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Gender differences in Taiwan high school students' computer game playing

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Abstract

The purpose of this study is to explore gender differences among adolescents who play computer games: key areas of study include hours played, motivation, enjoyment experienced, and the impacts on the students' lives. The data were obtained from 535 Taiwan high school students. Results indicated that males spent more time playing computer games than did females and also enjoyed it more. Results also indicated that male students are more strongly motivated to play computer games. Gender differences exist in both the frequency and the types of games the subjects played. It is interesting to note that even with significant gender differences, both genders overwhelmingly concluded that playing computer games has helped the quality of their friendships. Finally, results also showed a slight gender difference regarding the predictors of Taiwan high school students' game playing enjoyments.

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1. Introduction

Computer games have become a major source of entertainment, and component of the social lives and leisure activities of young people since 1990 (Griffiths & Hunt,

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1995). The rate of increase in online game playing among adolescents parallels the rapid development of computer network technology.

Playing computer games is not only a youth-culture phenomenon, as Griffiths (1993) notes; it also seems to be a phenomenon across cultures and genders. In Taiwan, playing computer games has become a major leisure activity for many adolescents. In a related study, Chou and Tsai (2005) explored 535 Taiwan high school students' motivations, behaviors, and enjoyment related to playing computer games. The results indicated that most youth play games with six identified motivations: for entertainment, for seeking information, for filling time, for escaping from loneliness, for escaping from routines and people, and as a social device. The kinds of enjoyment they experienced in playing these games were shared joy, excitement, fantasy, escaping boredom or unhappiness, and emotional release. However, gender differences in game playing were not investigated in that study. A careful examination of past research (e.g., Biraimah, 1993; Greenfield, 1983; Griffiths, 1991; Sanger, Willson, Davies, & Whittaker, 1997) reveals that gender differences among computer game players may be due to game content and/or skills needed, and may be related to differing attitudes toward computers. The present researchers suspect that gender differences may also be reflected among the adolescents' motivations for and enjoyment in game playing. The researchers also suspect that the predictors for the enjoyments experienced in game playing may differ among male and female students. Therefore, this present study continues to explore the differences between Taiwan male and female high school students regarding their computer game motivations, enjoyment, and behaviors.

In addition, a close review of past studies indicates inconsistent research results regarding the impacts of computer games on adolescents' lives. Some researchers argue that computer games may enhance the players' self-confidence, social skills, and so on (e.g., Favaro, 1982; Smith, Curtin, & Newman, 1995), while others note that over-involvement in computer games may lead to academic or other problems (e.g., Roe & Muijs, 1998). The present researchers speculate that the impacts of computer games are multi-dimensional, that is, the impacts on any individual might be both positive and negative, simultaneously. However, negative impacts are usually demonstrated by explicit behaviors, and are thus more obvious and easily observed (e.g., poor grades, lost sleep, health problems, etc.). Since relevant empirical data in this field are scarce in Taiwan, the present researchers began tackling this issue by investigating the general impacts of computer games on subjects' daily lives before attempting to explore implicit psychological gains or losses (e.g., enhanced self-confidence, personality development, etc.). We employed self-reports and self-ratings from Taiwan game players in order to examine players' evaluations of the impacts of game playing on their own lives.

The major research questions formulated for this study were

- (1) Do male and female high school students in Taiwan who play computer games differ in number of hours spent playing, motivation for playing, the enjoyment experienced in playing, self-rated impacts, and type and rank of games played?

- (2) What are the predictors for the enjoyment experienced by male and female students' computer games?

2. Literature review

2.1. Gender issues in computer game playing

Are boys more interested in playing computer games than girls are? McClure and Mears (1984) studied the psychological characteristics of adolescents who played computer games and concluded that those who play computer games are usually young, male, and smart. Research concerning gender differences in computer games kept reporting that boys were seen as more successful (Greenfield, 1983) and enthusiastic (Mitchell, 1985) about playing computer games than girls were, boys figured out game strategies sooner than girls did, and boys compared game scores more often than girls would (Subrahmanyam & Greenfield, 1998). Sanger et al. (1997) suggest one possible reason for these differences: boys, on average, perform better than girls at tasks requiring visual-spatial skills. Such skills are essential when the player must demonstrate high levels of hand-eye coordination and make rapid judgments about spatial relationships. Sanger et al. also argue that the aggressive content of game software, which is aimed more at boys than at girls, may be another factor responsible for the phenomena. Their study even shows that playing computer games allows children, especially boys with low self-esteem and confidence, to have a sense of control, operate as experts, gain respect from others, and thus enjoy playing computer games.

