DETERMINING THE NAVIGATIONAL AIDS USE ON THE INTERNET: The Information Technologies Teacher Candidates' Case*

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ABSTRACT

The Internet users who fail to cope with navigation may generally face various problems such as disorientation, distraction, low motivation and abondenment of information retrieval. Therefore, navigational aids are frequently used in today's Web browsers and Web sites to help users navigate on the Internet. However, it is asserted that navigational aids are still not thoroughly understood and effectively used by Information Technologies Teacher candidates. The purpose of this research is, therefore, to determine the navigational aids use by Information Technologies Candidate Teachers during information retrieval process on the Internet. A three-section survey was developed for this purpose. In this survey research, Information Technologies Teacher Candidates' use of navigational aids in Web sites and Web browsers, and the reasons for low use of navigational aids were investigated. The findings of the study revealed that the teacher candidates did not use bookmarks, Web maps, RSS and atom feeds sufficiently. Moreover, it was found out that the use of navigational aids by teacher candidates show variations according to the average Internet use.

Keywords: **Internet technologies, navigational aids, Information Technologies teacher candidate.**

INTRODUCTION

The number of Internet users is increasing incrementally day by day no matter whether the purpose is sharing information or information retrieval. According to the 2009 data of International Telecommunication Union, the number of Internet users worldwide increased 362% between 2000 and 2009, and this number approached to 1,7 billion (MMG, 2009). This means that approximately 25% of the world population are Internet users. In parallel with the increase of Internet users, newer Internet technologies such as ADSL2, AJAX, RSS, XHTML, Wi-Fi and WiMAX are launched each day. The increase in the number of Internet users and the Internet technologies developing in parallel with it cause an enormous increase in the amount of data accessible on the Internet.

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With the information increase on the Internet, there are some important tasks that each user should cope with regardless of the amount of their experience on Internet technologies. They directly affect the success in information retrieval. Here, the most important task is user's navigation on the Internet which houses dynamic information complicatedly. Navigation on the Internet can be defined as acting purposeful and directional during surfing (Bachiochi et al., 1997). The users that can not cope with this task may face many problems such as distraction, low motivation and abandonment of information retrieval.

There have been many studies especially on navigational aids recently in order to eliminate or reduce the navigation problems of users who try to reach information they want. The primary purpose of navigational aids is to help users navigate on the Internet. For this reason, navigational aids such as Web maps, bookmarks (favorites) and Web feeds (such as RSS, atom etc.) are frequently used in especially next generation Web browsers and Web sites.

Navigational Aids

Navigational aids are add-ons found on the Web page or used by browsers in order to facilitate the users' navigation on a hypertext, hypermedia or multimedia. According to Jul and Furnas (1997), the navigational aids are generally backtrack applications that address to subconscious by their nature.

When a conventional Web design is investigated, it is seen that the navigation of user is supported through main page, up, down, next and previous buttons. Although these tools are enough in simple pages that do not include much information, this is not the case for extensive Web sites and Web browsers. The frequently used navigational aids in Web browsers are next, previous, refresh and main page buttons, bookmarks, history lists and search bars.

In addition to Web maps and various menu designs, RSS (Rich Site Summary) and atom feeds have been frequently encountered on extensive Web sites recently. RSS and atom feeds are special XML file formats that help easily follow the recently added content, and they are generally used by news servers and blogs (Powers, 2005). Internet users can subscribe to the sites that provide regular content with RSS and atom technologies and follow the Web site content thanks to these technologies. RSS and atom feeds can be shown in Web clips in general. On this account, this technology can help people manage information overload (Kesim & Agaoğlu, 2007).

It is known that navigational aids facilitate the navigation of users in a digital environment, so affect the participation of the users in the environment and their success in accessing to information. According to Kok, (2009) in order to cope with Web challenges, several recommendations such as navigation assistants are taken into consideration in e-learning that prevent the learners from getting frustrated once they cannot find the required information in an unfamiliar online environment.

When we investigate the literature on navigational aids, we encounter especially experimental researches. In the experimental study on maps with and without related information and the effects of content list on navigation performance by McDonald and Rosemary (1998), a text of 4500 words was read by 36 students, and ten questions were asked. As a result of the study, it was found out that map use increased more performance than content list while content list increased more performance than the plain text.

