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A Case Study in Investigating the Relationship Between Personal Values and Internet Usage among Post Graduate Students

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Abstract: The individual values are widely used for explaining the consumer behaviour in the category of goods and services whereas there are few researches about the relation between the internet activities of consumers and personal values. The purpose of this study is to investigate the relationship between the personal values and Internet usage among post-graduate students and to assess their common feelings about the Internet. The statistical analysis shows that there are significant differences in work/business, usage the purchase of goods or services, the download of software, download music or video, and the investigation as well as banking by on-line activities. Moreover in the research students are asked to rate the items concerning how they feel about the Internet usage. We classified their rates via a five-point Likert scale developed by Mick and Fournier [18]. The results of the statistical analysis indicate that the incompetent dimension of Internet has a meaningful difference in gender ($p<0.01$). In the sense that females are significantly more likely than males for believing that the Internet makes feel "incompetent".

Key words: Consumer psychology · Personal values · Internet usage

INTRODUCTION

Over the last few decades, the Internet has become an important medium or tool for business and socio-economic development, information acquisition and knowledge dissemination across the globe, which led to the formulation of the global information society and the creation of the digital economy with its growing trends such as competing in time, customer relationship management and smart communities. Internet technologies have also revolutionized communication and interaction within companies, between businesses, between businesses and consumers and vice versa, between consumers and between peers [1]. According to the International Telecommunication Union's (ITU) statistics [2], the global Internet market today is estimated to have over 1.08 billion users. Accordingly the usage of the Internet in Turkey has shown rapid development since the mid-1990s. The increase was especially great during the period of 1996–1997. In July 1996, only 7,000 Turkish hosts were connected to the Internet whereas this number reached 15,000 by January 1997 [3]. On the other hand a research conducted by TÜBITAK-BILTEN [4] provided some statistics about the status of computer and Internet usage in Turkey. The results show that only 7% of Turkish people have Internet access; 12.3% have computers at home. Of those with computers at home, about 50% are able to use Internet. Moreover among all internet users, the time is mostly spent for e-mailing (23%), the for conducting research (22.3%) and finally for chatting (16.5%) [3]. The latest figures by the ITU, indicate the number of Internet users in Turkey for the year 2001 was 4 million; for 2002, 4.9 million; and for 2003, 5.5 million out of a 70 million total population [5]. Concerning to a survey conducted by a Turkish Statistical Institute, there were 16 million Internet users with active access accounts in Turkey in September 2006 [6]. One of the reasons in that sharp increase of Internet users may be the current demographics of Turkey (32% of the population is made up of 10- to 24-year-olds, who are growing up in the age of technology). In the past year or so, the popularity of the Internet has been widely seen in the media, be it magazines, newspapers, or television programs [7].

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Personal Values and Internet Usage: While the Internet usage and e-commerce increase, consumers participate in a tremendous and intangible experience in order to connect to leisure in everyday life, activities of learning, social relations and to work out of home offices [8]. Moreover the Internet is potentially very powerful for both communication and expansion of knowledge [9]. According to the use of the Internet becomes a part of students' daily routine and these students grow up with computers. Indeed as the Internet is integrated into their daily communication habits, it has changed into a technology as ordinary as the telephone or television [10]. These activities show that the individuals use the Internet as a versatile tool [11].

Therefore in order to understand the consumer behavior on the Internet needs to be focused on the reasons why people use Internet with regard to their personal values. The term personal values, rather than values, reflect the belief that the values are being measured at the individual or micro level. Whereas the term values serves to distinguish the values measured from the broader more societal or macro level. In particular, Rokeach [12] defines personal values as an enduring belief in such a way that a specific mode of conduct or end-state of existence is personally and socially preferable to alternative modes of conduct or end-states of existence. On the other side regardless of which particular personal values instrument is employed, values are instrumental as a guide to consumers' actions, attitudes, judgments and responses to specific objects and situations and are an interactive relativistic preference experience [8, 13]. Even though the personal values are widely used for explaining the consumer behaviour in the category of goods and services, there are few researches about the relation among the internet usage of consumers and the values. To understand and predict future national Internet use, it is important to study university students because of the fact that they are one of the first groups that began to use the internet most prevalently and the first group began to have problems related to excessive usage of the Internet [14, 15]. Thus, this research is aimed to investigate the relationship between Ms and Ph.D students' personal values and their Internet usage and to examine the impact of gender on feelings about the Internet.

