

USE AND EFFECT OF INTERNET IN SAUDI ARABIA

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ABSTRACT

This paper presents results of our study, on the use and effect of Internet in Saudi Arabia. The study addresses three areas: social uses of the Internet in society; implications of the Internet technology for education; and business uses of the Internet. This is first such study in Saudi Arabia. For this research we employ web-based on-line questionnaire. In this paper we have presented results of one year of research, data collection and analysis.

1 INTRODUCTION

There have been studies and surveys on the Internet's use and its effect on individuals, societies, education and businesses. Most of these studies are localized for a particular region, which is understandable, as the complete study or survey for all regions is a huge undertaking. Even if such a study exists it is believed that its results and findings will be seen with a sense of doubt. Such a study for any region requires understanding of issues that are specific to that region's culture, traditions, etc. During our literature survey we encountered many such studies that eventually shaped our questionnaire and subsequent result analysis [1, 2]. There are even some studies for the Arab region. After the introduction of Internet in Saudi Arabia, there was a need to conduct such a study (Use and Effect of Internet in Saudi Arabia) that can eventually help in correlating a large number of factors involved. This is first of its kind in Saudi Arabia. We hope that this study will help in future decision making for introducing new services, extending infrastructure and so on.

The objective of this project is to study and monitor the use of Internet in the country. The project will explore the use of Internet along three major topics: social uses of Internet in society, implications of the Internet technology for education, and business uses of the Internet. Exploring these three major topics results in the identification of few more topics of study which can also be investigated through this study. These topics are: the availability of Arabic content on the Internet and the prospects of distance learning in Saudi Arabia. For these purposes, we are running a web-based on-line questionnaire and analysing the responses.

This paper presents results of one year of study, data collection and its analysis. We report our findings about the Internet users in Saudi Arabia, their education, gender, and demographic distribution in the country. Furthermore, we look into the issues related to the Internet access. Next we drill down the effects of experience on the usage of Internet and user activities. We also report results related to effects of Internet use on social life of users. The views of the Saudi Internet users for Arabic Language content and search facilities are also reported. In line with our objective, we also look into the views expressed by users for current and future adoption of Internet for education and business.

This paper is organized as follows. In Section 2, we briefly describe the Internet Infrastructure in Saudi Arabia. Next we cover our research methodology and questionnaire design. In Section 4, we report our results and their analysis.

2 INTERNET INFRASTRUCTURE IN SAUDI ARABIA

In Saudi Arabia, filtering of Internet content is required in order to make it suitable for the society. Furthermore, any kind of connectivity must be done through King Abdulaziz City for Science & Technology (KACST). Any alternative must not violate these two items. Public access to the Internet in Saudi Arabia was allowed in April 1997.

There are 30 Licensed Internet Service Providers (ISP) in the country and 18 educational/other organizations. All ISPs are tied to a central node at Internet Services Unit (ISU) that controls access to the Internet. ISPs main locations are connected to the Asynchronous Transfer Mode (ATM) network. 14 ISPs are connected via fiber optic backbone, 8 ISPs have links to the ATM network and 7 have not yet installed their fiber cable yet. Moreover 15 ISPs have point of presence (POP) with an average bandwidth of 256 Kbps. Average bandwidth allotted per ISP is 6 Mbps and to educational institutions and others are 2 Mbps.

The Kingdom has a round the clock monitoring of the network and technical support for the ISPs. It is estimated that the peak hours for the Kingdom are between 8PM to 3AM, and 20-30% of the total available bandwidth (465 Mbps) is used. The ISPs use average bandwidth of 3.4 Mbps and other institutions use an average of 1.0 Mbps. Network

uptime is estimated by KACST, as 99% and network uptime including the providers to access point is about 98%.

According to a recent estimate by King Abdulaziz City for Science and Technology (KACST), there were 275,000 Internet subscribers in the Kingdom of Saudi Arabia as of June 10, 2001. It is also estimated that there are 2.5 users per subscriber, and hence number of Internet users are 690,000 in the Kingdom. These numbers are higher than those reported in 1999. At that time the number of users was 112,500 [3], which is an indication of the rapid increase in Internet subscription and use in the country. According to a study, 2.6% of population has Internet access [4].

