

Development of Scales on the Effects of Gaming in Cyber Cafés in Manila

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Abstract

This study attempted to develop valid and reliable scales towards the effects of gaming in cyber cafés in Manila. In order to develop the scales, an initial draft of the questionnaire with twenty-seven items was distributed in the fifteen districts of Manila. A total of four hundred eighteen (418) survey forms were retrieved. Factor analysis was used to determine the dimensions of the questions while Cronbach's alpha analysis was utilized to determine the reliability of the questions on each construct. Any items with factor loadings less than 0.50 and Cronbach's alpha values of less than 0.70 were discarded. The final scales had twenty (20) questions. It was revealed that the effects of cyber café gaming could be investigated into the following dimensions – Responsibilities, Health, Relaxation, and Socialization. All questions under each construct were found highly valid and highly reliable. It is expected that various studies could be derived from the use of the developed scales. Limitations of the study and recommendations to improve the scales were also presented.

Keywords - *cyber café; digital divide; effects of gaming; internet café; Manila; online games; scales*

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I. Introduction

The United Nations (United Nations' Asia-Pacific Development Information Programme 2002), De Guzman and Fabian (2009), and Rodrigo (2005) have shown the inequality in the access of ICT (i.e., digital divide) in the Philippines. According to the United Nations' study in 2002 (United Nations' Asia-Pacific Development Information Programme 2002), the Philippines has personal computer penetration of 1.9 for every 100 persons and Internet penetration of 6 for every 100 persons. The computer ownership did not improve in 2005. Rodrigo (2005) reported that there is 1 to 55 computer-student ratio in secondary schools in Metro Manila.

De Guzman and Fabian (2009) showed that the price of the technology is the major concern of the students and most of the students cannot afford ICT products such as video games, cellular phones, MP3 players, and laptops. In order to address these situations, students share ICT products with their classmates or avail themselves of the services of cyber cafes in their locality.

Alam et al. (2009) defined cyber café as “a shop, café or place which is open to public, where anyone can just hire a computer for a certain period of time with a certain amount of fee”. Similarly, Haseloff (2005) defined cyber cafés as “for-profit facilities, open to the general public to access the Internet, other network facilities and/or a variety of information technology tools on a temporary contract basis (pay per use) without the necessity for the users to own hardware or software themselves”. These are open to the general public who can afford to pay for the services and generally there are no restrictions with respect to age, gender, religion, ethnicity, or income (Haseloff 2005). Cyber café is interchangeably called internet café, internet shop, or computer shop in the Philippines.

It is argued that cyber cafés could help bridge the digital divide since they may provide better equipment or faster connections for different and more advanced uses (Haseloff 2005), and offer minimal cost alternative to personal computer ownership, Internet access and other multiple financial barriers (Adomi et al. 2003). Because of these advantages, it became the most common Internet access model (Haseloff 2005) in developing countries (Furuholt and Kristiansen 2007b) either in urban or rural settings (Adomi et al. 2003).

It can also be noted that cyber cafés are open to the public and offer gaming and Internet services to the users which are unmonitored and controlled. Somoni et al. (2010) showed that customers repeatedly returned to the cyber cafés because of computer games. The gaming services provided by cyber cafés posed threats to tradition and cultural values of the users (Alam et al. 2009). In China, for example, some cyber cafes were forced to close by the Chinese government because young Chinese people were caught due to illegal gambling in the internet, viewing of pornography, and violent gaming (Alam et al. 2009). Ishii and Wu (2006) said that cyber café also offers criminal opportunities that “can attract students who wish to avoid school, adolescents who wish to engage in on-line gambling and pornography, gangsters who wish to sell drugs, hackers who wish to spread back-door Trojan horses or viruses, and even young females who wish to trade their bodies”.

It was also revealed that some spend more time in cyber cafés than they do in school or on school-related activities (Ko et al. 2005). Numerous articles have shown that excessive network and online gaming have negative effects on the users. These are losing significant relationships, jobs, and education or career opportunities (Allison et

al. 2006); have negative emotions and loss of control (Grüsser et al. 2007); sacrificed sleep, work and/or education, socializing with friends, socializing with partner, and family time (Griffiths 2004); missing other things (e.g., classes, meals or appointments), losing sleep, guilt at “wasting time”, and creating conflict with others (Wood et al. 2007); time distortion (Rau et al. 2006); and has negative effects on life satisfaction, low school grades, deterioration in interpersonal relationships, and non-confrontation of problems (Wang et al 2008).

The threat of excessive gaming is also present in the Philippines as Hermosa (2010) said that the Philippines ranked first as the top market in Asia in online gaming. De Guzman and Fabian (2009) already noted the effects of excessive gaming on Filipino youth. They found out that excessive use of computers has negative effects on students such as disturbance in study periods, quality time not dedicated to family, laziness to do household chores, stubbornness, escapism from house work, missing of classes, and failing to submit assignments on time.

