



Computer use for entertainment among young men and women in Qatar: Evidence from a national sample [☆]



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ABSTRACT

In this study we examined the home use of computers for entertainment among 15-year old students in Qatar using a national sample of 8601 students. Scale and item level analyses were performed in univariate and multivariate contexts in order to understand the relationship of computer use with computer availability, internet availability, and demographic differences such as gender and socioeconomic status. Our results suggested significant differences in mean entertainment use across gender and categories of computer and internet availability, while computer use and socioeconomic status were found to be moderately correlated. Implications were discussed.

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1. Introduction

An understanding of students' use of computers at home is important because recent trends indicate a higher use of computers among students at home as compared to such use at school, with a majority of high school aged students reporting regular use of computers to search for information on the internet and for tasks such as word processing, both of which have educational potential [19,6,9,12,15]. Several past studies have investigated student use of computers at home and school in the context of variables such as age, efficacy, gender, grade level, prior computing experience, socioeconomic status etc., and reported mixed findings [1,4,5,8,9,13,14,20,23].

Other studies have focused specifically on the difference in activities that students engage in while at school and home, and found that when at home students tend to focus on those aspects of computer use that are either not available or are restricted at school [5,10]. This includes activities such as single player and collaborative games, chatting online, watching videos, downloading music etc. which are difficult for students to pursue in a formal school environment. An implication of this finding is that teachers cannot assign homework under the assumption that students' use

of computers at home is similar to that at school, and thus need to develop instructional strategies to channel their pupils' computer use towards activities that complement their learning at school. This requires a thorough understanding not only of the way in which students use computers at home but also whether or not such uses are similar for boys and girls.

2. Review of past research

Among more recent studies that focused on computer use at home, Kuhlemeier and Hemker [11] analyzed survey results from a sample of Dutch students and reported a significant difference in computer use for entertainment at home between boys and girls with the boys' use exceeding that of girls for activities such as playing games, listening to music, and searching the internet for information, and the girls' use exceeding that of boys for activities such as emailing and online chatting. The same study also found support for the hypothesis that skills such as using the internet, emailing, or word processing are primarily learned during students' computer use at home. In another study based on a sample of Greek high school students, Papastergiou and Solomonidou [18] found significant differences in computer use at home and school between boys and girls in activities such as using the internet for entertainment and for building websites, but no significant difference in activities such as emailing, online chatting, and internet browsing.

In a study spanning 2 years and involving 300 Finnish students, Lahtinen [12] investigated computer and internet use at home and

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found that there was no significant effect of gender or age on computer use for entertainment at home. In another Finnish study comprising of two samples of students and teachers collected in 1999–2000 and 2002–2004, Ilömaki [6] found evidence of gender-based differences in computer use for entertainment. In the 1999–2000 sample the boys' use exceeded that of girls for activities such as searching the internet for information, emailing, and downloading, but not for web browsing, while in the 2002–2004 sample the boys' use exceeded that of girls for activities such as searching the internet for information, web browsing, and downloading, but not for emailing.

Colley and Comber [3] used a sample of more than 900 students in grades 7 and 11 from UK to investigate differences in computer use for entertainment between boys and girls and found that boys' usage exceeded that of girls for playing games and music with that difference increasing over age. However there was no significant gender-based difference in activities such as accessing the internet, emailing etc. Imhof, Vollmeyer, and Beierlein [7], using a sample of 48 German university students, found that there were significant differences in non-educational computer and internet use between males and females with males' use exceeding that of females for activities such as internet shopping, word processing, emailing, accessing music or video programs, and offline gaming, while no significant difference was observed in activities such as internet browsing and online gaming.

These examples of recent studies indicate presence of mixed findings in the literature regarding the effect of gender on computer use for entertainment at home. Such lack of consensus is not unexpected given the variability in characteristics of study participants such as age, gender, grade level, computer availability, internet availability, socioeconomic status, and country of origin. Another reason for this lack of consensus could be the ever-changing nature of information and communication technologies (ICT) over the years, especially the trend of faster and less expensive personal computers, software programs, and internet access becoming available to students at home. Such rapid change can potentially cause empirical evidence from older studies to be no longer relevant or applicable. One way to overcome these issues is to generate more evidence by studying as many diverse samples as possible.