3 RESEARCH METHODOLOGY

Our research on "Use and effect of Internet in Saudi Arabia" is to conduct a survey and its eventual analysis. This goal is usually best achieved by creating a questionnaire and collecting its responses for analysis. In this section, we report our efforts in this regard.

Survey Process

Surveys have become a widely used and acknowledged research method. The concept of considering information derived from a small number of people to be an accurate representation of a significantly larger number of people has become a familiar one. Surveys have a broad appeal and are perceived as a reflection of the attitudes, preferences, and opinions of the people.

Surveys typically collect three types of information, which are not mutually exclusive: description, behavior, and preference. Particular use of the survey determines the informational requirements of the survey. Description refers to socio-economic parameters such as respondent's age, sex, education, job, etc. Such information enables researchers to better understand the larger population represented by the sample. Behavior refers to information such as pattern, frequency, and use of recreational and entertainment facilities. Preference refers to respondent's opinion about a variety of conditions and circumstances. The primary objective of this information category is to be predictive and future oriented. A study need not fit into one of these information categories. Usually, a survey requires the researcher to derive information from each of the above categories in one sample survey. Our survey is no different and it has questions related to description, behavior, and preference.

Sampling Frame

For our purposes the sampling frame is the population of Internet users in Saudi Arabia. This *target population* can be divided into three (although overlapping) categories: ordinary users, users directly related to education (students and instructors), and business users (both buyers and sellers). Thus, in a latter stage of analysis, it will be possible to relate the collected data to the entire population or to these individual categories. Each is expected to provide an important insight and information for decision making and further research.

Information Gathering Methodology

Due to the nature of the study, it was decided that the Web survey will be more effective than other methods. Since the targeted population for survey is Internet users, most likely they know how to use and browse the Web. This observation was fundamental in deciding in favor of Web survey.

4 RESULTS OF OUR STUDY

In this section we report results of our study. We will try to answer questions such as who is using Internet in Saudi Arabia? Moreover, Internet access and its use, barriers to using the Internet and the views about Internet are also reported. We will see the social and psychological impact of Internet on the population with privacy and security concerns. Views of Saudi Internet users concerning the availability of Arabic language content and search facilities are also analyzed. The use of Internet and its prospects for distance learning and business uses are also looked into.

Internet Users

As expected the young generation in the age group 16 to 25 is more likely to use the Internet (47%). Almost 80% of the respondents were in the age group of 16 to 35 years. Men are more likely to have access to Internet than the women. Almost 85% of the respondents were men. This is attributed to the fact that men have better opportunities and access to Internet facilities like access from office and Cyber Cafes than the women.

Majority of the Internet users are college (38%) and high school (27%) graduates. This is due to the fact that the in general majority of the population falls within these two educational levels. Figure 1 shows the distribution of the survey population in different education levels.

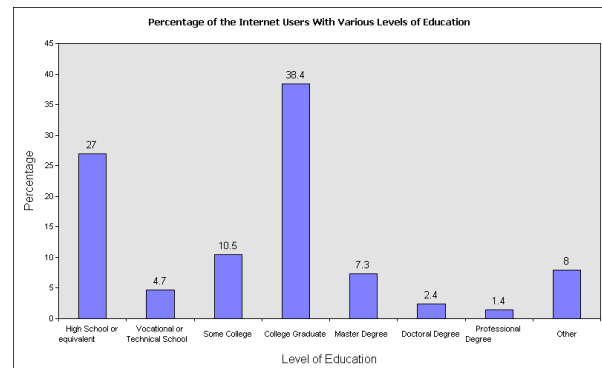


Figure 1: Percentage of the Internet users with various levels of education.

Internet users in the Kingdom are concentrated in major cities. Almost 80% of the respondents live in major cities of the country while little over 4% live in rural areas.

Internet Connection

In this section we will examine how users connect to the Internet and what are their problems?

Almost 51% of the respondents or their spouses pay for the Internet connection and 40% access it from their educational institutes. Majority of the regular users access the Internet

from their homes. When we compare the place from where the Internet is accessed for the daily uses, 56% of the respondents' access it from home while 44% from their work or educational place. Very few regular users (2.9%) prefer public Internet facilities like libraries and cafes. A large number of occasional users prefer public facilities. For example 25% of monthly users access it from public places.

