

Measuring Digital Literacy in Arabic Speaking Web Users

Hazar Eskandar, Northwestern University, Qatar
Susan Dun, Northwestern University, Qatar

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Abstract

The purpose of this study is to determine whether self-reported digital literacy skills or knowledge of Internet related terms or a combination of both are reliable indicators of observed digital literacy levels of Arabic speaking Internet users. The ability to effectively find information on the Internet is necessary to be able to utilize the Internet and its tools to their fullest potential. Access to digital technology alone is not sufficient; users must be digitally literate to capitalize on the resources available on the Internet. Research in the West has found that users tend to overestimate their searching skills and that a test of Internet knowledge more accurately predicts digital literacy levels (Hargittai, 2009). We sought to test if the knowledge items from Hargittai's work would also predict the digital literacy levels of Arabic speaking Internet users. We replicated and extended Hargittai's method on a sample of 70 Arabic speakers, half of whom were bilingual Arabic-English speakers and half monolingual Arabic speakers. We utilized a combination of survey items and observational methods. The participants were asked questions on their Internet use and were observed searching the Internet on eight tasks. The results will tell us whether their self reported skill level or Internet knowledge or a combination of both are indicators of their performance on Internet searching tasks. Being able to accurately measure digital literacy levels is important for educational interventions designed to improve skills.

Keywords: Digital literacy, Arabic, Internet-searching skills, digital divide, self-reported measures, Web use

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Introduction

The digital divide is no longer a matter of just a matter of whom has accessibility to technology; but it also of concern is the gap between those who are able to utilize technology effectively and those who lack the skills and the knowledge needed to do so (Bonfadelli, 2002). In regards to the Internet, it's problematic to assume that simply having access equates to the ability to use the Web successfully, although such assumptions are often made (Hargittai, 2010). It is important to identify whether people who have access to the wealth of information and resources available online can actually find them or not. Such knowledge is necessary to plan educational interventions for example.

Eszter Hargittai measured digital literacy levels via developing tasks that she asked the participants to perform online (Hargittai, 2005). She also took into consideration their self-reported Internet skill level, asked them knowledge-based items on computer and Internet related terms and inquired about demographic information. The results of her multiple studies on monolingual, English speakers in the United States have opened a discussion on self-reported measures as the task completion rates were not as highly correlated with what the participants reported to be their skill level to be as was their knowledge of the Internet.

Other scholars have measured digital literacy levels on individuals in other countries. Research in the Netherlands on citizen's access of government related services on the Internet have shown that many people don't have the skills to find and utilize the information and tools provided by the government online (van Deursen & van Kijk, 2009). This shows that there is an issue of the digital divide in non-English languages like Dutch.

Research on the digital divide has attempted to explore the relationship between digital literacy, Internet-use and demographic elements. Some scholars have studied the relationship between age and Internet use and discovered that younger generations tend to be more socially networked and use the Internet more frequently (Gui & Argentin, 2009). Younger participants also seemed to be more capable of finishing tasks on a wide range of topics more than older participants however they still struggle finding some information online (Hargittai, 2006). In a further break down of searching tasks, younger individuals were better at formal searching and using tools, while there wasn't a difference between ages in the ability to perform tasks that required strategic searching and knowledge about the information provided online (van Deursen & van Kijk, 2011).

Education levels contribute to the digital divide with lower educational attainment relating to lower levels of digital literacy (van Deursen & van Kijk, 2009). Gender is a variable that matters in studies done outside the US. In Italy, males tended to be more digitally literate than women were (Gui, & Argentin, 2009)) while in the US, men and women did not vary in digital literacy levels but men showed a higher tendency of over estimating their Internet-searching skills (Hargittai, 2006). Time spent on the Internet and years of experience are related to more knowledge about the Internet and familiarity with using the searching tools (Hargittai & Hinnant, 2008).

As there is an abundance of content online, it comes in many languages to cater to everyone's language skills and limitations. However, the amount of content that online varies with language (Gao, Blitzer, Zhou & Wong, 2009) with English penetrating 43.4% of the Web according to Internet World Stats (2010), with Chinese close behind. Arabic speaking Web users are estimated to be 65.4 million, ranking 7th in World. However, very little research exists on Arabic Web users.