In the last decade, much literature has studied gender differences in computer games. Bammel and Burrus-Bammel (1992) reviewed literature about leisure activities and concluded that boys tend to prefer the games, where they can be independent and competitive under rigid rules and also be able to make right decisions at the right time. In contrast, however, girls prefer games that value cooperation. Sanger et al. (1997) confirmed these results regarding computer games. That is, boys seem to enjoy competition and gain high scores while girls like cooperation and completion. Kafai's (1996) study proved that most commercially-available video games do not reflect the interests or tastes of girls. Researchers then explored girls' interests in computer games and suggested that girls like to play non-aggressive games that allow them to create fantasies and to play with familiar characters in familiar settings (Subrahmanyam & Greenfield, 1998).

Along with the rapid increase of hours spent on the Internet, which includes playing online games, researchers have begun to examine gender issues of online behavior and psychology. Herring (1996) explored computer-mediated communication (CMC) from social and cultural perspectives and found that, despite the stereotype that men are more concerned with the exchange of information than women are, requesting and providing information were more common in female-oriented than in male-oriented discussions. Wallace (1999) argued that online gender stereotypes,

i.e. competitive, aggressive males versus supportive, friendly females, may come from the different language and interaction styles people perceived between males and females. Wallace even suggested that women may feel freer in real-time chats while men may be more comfortable in asynchronous forums. Sanger et al. (1997) linked gender stereotypes with the content of computer games and argued that most computer games tend to condition both boys and girls to see males as dominant and females as dependent. In addition, although CMC allows individuals to have more control over gender (Watson, 1997), the Internet may not be female-friendly enough. The above discussions provide the conceptual framework for further understanding gender differences in playing computer games, especially online games.

2.2. *Impacts of computer game playing*

Overall, is playing computer games good or bad? Prior research is inconclusive; both positive and negative impacts on adolescents' lives have been reported. For example, Favaro (1982) contends that playing computer video games helps children and adolescents develop self-confidence and promotes their interactions with society, because playing computer games often involves risky and emotional tasks and requires mutual respect among peers. Cunningham (1994) emphasizes that playing computer games may help children develop their personalities and self-confidence. Smith et al. (1995) even suggest that children who play computer games develop *better* social skills than those who do not. Greenfield (1999) also agrees and adds that playing computer games may not only improve attention, concentration, hand-eye coordination, and fine motor skills, but also many intellectual skills such as abstraction, coordination, and reasoning skills. Griffiths' (1997) position that playing computer games is a harmless activity for most children and adolescents seems to summarize accurately the work of these researchers.

On the other hand, some studies indicate that playing computer games may harm some young people. For example, Fileni (1988) argues that engaging in virtual violent actions on a screen may enable or increase children's violent behavior in reality. However, the study of Sanger et al. (1997) indicates that aggressive children are drawn to playing violent games rather than the games themselves causing the aggressive behaviors. This interestingly suggests that children play violent games because they are violent already. Selnow (1984) mentions three reasons for adolescents' addictions to computer games. First, adolescents are often searching for a way to escape their real social relationships, and computer games allow them to be alone yet interactive. Second, computer games may replace peers and human relationships that some adolescents find difficult to navigate. Third, playing computer games provides adolescents with a degree of active control most adolescents do not experience in reality. Since online games allow another form of social interaction, Greenfield (1999) warns that the more interactive the game is, the more potentially addictive it seems to become. Several researchers have commented on the marked negative consequences for heavy-use game players. For example, Roe and Muijs (1998) performed a large survey to

profile heavy-use computer game players' social relationships and personality characteristics. Their results suggest that adolescents who play computer games are associated with some negative characteristics regarding academic achievement, self-esteem, and social abilities. In addition, [Bammel and Burrus-Bammel \(1992\)](#) indicate that the development of self-identity is a big challenge for adolescents, and suggest that future studies should analyze the gender differences in the adolescent leisure behaviors from both social and non-social variables. These suggestions, coupled with the aforementioned inconsistent research results regarding impacts of computer game playing on adolescents' lives, offer ample basis for more research on adolescents' computer game playing in order to enhance our understanding of this popular youth phenomenon.