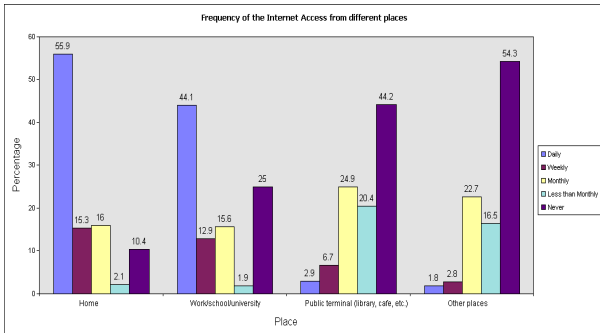


Figure 2: Frequency of Internet access from different places.

The problems with the Internet in the Kingdom were as follows in order of difficulty: Slow speed when connected, it takes too long to download pages, sites charging money, cost, frequent disconnections and hard to connect.

Internet Use and Experience

In this section we will try to examine whether Internet use varies with gender and the amount of experience on-line? First we measure the experience of Internet users and amount of time they spent on-line. Next we will analyze the effects of experience and gender on the usage of Internet followed by popular Internet activities of Saudi users.

Experience: The Internet was introduced in Saudi Arabia in early 1997. Therefore, majority of the users are new. Our survey also confirms this fact. Almost 3-quarters respondents are using the Internet for less than 6 years. We suspect that majority of them were on-line for less than 4 years which coincides with the introduction of Internet facilities in the country. Around 20% respondents have been on-line for less than a year. Figure 3 shows the distribution of the respondents with respect to the duration of Internet access.

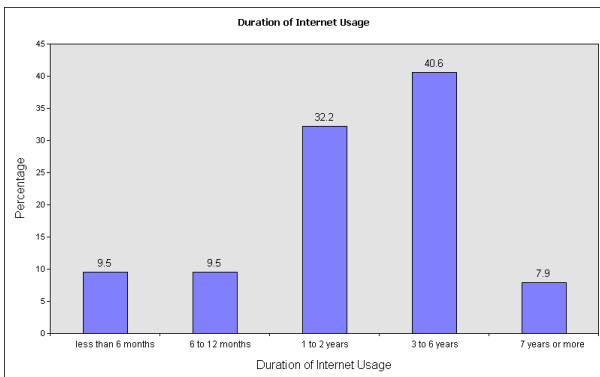


Figure 3: Duration of Internet Access

Usage: Usage of Internet can be characterized in terms of work or for fun. The usage of Internet for work is evenly distributed between different time segments per week.

However, almost 40% of users use the Internet for only 1 to 5 hours per week for fun and entertainment.

Effect of Experience: More experienced users are going to spend more time for on-line activity. This conclusion is drawn by examining the relationship of experience on the usage of Internet for work (Figure 4) and for fun (Figure 5). The more experienced user is inclined to spend more time on-line for work than a novice user. This trend with somewhat at a smaller scale is also visible for fun related on-line activities (Figure 5).

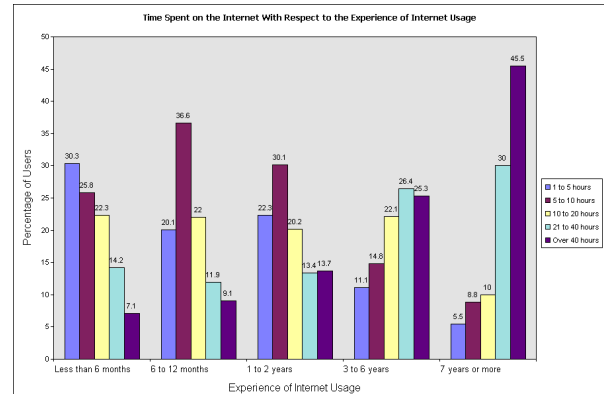


Figure 4: Usage of Internet for work with respect to the experience of Internet users.