In the study which aimed at determining the effects of navigational aids on participation in multimedia and success of learners by Farrel and Moore (2000), a specific content was given with various aids to seventh grade primary education students, and their participation and success were examined. The results of the study revealed that search engines significantly increased the success of students while the menus significantly affected the student participation.

In another study, Head, Archer and Yuan, (2000) tried to determine the key factors that affect the support capacity of Web browsers in accessing information performance of users. 24 undergraduate and graduate business administration students were examined in terms of using Web browsers while performing the tasks allotted to them during two terms. At the end of the study, it was found out that these factors were determining (main page, favorites), search (search engine add-ons), connection (next, previous, refresh buttons), arrangement (bookmarks) and re-finding (history). This shows that the key factors affecting the Web browser users' performance of accessing information are navigational aids (main page, favorites, search engine add-on, next, previous, refresh buttons, bookmarks, history).

As seen in the literature view, the effects of navigational aids on navigation, access to information performance, participation in activities and success have been explored. As a result of the studies, it was found out that navigational aids are very effective on these factors. However, there is not any research on users' navigational aids use, and their opinions about this topic. Therefore, this study is thought to greatly contribute to the literature.

The fast advance in information and communication technologies has changed the individual profile that can meet the needs of the age in current societies. Now, individuals who can use technology adapt to fast changes, access to accurate information rapidly, and produce information are required. Raising individuals appropriate for this profile required in our age is one of the main functions of educational institutions (Akkoyunlu and Kurbanoglu, 2002).

Using Internet has become an indispensible need for both teachers and students in educational institutions. However, it is asserted that navigational aids are still not thoroughly understood and effectively used by Information Technologies Teacher candidates. According to Bachiochi et al. (1997) navigational aids in the Web browsers are not thoroughly understood even by experienced and conscious users.

Purpose

The purpose of this research is to determine the navigational aids use during the process of information retrieval by information technologies teacher candidates. These research questions were addressed for this purpose:

1. **How often do the teacher candidates use the navigational aids in Web sites?**
2. **How often do the teacher candidates use the navigational aids in Web browsers?**
3. **Does the teacher candidates' use of navigational aids differ according to**
   a. **gender and**
   b. **education year?**
4. **Is there a significant correlation between the teacher candidates' navigational aids use and Internet use?**
5. **What are the opinions of teacher candidates on the navigational aids that they do not use sufficiently?**

METHODOLOGY

This is a descriptive research study. Descriptive study is an approach that aims at describing a current or previous situation as it is. In the research, relational and single survey models were employed among the general survey models. While single survey models aim at determining the type and amount of forms of variables one by one, relational survey models aim at determining the variance and/or its level among two or more variables (Karasar, 2006). In this research, which navigational aids on Web sites and Web browsers the teacher candidates use how often was explored according to single survey model while the variance between navigational aids use and Internet use was explored according to relational survey model.

The students who study at the Department of Computer Education and Instructional Technologies, Faculty of Education at Anadolu University in 2009-2010 academic year constitute the research universe. Since all the students in the universe could be reached, sampling method was not employed in the study.

Data Collection Instrument

The behavior frequency survey, formed by the researchers and made up of 16 items and three parts, was employed as the data collection instrument in the research. The frequency of the teacher candidates' navigational aids use on Web sites and Web browsers was questioned with 5 point Likert type items. Likert type rating scales are mostly used to determine the frequency of observing behaviors on a specific subject (Büyüköztürk, 2005).

In the first part of the survey, the demographic information of teacher candidates was questioned while the second part questioned which navigational aids on the Web sites and Web browsers they use and how often they use and the last part asked for the reasons of never or rarely using navigational aids.

The opinions of four experts from the department of Computer Education and Instructional Technologies were taken on the survey, and four items were omitted from the survey as a result of their critics. So, the final form involved 12 items, and the lowest score that a respondent got was 12 while the highest score was 60.

The latest version of the survey titled "Survey on Navigational Aids Use" was transferred to Internet environment through Anadolu University Survey Preparation, Publication and Evaluation software. The Web address of the survey was announced to all the students that studied Computer Education and Instructional Technologies at the Faculty of Education, Anadolu University, and they were asked to complete the survey.