On the contrary, different studies showed that gaming have positive effects. For example, Cole and Griffiths (2007) reported from their sample of 912 MMORPG players from 45 countries that MMORPGs were found to be a highly socially interactive environment which provided an opportunity to create strong friendships and emotional relationships. They also reported that 74.7% of gamers made friends with other gamers. Gamers also tend to meet with other gamers through guild meet ups, small group meetings, or conventions. Cole and Griffiths (2007) also reported that 81% of their respondents enjoyed playing games with their real-life friends (friends who were not met online) and family. This is also similar to the findings of Utz (2000) and Yee (2006b).

Cole and Griffiths (2012) also showed that gaming allowed players to express themselves in ways that they may not feel comfortable doing in real life due to their appearance, gender, sexuality, and/or age. Suler (2004) commented that these behaviors were called dissociative anonymity (“you don’t know me”) and invisibility (“you can’t see me”). These behaviors cause people to self-disclose sensitive issues to someone online more than they ordinarily would in a real life.

Gaming became the favorite past time of the youth. This is explained by Wan and Chiou (2006). According to them, games served as media of entertainment, leisure, and relaxation. The study of Yee (2006a) also supported this finding.

Given these situations, however, no studies have yet been conducted to determine the effects of cyber café gaming. This is partially attributed to the lack of valid and reliable scales that could determine the effects of gaming in a public venue such as cyber cafés. Thus, the objective of the study is to develop highly valid and reliable scales. It is expected that with the developed scales, local and foreign researchers could further investigate the effects of cyber café gaming.

II. Methodology

A. Research Design, Locale, and Subjects

The study employed a descriptive design in which a descriptive-survey was conducted using the questionnaire as the research instrument. Based on the classification of the Globalization and World Cities (GaWC) Research Network of the City of Manila as a

Beta+ global city (a ranking of a city based on its progressive economic activities) (Globalization and World Cities 2008), the City of Manila was chosen as the research locale of the study.

Computer games can be subdivided into two categories. The first category is the personal computer (PC) games that involve one or more players (Lo 2005). Net games or network games, which are further subdivided into web games, network games, and online games, are the second category of gaming (Lo 2005). This type of gaming allows multiple players to use their PCs to interact via local area networks or the Internet (Lo 2005). There are certain games that can be played online with hundreds or thousands of people together at the same time in the same game (Rijswijk 2008).

Games and the internet are closely related (Lee et al. 2007). In this study, the term *Internet* is used as means to play online games. Thus, both PC and network gamers in cyber cafés in Manila were the subjects of the study.

B. Sampling Design

Purposive sampling was used to choose the respondents since respondents are all gamers. Nevertheless, respondents regardless of age, sex, religious affiliation, etc. answered the questionnaire. As to the selection of cyber cafes, cyber cafes were selected through random walk method (Haseloff 2005) that covered the entire city of Manila. Whenever the researchers saw a cyber café, survey forms were distributed in that café. If more than one cafés were found in the same street, the researchers chose the cyber café alternately.

C. Statistical Treatment of Data

The initial draft of the questionnaire was composed of twenty-seven (27) questions. It was subjected to validity and reliability tests. Factor analysis was used to determine the dimensions of the effects of cyber café gaming. A question with a factor loading of less than 0.50 was deemed unfit and was discarded. This factor loading was a very significant factor loading (Abdullah and E. Zakaria 2011), (Liman et al. 2011), (Maleki et al. 2012). This was selected to achieve a more valid constructs. It can also be noted that the factor loading utilized in this study was higher than the factor loadings utilized by Kahveci (2010), Ozturk (2011), and Ramaswami and Babo (2012). They used a factor loading of 0.40.

Meanwhile, Cronbach's alpha (α) analysis was utilized to determine the reliability of each question on each construct. An item with a Cronbach's α of less than the threshold value of 0.70 was also discarded. This Cronbach's α was the most commonly used acceptability threshold of 0.70 for reliability analysis (Ozturk 2011) and above the 0.60 minimum value (Nunally, 1967 cited in Asante (2012), Ozturk (2011)).

D. Procedure

The total population of Manila served as the population of the study. According to National Statistics Office census of 2007 (National Statistics Office 2008), the population of Manila was 1,660,714. Using Sloven's formula, a sample size of 400 was computed. To give equal chances to be included in the sample, the minimum sample size was divided equally based on the population of each district of Manila. However, no survey forms were distributed to Port Area district since no cyber cafés were found in the vicinity. The minimum, distributed, and retrieved survey forms are

shown in Table 1. Four hundred eighteen forms were retrieved and these were all used in the study.