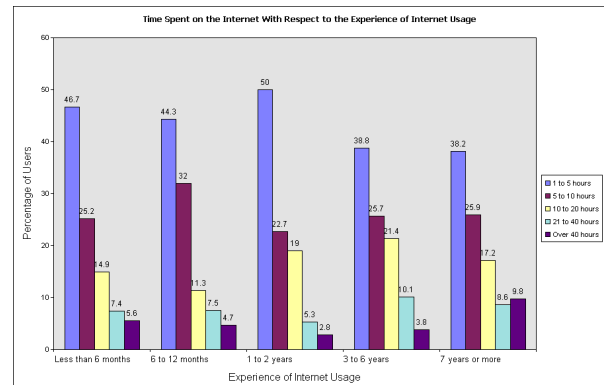


Figure 5: Usage of Internet for fun with respect to the experience of Internet users.

Internet Activities: In this section we analyze the user activities and their preferences.

In terms of on-line search, majority of the users prefer to search for computer software and hardware information. On-line chat is the third most sought-after use of the Internet followed by making on-line telephone call and listening to radio broadcast.

In case of multi-media on-line services, streaming audio (47%) and Internet phone (45.4%) are most popular services, followed by Usenet, listserv and discussion forums (41%).

In terms of on-line information services, accessing news is the single most sought after regular activity. Almost 43% of the respondents daily examine news. While user preferences for not-so-frequent (like weekly and monthly) information accesses are evenly distributed among many tasks.

In terms of other Internet related activities, such as number of e-mail accounts, search engines used etc., it was found that litter over three-fourths of the respondents have more than one e-mail account. Web-based access is the most favorite form of e-mail access (41%). Almost two third respondents prefer YAHOO as a search engine (65%).

Social and Psychological Impact

The rapid evolution of any technology naturally raises questions about both its potential benefits and possible negative consequences. This is especially true of the Internet. Related issues include questions about children and access to on-line material, potential on-line threats to personal privacy, the “digital divide”, and the effects of the Internet on family involvement and social organizations, gender differences in use and access, credit card security, and the effects of on-line sales on traditional retailing [1]. In this section we will try to look into the social and psychological impact of Internet use.

It was found that generally Internet is helping people to be more connected to like-minded people. Almost 67% of the respondents agree with this argument. Only 4% of the respondents feel otherwise.

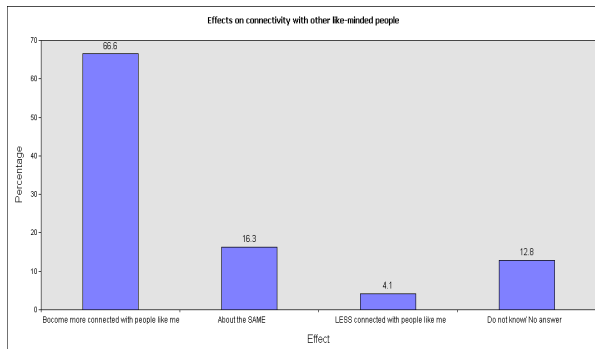


Figure 6: Effects on connectivity with other like-minded people.

A large number of respondents consider that Internet has helped them to be more connected to their family members. Next they feel that Internet is helpful for connecting people with identical professions and hobbies. These conclusions are drawn from the analysis of the Figure 7 that shows different groups of people using Internet for connection.

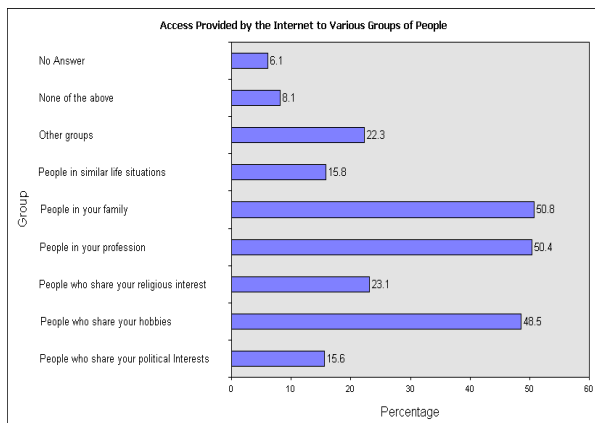


Figure 7: Access provided by the Internet to various groups of people.