Participants

199 students out of 245 students who studied at the department of Computer Education and Instructional Technologies (CEIT), Faculty of Education at Anadolu University completed the "Survey on Navigational Aids Use". The return rate of the survey was 81%. The participants completed the survey voluntarily. Moreover, the participants' names were kept confidential, and codes such as A1, B2 or C3 were used while presenting the findings of the research.The first part of the survey, which was developed to determine the teacher candidates' navigational aids use on Web sites and Web browsers, questioned the demographical properties of the teacher candidates. Table 1 presents the demographic information of teacher candidates below.

As seen in Table 1, 133 male and 66 female students participated in the study. 34.2% of these teacher candidates are forth year, 23.6% are first year, and the rest are second year and third year students. When we look at the Internet use, we see that a great majority of students spend between 2 and 6 hours on average. In other words, students have an average level of Internet use according to the scale.

Table: 1
Demographic Properties

Properties	Frequency (f)	Percentage (%)
Gender		
Male	133	66.8
Female	66	33.2
Year		
1. Year	47	23,6
2. Year	45	22,6
3. Year	39	19,6
4. Year	68	34,2
Average Daily Internet Use		
Between 0-2 Hours	44	22.1
Between 2-4 Hours	57	28.6
Between 4-6 Hours	56	28.1
Between 6-8 Hours	24	12.1
10 Hours and more	18	9.0

Data Analysis and Interpretation

Whether there is a significant difference between CEIT teacher candidates' navigational aids use and gender was analyzed with independent sample t-test. Moreover, One Way Analysis of Variance (ANOVA) was performed in order to determine whether there is a significant difference between the teacher candidates' navigational aids use and years. Last, the correlation between teacher candidates' navigational aids use and Internet use was analyzed with Pearson Correlation Analysis. SPSS 15.0 was employed for the data analysis.

Interval number/item number (4/5=0.8) formula was used in order to determine the standard opinion intervals for each item as well as the averages in assessing the five point Likert distributions. So, the opinion intervals were determined as:

Arithmetic average for any "i" item of the survey is ($\overline{X}_i$). If the arithmetic average of the item "i" is between;

$1 \leq \overline{X}_i < 1.8$	the participants "never" used the navigational aid in the item,
$1.8 \leq \overline{X}_i < 2.6$	the participants "rarely" used the navigational aid in the item,
$2.6 \leq \overline{X}_i < 3.4$	the participants "sometimes" used the navigational aid in the item,

3.4 $\leq \overline{X}_i$ <4.2	**the participants "often" used the navigational aid in the item, and**
4.2 $\leq \overline{X}_i$ <5.00	**the participants "always" used the navigational aid in the item.**

The reasons for CEIT teacher candidates' never or rarely using the navigational aids were questioned with open-ended questions in the third part of the survey. The qualitative data obtained in this question were subject to content analysis with an inductive approach. In content analysis, the data are coded, themes are found out, data are arranged and defined according to codes and themes, and the findings obtained are interpreted in the last stage (Yıldırım and Şimşek, 2006).

The data obtained from the participants were coded according to the content analysis, and the themes were formed using the data coded. The opinions of two experts from Computer Education and Instructional Technologies were taken to determine the reliability in codings.

The researchers and these experts coded the data independently from each other, and formed the themes. These themes were then compared. Miles and Huberman's (1994, p.64) formula "P= number of agreements/(total number of agreements + disagreements)" was used in calculating the coding reliability, and the reliability of the coding was found out to be .92.

Since the reliability level was higher than .70, the data were accepted to be reliable. Then, the findings of the data were presented and interpreted.

FINDINGS

The research questions are answered below in the light of findings. In the second part of "Survey on Navigational Aids Use", which navigational aids on the Web sites and Web browsers the information technologies teacher candidates use, and how often they use them were questioned.

First of all, the average frequency of navigational aids use on Web sites and Web browsers were taken, and $\overline{X}$ =3.23 was found. The standard deviation of distribution is S=.563. This means that the teacher candidates "sometimes" use navigational aids.

One sample t-test analysis was conducted in order to find out whether the teacher candidates' average navigational aids use ($\overline{X}$ =3.23) is significantly different from 3.00 value which is the average value.

The result of the analysis revealed that the teacher candidates' average navigational aids use is significantly higher than 3.00 [$t_{(198)}$=5.87, p<05].

