

# Games as Technological Entry Point: A Case Study of Uzbekistan

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## **ABSTRACT**

This paper considers cross-cultural patterns of game-playing activities. The paper is part of an overall argument regarding computer games as a possible technological entry point for novice users. In particular, increasing use of games in educational settings has drawn attention to the fact that computer games can be a way for young people to gain an initial exposure to computer technology. The paper discusses game-playing patterns in the US and South Korea in order to demonstrate that such patterns vary based on country. The paper then considers survey work conducted in March 2003 in Uzbekistan that presents a snapshot of game-playing activity in a country that is in early stages of computer technology adoption. This paper is part of a larger study that seeks to argue that game-playing, if fostered correctly, can serve as an effective point of entry to computer technology for youth in developing countries and in areas where computer penetration is relatively low.

## **Keywords:**

Cross-cultural issues, education, gaming patterns, international development, Uzbekistan, technology adoption

## **INTRODUCTION**

Developing a detailed understanding of the broad scope of the gaming industry is challenging for several reasons. In terms of establishing context, there are numerous contradictory studies as well as significant amounts of proprietary information in the demographic realm. Additionally, studies that attempt to quantify numbers of users and hours spent playing games don't always consider the difficulties associated in distinguishing game genres. However, given the importance of games as a financial powerhouse and – more relevant to this paper – as a potentially powerful social and educational force, it is crucial that we develop just such an understanding.

The argument that games can be considered a cultural and educational force is an increasingly common one. In particular, increasing use of games in educational settings has drawn attention to the fact that computer games can be a way for young people to gain an initial exposure to computer technology. One goal of such activities is to turn consumers of the technology into producers; particularly in the US, decreasing numbers of students enrolling in computer science courses at universities has led educators to take innovative approaches to getting prospective students interested in the field. Similarly, the small percentage of women in the field has led to initiatives to think about gender issues related to games, an activity that has taken on increased significance as games are considered a crucial way of sparking young people's interest in working with computer technology.

This paper takes as its premise that games can have transformative functions. The goal of the paper, in turn, is to demonstrate that developing an understanding of games as a cultural force or as a technological entry point for novice users relies on close attention to cross-cultural factors. While games have potential in these educational and transformative arenas, not all games have the same potential in the same places.

Within this paper we discuss specific patterns of game-playing (and retailing) in the U.S. and South Korea in order to demonstrate that patterns of game-playing vary depending on cultural context. In addition to this examination, we consider the country of Uzbekistan as a site of low computer penetration. Uzbekistan has been chosen because the large population of novice users demonstrate how culture influences users' early decisions regarding computer games; in particular, our data shows both predictable and unexpected usage and gaming patterns during the initial technology adoption stage in Uzbekistan. We consider these three countries in order to highlight the varying patterns that computer gaming use can have in disparate locales. Ultimately such a consideration can point to the need for cross-cultural analyses more generally in assessing the role computer games play culturally, educationally, and economically.

In other work, we have been considering cross-cultural issues related to technology adoption and usage patterns generally. Such work has led to an interest in games and how cultural issues affect patterns of game adoption and play. [22] Ultimately, if digital games can be used as a technological entry point for people who are unfamiliar with computers, then it is necessary to examine the cultural perspectives that most significantly determine which games will be effective entry points within different cultures. Numerous cultural issues can be considered in this context, but in this initial discussion we find it most useful to focus on the context of computer use in the country, age and gender patterns of existing game-playing behavior, the kinds of games that users are adopting, and the role of public space (i.e., internet cafes) in fostering gaming activity.

Other issues that are central but are beyond the scope of this paper include societal attitudes towards computers and computer games, the role of leisure and games within a culture generally, and the importance of youth culture within specific settings.

## **DEMOGRAPHICS**

Overall, it is difficult to make clear-cut pronouncements regarding how many people, and with what demographic profile, are playing games. Many studies are conducted by industry groups with vested interests in particular outcomes, and the assumptions and sample selection of media research groups can be particularly problematic. That said, it is still useful to engage in a conversation about broad-based surveys of user populations, in particular in order to demonstrate how such patterns differ among countries.

## **US**

One of the first challenges in determining who is playing games anywhere deals with the conflation of game categories such as arcade, computer, and console games. Indeed, within the computer game category, there are many possible taxonomies: game genre, game perspective (first-person, third-person, or some combination of the two), and game play location (Internet with a central server, Internet with local servers, LAN, local computer, and so on).