Table I. Survey Forms Distributed and Retrieved

In order to develop the scales, the following steps were conducted.

1. Draft the initial questions.
2. Determine the dimensions of the constructs.
 - a. Discard questions with factor loadings less than 0.50.
 - b. Determine the number of factors to be retained.
3. Determine the reliability of the questions.
 - a. Discard questions with Cronbach's alpha values less than 0.70.
 - b. Repeat Step 3 until all questions are at least 0.70.
4. Construct the final scales.

III. Results and Discussion

A. Profile of the Respondents

The respondents were all gamers in cyber cafés in Manila. Statistical treatment of data reveals that 81.6% of gamers live in Manila while 18.4% of gamers are non-Manila settlers. Furthermore, most of the respondents were students (76.3%), pursuing or attained a college degree (61.5%), male (77.3%), belonged to the age group 19 and below (75.8%), young (mean age = 17.4), and belonged to middle-income class (64%).

District	Population	Minimum	No. of forms distributed
Binondo	12,100	3	3
Ermita	6,205	2	2
Intramuros	5,015	2	2
Malate	78,132	19	19
Paco	69,300	17	17
Pandacan	76,134	19	19
Quiapo	23,138	6	10
Sampaloc	255,613	63	67
San Andres Bukid	116,585	29	29
San Miguel	16,115	4	5
San Nicolas	43,225	11	11
Santa Ana	62,184	15	17
Santa Cruz	118,779	29	29
Santa Mesa	98,901	25	29
Tondo	630,604	156	159
TOTAL	1,612,030	400	418

B. Development of the Scales

Step 1. Draft the initial questions.

The initial draft of the questions is shown in Table 2. The initial draft of the questionnaire was distributed to the fifteen (15) districts of Manila. The initial draft of the questionnaire contains twenty-seven (27) questions. Respondents answered the questions in a Likert-scale type (1 – Strongly disagree, 2 – Disagree, 3 – Moderately agree, 4 – Agree, 5 – Strongly agree).

Table II. Initial Draft of the Scales

<i>When playing games in a computer shop, have you experienced the following?</i>
1. I got lower grades.
2. I gained new friends.
3. I lacked sleep.
4. I learned how to mingle with people.

5. I cannot do my assigned household chores.
6. I could not focus on my studies.
7. I could not study.
8. I got lazy on my studies.
9. I got lazy in doing my household chores.
10. I got scolded by my parents.
11. I got no time to spend with my parents.
12. I missed my classes.
13. I got failing grades.
14. I failed to submit my assignments.
15. I got no time to mingle with my "offline" friends.
16. I became stubborn.
17. I lacked time to talk to my loved ones.
18. I skipped meals.
19. I hold back to urinate.
20. My hands are aching.
21. My head is aching.
22. I had dryness of eyes.
23. I spent all of my allowance.
24. I felt time passed by too fast.
25. I feel relax whenever I play computer games.
26. My outdoors activities (e.g., strolling and picnicking) were diminished.
27. My physical activities (e.g., exercise or physical games) were diminished.

Four hundred eighteen (418) forms (which exceeded the minimum sample size) were retrieved. These were all used in the analysis. The next step was carried out after encoding the data.

Step 2. Determine the dimensions of the constructs.

Table 3 shows the results of factor analysis. Factor analysis revealed that the questionnaire had four dimensions (eigenvalues of at least 1.00). Hence, effects of cyber café gaming could be investigated through four constructs. The effects of cyber café gaming could be investigated in terms of Responsibility issues (eigenvalue = 12.259). This is found to be consistent with the studies of De Guzman and Fabian (2009), Young (1996), Griffiths et al. (2004), and Wang et al. (2008). Also, it could also be investigated in terms of Health effects (eigenvalue = 2.192) (similar to the studies of Young (1996) and Wood et al. (2007)). The third dimension of the questionnaire is called Relaxation (eigenvalue = 1.449). This conforms to the findings of Wan and Chiou (2006), and Yee (2006b).