In this study we examine student's use of computers at home for entertainment-related activities such as playing games, online chatting, emailing, internet browsing etc., in the context of student-specific factors such as gender, computer availability, and socioeconomic status. For this purpose we utilize a nationally representative sample from Qatar. To our knowledge no other study to date has conducted such analysis with a focus on this country. Such country-specific analyses are important and appropriate because (1) given the unique social, political and economic makeup of each country, findings from one country may not be generalizable to others, and (2) given the rapid ICT advances over time, results of older studies may no longer be relevant. The specific hypotheses that we want to test are (1) whether or not there is any significant mean difference in computer use for entertainment at home between boys and girls in Qatar, and (2) whether or not this difference persists after controlling for background characteristics such as access to computers and internet, and socioeconomic status. The rest of this paper provides a description of our methodology, results of statistical analyses, and a discussion including conclusions, policy implications, study limitations, and directions for future research.

3. Methodology

3.1. Participants

The data for this study was obtained from the Qatari portion of Program for International Student Assessment (PISA) 2009 [17].

The target population was the entire 15-year old student population in Qatar. The original sample size of 9078 shrunk to an effective size of 8601 with listwise deletion of cases with missing or invalid responses on variables included in this study. PISA is a cross-country survey of literacy in mathematics, reading, and science that is conducted every 3 years. Since 2003, PISA survey has included an ICT component that contains items related to students' use of information and communication technologies. Seventy-one countries, including both Organization for Economic Co-operation and Development (OECD) and non-OECD members, participated in the 2009 administration of PISA.

3.2. Measures

The following measures were extracted from PISA 2009 survey dataset for purposes of this study.

3.2.1. Computer use for entertainment at home

Home use of computer for entertainment was measured by eight items that asked students about their engagement in various entertainment activities. For example, one of the questions was, "How often do you use a computer to play collaborative online games?" The response categories were 1 (never or hardly ever), 2 (once or twice a month), 3 (once or twice a week), and 4 (every day or almost every day). Cronbach's Alpha for these eight items was .85 in our sample. The inter-item correlations ranged between .23 and .67 ($M = .41$, $SD = .12$). Responses from these eight items were averaged to form the computer use scale. Thus, the range for this scale was from 1 to 4. In our sample the scale mean was 2.72 ($SD = 0.77$) with item-scale correlations ranging between .58 and .76 ($M = .69$, $SD = .07$). The response percentages for each category of the eight items are presented in Table 1. These response patterns show that a majority of students engaged every day or almost every day in activities such as using a computer for emailing (55.6%), online chatting (53.7%), internet browsing (46.0%), and downloading (45.8%). The sample density function of computer use was slightly negatively skewed (see Fig. 1). Given our large sample size, observation of this shape suggests appropriateness of this measure for group comparison methods such as *t* tests and analysis of variance [21].

3.2.2. Computer and internet availability at home

Two variables were used to measure a student's ability to engage in computer-related activities for entertainment at home. These variables were based on student responses to whether or not they had a desktop computer or laptop computer, and an internet connection at home. The response categories were 1 (Yes, and I use it), 2 (Yes, but I don't use it), and 3 (No). Of the 8601 students, 96.5% ($n = 8297$) indicated that they had either a desktop or a laptop computer available at home and they used it, 1.5% ($n = 127$) indicated that they had either a desktop or a laptop computer available at home but they did not use it, and 2.1% ($n = 177$) indicated that they had neither a desktop nor a laptop computer at home. With regards to internet availability, 88.6% ($n = 7624$) students indicated that they had internet access at home and they used it, 4.6% ($n = 395$) indicated that they had internet access at home but they did not use it, and 6.8% ($n = 582$) indicated that they did not have internet access at home.

3.2.3. Demographic controls

Gender and socioeconomic status were used to control for demographic differences among students. Gender had two categories, male and female. Of the 8601 students in our sample 4485 were girls (52.2%). Socioeconomic status was calculated as an index that took into consideration a student's cultural, social, and economic background based on five sub-scales: parental

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