LITERATURE REVIEW

The researchers working on the Internet phenomenon have examined a wide range of issues such as demographics and growth, strategic and commercial uses, adoption and diffusion and gender differences [1]. Although there are several investigations into the practices and profile of the Internet user, the scientific study of the personal values and the feelings of the Internet user are only at the beginning stage. A study of Bourdeau *et al*. [8] demonstrates that five value factors named as social, utilitarian, hedonic, learning and purchasing values are effective on the Internet usage. It is also found that the World Wide Web users' score is significantly higher on social and learning value, while E-mail users tend to value which is more communication rather than learning, experience. In the study, Jones [16] analyzes the Internet usage with today's technology among college students living in the USA. Results show that college students look for e-mail with 72% and check their e-mails at least once a day. From the evolusion it is also seen that about half of the students (49%) begin using the Internet in college and the other half (47%) starts to use it at home before their college education. Moreover 79% of participants agree that the Internet usage has a positive impact on their college academic experience. Nearly three-quarters (73%) of them say that they use the Internet more often than the library for searching information. On the other hand in order to investigate the usage of the Internet among undergraduate students, a study is conducted by Komerik [10] on dental students during their training programme in Süleyman Demirel University (Turkey). According to the results, it is observed that 93% of the students use the Internet in various frequencies. 7% of them state that they do not know how to use the Internet and the associated proportion on gender is higher for female students. Furthermore in general, male students use the Internet more often than their female counterparts. In Odell and Schumacher's study [14], it is also found that females are more likely than males to use the Internet for e-mail, but, males are more likely than females to apply it for other purposes. A study conducted by Madell and Muncer [17] reveals that the results seem to highlight something of a gender gap in Internet usage between males and females. Despite the fact that both sexes consider the Internet to be equally important in their lives and they equally satisfy with it for finding goods or helpful websites as well as they report equal numbers of problems associated with Internet usage, boys (85.7%) are nevertheless significantly more likely to classify themselves as Internet users than girls (80.2%).

MATERIALS AND METHODS

Sampling and Data Collection: This study uses the post-graduate students (i.e. MSc and Ph.D students) who matriculate in the Graduate School of Natural and Applied

Table 1: Factor analysis of feelings about the Internet scale items

Items	Factor 1	Factor 2
Assimilation:		
The Internet can facilitate human togetherness and give individuals a sense of belonging	0.90	
The Internet is a good way to communicate and encourage human interactions.	0.86	
Incompetence:		
The Internet can lead to human separation and cause individuals to withdraw from direct human interactions		0.54
The Internet is dehumanizing.		0.83
The Internet makes me feel dumb		0.77
Using the Internet makes me feel incompetent.		0.66

Only factor loadings greater than 0.30 are displayed

Sciences at Ankara University in Turkey. The researcher sends an electronic questionnaire to 1893 students' e-mail addresses. A total of 163 (101 women, 62 men) students reply this e-mail. In the research self-administered questionnaires are filled out by students to capture various aspects of the Internet experience and personal values with some background demographic information.