Perhaps it is no surprise, then, that there is contention regarding actual numbers of people playing games in the US. The Entertainment Software Association (ESA) conducted the most recent poll on game player demographics; however, the ESA is obviously invested in showing that game players are not all middle-aged men. The ESA also chooses to keep their actual results private, releasing only a handful of percentages that, in the absence of standard deviation information, tell a perhaps suspiciously convenient story.

Indeed, as the game market has expanded, game publishers have significantly strengthened their efforts to convince a more diverse spectrum of people to play games. Again, the number of people who consider themselves "gamers" is a contentious issue; the ESA asks questions about time spent per week playing games, but the respondents do not necessarily equate a specific amount of time spent playing with being a certain type of gamer.

### *Total game and console sales*

Even with these caveats, the results of the August 2003 ESA poll are still interesting to consider. Table 1 (shown below) lists the various revenue estimates for the online gaming

industry in 2001 and 2002. As the Table demonstrates, regardless of which estimates are the most accurate, the game industry in the US alone is obviously a lucrative business.

<b>Year</b>	<b>Value</b>
2001	\$6 billion [9]
	\$7.4 billion [15]
	\$10.3 billion [5]
2002	\$6.9billion [7]
	Greater than \$10 billion [8]

Table 1. Online game industry revenue for the US

Although it is impossible to judge the number of PCs sold for gaming purposes, game console sale figures are available for Sony, Nintendo, and Microsoft (the three primary console manufacturers). Since the US release of the Sony PlayStation 2 at the end of 2000, more than 23.65 million units have been sold [3]. This number is nearly four times greater than the Microsoft Xbox sales figures for all of North America: 6.2 million Xbox consoles have been sold since its release in 2001. [23] The Nintendo GameCube and Game Boy Advance lag behind Sony and Microsoft, with North American sales of 5.13 million and 1.537 million respectively. [16]

*Who is playing all these games?*

Again, information on demographic breakdowns of game players varies. The ESA has one set of information that asserts, “half of all Americans [play] computer and video games” [7]. Other sources yield even larger figures: “According to the Interactive Software Association, an estimated 168 million Americans -- almost 60 percent of the entire population -- play video games” [4].

Regardless of which statistic is closer to the truth, the separation between gender and age groups is difficult to state accurately. Table 2 (shown below) illustrates the most recent ESA data on the gender of game players.

<b>Gender</b>	<b>Percentage of game players</b>
Male	59%
Female	38%

Table 2. Gender distribution of US game players ( poll margin of error is +/- 3.5%, 3% of poll respondents did not indicate their gender) [7]

As Table 3 shows, the ESA data reflect a 60/40 split between male and female gamers, respectively. This split is relatively similar to other studies on the gender of game players: Male gamers remain the majority, while the percentage of female gamers has held steady at about 40% for the past few years. [2] [14] This split is also consistent with previous ESA results. In 2002, the ESA (then named the Interactive Digital Software Association or IDSA) found an almost identical gender differentiation among gamers. [2]

In terms of total percentage of men and women who play video games, the studies show even larger disparities from one to the next. For example, the most recent Jupiter Research study states that “on a monthly basis, only 67% of female teens play videogames compared

to 95% of male teens.” [11] Saltzman reports the findings of a Zanthus survey that presents “males, 14 to 17,” as the most frequent game players with “23 hours per week on average [spent] playing games.” The same survey indicates that “18- to 26- year-old women” spend “on average...about eight hours per week playing [video and computer games].” [19]

Essentially, the total number of people who play video games in the US is open to conjecture. Even more speculative are the comparative and total numbers of men and women who play digital games. Many of the research groups that release polls and other demographic data have a vested interest in advancing digital games as a viable entertainment activity. For this reason, the total value of the gaming industry varies drastically depending on the information source. Despite the difficulty of making absolute pronouncements, however, there are some overall patterns of game play that are generally agreed upon:

- Gamers in the US are not predominantly male; in fact, some sources claim that there are more women playing games online than men.
- The average age of US gamers does not reflect the actual age of the players: The generally accepted average age is 29, but gamers’ ages range from 5 to 65 (and above). The average age probably reflects a greater number of gamers under 30 compared to gamers over 30; the most recent ESA poll claimed that 17% of gamers are “over age 50.” [7] Greenspan [9] uses additional ESA data to distinguish between gamers under 35 (58.4% of the US gaming population) and gamers over 35 (41.6% of the population).
- The US gaming industry is worth billions of dollars, a fact that is made even clearer based on Microsoft’s entry into the market with the Xbox console, a device that Microsoft sold below cost to build a following.

