

Information-Seeking Behavior and Internet Use in Uzbekistan



ABSTRACT

The Internet is increasingly considered a crucial information resource. However, how the Internet is adopted as an information source within a given society depends on factors such as the technical infrastructure of a given area and the local culture. This paper reports on an ongoing study of the information behavior of people in Uzbekistan, a culture that has traditionally relied on social networks for gathering information. This paper discusses some results of a survey (administered to 317 participants) that assessed information-seeking behavior, computer use, and technology infrastructure in the home. Results suggest that the Internet is not widely used nor even universally known of; however, many respondents feel it can be an important information resource. The results of the survey suggest that both technical and cultural readiness are necessary to successfully implement Internet information resources, and that design strategies can accommodate cultural issues.

Author Keywords

User Studies; World Wide Web and Hypermedia; Empirical Methods, Quantitative; Empirical Methods, Qualitative; Internationalization / Localization.

ACM Classification Keywords

H5.0. Information interfaces and presentation (e.g., HCI): General.

INTRODUCTION

The Internet is often lauded as a potentially transformative information resource. However, research increasingly demonstrates that diffusion patterns for the Internet within a given society are dependent on a variety of factors, including the local culture [10]. Indeed, local cultural elements can serve as usage constraints, both of the

technologies themselves and the purposes to which they are put. While studies have demonstrated that interface elements can be culturally bounded [2, 4, 6], the research described in this paper extends those arguments to demonstrate that similar patterns of culturally-identified technologies can be seen in how technological artifacts are implemented. In other words, the so-called digital divide and other impediments to Internet diffusion are not just about infrastructure. Other elements, such as user interface design and culture, affect people's willingness to adopt technologies. Cultural elements considered in this paper include information-seeking behavior with the hypothesis that pre-existing patterns of information seeking will affect a population's use of information technology. With respect to the Internet, considering the local culture's information-seeking behavior prior to mass diffusion of the Internet may help scholars understand how the Internet might be adopted and in turn suggest how the technology might be adapted to optimize local use. This paper reports on an ongoing research project in Uzbekistan that is studying the information-seeking behavior of members of a non-western culture that has traditionally relied on social networks for obtaining information. The stock placed on social capital for information will likely affect Uzbeks' use of the Internet as an information source.

Uzbekistan is an ideal location to research the influence of pre-existing information-seeking behavior on adoption of the Internet. The country is in the early stages of Internet diffusion, with the Uzbek government estimating that about one percent of the population uses the Internet [1]. It is a country in transition, following independence from the Soviet Union in 1991. Establishing new, post-Soviet information infrastructures has been further challenged because of evolving language policies such as privileging Uzbek language over Russian, discouraging the use of Russian loan words, and transitioning the Uzbek alphabet from Cyrillic to Latin. Furthermore, the area has been isolated from Western cultural influences and its people have a cultural disjuncture with the metaphors embedded in the computer and Internet interfaces that were developed in the West.

The research presented here is the product of a long-term project. In November and December 2002, two surveys

(one administered to managers of Internet access points, the other administered to information technology (IT) professionals) and a set of in-depth interviews with policymakers and members of the general public were conducted in Tashkent and Bukhara. This research informed the design and administration of a large-scale survey of users and nonusers of IT that was conducted in March 2003. This survey was administered to a multistage sample of over 300 people in cities and villages throughout Uzbekistan.

This paper first reviews background on the information infrastructure and cultural patterns of information seeking in Uzbekistan that influenced the study reported here. The methods of the study are then presented, with some discussion of the sampling and administration techniques used in the March 2003 survey. Finally, some results of the survey are presented.

BACKGROUND

The telecommunications infrastructure in Uzbekistan lacks robust development. Telephone lines are far from ubiquitous, and some Uzbeks have never heard of the Internet. Furthermore, the information infrastructure in Uzbekistan is still being rebuilt from the breakup of the Soviet Union. Books are being rewritten to remove the Soviet perspective, and the education system is phasing in the Latin alphabet to replace Cyrillic.

