderate level of usage of electronic resources, among researchers in the universities revealed that they need to be assisted by libraries in using ICT's and associated skills such as desktop publishing, database management, programming, and web page design.

There are some slight difference between the e- information literacy levels of researchers of the two universities because information literacy services of both libraries of the relevant institutions are not enough and both university researchers need to be assisted by their libraries to acquire the needed electronic information literacy skills in order to improve the quality of their academic and research work. The study confirms that resaerchers would be able to evaluate information critically and use it better after undergoing some electronic information literacy programmes especially related to information retrieval in the databases, research process and ethical issues of the research should be embedded in the library and it should be introduced as early as possible.

The outcomes of this study are considered helpful for the university libraries in order to plan their future information literacy practices. Librarians must maximize their potential to be in the position to assume their role in the teaching and learning process. Regarding this result the it is recommenended that;

- Libraries of each university should start an electronic information literacy programme to educate the researchers develop theoretical knowledge and practical skills concerning the construction, processing and communication of information.
- Library management can inform academics about the advantages of electronic resources. For this purpose, periodic training programs can be arranged.
- The programe should contain information on how to search/browse for electronic information, evaluate its validity, access of information and informaiton resources and to make judicious use of it.
- The universities should develop the necessary infrastructure for and take a lead role in spreading electronic information literacy skills.
- Faculty staff should be given training on electronic literacy skills so as to enable them compete globally as the world is embracing new technology.
- Electronic information literacy program incluing the following modules on formulating a search strategy, including combing key words & limiting factors, citation, searching the Internet, searching databases, the library catalogue, selecting appropriate sources, evaluation of references, general information about the library, structure of information and use of social network in the ressearch process.
- More cooperation and information should be shared with users, especially regarding databases and usage. This orientation will feed electronic information literacy.
- The university library should be a reference for the area of electronic information literacy and its increasing importance.

- Libraries can prepare different research guides or infoguides on e-resources, evaluating information, copyright information, plagiarism information, research help, website design, writing guide, research ethics and library use.

Developments in the world of information and experiences with information literacy show that information literacy will continue to be meaningful in the future. One of these areas will undoubtedly be electronic information literacy.

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