### South Korea

The same issues that complicate specific pronouncements about games and gamers in the US are relevant regardless of region of study. However, a significant amount of data from a variety of sources is available to contextualize a larger discussion of gaming patterns in South Korea.

#### *Total game and console sales*

The cultural climate of South Korea has led to the rise of the PC and an associated rise in popularity of computer games rather than console games. Because Sony, Nintendo, and Sega consoles hail from Japan, the South Korean government traditionally restricted their import into the country, leading many people to play PC games in Internet cafes and in people’s houses. [1] However, console game sales in 2000 reached US \$122 million, while PC game sales totaled US \$46 million. Arcade game revenue outstripped all other areas, totaling US \$625 million during the year 2000. The PS2 and GameCube are now readily available (along with the US-made Xbox), and online games are seen as the next big thing by the entertainment software industry in South Korea.

<b>Year</b>	<b>Value (US dollars)</b>
1998	521 million
1999	674 million
2000	886 million

Table 3. South Korean game market value.

As Table 3 shows, the South Korean gaming market was quite lucrative even before broadband Internet access and online games caught on in 2001. Once broadband and online gaming arrived, however, the market shifted dramatically. Table 4 (shown below) demonstrates the monetary size of the shift from arcade and home console gaming to online gaming.

<b>Platform-based revenue</b>	<b>Value (US dollars)</b>
Online PC games (played at home and at Internet cafes)	1,606 million
Console games (played at video game cafes)	564 million
Arcade games	315 million
Non-online PC games (purchased for play on a home PC)	137 million

Console games (purchased for play on a home console)	130 million
Games played on mobile phones and portable console systems	84 million

Table 4. 2002 South Korean game market values (adapted from [20])

As shown in Table 4, the total gaming revenue in South Korea in 2002 equals more than US \$2.8 billion. This information, included in a report released by the Korea Game Development and Promotion Institute in 2003 [20], represents the most recent data for South Korea. However, much like the ESA data for the US game industry, these numbers come from an organization that is quite interested in demonstrating the prospective value of the Korean game industry.

One of the primary reasons for the shift from arcade to online games is the proliferation of broadband access in South Korea. Per capita, no other country has as much broadband connectivity as South Korea: current estimates state that “there are about 10.5 million fixed-line broadband Internet subscribers” [21], up from approximately 7 million in 2001. Another reason is the proliferation of Internet cafes, called “PC Bangs.” [13] [20] More than 20,000 PC Bangs exist throughout South Korea, which contain over 830,000 PCs. [20] According to Au [1] and Krikke [13] these cafes sprang up all over South Korea partly because of economic conditions that resulted in massive layoffs among skilled workers. Thousands of these unemployed workers purchased PCs and began PC Bangs, cashing in on their inexpensive, reliable broadband connections.

*Who is playing all these games?*

The main source of information with regard to South Korean gamers is the 2003 report from the Korea Game Development and Promotion Institute. The Korea Games report shows that over 90% of the population of South Korea have “experienced playing games.” In terms of gender, 95.3% of men and 86% of women have experience playing games. Age and gaming experience are inversely related: Experience with games increases as the age of the poll respondent decreases; both men and women strongly prefer to play online games over all other types of games. In addition, the Korea Games report details the ages of those people who have either had some gaming experience, or who have never played games (see Table 5).

Age group	Percentage of people with gaming experience
9-14	95.6%
15-19	93.3%
20-24	91.8%
25-29	83.9%
30-34	80.2%
35-39	76.5%
40-44	54.3%

Table 5. Age distribution of South Koreans who have gaming experience [20]

As Table 5 shows, youth equates with gaming experience: South Koreans aged 9 to 14 are more likely to have gaming experience than any other age group. The decline in experience remains consistent as age increases, with the largest experience drop coming between the 35-39 and 40-44 age groups.