Our research will therefore explore Arabic-speaking Web users. We will explore whether Arabic users' self-reported skill level or knowledge of the Internet best predict their digital literacy levels. We adopted Hargittai's model (2005) and developed searching tasks that can be found in English and Arabic and require a range of particular searching skills.

Method

Participants

Our study aims to target Arabic speakers thus, participants were required to be regular Internet users and are familiar with utilizing the computer for that function. In order to gather this sample, we use several methods including convenience and snowball sampling and later on asked a recruiting company to screen and bring in more participants into the study. A screening process was used to filter out non-Arabic and people who were not regular Internet users. We asked questions about the languages they can speak, read and type and asked about the number of hours they spend on the Internet weekly. We defined a regular user of the Internet as someone who on average spends at least one hour on the Web, per week. In total, seventy-seven participants joined the study. Seven of the participants were removed from the study due to technical issues with their video and audio files that prevented us from analyzing their data.

The final sample included 35 bilingual Arabic-English speakers and 35 monolingual Arabic speakers, for a total of 70 participants. The participants, although all are residents of Qatar, are diverse. There are 28 Qataris, 15 Jordanians, 7 Syrians, 5 Egyptians, 3 Palestinians, 3 Lebanese, 2 Britons, 2 Iraqis, and one participant from each of the following countries: Sudan, Kuwait, Iran, Australia and Djibouti. The gender of the participants was roughly evenly distributed between the two groups with 33 men and 37 women. The participants were diverse on age $M = 23.4$ ($SD = 6.75$). The majority are single, 83%, and the rest are either married, 16%, or 1% divorced. They are reasonably well educated, with 12% not completing high school, 26% finishing high school, 43% currently in college, and 20% having completed bachelor's degree.

Development of Knowledge Items in Arabic

Hargittai (2005) designed a test of knowledge of Internet related terms. The purpose of the test is to determine how familiar people are with the terms, which can then be used to predict their digital literacy levels. The items included questions on blogs, tagging, malware, bookmarklets, phishing, torrents, podcasting and many other terms and concepts. To test Arabic speaking Web-user, we had to translate the terms into Arabic or find their equivalent meaning. This task was challenging given that a lot of

these terms don't have a corresponding meaning in Arabic. For instance, the term Phishing is "التصيد" in Arabic which means fishing for a fish. Terms like search engine have a literal translation of "محرك البحث" which is unpopular and could confuse Arabic users. Concepts like torrents are also meaningless once translated into their Arabic antonyms, "سيل" and do not convey their use on the Web. Some words like bookmarklet can't be given a translation due to the lack of a meaning associated with the words in the Arabic language. Therefore a lot of these terms were transliterated, such as "بوك ماركلت" to insure that misunderstandings do not occur.

Internet-Searching Tasks

Digital literacy was operationalized as the ability to successfully locate information on the Internet. Based on Hargittai's (2005, 2009) research on English American speakers. We adopted Hargittai's tasks when we could, revising some to be culturally appropriate. For some tasks this was not possible so similar tasks were created. In addition, all tasks could be completed in either Arabic or English, requiring some new tasks. The first task requires a price comparison between the different cellular providers in Qatar, our research site. To answer this task, the participant must be able to find and search for specific information on a company's website by visiting different sections or pages or using the search bar. The second task is a question on imported American food products in Qatar. The content on this topic is very limited on the Internet and fairly challenging. However, it only requires a good use of keywords and the ability of the user to distinguish between facts on websites designed to guide consumers to these products and locals opinion on Internet forums.

The third and sixth tasks were created to identify whether residents in Qatar are aware of e-government tools. The questions ask the participants to find a method to pay for their traffic violations and find a way to get an exit permit. The fourth task asked the participants to find a way to attend a Broadway show in New York city. This task tests the familiarity with online shopping, for tickets in this case, and finding information on specific information like the title of the shows and when will they be performed. The fifth task is a two part question where participants must find information on the 2012 summer Olympics and find the age of the youngest Qatari female athlete who attended the games. This task required the participants to have the searching skill to be able to find accurate information on a topic that has a lot of content of the Internet. The participants must be able to go back and forth between different search results to confirm the ages of the female athletes. The final two tasks asked about information that would be used when traveling, in this case to Oslo. The first task asks them to find a way from the main train station in Oslo to the university of Oslo. They first have to find the name of the station and then be able to use Google Maps. The second task requires them to find a book on economics while in Oslo. Here, the participants could use translation tools like Google Translate to find more results in Norwegian that could contain a bigger range of bookstores.