Each group's descriptive statistics was examined one by one in order to determine which navigational aids on the Web sites and Web browsers CEIT teacher candidates use and how often they use these navigational aids.

Table 2 presents information on which navigational aids on the Web browsers teacher candidates use and how often they use these navigational aids below.

Table. 2
The navigational aids use on the Web browsers by CEIT teacher candidates

	N	$\overline{X}$	S
Navigational Aids on the Web Browsers	199	3,44	0,64
Next-previous buttons	199	4,01	0,90
Refresh button	199	3,77	1,01
Main page button	199	3,53	1,20
Search Engine Add-ons	199	3,49	1,15
Bookmarks (Favorites)	199	3,09	1,18
History	199	2,76	1,17

One sample t-test analysis was conducted in order to see whether the frequency of the teacher candidates' navigational aids use on Web browsers is significantly different from 3.00, the average value.

The results of t-test analysis are shown in Table 3 below.

Table: 3
The results of one sample t-Test regarding the navigational aids use on Web browsers

	t	p
Navigational Aids on the Web Browsers	9.76	.000
Next-previous buttons	15.75	.000
Refresh button	10.79	.000
Main page button	6.19	.000
Search engine add-ons	6.06	.000
Bookmarks (Favorites)	1.08	.281
History	-2.91	.004

As a result of the one sample t-test, it was seen that the average value of navigational aids which is $\overline{X}=3.44$ is significantly higher than 3.00, the average value [$t_{(198)}=9.76$, $p<.05$]. As seen in Table 3, apart from the average of "bookmarks (favorites)", the averages of all the navigational aids are significantly different from 3.00, the average value. The teacher candidates stated that they used the next-previous buttons, refresh button, main page button and search engine add-ons more frequently than the average value. However, the average of history is significantly lower than the average value which means that the participants use this navigational aid less frequently. Bookmarks (favorites) are stated to be sometimes used by the participants. The analysis performed with one sample t–test proposes that the variable shows normal distribution in the universe, and the average value of the universe will be 3.

The inference made only with one sample t-test may not be sufficient in this context; therefore, it is more appropriate to make assessment taking into consideration the aforementioned intervals.

According to Table 2, the teacher candidates use next-previous buttons the most frequently ($\overline{X}$ = 4.01) while they use history connection the least frequently ($\overline{X}$ = 2.76). It is seen that the teacher candidates often use next-previous buttons, main page button, search engine add-ons and refresh button ($3.4 \leq \overline{X}_i < 4.2$) whereas they sometimes use bookmarks (favorites) and history ($2.6 \leq \overline{X}_i < 3.4$). In general, it can be said that more than half of the items are in the frequently usage interval. Moreover, it is notable that there is not any navigational aid in always or never interval. This finding also suggests that the teacher candidates use all the navigational aids on the Web browser.Table 4 presents information on which navigational aids on the Web sites teacher candidates use, and how often they use these navigational aids below.

Table: 4
The navigational aids use on the Web sites by information technologies teacher candidates

	N	$\overline{X}$	S
Navigational Aids on Web Sites	**199**	**3.03**	**.62**
Next-previous buttons	**199**	**3,79**	**1.00**
Main page button	**199**	**3,52**	**1.10**
Website search add-ons	**199**	**3,21**	**1.01**
Related links-Useful links	**199**	**3,15**	**1.05**
Web maps	**199**	**2,44**	**1.07**
RSS and Atom feeds	**199**	**2,06**	**1.09**

One sample t-test analysis was conducted in order to see whether the frequency of teacher candidates' navigational aids on Web sites is significantly different from 3.00, the average value. The results of t-test analysis are shown in Table 5 below.

Table: 5
The results of one sample t-Test regarding the navigational aids use on Web sites

	t	p
Navigational Aids on Web Sites	**.63**	**.533**
Next-previous buttons	**11.10**	**.000**
Main page button	**6.70**	**.000**
Website search add-ons	**2.94**	**.004**
Related links-useful links	**1.97**	**.051**
Web maps	**-7.35**	**.000**
RSS and Atom feeds	**-12.20**	**.000**

As seen in Table 5, as a result of the one sample t-test, the average value of navigational aids on Web sites which is $\overline{X}$ =3.03 is not significantly different from 3.00, the average value [$t_{(198)}$=.63, p>.05]. Apart from "related links-useful links", the average of all the navigational aids on Web sites is significantly different from 3.00, the average value.