Finally, the clientele of the PC Bangs is also noteworthy: In 2002, 96% of the users of Internet cafes were under the age of 40. Yet 71.7% of PC users do their game playing at home, which partly refutes the image of a nation of gamers sitting in PC Bangs for days on end. Even among those people who visit the PC Bangs, less than half go to play games, and only about 20% stay for more than two hours at a time. [20]

## Uzbekistan

### *Total game and console sales*

No sales figures exist for consoles, or console and computer games; however, the primary software market in Uzbekistan generally exists outside of copyright regulations, so any kind of software sales, including games, would be extremely difficult to track.

### *Who is playing all these games?*

In March 2003, Kolko led a team that surveyed the population of Uzbekistan regarding information-seeking habits, patterns of trust in media and institutions, and attitudes towards technology. One section of that large survey focused on computer and Internet use, and selected results of that section are reported here. The survey itself was distributed throughout the country, based on government reports of age, gender, and rural/urban percentages of the population, with a sample size of 317.

The results of the survey support government reports that computer penetration in the country is relatively low. Although there are no reliable official figures regarding home computer ownership, the government of Uzbekistan has released figures for Internet usage for the past two years, with the latest estimate at over 200,000 users. However, the definition of 'user' is not clarified in such reports, and many people report watching others use the Internet or having used the Internet once or twice in the past; the cost of Internet access is prohibitive for most Uzbeks. The results of our survey demonstrate a lower level of Internet usage on a regular basis. More interestingly, even among those who can be characterized as regular Internet users within the country, the percentage who report themselves as game-players paint a picture somewhat different picture than that of the U.S. and South Korea.

According to the March 2003 survey, 32.5% of those surveyed had ever used a computer. Of this percentage, 57.3% reported having ever used the Internet. However, of all respondents having reported use of a computer, 59.4% reported having played games on a desktop computer. Computer games for the purposes of this question were defined as everything from Lineage to Windows-packaged Solitaire. Respondents were allowed to answer yes to more than one when asked whether their gaming included games included with Microsoft Windows (58.6% responded yes), web-based games played by themselves or against the computer (58.6 responded yes), Web-based games with other players (24.1% responded yes), multiplayer games like Counterstrike (20.7% responded yes), or multiplayer fantasy games like Lineage (6.9% responded yes). It is important to note that the total count of responses for this question was 98. No console game data are available for this country, but general patterns from data gathered thus far indicate a smaller percentage of Uzbek computer users are adopting games as part of their early technology use.

However, the same survey in March 2003 was distributed to a second sample of computer users at Internet access points in Uzbekistan; this sample was designed to pinpoint any differences among what could be defined as an early-adopter population within the country. Within this sample taken from Internet access points such as commercial Internet cafes, public access points run by Non-governmental organizations, or educational institutions, 62.7% play computer games. What is particularly interesting about this number is the different role played by the Internet café in Uzbekistan. While South Korea has developed a reputation as a gaming culture, in which players perform in highly public arenas such as PC Bangs and in televised tournaments, the numbers of gamers actually playing in cafes is at variance with the public presence of gaming.

In terms of gender, Uzbek gamers are more balanced than US gamers. Table 6 illustrate this ratio. The numbers here are particularly interesting given the gender role separation within the country and the importance of women within domestic space. Especially past school age and outside of major cities, women tend to spend more time in the household rather than in public space. Since users tend to gain access to computers for game-playing in public places, these numbers point to an interesting dynamic.

<b>Gender</b>	<b>Percentage of game players</b>
Male	58.3%
Female	41.7%

Table 6. Gender distribution of game players belonging to the general population of Uzbekistan

While there is greater gender equity among Uzbek gamers than US gamers, among the early-adopter sample, the gender distribution is even more remarkable. Table 7 illustrates this difference.

<b>Gender</b>	<b>Percentage of Internet access pt users</b>
Male	47.7%
Female	52.3%

Table 7. Gender distribution of Internet cafe visitors

As Table 7 shows, the percentages of female gamers is higher than males among the early adopter population sampled at Internet access points; this finding is inconsistent with the computer usage habits described by the survey administered to the general population, although it takes even further the interesting finding of women participating in public computer culture.

Among the general population of Uzbekistan, the age of gamers is similar to the US and South Korean statistics. Table 8 provides the gamer ages of the general Uzbek population and demonstrates that the average Uzbek gamer is probably less than 30 years old, which is in line with the US and South Korean averages.