Procedure

After creating the tasks, the researchers, who are bilingual, trained to be able to communicate the questions fluently and clearly in both Arabic and English. The training also involved developing ways of engaging the participants in a conversation to encourage them to explain their thought processes as they went about completing

the tasks. This will enrich the data we are gathering on their digital literacy levels and assist us in categorizing the different forms of digital literacy skills that they have.

After two weeks of training, data collection began in April 2013. The participants were contacted prior to the interview session and were informed about the location of the lab and were given contact information to be able to communicate with the researchers. Data collection took place in a campus research lab. The computer set up was designed to mimic an environment similar to a home to ensure that the participants were comfortable. The room was decorated and refreshments were provided. Two long tables were placed adjacent to the wall; one was designed to look like a work-desk where files were labeled and saved, and the other was set with two laptops on it. Two chairs were placed on each side of the laptop. An external keyboard and mouse were provided in case the participants needed them to use the computer. The laptops were a standard PC, equipped with four different most commonly used Internet browsers, Google Chrome, Internet Explorer, Safari and Mozilla Firefox. Hypercam, a screen-recording software program was also installed to screen capture the participants' searches. Two external audio recorders were also placed in different positions to record the conversation.

The participants were screened and introduced to the study prior to the data collection session mainly via phone. They were then guided to the location of the lab and were greeted by the researcher in front of the reception desk of the building. They were then asked to come to the lab where the researcher asked them if they needed refreshments or wanted to use the facilities. Only the researcher and the participant were allowed into the lab once the session began. The participants were instructed that the session would take an average of 90 minutes and that mobile phones should be silenced or turned off during that time. We created a checklist to insure that all steps needed to gather and save the data were duplicated exactly for all participants. The researcher first asked the participant to sign a consent form that informs the participants that their data will not be linked to their names as ID numbers will be used and that an audio of the session and a screen-shot will be recorded to analyze the data. If the participants did not want to sign they were make a verbal consent or choose not to participate.

The first part of the session was an oral survey. The researcher asked the participants about their typical Internet use. The self-rating digital skill item was included here. The answer options were provided on laminated cards to assist the participant. The researcher recorded the participants' verbal answers. This part of the session was audio recorded. The second part of the session consists of the Internet-searching segment. Audio recording as well as screen recording took place in this part of the session. The participant was asked to face the computer and position themselves comfortably. They were then instructed to use the Internet browser that they usually use or are most familiar with. They are then asked to find out the answers of the eight tasks. Once they finished the tasks the participants were then asked to fill out a small survey asking questions on their prior knowledge and familiarity with the tasks. They were then instructed to fill out a post-survey online. The post-survey included questions on demographics, languages spoken, computer use and the knowledge test on Internet-related terms. The participants were then asked some follow up questions by the researcher to further clarify what they did during the searching session. The participants were then paid and released from the study.

Discussion

Data is currently being translated and transcribed into English. We have coded task completion into three categories based on if they fully completed the tasks, partially completed the tasks or couldn't complete them. We have also combined the knowledge items test into a scale.

Once the data is fully transcribed we will code the Internet-searching skills. Some of these we have identified include keywords skills, where participants can create keywords that will lead them to the desired search. Utilizing search engines on websites is another skill, where search engines on databases are used differently than encyclopedias or commercial websites. Use of translating tools is another skill that is particularly useful when trying to find information on the tasks in other languages. Knowing how to access e-government Web services is useful in finding specific local information. Maps and apps are Internet services that can really aid in finding information faster but the participants must have knowledge about their usage. In addition, the capability to read and distinguish between reliable and questionable information on the Web helps participants find accurate information to be able to complete their tasks.

The results will give us an insight on how Arabic speaking Internet users find information on the Web. Distinguishing the different forms of skills will also help us in identifying the set of skills that people lack and therefore implement in training programs to raise digital literacy levels.

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