As the telecommunications and information infrastructures develop, Internet use is also growing in Uzbekistan. As noted earlier, the number of Internet users is growing. Many resources meant for Uzbek people are available on the Web including news related Web sites, newsgroups, and chat rooms. Despite the high expense (by local standards) of connectivity, there appears to be a demand for electronic information, perhaps as a way to cope with crumbling physical libraries and the expense of hard copy newspapers and books. The library system in Uzbekistan has struggled with inadequate funding for acquiring journals or other information resources. [5] Legal information in electronic format is also sought after. A National Legislative Database is being developed for local governmental organizations to access for free. It is meant to be a comprehensive catalog of all laws and decrees, unlike current commercial legal search databases in Uzbekistan that do not cover all laws. [8]

Besides these new means of seeking information, the cultural region of Central Asia has its own traditions of obtaining information and services. Social networks of reciprocity are extremely important in this region. The people whom one knows can be an important resource for assistance, goods, or information. Knowing the right people can be as powerful as having money or a good education [9]. Interviews conducted by this research group in November 2002 suggest that people will turn to social networks to find information as simple as a telephone number because residential telephone listings are not accessible.

Given the setting described here, we sought to understand information-seeking behavior in Uzbekistan in light of the resources that are available to consumers and to investigate how such behavior influences the use of electronic information resources. Such findings can provide insight into what design aspects of the user interface most need to be changed to accommodate diverse users.

RESEARCH METHODS

This multistage research project has relied on qualitative and quantitative research methods that inform each other. Because Uzbekistan's information infrastructure is emerging, it is difficult to sample the population reliably with a probability-based method. To be effective, probability-based sampling requires a known list of potential respondents, such as voter registration records or a comprehensive telephone directory. However, such lists of people are difficult, if not impossible, to obtain in Uzbekistan. Even random-digit dialing, a common sampling practice in survey research in the United States, is ineffective in Uzbekistan because telephone lines are not universally available. In 2002, Uzbekistan had only 6.91 telephone subscribers per 100 people, compared with the United States' 114.70 subscribers per 100 people [3]. Given the substantial practical obstacles to using probability-based sampling methods in Uzbekistan, the researchers chose to use non-probability-based sampling methods.

Additionally, many Uzbeks are not used to being polled, nor are they very familiar with questionnaire formats. Also, Uzbekistan has a history of censorship and human rights violations that has created a politically sensitized environment, which may discourage people from answering a survey freely. Pilot testing surveys and complementing that research with qualitative interviews and ethnographic observations, we were able to design culturally sensitive surveys and administration methods that would yield the best results in a non-threatening manner. Because over 80 percent of the surveys were administered in-person by a researcher or local research assistant, we were also able to record respondents' reactions to the questions.

Stages of the Research

In 2002-2003, the research team administered a total of two sets of in-depth interviews and three different surveys in Uzbekistan. The interview and survey instruments were informed by existing IT studies; surveys were professionally translated and then back-translated, going through four iterations with native speakers of Uzbek and Russian from the region, and native speakers of English who had spent extensive time living in the region and who also spoke the local languages. The Karakalpak version of the large survey was translated from Russian to Karakalpak by a native speaker.

The interviews explored Uzbekistan's Internet development policies, the involvement of particular agencies in the field, and information-seeking behaviors. The survey of Internet

access points examined the level of technology at public Internet access points and the impressions of operators of Internet access points about their customers' use of computers. The survey of IT professionals assessed participants' history, training, and work with computers and the Internet, as well as attitudes towards IT and its possible benefits to Uzbekistan. The final and largest survey of users and nonusers of IT asked about participants' daily lives, with a specific focus on technology infrastructure in the home, information-seeking behavior, trust in media sources, and computer use. Some findings from this final survey are presented in this paper.

All surveys and interviews were conducted in person by the researcher, trained graduate students, or local research assistants or professionals, with the aid of interpreters when necessary. All instruments included human subject consent information, explaining that participation would help researchers understand Internet development in Uzbekistan. The daily life survey was pilot-tested in Uzbekistan in February 2003 and then refined before it was administered in March 2003 to a national sample of respondents.