<b>Age</b>	<b>Percentage of gamers</b>
18-29 years old	61.7%
30-39 years old	21.7%
40-49 years old	13.3%
50-59 years old	3.3%

Table 8. Age distribution of Uzbek gamers from the general population

Although younger people are more represented among Internet users, the uses to which they are putting the technology are somewhat at variance with expectations gained from examining other countries. For example, among the general population sample, 49% of Internet users report never having used chat or instant messaging, and 32.7% report rarely having used these applications. Only 6.1% of users report using chat or instant messaging a few times a week. Also among the general population, 53.8% report never having played a computer game, and 13.5% report rarely playing games. Similarly, 1.9% of respondents report playing games about monthly, 13.5% report playing games about weekly, 9.6% report playing games a few times a week, and 7.7% report playing daily.

Even among the early adopter population where the numbers of female users paralleled those of men, chat and games are not seen as among the most popular applications. Of this sample, 20.8% report never having used chat or instant messaging, and 18.9% report using either program daily. It is important to note that these users are among the most computer savvy in the country; they are the users with the disposable income and the knowledge to make use of Internet access points that are available. Among this group, too, 42.6% report never having played a computer game, 25.9% report rarely playing games, 5.6% report playing about monthly, 5.6% report playing about weekly, 14.8% report playing a few times a week, and only 5.6% report playing games on a daily basis.

While there are some findings in Uzbekistan that are consistent with the US and South Korea with respect to gender and age, the overall sense gathered from the survey is that computer users in Uzbekistan are not taking to games with concentrated interest. Indeed, general online activity is described by users to be more about sending email and gathering online

information than the more informal social activities like instant messaging or playing multiplayer games.

### Comparing Gaming Populations

Given the nature of single-country studies, it can be difficult to compare findings across countries. With regard to computer gamer gender, for example, our Uzbekistan data is only somewhat comparable to US data. Table 9 lists once such comparison that is possible -- the gender distribution among computer gamers in the US and in Uzbekistan.

Gender	Percentage of US gamers [7]	Percentage of Uzbek gamers
Male	59%	58.3%
Female	38%	41.7%

Table 9. Gender distribution of US game players and Uzbek game players belonging to the general population of Uzbekistan

As Table 9 shows, the gender distribution among those people who play computer games in the US and in Uzbekistan show a similar spread (3% of the US poll respondents did not list their gender). Both sets of numbers show a rough 3/2 ratio of male gamers to female gamers.

Table 10 indicates the activities of Uzbeks and South Koreans at Internet cafes: The Uzbek percentages indicate the activities that Uzbek Internet café visitors perform daily, rarely, or never, while the South Korean percentages indicate the primary activity performed at the café. [20]

Activity	South Korea	Uzbek (daily)	Uzbek (rarely)	Uzbek (never)
Playing games	48.1%	4.6%	21.5%	35.4%
Visiting Web sites on the Internet	22.5%	30.8%	10.8%	(no data)
Working with e-mail	17%	33.8%	10.8%	(no data)
Chatting online	11.7%	15.4%	33.8%	16.9%

Table 10. Reason for using an Internet café among Uzbeks and South Koreans

As Table 10 illustrates, Uzbeks typically do not visit Internet cafes to play games, while nearly half of the South Korean café visitors go primarily to play games. The remaining data are not directly comparable due to the differences in data collection. It is interesting to note, however, that online gaming and chatting both involve synchronous, two-way communication, while e-mail and Internet surfing do not involve this sort of communication. Uzbeks appear to avoid synchronous methods of communication in favor of the synchronicity of e-mail, or the one-way communication associated with Web browsing.

It is also interesting to note game-player age, in part because the same general statement can be made for the US, South Korea, and Uzbekistan: Those people under 30 tend to have more gaming experience than those people over 30. In the US, the ESA contends that 17% of gamers are over 50 [7], while in Uzbekistan the percentage is 3.3%. In Uzbekistan, also, only 1.5% of people over the age of 50 reported having ever used a computer.

### WHAT IS A GAME ANYWAY?

Any attempt to categorize and compare data regarding game playing necessarily runs into a variety of challenges, not the least of which is what constitutes a game. Establishing definitive game genres is a difficult task: Many games cross genres quite readily, complicating the process of categorization. An old example of this sort of game is *Road Rash*, a third-person motorcycle racing game that also includes elements of person-to-person fighting using clubs and guns. Would this game fall into the category of sport (motorcycle racing), action (player-to-player combat), third-person fighting, or some new combination of these three categories?

One natural source of game genre definitions does little to provide any clarification with regard to genres. Indeed, the game ratings boards in the US and South Korea focus primarily on defining the types of content that games include rather than the games' overall genres.