Table III. Dimensions of the Questionnaire

Dimensions	Factor Loading	Eigenvalue
Responsibilities		
I got lower grades.	0.705	12.259
I cannot do my assigned household chores.	0.628	
I cannot study.	0.781	

I got lazy with my studies.	0.822	
I got lazy in doing my household chores.	0.773	
I got scolded by my parents.	0.606	
I missed my classes.	0.651	
I got failing grades.	0.752	
I failed to submit my assignments.	0.757	
I cannot focus on my studies.	0.652	
Health		
I skipped meals.	0.646	2.192
I hold back to urinate.	0.763	
My hands are aching.	0.741	
I had dryness of eyes.	0.711	
My head is aching.	0.599	
Relaxation		
I feel relax whenever I play computer games.	0.619	1.449
My outdoor activities like strolling and picnicking are diminished.	0.750	
My physical activities like exercise or physical games (basketball, volleyball, badminton, etc.) are diminished.	0.694	
Socialization		
I gained new friends.	0.841	1.003
I learned to mingle with people.	0.852	
% cumulative of variance explained = 62.6% Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy = 0.949 Bartlett's Test of Sphericity $\chi^2 = 7,209.964$ df = 351 Sig. = 0.000		

Meanwhile, the Socialization skills (eigenvalue = 1.003) of cyber café gamers could also be investigated. This agrees with the findings of Cole and Griffiths (2006), Yee (2006b), and Utz (200). Table 3 also reveals that all factor loadings under each construct exceeded the threshold value of 0.50. This reveals that all constructs were highly valid. Questions 3, 11, 15, 16, 17, 23, and 24 were deleted and twenty (20) questions were retained (See Table 2.).

Table 3 also shows that KMO Measure of Sampling Adequacy was 0.949. According to George and Mallery (2009), this value is “marvelous”. In other words, the sample size used in the study was highly appropriate; therefore, factor analysis could be done in the data. Moreover, the Barlett’s Test of Sphericity ($\chi^2 = 7,209.964$, $df = 351$, Sig. < 0.01) revealed that the constructs of the developed scales did not produce an identity matrix. This means that each question under each construct does not correlate highly with one another. In short, each question contributes on explaining the dimensions of the questionnaire.

The percentage of cumulative of variance of 62.6% suggests that the scales could capture 63% of the effects of cyber café gaming. It implies that the developed scales could be still improved by inserting more questions in the scales.

Step 3. Determine the reliability of the questions.

Cronbach's alpha (α) analysis was employed in the twenty (20) retained questions. It was revealed that Responsibilities ($\alpha = 0.930$), Health ($\alpha = 0.872$), Relaxation ($\alpha = 0.752$), and Socialization ($\alpha = 0.787$) were all reliable during the first run of Cronbach's alpha analysis. Thus, all questions were retained. Hence, the final scales were composed of twenty questions.

Table IV. Reliability of the Constructs

Construct	Number of Questions	Cronbach's alpha
Responsibilities	10	0.930
Health	5	0.872
Relaxation	3	0.752
Socialization	2	0.787
Total Number of Questions	20	-

Step 4. Develop the final scales.

After subjecting the initial draft in series of factorial and Cronbach's α analyses, the final scales were developed. From the 27 original questions, 20 questions were retained. Table 5 shows the final scales, the factor loadings of the constructs, and the Cronbach's α values.

Table V. The Developed Scales on the Effects of Gaming in Cyber Cafés

Questions	Factor loadings
Responsibilities – $\alpha = 0.930$	
I got lower grades.	0.705
I cannot do my assigned household chores.	0.628
I cannot study.	0.781
I got lazy with my studies.	0.822
I got lazy in doing my household chores.	0.773
I got scolded by my parents.	0.606

I missed my classes.	0.651
I got failing grades.	0.752
I failed to submit my assignments.	0.757
I cannot focus on my studies.	0.652
Health – $\alpha = 0.872$	
I skipped meals.	0.646
I hold back to urinate.	0.763
My hands are aching.	0.741
I had dryness of eyes.	0.711
My head is aching.	0.599
Relaxation – $\alpha = 0.752$	
I feel relax whenever I play computer games.	0.619
My outdoor activities like strolling and picnicking are diminished.	0.750
My physical activities like exercise or physical games (basketball, volleyball, badminton, etc.) are diminished.	0.694
Socialization – $\alpha = 0.787$	
I gained new friends.	0.841
I learned to mingle with people.	0.852

IV. Conclusions, Limitations, and Recommendations

It is found out that the effects of gaming in a public venue could be investigated in four dimensions. These were on responsibilities, health, relaxation, and socialization of the gamers. The scales were found to be highly valid and reliable. The developed scales could capture most of the dimensions of effects of cyber café gaming. Hence, the purpose of the study to develop valid and reliable scales that would measure the effects of cyber café gaming was achieved. Thus, it is suggested that the developed scales be utilized in order to determine the effects of cyber café gaming.

This was the first attempt to develop scales on the effects of cyber café gaming. Though the scales had high percentage of cumulative variance, the scales could still be improved. More questions could be added to achieve higher explanatory power of the questionnaire. Furthermore, the study was only limited to one geographical location due to budgetary constraints. Thus, the results of the scales may only be true to Manila. It is recommended that future studies could cover wider geographical location (e.g., metropolitan, regional/state, national).

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