Daily Life in Uzbekistan: Survey 2003

The sample for the Daily Life survey included two groups of participants: 317 participants sampled through a multistage national sample and 65 participants sampled from Internet access points in Tashkent and Samarqand. Because Internet use is still uncommon in Uzbekistan, a separate sample of computer users was drawn to ensure that a large number of people who used computers and the Internet answered the survey. The results of this subsample will be presented at a later time.

To obtain the larger national sample, the research team identified several regions around the country, with the intention of sampling from regional capitals and from nearby rural villages. The cities and sample proportion per city/region were Samarqand region 26.8 percent, Kokand region 14.5 percent, Nukus region 14.5 percent, Bukhara region 13.9 percent, Qarshi region 13.2 percent, Tashkent region 10.4 percent, and Fergana region 6.6 percent. Tashkent is the capital city, while the other cities are spread throughout the country, each with a unique economy and ethnic composition.

The purpose of sampling from diverse regions and with special attention to rural areas was to ensure that the diversity of Uzbekistan was represented as completely as possible. The research team identified representative proportions of rural vs. urban dwellers, age groups, gender, and ethnicity based on the last national census in Uzbekistan. Respondents were then recruited from the different regions by researchers and local research assistants to match these proportions as closely as possible. Surveys were offered in Uzbek, Russian, and Karakalpak languages. The survey itself was extensive, with ten pages of questions including over 300 variables.

SURVEY OF DAILY LIFE: RESULTS AND DISCUSSION

The multistage Daily Life survey sample included 317 respondents who ranged in age from 18 to 85 years, with a mean of 36.74 years, $SD = 14.70$. The genders of the respondents were nearly evenly split between males and females, with 49.7 percent male and 50.3 percent female. Over two-thirds of respondents were married. Respondents had an average of 2.43 children each, $SD = 2.07$, ranging from 0 to 10 children. An average of 5.64 people lived in each respondents' household, $SD = 2.54$. Household size ranged from 1 to 21 people, the large numbers reflecting multigenerational households and the custom of married sons bringing their brides home to continue living with the grooms' parents. All results discussed as significant are significant at an alpha level of $\leq .05$.

Ethnicity and Language

As expected given the sample plan, there was some variance but also some commonalities concerning participants' native languages and ethnicities. Over 94 percent of respondents identified themselves as citizens of Uzbekistan. Nearly 60 percent of respondents were Uzbek ethnicity. Other ethnicities included Russian, Tajik, Kazakh, Karakalpak, Tatar, Koreans, Arabs, and people of mixed ethnicities. The self-reporting of ethnicity is complicated because of local political conditions and increasing hostility towards non-Uzbek peoples. When respondents to the survey encountered the question about ethnicity, they would often pause and ask the researchers if they wanted a response that reflected what was in their passports (Uzbekistan passports list a person's ethnicity), or what their ethnicity "really" is. It should be noted that having a listing of Uzbek nationality in one's passport, particularly after independence in 1991, is politically advantageous.

Although Uzbek is the official language, Uzbekistan is a multilingual society. Because of the country's Soviet past, many people speak Russian as a first or second language. Other languages are also common in various regions depending on the ethnic composition. For example, Karakalpak is common in the west, while Tajik is common in southern regions and elsewhere in Tajik enclaves. Across all survey respondents, about 75 percent reported having excellent knowledge of Uzbek, about 60 percent reported excellent Russian, about 30 percent reported excellent Tajik, and about 5 percent reported excellent English.

Ethnicity appears to relate to the languages that are spoken. Participants from two common ethnic groups—Uzbek and Russian—showed disparities in language knowledge. Nearly all respondents who were of Uzbek ethnicity reported that they had excellent knowledge of Uzbek, and almost 60 percent reported excellent knowledge of Russian. In contrast, only 5 percent of Russians reported knowing excellent Uzbek, but all of them reported excellent knowledge of Russian. These are only rough comparisons because the sample contained many more Uzbeks than Russians; however, it suggests that cultural factors

influenced the languages that the participants learned. While Russian appears to be a desirable language to know, Uzbek seems unessential for Russians to know even though it is the official state language. The disparities in language knowledge imply that the people of Uzbekistan are likely to seek information in a variety of languages and that some people may use more than one language. However, individual facility in each language may vary.