3. Methods

3.1. *Subjects and distribution process*

In order to conduct this survey study, a total of 1150 paper-and-pencil questionnaires were distributed to students (15–18-years old) in 30 classes in 15, randomly-selected high schools in four geographic areas (North, South, East, and Central) in Taiwan. Half of the students who received questionnaires were male and the other half were female. A total of 1000 valid data samples were collected (return rate = 87.0%). Among them, 535 (53.5%) indicated that they were involved in playing computer/online games at the time the questionnaires were distributed; these were counted as valid data for the following statistics and discussion. The average age of those 535 players is 16.88 (SD = 0.71). Among them, 372 (69.53%) were males and 163 (30.47%) were females.

3.2. *Instruments*

The survey questionnaire used in this study consisted of five sections. The first section differentiated players from non-players. The second section was the motivation scale (28 Likert-type items), which asked why subjects play computer games. According to [Chou and Tsai \(2005\)](#), six major motivating factors were identified: F1, entertainment; F2, escaping from routines and people; F3, seeking information; F4, escaping loneliness; F5, filling time; F6, social device. The higher the mean score of the motivation scale and each motivating factor, the stronger the motivation of subjects to play computer games.

The third section was the enjoyment scale (16 Likert-type items), which requested information about the enjoyment subjects experienced from playing the games. There were three major factors identified in this scale: F1, enjoyment in excitement and fantasy; F2, enjoyment in escaping and emotional release; F3, enjoyment in sharing joy ([Chou & Tsai, 2005](#)). The higher the mean score, the more enjoyment the subjects experienced while playing.

The fourth section of the survey requested subjects' demographic information, such as gender, age, grade level, and playing behavior information, such as where they play, what kind of games they play, etc. This section asked about prior and current computer experience, including time elapsed from first exposure to computers (or networks), computer-use hours per week, and so on. This section also asked subjects what types of games they play most frequently by marking 1 as most frequent, 2 as next most frequent, and so on.

The fifth section of the survey asked subjects to rate the impacts of playing computer games on six dimensions of their lives: studies, daily life routines, health, relationships with friends, relationships with parents, and relationships with teachers. Subjects were required to mark one from 11 boxes placed between positive or negative extremes. For a detailed description of the questionnaire, please refer to [Chou and Tsai \(2005\)](#).

4. Results

4.1. All subjects' questionnaire scores, game experiences, and impact ratings

As shown in [Table 1](#), the mean score of the motivation scale for all subjects was 2.68 (SD = 0.39); the mean score of the enjoyment scale was 2.86 (SD = 0.41) on a 4-point Likert scale. The average time all subjects spent on playing was 4.15 h per week (SD = 6.09). The average time of subjects' first exposure to the Internet and computer games was 3.98 and 3.79 years, respectively. Subjects rated computer game impacts on various dimensions of their daily lives on an 11-point scale. Computer game impact on their studies was rated at 5.29, on daily life routines at 5.31, on health at

Table 1
Total subjects' questionnaire scores, computer experience, and impact ratings

Score	Number of subjects	Means	Standard deviation	Note
Motivation scale mean score	535	2.68	0.39	4-point Likert scale, with 1 = very disagree, 2 = disagree, 3 = agree, and 4 = very agree
Enjoyment experience scale mean score	535	2.86	0.41	
Hours played per week	535	4.15	6.09	
Time elapsed from first exposure to the Internet (year)	518	3.98	1.39	
Time elapsed from first exposure to computer games (year)	518	3.79	2.69	
Self-ratings of daily life dimensions				
Studies	535	5.29	2.25	Possible score range from 1–11, the higher the score, the more positive the impact was rated
Daily life routines	535	5.31	2.43	
Health	535	5.90	2.35	
Relationships with friends	535	7.85	1.90	
Relationships with parents	535	5.62	2.17	
Relationships with teachers	535	6.06	1.79	

5.90, on relationships with friends at 7.85, on relationships with parents at 5.62, and on relationships with teachers at 6.06.