And with respect to cross-cultural analyses, looking at game content across diverse player sites indeed becomes crucial.

### **Game genre popularity**

#### *US*

In the US, the Entertainment Software Rating Board (ESRB) includes a rating on the box of every computer game and console game. The ratings largely mirror the Motion Picture Association of America (MPAA) film ratings; however, the ratings themselves offer no description of the game genre. The ESRB content descriptors appear to offer some guidance with regard to the potential genre of a specific game: 30 different descriptors can be assigned to any game (assuming the game contains the requisite content). In general, the ESRB does not maintain a list of specific game “genres” as such; three individual “raters” simply rate each game based on its content. [6]

Two particular genres raise some interesting questions with regard to their overlap and target audience. The genre of first-person shooter (FPS) games shares some elements with massively multiplayer online games (MMOG), but the two genres are distinctly different within the world of computer games. It is particularly interesting to examine the relative interest in these genres within different countries. Both genres enjoy robust sales in the US, but it is questionable whether genres cross cultures equally easily.

#### *South Korea*

Games sold in South Korea must follow strict ratings guidelines that affect the ability of a game to sell more copies. In terms of preventing youth exposure to violence in games, the Korea Media Rating Board (KMRB) is nearly as stringent as the famously strict German ratings board, where certain violent games are listed in an index and “can’t be sold to anyone under 18, displayed in stores or advertised on television, in newspapers and in most magazines.” [18]

Unlike Germany, however, South Korea maintains no index of games that cannot be sold to anyone under the age of 18. According to Park [17], “Games containing extremely violent or obscene content are not given any [rating], and [are] not allowed to be sold in Korea.” One of Kerr’s interview subjects, a game developer in Ireland, described the situation in the following terms: “we actually have four versions of the [game] in Korea, we have the localised version, the non-localised version and each of them we have the low violence version and the over 18 version. The low violence [certification] requires no blood” [12].

In terms of popular game genres, the results of The Rise of Korean Games report are interesting: Male gamers prefer “strategic simulation” games by a wide margin, while female gamers prefer “board games and gambling games.” Overall, “hardcore gamers [who play more than two hours each day] preferred strategic simulation games, role playing games, and gambling games, while average gamers [who play less than two hours each day] preferred board games, strategic simulation games, and gambling games.” [20]

Where do genre distinctions like FPS games and MMOGs fit into these characterizations? The report does not give detailed descriptions of genre distinctions; however, FPS games are typically located within the action or action/adventure genres, which the Korean Games report lists separately from the strategic simulation genre. The report also cites *Asheron’s Call* and *Warcraft III* as examples of the role-playing game genre, but of these two games *Asheron’s Call* is the more likely candidate for an MMOG with a persistent game world.

First-person shooters, as a kind of action game are generally less popular in South Korea than in the US. Recent figures indicate that 7.4% of male gamers and 2.8% of female gamers in South Korea prefer the Action/Adventure game genre over all other genres. Interestingly, 47.9% of all respondents chose “online games” as the preferred gaming environment, with “PC games” (non-networked computer games) following at 27.9%. Therefore, although over 75% of South Korean gamers prefer to play computer games over console and arcade games, they do not necessarily prefer to play FPS games, which are best suited to the PC gaming platform. [20]

In terms of compelling game elements, however, over 50% of the respondents chose either “planning” or “story” from eight different categories as the point of interest within the games. [20] This preference for strategic planning and an engrossing narrative might explain why South Korean gamers do not gravitate toward the rapid-fire FPS games, even though some of these games require tactical planning and include interesting storylines. Compared to a typical strategic simulation game, the level of planning in a typical FPS is extremely short-term and the storyline is rarely the reason why anyone would want to play the game.

Role-playing games are relatively popular among South Korean gamers. According to the Korean Games report, 10.2% of online gamers prefer role-playing games, which ranks fourth as a genre in this preference category. Among “hardcore” gamers (those who play more than two hours each day), the role-playing genre is the second most popular genre, with about 16.5% of hardcore gamers preferring to play games in this genre. This group of gamers is most likely to be found in PC Bangs playing *Lineage*, yet the members of this group rated the strategic simulation genre as the preferred genre.