Use of Media as Information Sources

A substantial component of the Daily Life survey sought to understand people's use and views of various information resources. In order to gain a general understanding of people's attitudes towards information, we asked participants to rate the importance of selected information sources such as television, radio, newspapers, neighborhood associations (*mahalla*), and family. This question revealed what resources are considered most crucial in terms of activities of daily life. When asked to rate the overall importance of various information sources on a five-point scale of importance, survey respondents on average rated television as their most important resource, friends/family as the next most important resource, and the Internet as the least important resource. See Figure 1 for mean ratings for all resources.

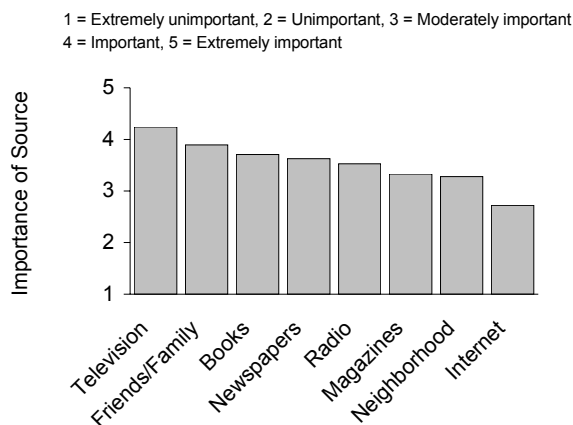


Figure 1. Importance of Information Sources.

Overall, responses to the importance of information sources varied based on age, rural/urban, and Internet user/nonuser. Respondents aged 18-59 rated television as the most important information resource; respondents aged 60 and over rated friends/family as most important. All age groups rated Internet as least important.

Both rural and urban respondents rated television as the most important information source. Rural respondents rated Internet lowest in importance while urban respondents rated neighborhood lowest. Urban respondents were found to place significantly higher importance on books and the Internet than rural respondents. Rural respondents, on the other hand placed significantly higher importance on the neighborhood than urban respondents.

Of note, rural participants ($M = 3.59$, $SD = 1.09$) rated the neighborhood significantly higher in overall importance than urban participants ($M = 2.97$, $SD = 1.18$) ($t(299) = 4.76$, $p = .000$). Use of the neighborhood, or *mahalla*, is particularly important in Uzbekistan because it is a key form of social organization in the region. [7] Our research demonstrates that this traditional form of social organization—which also serves as a key conduit for information in regions that are served less frequently or comprehensively by official media sources such as newspapers or television—remains a central component to rural inhabitants' information spheres.

Further, Internet users and nonusers had significantly different views about the importance of various information sources. While both Internet users and nonusers gave television similarly high ratings ($M = \sim 4.25$), the Internet users rated the Internet significantly higher ($M = 3.93$, $SD = 1.09$) than the nonusers ($M = 2.47$, $SD = 1.38$) ($t(250) = 6.59$, $p = .000$).

Concerning the use of neighborhood associations, Internet users mirrored the pattern seen by urban dwellers in that they rated the *mahalla* as significantly less important as an information source than Internet nonusers. This finding is consistent with the overall numbers of Internet users, since the vast majority of those sampled were urban dwellers. Other significant results include Internet users rating friends/family as lower in importance and the Internet as higher in importance than the nonusers did.

In addition to the question about the importance of different sources of information, participants were asked questions about the frequency with which they consult selected information sources when seeking information about a health issue, a local issue, an elected official, something to purchase, and official services (such as utilities charges); these questions provided domain-specific insight into pre-existing information seeking patterns. The analyses reveal that in some domains there is higher usage of some information sources than the importance rankings for that resource would merit. More specifically, significant differences were found between Internet users and nonusers and rural and urban populations with respect to self-reported patterns of information seeking and the self-described importance of information sources.