4.2. Gender difference in game playing hours, motivations, and enjoyments

As shown in Table 2, a *t*-test was conducted to inspect gender differences in hours spent playing computer games. Results indicate that male subjects spent significantly more time playing games than did female subjects ($t = 2.97, p < 0.01$). As shown in Table 3, the MANOVA test shows that male subjects had significantly higher mean scores in the motivation scale, and the mean scores of F1 (entertainment), F3 (seeking information), and F6 (social device) ($F = 12.47, F = 15.12, F = 23.22, F = 11.19, ps < 0.01$) than those of female subjects. Also shown in Table 3, the MANOVA test shows that male subjects had significantly higher mean scores in the enjoyment scale, and the mean scores of F1 (excitement and fantasy), and F3 (sharing joy) ($F = 5.23, p < 0.05; F = 8.10, F = 17.75, ps < 0.01$).

Table 2
t-Test results of gender on playing hours

	Subjects				<i>t</i>
	Male (<i>n</i> = 372)		Female (<i>n</i> = 163)		
	<i>M</i>	SD	<i>M</i>	SD	
Hours played per week	4.73	5.48	2.87	7.15	2.97**

** $p < 0.01$.

Table 3
Descriptive statistics and *F* test of gender on the motivation scale and the enjoyment scale mean scores

	Subjects				Wilks' Lambda	<i>A</i>	<i>F</i>
	Male (<i>n</i> = 372)		Female (<i>n</i> = 163)				
	<i>M</i>	SD	<i>M</i>	SD			
The motivation scale	2.72	0.42	2.59	0.31	7.99**	12.47**	
F1: Entertainment	3.15	0.52	2.98	0.37		15.12**	
F2: Escaping from routines and people	2.14	0.62	2.06	0.49		2.01	
F3: Seeking information	2.87	0.54	2.65	0.41		23.22**	
F4: Escaping from loneliness	2.42	0.81	2.37	0.69		0.85	
F5: Filling time	2.59	0.65	2.67	0.50		-2.28	
F6: Social device	2.73	0.63	2.53	0.51		11.19**	
The enjoyment experience scale	2.89	0.42	2.79	0.36	5.50**	5.23*	
F1: Excitement and fantasy	3.05	0.50	2.92	0.43		8.10**	
F2: Escaping and emotional release	2.53	0.51	2.47	0.45		1.13	
F3: Sharing enjoyment	3.18	0.54	2.99	0.40		17.75**	

* $p < 0.05$
** $p < 0.01$.

4.3. Gender differences in self-rated impacts

As shown in Table 4, The MANOVA test was also conducted to explore any gender differences among how adolescents self-rated the impacts of computer games on their daily lives. The test results show that male students rated significantly more negative impacts than did female students in three areas: studies ($F = -7.35$, $p < 0.01$), relationships with parents ($F = -11.24$, $p < 0.01$), and relationships with teachers ($F = -4.05$, $p < 0.05$), but rated significantly more positive impacts in relationships with friends ($F = 21.63$, $p < 0.01$).

4.4. Gender differences in ranking game types

As shown in Table 5, the game types that male subjects played most frequently are role-playing games, followed by strategy games, action games, sports games and so

Table 4

Descriptive statistics and F test of gender on subjects' self-ratings of impacts on daily life dimensions from playing computer games

	Subjects				Wilks' Lambda Λ	F
	Male ($n = 372$)		Female ($n = 163$)			
	M	SD	M	SD		
Self-ratings of daily life dimensions					8.12**	
Studies	5.13	2.28	5.69	2.13		-7.35**
Daily life routines	5.28	2.50	5.37	2.29		-0.20
Health	5.90	2.37	5.90	2.30		0.01
Relationships with friends	8.11	1.93	7.26	1.69		21.63**
Relationships with parents	5.41	2.21	6.13	1.99		-11.24**
Relationships with teachers	5.95	1.79	6.31	1.77		-4.05*

* $p < 0.05$.

** $p < 0.01$.

Table 5

The frequency rank of game type that subjects played

Rank	Game type		Example
	Male	Female	
1	3	Role-play	Ultima series, might and magic
2	4	Strategy	SimCity 3000, civilization, starcraft
3	2	Action	Sonics, super mario
4	8	Sports	NBA Live, FIFA2000
5	1	Puzzle	Chinese chess, majong, monopoly, tetris
6	6	First-person action	Tomb raider, quake
7	5	Adventure	Myst2, monkey island
8	7	Simulation	Falcon4, fly simulation

Table 6
The regression model of subjects' enjoyment experiences while playing computer games