The role-playing genre includes games such as *Lineage* and *Asheron's Call*; most MMOGs would fall into this genre. Games such as *Starcraft* and *Counter-Strike* would be grouped under the strategic simulation genre or (in the case of *Counter-Strike*) possibly under the action genre. These genre distinctions are notable, and although it is beyond the scope of this paper, it would be particularly interesting to examine the relative popularity of specific game titles within selected populations.

### *Uzbekistan*

The Uzbekistan data remains the single source for game genre preference among Uzbeks; all of the percentages in this section come from this data set.

First-person shooters are comparatively unpopular among the general population of Uzbekistan: Web-based games played against a computer opponent, such as card and board games, and the games that come with Microsoft Windows operating systems are the most popular game genres. However, 20.7% do play games within a genre that includes first-person shooters such as *Counter-Strike*, although this genre is not exclusively comprised of FPS games. These games also require significantly greater bandwidth than card games played online, and Uzbekistan certainly lacks the network infrastructure that is present in both the US and in South Korea.

This point is most apparent when the Uzbek Internet café visitor data are examined. Among those Uzbeks who regularly visit Internet cafes, multi-player games such as *Counter-Strike* represent the most popular game genre: 69.4% of these gamers play multi-player games online. Interestingly, Microsoft Windows-based games are about equally popular with Internet café gamers, although these games do not require a network connection to be played. The general interest in first-person shooters such as *Counter-Strike* reflects the international appeal of these games, but the lack of bandwidth probably limits many Uzbeks from experiencing them.

Massively multiplayer games have yet to gain a foothold in Uzbekistan. Among Uzbek computer gamers, 6.9% play MMOGs or MMORPGs (such as *Lineage* and *EverQuest*). Across the entire population of Uzbekistan, about 1.25% of the citizens have played an MMOG or MMORPG, a figure that stands in stark contrast to a country such as South Korea, where “Five million people play [*Starcraft*].” [10] This figure is equivalent to approximately 10.4% of the total population of South Korea, and all of them playing a single game (albeit a very popular one). Infrastructure issues -- both technology-related and economic (no banking system to support credit-card purchases for online subscriptions) -- are clearly a central factor in the low number of Uzbeks playing massively multiplayer games.

The most popular games *are* available in Uzbekistan, but they are typically only available through street vendors in counterfeit form. Due to the current lack of broadband connectivity in most households, even those games that can be downloaded (such as *EverQuest*) are time-consuming to obtain and difficult to play. Only 19.6% of Uzbek computer users who access the Internet do so at home. There are some Uzbeks who play games such as *Lineage* and *Counter-Strike*; however, most online gaming occurs in Internet cafés rather than at work or at home.

Uzbekistan has not produced any FPS games or MMOGs, in part because there is no gaming industry in this country. As a counterpoint to the US and South Korea (two countries with massive gaming industries), Uzbekistan is interesting because, unlike South Korea, its citizens cannot choose a domestic game over a foreign game. Every game in Uzbekistan is foreign, and although many of them are in English this still presents a problem for most Uzbeks when considering the broader population. Among the Internet café users, 93.1% speak and read English while using the Internet; among the rest of the population in Uzbekistan, 69.6% use English on the Web (Russian is the leading language for both groups of Internet-using Uzbeks). However, clearly language remains a barrier to entry; of the overall population, only 5.4% claim an excellent knowledge of English. The use of English online comes from necessity for many users and helps to shape the population that chooses to go online, particularly for recreational purposes.

### Conclusion

There are some notable similarities in how game-playing is diffusing throughout the populations of the US and South Korea. In their differences, particularly with regard to interest in varying kinds of game titles, the two countries illustrate that games hold different kinds of potential in diverse settings. The patterns of Uzbekistan, on the other hand, illustrate that computer and Internet users are approaching some kinds of games more slowly and in relatively low numbers, even among early adopters.

While age and gender numbers show similarity across all three countries, the games that are played site by site indeed vary. Indeed, **how** games are played across countries also varies; in Uzbekistan, for example, it is extremely common for network-based gaming to be a collaborative activity with one player at the computer and a collection of spectator-players. It will be extremely interesting to watch how patterns of game-playing change over time in Uzbekistan as the country becomes more wired and connection speed improves. The fact that Uzbekistan users today tend to focus on information-gathering activities and email rather than chat, for example, may affect their approach to games and help determine their genre and title choices. Tracking changes like these over time will provide further information that can be used to better plan for introducing mass-market and educational games that are more likely to find an accepting audience.

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