Internet usage has affected other social and personal patterns of behavior. Users sacrifice other activities for the sake of Internet use. The most adversely affected daily activity is watching TV. Almost 32% of the respondents feel that they prefer Internet use to watching TV. Reading books and talking on phone are other daily activities affected by the Internet use. Surprisingly a large number of respondents feel that they do not sacrifice playing cards (38.8%).

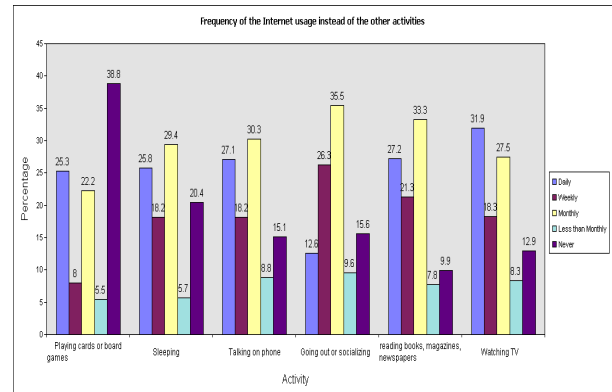


Figure 8: Internet usage instead of other activities.

Majority of the respondents are seriously concerned about privacy of their information (64%) and almost two-third of the respondents want to hide their identity while visiting web sites.

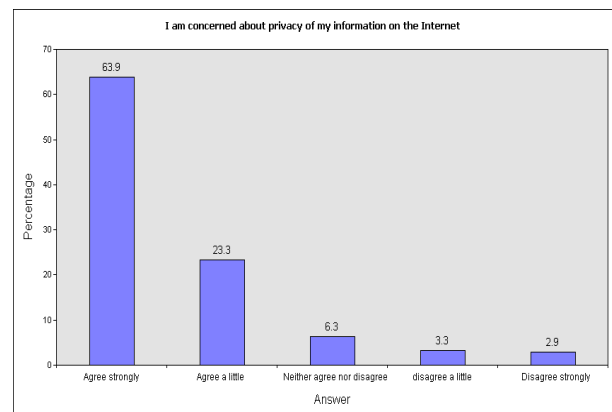


Figure 9: Concerns of privacy of information

Arabic Language Search and Content Facilities

With regard to the questions related to the availability and preference of users for “Arabic language search facilities” and “Arabic content” on the Internet, majority of the respondents prefer Arabic language for Internet and use Arabic E-mail services. The lack of Arabic content and few Arabic language sites are major impeding factors for users not to use Arabic language sites. They are also comfortable with the English language sites because majority of them find the required information they are looking for. Following are some of the detailed results on this issue.

Arabic is the preferred language for Internet over English. Almost 45% of the respondents prefer the use of Arabic language. Still a sizeable number (40%) of native Arabic speakers prefer English language. The remaining respondents do not prefer either of the languages (11%) or they were non-Arabic speakers (4%).

Concerning activities that users perform on the Arabic language sites, we found that Arabic e-mail access was the most preferred activity (51%) followed by access to the Islamic information (44%) and discussion forums (37%). A sizable number of respondents also use Arabic sites for chatting with family or friends (36%) and access to Arabic language portals (29%). Figure 10 gives these results.

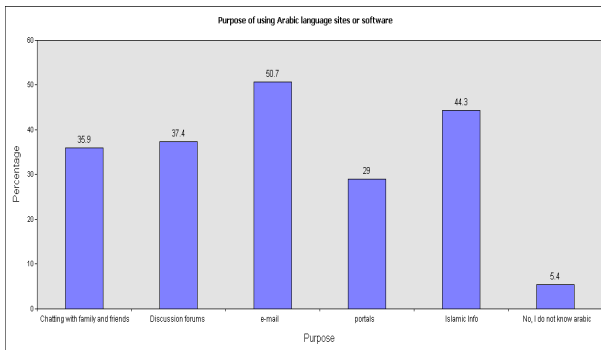


Figure 10: Purpose of using Arabic language sites and software.