Instruments: The questionnaire items are selected and adapted from several existing scales [e.g. 2, 10, 12, 13, 14] and the questionnaire is composed of three major sections. The first part contains eight questions to measure demographic profile including gender, marital status, age, occupation, income and educational status, from where they access the Internet and how many hours per week they currently use the Internet. The second part, on the other side, includes a list of 17 Internet activities. In this part the scale is organized into the following four categories identified by Schiffman *et.al.* [13]: a) *Business-related uses of the Internet,* b) *Information and research-related uses of the Internet,* c) *E-commerce and related uses of the Internet,* d) *Fun and entertainment related uses of the Internet*. Respondents are asked: "When and why do you use the Internet?" and are then instructed to "check as many boxes as apply". In the third part the students rate the items related to the feelings about the Internet usage according to a five-point Likert scale developed by Mick and Fournier [18] (1=strongly disagree to 5=strongly agree). In order to evaluate their opinions about each item in each scale, the validity of the translated and adopted version of the questionnaire is initially carried out in 20 respondents. From these toy data, the exploratory factor analysis and the reliability assessment are performed on 9 items for deciding on an appropriate scale. The analyses have indicated a scale containing 6 items which behaved consistently across the samples and possessed an adequate reliability. However the exploratory factor analysis suggested a scale with two moderately correlated factors: Assimilation and Incompetence. Two items have been proposed to encompass the concept of assimilation as it is relevant to the Internet whereas four items have been aimed to capture the notion of incompetence. The alpha coefficient has been calculated for the items comprising these two factors. The subsequent analysis which ahs supported two factors and used a varimax rotation has showed that the first factor has an eigenvalue of 1.60 and accounts for the largest percentage of variance (80.0%). The second factor with an eigenvalue of 2.09, accounts for 52.1% of the variance. Table 1 presents the loadings of the feelings about the Internet scale items.

Data Analyses: The answers from the questionnaires are coded and analyzed using SPSS 1O.O (Statistical Package for the Social Science). For all variables, initially frequencies and descriptive statistics are computed. Then the gender is chosen as predictor variable for the study. In order to find out the differences related to the specific internet activities depending on gender, a *t*-test is applied. On the other hand, a chi-square test is used for the discussion of Internet activities which aim to show the relationship between selected Internet activities and personal values. Finally to secure the feelings about the Internet, the scores are given from 1 to 5 and the *t-test* analysis is performed for each statement in order to determine the differences by gender. Statistical differences are set at $p<0.05$, $p<0.01$, $p>0.001$.

RESULTS

Demographic Characteristics of Students: The demographic data of students surveyed in this study are tabulated in Table 2. 62.0% of the samples are females and 38.0% are males. Majority of respondents (73.6%) are single and 65.6% are between 25 and 34 years old. Moreover half of those (52.1%) are MSc. and 39.3% are Ph.D students. 50.9% earn between 500 and 1000 YTL and most respondents (69.9%) are full-time employers. Results indicate that 39.9% of students connect to the Internet from at least two places which are listed as both home and

Table 2: Demographic characteristics of students

Demographic characteristics	N=163 (%)
Gender	
Female	101 (62.0)
Male	62 (38.0)
Marital status	
Married	42 (25.8)
Single	120 (73.6)
Widowed/Divorced	1 (0.6)
Age	
Under 25	48 (29.4)
25-34	107 (65.6)
35-44	7 (4.3)
45 and older	1 (0.6)
Educational status	
Ms. student	85 (52.1)
Ms. graduates	8 (4.9)
Ph.D student	64 (39.3)
Ph.D graduates	6 (3.7)
Income status (1 New Turkish Liras=1.32$)	
Under 500 YTL	34 (20.9)
500-1000 YTL	83 (50.9)
1001-1500 YTL	29 (17.8)
Over 1501 YTL	17 (10.4)
Occupation status	
Full-time	114 (69.9)
Part-time	10 (6.1)
Unemployed	39 (23.9)
Internet connection from	
Home	30 (18.4)
University	5 (3.1)
Work place	28 (17.2)
At least two above	65 (39.9)
All	35 (21.5)
Period of using internet (per week)	
Under 8 hr/week	31 (19.0)
9-16 hr/week	38 (23.3)
17-24 hr/week	24 (14.7)
25-32 hr/week	27 (16.6)
Over 33 hr/week	43 (26.4)

university, both home and office, or both university and office. In addition 26.4% of them spend 33 hr/week and 23.3% of them spend 9-16 hr/week on the Internet.

Internet Usage and Personal Values: In terms of the Internet usage, all of the students (100.0%) use the e-mail. The other common application of the Internet are found as follows: (a) learning or gathering information (98.8%); (b) reading the e-newspaper, magazines and work/business (69.9%); (c) download software (63.2%); (d) researching hobbies (53.4%); (e) surfing (51.5%).