Dependent variable		Predicting variables	B	SE	β	Sig.	R ²
The mean score of the enjoyment experience scale	Male subjects	F1 (For entertainment)	0.371	0.036	0.449	0.000	0.636
		F3 (For seeking information)	0.187	0.036	0.228	0.000	
		F5 (For filling-time)	0.088	0.025	0.139	0.001	
		F6 (For social device)	0.009	0.028	0.143	0.001	
		The time elapsed from the first exposure to computer games	-0.001	0.005	-0.107	0.003	
			F4 (For escaping from loneliness)	0.004	0.021	0.084	0.039
	Female subjects	F1 (For entertainment)	0.434	0.074	0.416	0.000	0.641
		F5 (For filling-time)	0.173	0.050	0.224	0.001	
		F3 (For seeking information)	0.194	0.063	0.205	0.003	
		F6 (For social device)	0.129	0.045	0.174	0.005	

on. The least frequent game types include adventure and simulation. For female subjects, the most frequently played are puzzle games, followed by action games and role-playing games. The least frequent game types played by females include simulation and sports games.

4.5. Regression analysis of enjoyment experience

In order to predict the enjoyment experiences of game playing, a stepwise regression analysis was conducted for male and female subjects, respectively. In the analysis, the enjoyment scale mean score was the dependent variable, while mean scores of each factor of the motivation scale, time elapsed from first exposure to the Internet, time elapsed from first exposure to computer games, game playing hours per week, and age were independent variables. As shown in Table 6, results indicated that the most powerful predictor of male subjects' enjoyment experience was the mean score of F1 (entertainment), followed by the mean scores of F3 (seeking information), F5 (filling-time), F6 (social device), the time elapsed from the first exposure to computer games, and F4 (escaping from loneliness). Also shown in Table 6, the most powerful predictor of female subjects' enjoyment experience was the mean score of F1 (entertainment), followed by the mean scores of F5 (filling-time), F3 (seeking information), and F6 (social device).

5. Discussions

The purpose of this study is to explore gender differences among Taiwan high school students who play computer games. Results indicated that male students spent significantly more time per week (about 284 min) playing computer games than female students did (about 172 min). In Griffiths and Hunt (1995), and Griffiths'

(1997) studies, empirical data revealed that males played computer games significantly more frequently than did females. Results from the present study are consistent with these findings, and support the assertion that male adolescents spend more time playing computer games than do females.

In general, the results of this study indicate that male students are more highly motivated to play computer games than are females. In particular, male students had significantly higher mean scores in F1 (entertainment), F3 (seeking information), and F6 (social device) on the motivation scale. In other words, male students exhibit significantly stronger motivational factors in these dimensions than female students do. These results coincide with past findings (e.g., Griffiths & Hunt, 1995; Morlock, Yando, & Nigolean, 1985; Sanger et al., 1997) that male players and female players differ in game playing. This study further shows that male students have stronger motivations for entertainment, for seeking information, and as a social device in playing computer games than female students do. One possible explanation, based on our informal observation data, could be that female students enjoy a greater variety and intensity of other leisure activities (such as shopping and talking) than male students, and are thus less motivated to play computer games. The Griffiths and Hunt (1995) study found that male adolescents were significantly more likely than females to play computer games to impress their friends. The characteristics of the typical adolescent male-to-male relationship are reinforced by the often-parallel characteristics of computer games (i.e., competition, hand-eye coordination skills, violence, fantasy, etc.). However, when both genders want to escape from routines and people, or be alone, they are equally motivated to play games.

In this study, male students reported deriving more enjoyment from excitement and fantasy, and from sharing that enjoyment with others. This might be due to the presentation of game content, that is, that (violent) actions in a multimedia format bring male adolescents more enjoyment (Kafai, 1996). Another explanation could be that males on an average perform better in activities that require well-developed hand-eye coordination as well as sound judgment of spatial relationships (cf. Griffiths, 1993; Sanger et al., 1997) and, therefore, they gain more enjoyment from these activities. In addition, male students have a stronger motivation to play, thus they spend more time playing than do females. If playing computer games consumes much of the male students' leisure time, they will probably have more information, ideas, and experiences from games, and thus have more game-related enjoyment to share with others.