It is noteworthy that the average responses for the overall sample on the 6-point frequency scales (1 = Never; 2 = Rarely, 3 = About monthly, 4 = About weekly, 5 = A few times a week, 6 = Daily) concerning seeking information about various domains were generally below a 3 (about monthly) and that friends, family, and television were the information sources used the most often.

One interesting domain specific result concerns how frequently both urban and rural participants use different media to find information about local issues (for example, bazaar news or tax news). While the neighborhood association, or *mahalla*, has traditionally been a central

point within Uzbek society and an important source of information and gossip, the results reveal that the television and the family are used more often than sources such as posted flyers, the Internet, or even the *mahalla* to obtain information about local issues. See Figure 2.

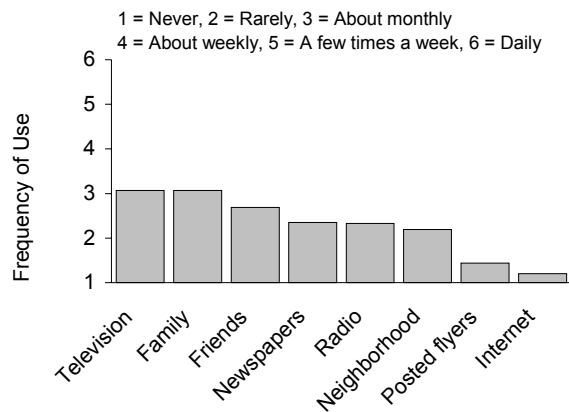


Figure 2. Frequency of Media Use for Finding Information on Local Issues.

When separated into rural and urban populations, some significant patterns can be seen in terms of domain-specific reliance on certain media such as family or newspapers. More noteworthy, however, are the findings regarding Internet users and nonusers.

When Internet users and nonusers' responses are examined, some fascinating patterns emerge. Predictably, in all domains, users consulted the Internet significantly more frequently than nonusers. However, with regard to the importance of friends/family as an information source, Internet users rated this source as significantly less important ($M = 3.61$, $SD = .89$) than nonusers ($M = 3.95$, $SD = .99$) ($t(301) = 2.09$, $p = .038$) yet they consulted friends significantly more frequently than nonusers for two domains, specifically, purchases and official services. In other words, Internet users consult even information sources they consider as less important more frequently than nonusers. See Figure 3 for an illustration of the increased use of most information sources by Internet users for finding information about a local issue. These findings seem to indicate that Internet users illustrate more comprehensive information seeking habits than nonusers. While our data do not support a causal explanation for this finding, it will be worth tracking over time whether Internet users change their general offline information seeking habits. Indeed, the next steps of this project include longitudinal panel surveys that will examine precisely these sorts of questions regarding how Internet usage affects life offline.

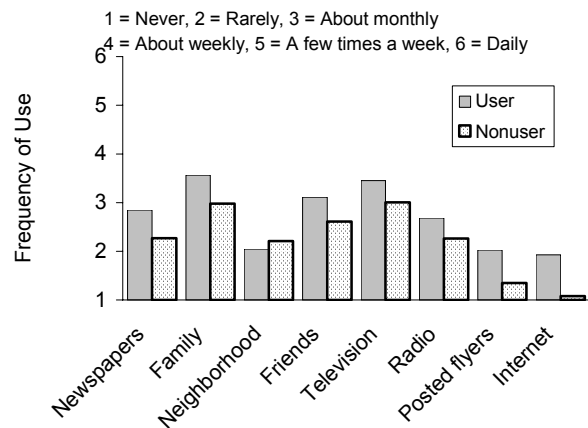


Figure 3. Frequency of Media Use for Finding Information on Local Issues by Internet Users and Nonusers.