With regard to the difficulties faced by the Arabic users, we found that the scarcity of Arabic websites (26%) and lack of content (21%) are the two major factors for not using Arabic language sites. Another factor that is a derivative of lack of Arabic content is the difficulty to find the Arabic sites. A sizable number of users also consider it as a factor (16%). A large number of users are using Internet to improve their English therefore they prefer English sites in place of Arabic (17%). The limitations of the hardware and software to display Arabic language (6%) and in a human readable form (5%) are also listed as factors restricting the use of Arabic language sites. These results are summarized in Figure 11.

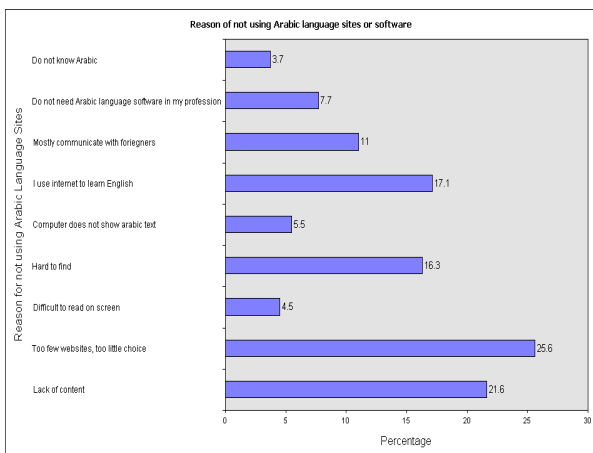


Figure 11: Reasons for not using Arabic language sites.

In response to the question whether the users feel comfortable looking for information through English language websites, we found that almost 70% of the respondents always or frequently find what they are looking for on English language sites (Figure 12).

Internet and Business

In this section we focus on the questions related to the Internet and business in the Kingdom. Majority of the respondents feel that Internet is being used for training and development in their organizations. Majority of respondents

agree that eCommerce will make life easier. While purchasing on the Internet, they give importance to the lowest price. Following are detailed results of our study on this topic.

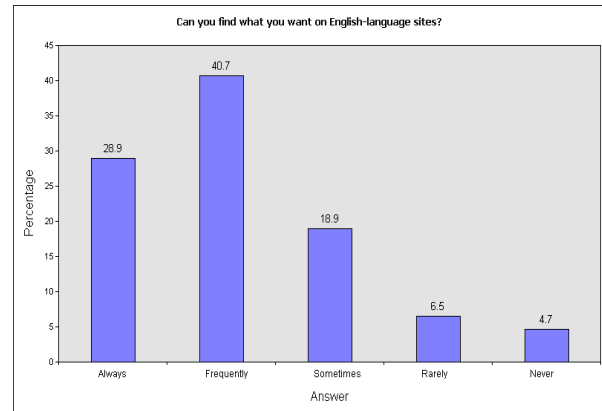


Figure 12: Can you find what you want on English-language sites?

Almost half of the respondents say that their organization is using Internet for training and development. A sizeable portion (37%) feels that it is being used to for automation in the organization such that it reduces paper work and helps in streamlining internal operations. A quarter of the respondents say that Internet is used for communicating with the clients (Figure 13). These results augur a promising future for Internet technologies in the local businesses.

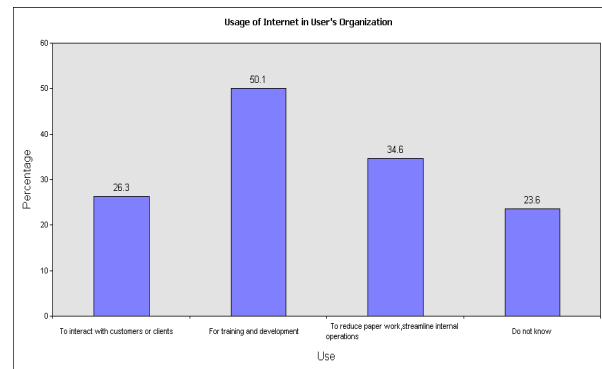


Figure 13: Usage of Internet in the User's organization.