For the differences between Internet usage and gender, a *t*-test is applied and the result is presented in Table 3. The statistical analysis indicates that there are significant differences between genders ($p<0.05$). In the sense that male students are more likely than female students to use the Internet for the purposes of work/business, buying goods or services (by entering the credit card number), download software, music or video, investing and banking on-line activities. The underlying differences in gender for using the Internet may be due to the traits of women and men such as their habits, decision making styles and interests in technological innovations.

On the other hand, from the analysis of chi-square test, shown in Table 4, the following findings are observed.

Business-related Uses of the Internet: The analysis states that the students who use the Internet for "work/business" are successful in warm relationships with others (65.6%) are good in aspects of fun and enjoyment (66.5%). Moreover there is no significant difference among personal values regarding to the classification of "job searches" ($p>0.05$).

Information and Research-related Uses of the Internet: The findings display that the consumers who use the Internet for "reading the e-newspaper, magazines", have high scores high on the these specific personal values: 69.1% is high on "a sense of accomplishment", 78% is high on "self-fulfillment" whereas significant difference is found between personal values and "learning or gathering information" ($p>0.05$).

E-commerce and Related Uses of the Internet: The research reveals that 83% of the respondents who "make or research travel information or reservations" score mainly on the personal value of "sense of accomplishment" (37%). 36.1% is successful in "excitement", 36.9% has a high score on "warm relationships with others" and finally 36.6% is good in "fun and enjoyment". Additionally, according to the evaluation of the results of e-commerce, 34.2% of those students who report "buying goods or services (by entering the credit card number)" select "excitement", 33.5% of students choose "fun and enjoyment". Furthermore, 14.5% of them, investigating on-line, prefer the personal value of "sense of belonging", 15.4% of them pick "being well respected". Finally, there is no significant difference between personal values and the remaining e-commerce related activities which are the "download software ", the "participating in on-line activities by buying or selling products" and the "banking on-line" ($p>0.05$).

Fun and Entertainment Related Uses of the Internet: The analysis relevant to the usage of the Internet for "fun and entertainment" demonstrates some interesting findings. Among the consumers who use the Internet for "entertainment such as playing games" state the "sense of belonging" with 18.9% whereas from the assessment based on using the Internet to "download music or video", the result shows that 43.4% has the "sense of

Table 3: The results of t-test on the Internet usage

	Gender						
	Female			Male			
Use	df	$\bar{x}$	SD	df	$\bar{x}$	SD	t
Learning or gathering information	161	0.98	0.14	161	1.00	0.00	1.11
Reading the e-newspaper, magazines	161	0.69	0.46	161	0.71	0.46	0.22
Work/business	161	0.64	0.48	161	0.79	0.41	2.00*
Download software	161	0.51	0.50	161	0.84	0.37	4.53***
Researching hobbies	161	0.48	0.50	161	0.63	0.49	1.92
Surfing	161	0.49	0.50	161	0.57	0.50	0.98
Download music or video	161	0.40	0.49	161	0.65	0.48	3.16**
Banking on-line	161	0.42	0.50	161	0.62	0.49	2.48*
Making or researching travel information or reservations	161	0.39	0.49	161	0.34	0.48	0.61
Job searches	161	0.37	0.49	161	0.34	0.48	0.36
Buying goods or services (by entering the credit card number)	161	0.28	0.45	161	0.45	0.50	2.30*
Other	161	0.19	0.33	161	0.15	0.36	0.49
Entertainment such as playing games	161	0.28	0.41	161	0.16	0.37	0.73
Investing on-line	161	0.19	0.31	161	0.29	0.46	3.00**
Communication with others such as in chat rooms or message boards	161	0.17	0.38	161	0.16	0.37	0.12
Participating in on-line activities by buying or selling products	161	0.03	0.17	161	0.05	0.22	0.61

*p<0.05, **p<0.01, ***p<0.001

[a]E-mail: It cannot be computed because the standard deviations of both groups are zero