In addition, these findings illustrate that using the Internet does not necessarily negate the strength of social networks for specific information tasks. As previously stated, Internet users had significant lower ratings for the importance of friends and family as sources of information than nonusers. In addition, Internet users consulted friends significantly more frequently ($M = 3.27$, $SD = 1.71$) than nonusers ($M = 2.52$, $SD = 1.50$) when seeking information on something to buy ($t(303) = 3.025$, $p = .003$). This use of social bonds by Internet users will remain important to consider as information resources are developed in the region and situated within existing information networks.

Access to Technology

In concert with considering participants' use of the Internet, it is informative to examine their access to technology in general. As expected, almost all participants have televisions at home, yet only 80 percent have radios at home. Concerning more modern technologies, VCR and CD/cassette players are the next most commonly owned technologies (about 40 percent of respondents stated they have them at home). Very few respondents have DVD players, video games, and other such entertainment devices. See Figure 4.

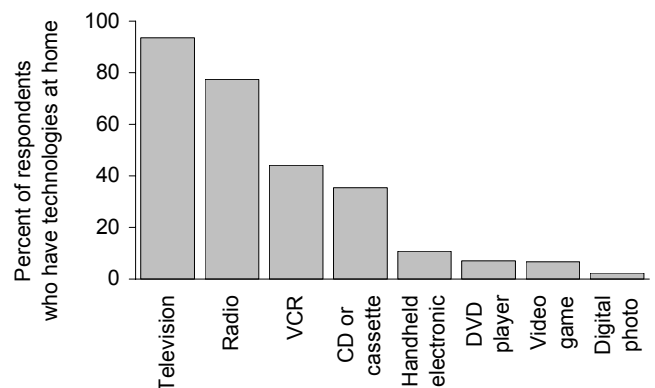


Figure 4. Entertainment Technologies in the Home.

The low rate of penetration for entertainment peripherals such as DVD players is consistent with the emerging technological infrastructure in Uzbekistan. For example, telephone lines are not commonplace in private homes: fewer than two-thirds of the survey respondents reported having a telephone line at home. Personal computers at home are rare: only five percent of respondents reported having a computer at home. About the same number of people reported having Internet access via modem at home, suggesting that computer use is often paired with Internet access.

Use of the Internet

Respondents reported having access to computers outside the home more often than inside it. About a third of respondents reported using a computer at least occasionally and about half of these respondents reported the most common place for using a computer was at work (reported at over 50 percent). The computer club or Internet café was another popular place to use computers—over a third of the computer users had access at such locations.

Respondents who used a computer did not necessarily use the Internet; only about half of the computer users reported using the Internet. In contrast to the numbers for computer use, two-thirds of Internet users reported getting access at an Internet café, and less than one-third reported getting access at work. This suggests that the Internet is not yet perceived as a mandatory tool in the Uzbek workplace; similarly, such findings might also mean that access is not available or affordable for every workplace. When asked to choose the place they access the Internet most often, half of the Internet users reported that they used the Internet the most at Internet cafes.

The survey also asked respondents how frequently they performed various activities on the Internet, using a six-point scale (1 = Never; 2 = Rarely, 3 = About monthly, 4 = About weekly, 5 = A few times a week, 6 = Daily). E-mail was the most frequently performed activity; on average, the respondents used e-mail somewhere between “about monthly” and “about weekly” ($M = 3.60$, $SD = 1.65$). Visiting Web sites was performed somewhat less frequently, but also somewhere between “about monthly” and “about weekly” ($M = 3.31$, $SD = 1.50$).

Survey respondents who used the Internet often had multiple methods of learning about new Web sites. Over half learned about Web sites through search engines and over half learned of new sites through recommendations from other Internet users. About one-third of the Internet users learned of Web sites through a link on another Web site. Other common methods for learning about Web resources were newspapers/magazines and radio/TV programs. The wide variety of sources that are used to learn about new Web sites suggests that there are many outlets where Web sites are discussed, though it appears that two of the most common resources (search engines and Web links) are most appropriate for “Web insiders.” Someone

who is not a current Web user would be rather unlikely to learn of a relevant Web site through a search engine or a link.