The prospects of eCommerce in Saudi Arabia are bright. This conclusion is drawn from the user responses that agree with the argument that the use of Internet for shopping and banking will make life easy. Almost 70% of respondents fall in this category. Only 9% of respondents feel otherwise while the rest (21%) are uncertain.

A large segment of the respondents are not doing Internet shopping (40%). This is due to the fact that eCommerce infrastructure is not available in the country. Only 30% of the respondents feel that the security of their sensitive information is most important while shopping on the net. This may be attributed to the lack of knowledge among the Internet users of possible potential threats that may originate due to compromise of sensitive information.

For net shoppers in Saudi Arabia, many features are important while doing shopping. These features are (in order of importance): lowest price, easy order placement and payment procedures, security of information, variety of

choice, quality of information, customer service and after-sale support etc. Surprisingly Internet vendor reliability is not considered as a very important feature (17%).

Internet and Education

In this section we report our results for Internet and Education with special emphasis on the prospects of distance learning or eLearning (electronic learning). Majority of the respondents prefer not to take courses on the Internet. Those who want to take courses on the Internet, they do so because they like computers. The major reason for not taking courses on the Internet is that these courses are not considered equivalent to regular courses in the country. Following are some of our findings.

When asked about their preferences for taking a diploma/degree at home or at class, almost 40% of the respondents either definitely or probably prefer taking the course in a class. Around 32% of the respondents prefer otherwise i.e., definitely or probably at home. A large number of respondents were uncertain (28%).

The most compelling reason for taking courses on the Internet is that the users like computers. Almost 41% of the respondents have selected this option. The other major reasons (in order of importance) are: learning from own home/own place, fun or experience, promotion, non-availability of course in school, and to get higher degree.

The non-accredited status of on-line courses over the Internet in the country is the major reason for not taking on-line courses. The other reason is the non-interaction with other students and faculty.

We try to identify the types and levels of courses in which users are interested. According to our survey, users are interested in online courses to upgrade their skills (40%), special training courses for jobs (31%) and for University degree (23%). On the other hand they are not at all interested for high school (43%), home schooling whether schools are available (35%) or not (33%).

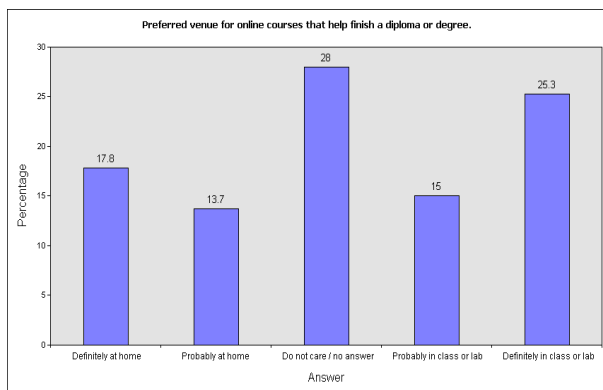


Figure 14: Preferred venue for on-line courses that help finish a diploma or degree.

5 CONCLUSION

In this paper, we have presented our results of an on-line survey on the use and effect of Internet in Saudi Arabia. This study covers three major areas where Internet is influencing

the Saudi society. These areas are social, education and business.

In Saudi Arabia, men are more likely to have access to Internet than the women. Majority of the Internet users are college and high school graduates and a large portion is concentrated in three major cities i.e., Riyadh, Dammam and Jeddah. Majority of the users pay the cost of the Internet connection and regular users access it from home. A large number of occasional users prefer public facilities. Slow Internet speed, delay to download pages and cost of access are some of the major difficulties faced by the users.

Majority of the Internet users in Saudi Arabia are new to this medium. More experienced users spend more time on-line than the new users. Men spend more time on-line for work related activities while women spend more time for fun related activities. This medium is helping people to be more connected to like-minded people, in particular family members, people in the same profession and people sharing similar hobbies. Internet use affects other social and personal patterns of behavior, in particular watching TV, reading books and talking on phone.

Majority of the Internet users in Saudi Arabia agree that eCommerce will make life easier. In businesses, Internet is being used for training and development. Currently majority of the users prefer not to take on-line courses on the Internet because these courses are not considered equivalent to regular courses in the country.

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