Table 4: Internet usage and personal values

Use	Chi-square	p
Business-related uses of the Internet		
Work/business		
Warm relationships with others (65.6%)	5.13	0.02[b]
Fun and enjoyment (66.5%)	3.69	0.05[b]
Job searches*		
Information and research-related uses of the Internet		
Reading the e-newspaper, magazines		
Sense of accomplishment (69.1%)	3.89	0.04[b]
Learning or gathering information*		
E-commerce and related uses of the Internet		
Making or researching travel information or reservations		
Excitement (36.1%)	5.50	0.01[b]
Warm relationships with others (36.9%)	4.27	0.03[b]
Fun and enjoyment (36.6%)	4.65	0.03[b]
Sense of accomplishment (37%)	3.76	0.05[b]
Buying goods or services (by entering the credit card number)		
Excitement (34.2%)	5.14	0.02[b]
Fun and enjoyment (33.5%)	4.16	0.04[b]
Download software*		
Participating in on-line activities by buying or selling products*		
Banking on-line*		
Investing on-line		
Sense of belonging (14.5%)	3.97	0.04[b]
Being well respected (15.4)	3.76	0.05[b]
Fun and entertainment related uses of the Internet		
Entertainment such as playing games		
Sense of belonging (18.9%)	3.88	0.04[b]
Download music or video		
Sense of belonging (43.4%)	7.00	0.008[b]
Researching hobbies*		
Communication with others such as in chat rooms or message boards*		
Surfing*		

* There were no significant differences among the personal values for these Internet uses.

**E-mail: No significant differences were found in terms of personal values and use of e-mail. This tends to support the position that e-mail usage has become so common or universal, that it does not by itself distinguish groups of Internet users.

[a]p<0.01, [b]p<0.05

Table 5: Means, standard deviations and t-values of feelings about the Internet by gender

Feelings	Group	Mean	*n*	SD	t
Factor 1-Assimilation					
1.The Internet can facilitate human togetherness and give individuals a sense of belonging	Female	3.386	101	1.06	0.005
	Male	3.387	62	1.16	
2. The Internet is a good way to communicate and encourage human interactions.	Female	3.089	101	1.08	0.306
	Male	3.145	62	1.23	
Factor 2-Incompetence					
3.The Internet can lead to human separation and cause individuals to withdraw	Female	2.534	101	1.02	3.969*
from direct human interactions (R)	Male	3.177	62	0.98	
4. The Internet is dehumanizing (R).	Female	2.941	101	1.14	1.855
	Male	3.274	62	1.07	
5.The Internet makes me feel dumb(R)	Female	3.911	101	0.92	1.304
	Male	4.097	62	0.82	
6. Using the Internet makes me feel incompetent (R).					
N=163	Female	4.069	101	0.71	1.244
	Male	4.210	62	0.68	

*p<0.001

Table 6: The results of t-test on feelings about the Internet

	Gender						
	Female			Male			
	df	$\bar{x}$	SD	df	$\bar{x}$	SD	t
Assimilation	161	6.48	1.90	161	6.53	2.16	0.18
Incompetence	161	13.46	2.77	161	14.76	2.47	3.03*

*p<0.01

belonging". However significant difference is found between personal values and "researches for hobbies", "communication with others such as in chat rooms or message boards", as well as "surfing" (p>0.05).

Feelings about the Internet by Gender: In the study, the factor analysis is implemented for the analysis of feelings and the results are consistent with two technological paradoxes which are assimilation / isolation and competence/incompetence, identified by Mick and Fournier [18]. From the evaluation it is found that two main categories divide the significant 6 items. These factors are labelled as: "assimilation" (belief that computers are useful and helpful) and "incompetence" (belief that computers are controlling humans and threatening). In the final stage of the analysis, the *t-test* is performed to determine whether there is any difference between males and females to evaluate the statements of feelings about the Internet via assimilation and incompetence tabulated in Table 5. Regarding to the assimilation subscale 59.5% of the students agree that "the Internet can facilitate human togetherness and give individuals a sense of belonging" as given in item 1. Moreover almost half of the respondents (47.3%) state that "The Internet is a good way to communicate and encourage human interactions" as presented in item 2. However, based on the results of the *t-test* analysis, it is shown that there is not a statistically significant difference between assimilation and gender (p>0.05). On the other hand according to the incompetence subscale Table 5 shows that 45.4% of the students agree with "The Internet can lead to human separation and cause individuals to withdraw from direct human interactions", whereas, 31.9% of the participants disagree it can be. It is also found that the mean levels of the males are higher than females ($t_{(132)}$=3.969; p<0.001). This result may imply that females do not evaluate Internet as useful in terms of social relations. Furthermore the percentage of students who disagree with "the Internet is dehumanizing" is higher than the other distinct levels (47.2%). Finally the analysis shows that the Internet does not make the students feel like incompetence (87.7%) and dump (79.7%) (p>0.05).