What impacts does game playing have on students' daily lives? On average, students of both genders rated impacts slightly toward the negative end in four dimensions: studies (5.29), daily life routines (5.31), health (5.90), and relationships with parents (5.62), and impact slightly toward the positive end in just one dimension: relationships with teachers (6.06), compared with the theoretical mean score six on an 11-point Likert scale. Among these, the impact on studies was rated the lowest on average, followed by daily life routines. This result is consistent with our previous observations and speculations that negative impacts of game playing on life dimensions would show up in students' studies and daily life routines. However, a gender difference appears in that male students rated impacts on their studies and relationship with parents and teachers

significantly more negatively than females did. As mentioned above, it is possible that the impacts of playing computer games might be both negative and positive. It is indeed most interesting to note that, on average, both genders rated the impact of game playing on “relationships with friends” a high mean score (male = 8.11 and female = 7.26). In particular, males rated this account significantly more positively than females did. This means that students, especially male students, believed game playing to have a positive effect on their friendships. This could be because they can make new friends by playing the same games, develop a sense of belonging to a particular group of players, have more game-related topics to share, develop better social skills (cf. Smith et al., 1995), or gain self-confidence through peer-recognition within the context of particular games (cf. Favaro, 1982). Thus, computer games help them develop better interpersonal relationships or promote their interactions with friends. This is a fascinating proposition, as suggested by Bammel and Burrus-Bammel (1992), but one that clearly requires more research.

This study found that the frequency with which adolescents chose to play particular types of computer games differed by gender. The most frequent game types played by male students were role-playing, strategy, and action; by females, puzzle, action, and role-play. Male and female students differed greatly in how they ranked puzzle games: males ranked this type of game number five, while females ranked it number 1; similarly, sports games were ranked number four among males but were the least favorite for females. This finding is consistent with Griffiths' (1997) work. In that study, significantly more females played puzzle games, while more males played sport simulations. However, whether the violent content of these games (or lack thereof) led to different rankings is not clear from this study.

Do males and females enjoy different aspects of computer games? The regression analyses in this study found that motivation dimensions in entertainment, seeking information, filling-time, and social device were predictors for both genders' enjoyment experiences. In other words, the stronger these motivational dimensions are, the more likely students are to experience enjoyment in playing computer games. However, the time elapsed from the first exposure to computer games, and the mean score of the escaping from loneliness factor, are also predictors for male students' enjoyment. In other words, the longer the elapsed time since male students last played a computer game, and the more likely they are to try to escape from loneliness, the more they experienced enjoyment while playing.

In sum, male players and female players differ in frequency and types of games played. Compared to female students, male students in this study spent more time playing computer games. On average, they played computer games about 41 min per day. Boys were usually highly motivated to play computers games, especially for entertainment, for seeking information, and as social device. They are also more likely to enjoy the excitement and fantasy aspects, and share the fun of computer games with others, than female students do. The most frequent game types male students play are role-playing, strategy, and action games. The stronger the motivation to play, and the longer the time since their first exposure to computer games, the more enjoyment they experience while playing. However, compared with females, they considered computer games to have significantly more negative impacts on their

studies and relationships with parents and teachers. The only exception was their relationships with friends: male students viewed computer games as very positively influencing their relationships with friends.

Compared with male students, the female students in this study played computer games about 25 min per day, significantly less than the time spent by male students. Females were found to be less motivated than males to play computer games, and motivated by different reasons altogether, especially in entertainment, seeking information, and as social device dimensions. When females try to escape from routines and people, to escape from loneliness, or to fill time, they are equally as motivated as male students to play computer games. The most frequent game types female students play include puzzles, action, and role-playing; the least popular type of game played is sports. Female students obviously gain some enjoyment from playing; however, compared with males, they experience equal enjoyment in escape and emotional release, but less from excitement and fantasy, and sharing enjoyment. In general, if females are more motivated to play computer games, they will experience more enjoyment while playing. Female students rated the impacts on their studies from playing computer games more positively than did males; this was also true in the areas of relationships with parents and teachers. Females considered game playing positively influenced their relationships with friends, but not as positively as did male students.

In conclusion, this study was motivated by the tremendous increase in popularity of computer games among adolescents. In fact, playing computer games has become the primary leisure activity for many adolescents and, as such, is considered by researchers a phenomenon requiring study within various cultural contexts. This study has attempted to explore gender differences in computer game playing time, motivation, enjoyment, impacts, and types. It is hoped that this empirical study will add to the growing body of knowledge that informs our understanding of who, what, why, and how adolescents play computer games.

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