The teacher candidates reported using main page button, next-previous buttons and Website search add-ons more frequently, which means that their average value is significantly higher than 3.00, the average level. However, they use Web maps and RSS and atom feeds less frequently, which means that these navigational aids' average value is significantly lower. Related links-useful links are regarded as navigational aids used sometimes.

When the evaluation is carried out in terms of standard opinion intervals, according to Table 4, the teacher candidates use next-previous buttons the most frequently($\overline{X}$=3.79) while they use RSS and Atom feeds the least frequently ($\overline{X}$=2.06). It is seen that the teacher candidates use next-previous buttons and main page button often ($3.4 \leq \overline{X}_i < 4.2$), Website search add-ons and useful links sometimes ($2.6 \leq \overline{X}_i < 3.4$), Web maps and RSS and Atom feeds rarely ($1.8 \leq \overline{X}_i < 2.6$). Therefore, it can be said that students use the navigational aids on Web sites in medium level. Similar with the navigational aids use on Web browser, there is not any navigational aid in "always" or "never" intervals. This shows that all the navigational aids on Web sites are used by teacher candidates.

Before finding out whether there is a significant difference between CEIT teacher candidates' navigational aids use and gender and the education year, whether the teacher candidates' navigational aids use was normal was checked.

According to this, the navigational aids use was investigated in terms of both total frequency and frequency on Web browsers and Web sites separately. The descriptive statistics regarding the navigational aids are given below in Table 6.

Table: 6
Descriptive statistics of navigational aids use

	N	$\overline{X}$	S	Skewness	Kurtosis
Navigational Aids Us	199	3.23	.56	.127	-.061
On Web Browsers	199	3.44	.64	-.020	-.386
On Web Sites	199	3.03	.62	.269	.390

In order to determine whether the navigational aids show a normal distribution, first the coefficients of skewness and kurtosis were investigated. Huck (2000) states that there is no problem in terms of normal distribution if the skewness coefficient of distribution is between -1.0 and +1.0, and the coefficient of kurtosis is between -1.0 and +2.0.

As evident in Table 6, the skewness and kurtosis coefficients of CEIT teacher candidates' navigational aids use are within the parameters of normal distribution. Moreover, the histograms of distributions and P-P Diagrams were examined with SPSS 15.0 Statistical Analysis Program, and it was concluded that the data met the "normality" assumption.

According to the Kolmogorov Simirnov test result, the navigational aids use show normal distribution property [$D_{(199)}=.063, p>0.05$].

According to Kolmogorov Smirnov test results, the distributions regarding the navigational aids use on Web browsers [$D_{(199)}$=.070, p<0.05] and navigational aids use on Web sites [$D_{(199)}$=.085, p<0.05] do not meet the normality assumption, but this is a case generally encountered in distributions with high number of samples and does not harm the normality assumption (Pallant, 2005). In conclusion, the distribution regarding CEIT teacher candidates' navigational aids use is accepted to show normal distribution. Besides meeting the normality assumption, high number of sample made it possible to use parametric tests in the data analysis.

Independent sample t-test was run in order to understand whether there is a significance difference between CEIT teacher candidates' navigational aids use and gender.

Table: 7
T-test results for navigational aids use and gender

Groups	N	$\overline{X}$	S	Sd	t	P
Male	13	3.22	.59	197	-.53	.59
Female	66	3.27	.52			

It is necessary to find out whether the variances of the groups subjected to analysis are similar before running the independent sample t-test (Green, Salkind and Akey, 2000). Therefore, the results of Levene test were examined to see whether the variances of male and female teacher candidate groups are similar, and the variances of both groups found to be similar [F=.70, p>.05]. As a result of the independent sample t-test, CEIT teacher candidates' navigational aids use points do not show a significant difference according to gender as seen in Table 7 [$t_{(197)}$=.532, p>.05]. This finding suggests that gender does not affect the navigational aids use for CEIT teacher candidates.

One Way ANOVA was run in order to understand whether there is a significant difference between CEIT teacher candidates' navigational aids use and their years. The results of one way variance analysis are given in Table 8.