On the other side Table 6 is drawn for the investigation of subscales in place of items by *t-test* analysis. As seen from the table, the analysis emphasizes that the incompetent dimension of the Internet has considerable difference in gender (p<0.01). According to the result, females are significantly more likely than males to believe that the Internet makes them feel "incompetent".

CONCLUSION AND DISCUSSION

The purpose of this study has been extended the understanding of the relationship between personal values and internet usages by concentrating on the following issues:

- The association between selected Internet activities and gender besides the relationship between selected Internet activities and personal values
- The association between feelings about the Internet and gender

From the analysis it has been found that

- The values have an explanatory power on selected Internet activities and
- The gender is a significant indicator of specific Internet activities and feelings about the Internet.

Accordingly, the results from this study have supported the gender gap in Internet usage. The findings are consistent with a number of previous researches in the sense that females spend less time on the Web and are less likely to be interested in using computers [1, 11, 17]. However the assessment may vary depending on the demographic characteristics of the sample on which the study is carried out. From the analysis, it has been found that males are more likely to download software and music or video, to bank and invest on-line and to buy goods and services. These listed differences between gender and Internet usage may arise either from web skills and previous computing experience or from concern about technological addictions.

The findings have also revealed that there is a significant relationship between selected Internet activities and personal values. Personal values are one of the strongest and most consistent indicators of Internet activities. Moreover the students who are influenced by "sense of accomplishment" are more likely to use the Internet for reading the e-newspaper and magazines as well as for making or researching travel information or reservations. Those who give importance to "warm relationship with others" are more likely to have positive effects on work/business and making or researching travel information or reservations. Additionally, buying goods or services (by entering the credit card number) and making or researching travel information or reservations are more likely to be supported by the values of "fun and enjoyment" and "excitement". The chi-square test has also indicated that there is a significant relationship between "fun and enjoyment" and work/business, as well. Moreover the Internet activities of the investigation by on-line, the entertainment such as playing games and the downloading music or video are very likely to be affected by "sense of belonging". Whereas only one personal value who is denoted as "being well respected" is associated with the activity of investigation by on-line.

Moreover this research has considered students' feelings about the Internet on the basis of gender. From the factor analysis the feelings have been identified as "assimilation" and "incompetence". These findings can be interpreted as follows: the feelings about the Internet are derived from an individual's general beliefs about his/her ability to adopt and to perform the Internet [19]. Furthermore according to the results, it has been seen that male Internet users disagree with the judgement stated as "the Internet is comprised of incompetent items" ($p<0.001$). This conclusion is consistent with the findings of several previous studies [1, 19]. The possible explanation of this fact can be that males tend to use the Internet more widespread than female students do.

Finally, based on the overall results from the study, it can be said that the values and the gender have substantial impact on the Internet usage. The values represent the reasons why consumers use the Internet and are a strong, direct predictor of tendencies for the Internet usage. Additionally both genders think the Internet to be equally important in their lives even though typically males tend to see themselves as more effective Internet users than females. Indeed as similar findings has been found in the study of Cone [20]. In his research, he states that schools and communities encourage males to gain experience with computers more than females.

To conclude, it has seen that the population of the sample is homogenous in terms of demographics and the instruments of research citied here are reliable about the Internet usage of post-graduate students in Turkey. Nevertheless the results cannot be generalized for all population with different variables. On the other side, this study can be of importance to educators and marketers to encourage for developing effective Internet usage due to the fact that the students rely on on-line tools in order to promote their knowledge and skills. Furthermore the assessment of the findings can be useful guidelines for evaluating the relationship between the Internet usage and personal values and it can contribute to a better understanding the students' attitudes and behaviours towards the Internet. In addition, the Internet motivates students to undertake research and help them to develop skills in collecting and analyzing data by electronic discussion groups, videoconferences and interactive learning environment by animation and simulation methods [11, 16].

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