Nearly all Internet users reported using Russian language at least some of the time on the Internet. About two-thirds of the users also reported using English on the Internet. Only about one-eighth use Uzbek online. When asked to choose the language they used most often on the Internet, two-thirds of respondents indicated they used Russian while the other one-third indicated English. No one reported using Uzbek. On the one hand, these numbers are not surprising given the number of Web resources that are available in English and Russian compared with Uzbek. However, the languages that are used on the Internet are surprising when considered together with actual skills in the languages. Nearly all Internet users reported excellent knowledge of Russian, which aligns with their use of it on the Internet. However, the large use of English on the Internet is unexpected given that less than a quarter reported having excellent knowledge of English. That so few people use Uzbek online is startling because about 70 percent of the Internet users have excellent knowledge of Uzbek. This result may speak to a paucity of Uzbek language Web sites. In fact, it seems that language use on the Internet may likely relate to the resources available rather than actual preferences or skills.

CONCLUSION

The purpose of the survey discussed here was to gain an understanding of how people in Uzbekistan currently get information. Their environment is an information-rich one, but the patterns of information seeking are different from those in other regions of the world. As developers continue to work with information technologies, situating them within existing matrices of information and communication protocols, it is crucial to consider the range of possible audiences for both technological artifacts and the content that those artifacts deliver. The social networks of Uzbekistan will necessarily dictate how users approach a new information source.

Clearly the population of Uzbekistan uses media for information in different ways. For example, they rely on the television and personal connections for information far more than people in the West. In addition, the use of the Internet in Uzbekistan occurs within both a different information and media context than in the United States. The proliferation of television sets, but relatively low rate of computer penetration—even in the workplace—means that computer literacy will evolve at a slower rate, and it also means that pre-existing patterns of information seeking are likely to influence the media to which people turn. It is important to consider, for example, what online resources can offer users in Uzbekistan that fits with their accustomed modes of viewing and interpreting Uzbek and Russian television. Ultimately, this research aims to improve design considerations for diverse populations by demonstrating

that information-seeking habits drive media use generally, and that the Internet is a piece of a larger cultural puzzle. The design of content as well as user interfaces must consider the role of social embeddedness for information networks, especially if user needs in disparate cultures are to be accommodated.

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REFERENCES

1. Number of Uzbek Internet users rises to 275,000 in 2002. <http://www.interfax.com/com?item=Uzb&pg=10&id=5616125&req=>.
2. Day, D. Cultural Bases of Interface Acceptance: Foundations. *People and Computers XI: Proceedings of HCI '96*, M.A. Sasse, R.J. Cunningham, & R.J. Winder, eds. London: Springer-Verlag (1996), 354-7.
3. International Telecommunication Union. Basic Indicators 2002. http://www.itu.int/ITU-D/ict/statistics/at_glance/basic02.pdf.
4. Kolko, B.E. Erasing @race. *Race in Cyberspace*, B.E. Kolko, L. Nakamura, & G.B. Rodman, eds. New York: Routledge (2000), 213-232.
5. Myhill, Martin. The Electronic Library and the Former Soviet Union and Mongolia. *Program* 31, no. 1 (1997), 23-32.
6. Selfe, C., & Selfe, R. The Politics of the Interface: Power and Its Exercise in Electronic Contact Zones. *CCC* 45, 4 (1994), 480-504.
7. Sievers, E.W. Uzbekistan's mahalla: From Soviet to absolutist residential community associations. *The Journal of International and Comparative Law at Chicago-Kent* 2 (2002), 91-158.
8. Stalbovskaya, Maria S. The Practice and Perspectives of Free Access to the Legal Information of Citizens of the Republic of Uzbekistan. *International Information and Library Review* 34 (2002), 201-7.
9. Stevens, Daniel. The Concept and Importance of Social Capital - an Aid to Understanding Uzbekistan in to the 21st Century. *Journal of Central Asian Studies* 2, no. 2 (1998), 42-46.
10. Warshauer, M. *Technology and Social Inclusion: Rethinking the Digital Divide*. Cambridge, MA: MIT Press, 2003.