Table: 8
ANOVA results of navigational aids use according to years

Source of Variance	Sum o Square	df	Mean Square	F	P
Between Groups	.242	3	.081	.25	.86
Within Groups	62.71	195	.322		
Total	62.955	198			

When we look at the teacher candidates' navigational aids use according to their education years, the average of navigational aids use in 1st year students is 3.17, that of 2nd year students is 3.26, that of 3rd year students is 3.24 and that of 4th year students' is 3.26. While 2nd year students use the navigational aids the most frequently, 1st year students use them the least frequently. However, one way variance results does not show that there is a significant difference between CEIT teacher candidates' navigational aids use and education years [$F_{(3-195)}$=.251, p<.05].

Before investigating whether there is a correlation between CEIT teacher candidates' navigational aids use and average daily Internet use, whether the distribution regarding the teacher candidates' Internet use meets the normality assumption was checked with SPSS 15.0 Statistic Analysis Program. The descriptive statistics regarding the teacher candidates' average daily Internet use is given below in Table 9.

Table: 9
Descriptive statistics about average daily Internet use

	N	$\overline{X}$	S	Skewness	Kurtosis
Average daily Internet use	199	2.57	1.21	.425	-.660

It is seen that the skewness and kurtosis coefficient of CEIT teacher candidates' average daily Internet use is within the borders of normal distribution according to Table 9. Moreover, the histogram of the distribution, normal Q-Q and P-P diagrams were explored, and it was concluded that it met the normality assumption.

According to Kolmogorov Smirnov test result, however, the distribution is not seen to be within the borders of normality [$D_{(199)}$=.189, p<0.05], but this situation can be explained with high number of sample (Pallant, 2005).

As a result, the distribution regarding the teacher candidates' navigational aids use shows normal distribution property. In addition to meeting the normality assumption, the high number of sample made it possible to use Pearson correlation in the analysis of correlation.

The results of Pearson Correlation analysis run in order to find out whether there is a correlation between teacher candidates' navigational aids use and average daily Internet use are given in Table 10.

Table: 10
The Correlation between Navigational Aids Use and Internet use

	r	p
Navigational aids	0.326	0.000
Web Browsers	0.321	0.000
Refresh button	0.290	0.000
History	0.258	0.000
Bookmarks (Favorites)	0.178	0.012
Main page button	0.152	0.032
Search engine add-ons	0.123	0.084
Next-previous buttons	0.114	0.108
Web sites	0.261	0.000
RSS and Atom feeds	0.326	0.000
Web Site search add-ons	0.234	0.001
Main page button	0.156	0.027
Web maps	0.103	0.147
Next-previous buttons	0.129	0.070
Related links-Useful links	-0.026	0.713

According to Table 10, there is a positive, medium level and significant correlation between the navigational aids use and Internet use [r=.326, p<.05]. If we investigate it in terms of subgroups of the navigational aids, it is seen that there is a positive medium level and significant correlation between Internet use and navigational aids on Web browsers [r=.321, p<.05], while there is a positive low level and significant correlation between Internet use and the navigational aids on Web sites [r=.261, p<.05]. Taking these data into consideration, it can be said that CEIT teacher candidates who use Internet more frequently also use navigational aids more frequently. Further, it is seen that as the teacher candidates' Internet use increases, they show tendency to use the navigational aids on Web browsers more frequently than those on Web sites.

Opinions on Navigational Aids Not Used Adequately

Various themes emerged from the teacher candidates' opinions on navigational aids not used adequately. When we look at the themes obtained, it is seen that the teacher candidates emphasize reasons such as "not needed", "not having enough information", "not being able to give up habits", "not being useful" and "not arousing interest" as reasons for the navigational aids they never or rarely use.

Table: 11
Themes that Reflect teacher candidates' opinions and their frequencies

Reasons	Frequency (f	Percentage (%)
Not needed	55	42
Not having enough information	29	22
Not being able to give up habit	24	18
Not being useful	15	12
Not arousing interest	8	6
Total	131	100

As seen in Table 11, CEIT teacher candidates presented 131 opinions at total under five themes as the reasons for the navigational aids they never or rarely use. The most frequently presented opinion is "not needed" reason among the opinions. The participants presented 55 opinions under this theme, and this number constitutes 42% of the total opinions regarding the theme. The opinions participants named K2, C7 and D5 can be given as example for their not needed navigational aids:

"…Since I generally do not need, and I don't think that it is very necessary …" [K2]

"…Since I have not needed yet …" [C7]

"I don't need … too much, I do research and sign out, and so I don't use navigational aids too much…" [D5]

CEIT teacher candidates also emphasized the theme "not having enough information" among the reasons why they never or rarely use navigational aids (%22). The opinions regarding this theme are generally similar and short answers. To exemplify it, the opinions of the participants named E9 and S7 are presented below:

"…I don't use because I don't know…" [E9]

"…I don't have much information about its usage…" [S7]

Seven teacher candidates reported not having enough information on RSS and Atom feeds, and four teacher candidates reported not having enough information on Web maps. The expressions of the participants named O8 and M4 can be given as example for this:

"…Since I haven't known what RSS and atom feeds are, I also don't know whether I use them…" [O8]
"… I don't use Web map because I have never used it …" [M4]

The most important themes "not needed" and "not having enough information" can be said to be related to each other in another point of view. If a person does not know anything about something, he will not know how it will help him, so he may not need it. When the opinions are evaluated in terms of this point of view, it can be concluded that a great majority of CEIT teacher students (64% which is approximately two thirds) do not have information about navigational aids.

As a reason for not using navigational aids adequately, 18% of the teacher candidates stated that they can not give up their previous habits during using Web browsers and Web sites, they are not aware of these properties as a result of their habits, and sometimes they do not consider them practical. Moreover, approximately 18% of the participants stated that navigational aids are not practical and they do not arouse interest. The participants named H6, L3, G8 and K4 expressed their opinions on this as follows:

"…It is not practical. It is a waste of time to use next-previous buttons…" [H6]
"…not necessary …" [L3]
"…sometimes they are interesting enough…" K4
"…they don't attract my attention sufficiently…" [G8]

It is seen that the answers given for the second part is in parallel with the answers given to the open-ended question in the third part. In the second part, it is seen that the teacher candidates often or always use navigational aids such as main page, next-previous buttons, useful links and refresh button, but they rarely or never use Websites, RSS and Atom feeds. In parallel with this result, in their answers to the open-ended question, the teacher candidates expressed that they did not have enough information about using Websites and RSS and Atom feeds, so they did not use them.

CONCLUSION and DISCUSSION

If we look at the results obtained at the end of the research conducted with 199 Information Technologies teacher candidates and researchers, we see that teacher candidates do not adequately use the navigational aids such as Web map, Web site search add-ons and bookmarks (favorites) which are generally used on Web browsers and Web sites today. It is remarkable that RSS and Atom feeds which are Social Web (Web 2.0) tools frequently used on current Web sites are rarely used by the teacher candidates. Moreover, whether there is a significant correlation between the education year, gender and Internet use and navigational aids use was questioned within the limitations of the study. While no significant difference was found between Information Technologies teacher candidates' navigational aids use and their education years, there was a significant difference between navigational aids use and average daily Internet use. This means that regardless of their education year, the CEIT teacher candidates "rarely" use navigational aids. It was seen that CEIT teacher candidates who use Internet more frequently also used the navigational aids more frequently. This finding may stem from the fact that the individuals who spend more time on the Internet need navigational aids more.

It was seen that Information Technologies teacher candidates emphasized reasons such as "not needed", "not having enough information", "not giving up their habits", "not being practical" and "not arousing interest for rarely or never using navigational aids. When we closely look at the navigational aids that they rarely or never use, it is seen that these are RSS and Atom feeds among the recently developed social Web tools. In this case, it can be concluded that Information Technologies teacher candidates do not carefully follow the current developments in Internet technologies, and they do not sufficiently benefit from these developments. This result is in parallel with Bachiochi et al.'s (1997) finding which indicated that "The navigational aids found on Web browsers are not thoroughly understood even by experienced and conscious users".When the findings obtained from the research are evaluated together, it can be asserted that CEIT teacher candidates should develop their efficacy on Internet literacy because Internet literacy is not just an individual property, it is a property that emerges from personal skills, education and experience, and it should be improved (Livingstone, 2008). In further studies, whether navigational aids use of the teacher candidates in various departments changes according to the different experiences of Internet use can be questioned. Moreover, further studies can be conducted about whether there are similarities or differences between navigational aids use of the Internet users at different disciplines.

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