

Computer and Outdoor Games: Effects on High School Students' Physical Fitness

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Abstract

The world is increasingly undergoing technological conversion and is apparently visible in the emerging trends and technological advancements that alter the traditional ways in which people used to live. Inventions and the development of information and communications technologies and media created significant acceptance and impact on people and societies. For years, computers have become a feature of everyday life in different countries. The proliferation of and application of technology such as online computer games have directly and indirectly influenced the youth, particularly the personality of high school students. So is the demand to continuously identify and be familiar to appropriately respond to whatever scenario that would ascertain wholesome experiences and personality. This study dealt with the effects of computer and outdoor games on high school students' physical fitness at Libon Agro-Industrial High School. It started identifying the profile referring to age, sex, access to a computer, computer games played, hours/week the students played computer games, outdoor games played, and hours the students played outdoor games; the computer and outdoor games, effects on students' physical fitness, and strategies to address the negative effects of which on the physical fitness of the respondents. Data and information were obtained through the descriptive method using a questionnaire checklist, interview, and documentary analysis upon the approval of the Department of Education. Research findings show that computer and outdoor games are both educational, and interactive, and develop motivational engagement. This research proposed an action plan meant to minimize the negative effects of computer and outdoor games and provides significant insights into the crafting of the school improvement plan (SIP).

Keywords: Physical Fitness, Physical Education, Computer Games, Outdoor Games, Fighting Games, Fitness, Edutainment

Introduction

The world is increasingly undergoing technological conversion and is visible in the emerging trends and technological advancements that alter the traditional ways in which people used to live. Inventions and the development of information and communications technologies and media created significant acceptance and impact to people and societies. For years, computers have become a feature of everyday life in different countries. The proliferation of and application of technology such as online computer

games have directly and indirectly influenced the youth, particularly the personality of high school students. So is the demand to continuously identify and be familiar to appropriately respond to whatever scenario that would ascertain wholesome experiences and personality.

Computer games technology changed immensely in the last few years and is becoming the fastest-growing form of media technology. There is a growing concern among parents and teachers that students do not get enough opportunities to engage in outdoor sports to the desired extent.

The constant presence and ease of access to online and computer games changed their lifestyles, especially in terms of classical outdoor activities such as basketball, volleyball, softball, soccer, and other foreign-inspired games. Necessary to include the so-called indigenous games referred to as “mga laro ng lahi” or traditional games. Notwithstanding is the observation that more and more students are technically engaged in ‘indoor’ activities like surfing the internet and playing computer games.

According to the latest research in 2006 by the National Institute of Media and Family in the USA, the percentage of homes with children having game stations has risen to 83 percent having a minimum of three-game stations has increased to 31 percent. Overall, 92 percent of 2 to 17 years old play computer games.

In the mid-nineties, girls were playing video games at home for 4.5 hours and boys for 7 hours per week. However, research on playing video games shows that at present boys play for 13.5 hours while girls play for nearly 6 hours each week. Thus, the average amount of time children spend on video games has considerably increased for the last ten years. Parents and researchers both argue whether video or computer games are beneficial or harmful for children. Different people have different opinions about the impact of computer games on children. Video games can affect children both positively and negatively.

Some of the most common positive effects are a child’s creativity, learning potential, and other computer literacy skills. Children’s creative abilities, physical and psychological state, academic skills, and education are hampered; these are some of the major negative effects. (Fouts, n.d.).

Some people think that video and computer games enhance students' learning, creativity, and other computer literacy skills as far as positive effects are concerned. Harris-Adler (n.d.), remarked that computer games can help students “compose music, design simple buildings, solve complex logic problems, learn to use science, and construct entire civilizations”. Students' creativity and originality may improve by playing such educational games. There are two types of educational video games, namely: instructional games and construction video games. Instructional games are based on children’s previous knowledge and construction games help children to develop their games and creativity. Construction games enhance creativity while instructional games do not.

Prensky (2001) on the other hand categorically acknowledged the importance of computer games in education and other school activities. Educational games may be able to reach students who are struggling to achieve academically or who lose interest in the subject matter quickly. Students may be willing to spend more time studying and learning if they are interacting with a game, applying what they are learning, and proactively engaging the subject material than if they are simply reading material or working on review problems. Examples of the games which encourage exercise in their players are Dance Dance Revolution, EyeToy, and Yourself! Fitness and Wii Sports encourage physical movement, especially boxing and tennis. There is even a Wii healthy website with 10-week workout plans for weight loss. Some schools in the United Kingdom have incorporated it into their Physical Education lessons to encourage those students, who would normally skip the lessons, to get fit.

In Philippine society, the students in Libon Agro-Industrial High School believe playing games is an important part of growing up. Some games are challenging and others daring. Some are physical while others intellectually stimulating. On the other hand, physical education focuses on fitness, healthy foods,

and ways to protect one's health both now and in the future. As quality physical education becomes less and less common in public schools, many researchers have found that the health of Filipino children is at risk. With quality education and physical activities, the rate of childhood malnutrition and obesity has been found to decrease. In addition, students must do physical activities so that they remain strong and maintain a body that is looking great. They can achieve this through intake of a desired and simple but nutritious meal, regular exercise, and monitoring body mass index (BMI). Playing sports is one great way of getting exercise. This is the most sensible importance of sports. However, the criticality of athletics is hardly limited to this. Sports can boost emotional, mental, and psychological maturity and vigor as well. The insights about physical education focusing on sports activities are wanting in the locale of the study.

The primary reason why some children stop playing Filipino or "Pinoy" games is the popularity of Western sports activities like basketball or volleyball in the community and schools. Strong media support would have altered the preference from physical to computer sports. This might harm the physical fitness of the individual. They become more stationary and less physically active. This brings the interest to undertake this study on the effect of computer and outdoor sports games on the physical fitness of the third-year students of Libon Agro-Industrial High School (LAIHS).

Libon, Albay where the locale of the study is a first-class municipality situated in the "Rice Granary of Albay" The 2007 census reported a population of 68,846 people in 12,572 households. It has twelve public secondary schools and, of these, five schools are under principals' supervision. LAIHS is the premier secondary school in Libon, Albay. Hence, this study is believed to contribute and address the positive and negative effects of computer and outdoor sports on the physical fitness of the students of LAIHS.

Moreover, this study was anchored on the Physical Education theory of Bucher, Koster's "Edutainment" and Quinn's Play. Bucher theorized that physical education is an integral part of the total education process. It is "a field of endeavor designed for the development of physically, mentally, emotionally and socially fit citizens through the medium of physical activities which have been selected with a view of realizing these outcomes. This study, uses computer and outdoor games to address the negative effects on the physical fitness of the students for the development of the whole person physically, mentally, emotionally, and socially. Games are all essentially "edutainment," teaching us the skills we might need in real life in a safe, low-stakes environment. A good game accordingly is "one that teaches everything it has to offer before the player stops playing.

Objectives of the Study

The study assessed the effects of computer and outdoor games on high school students' physical fitness. Specifically, it aimed to 1) describe the profile of the students in terms of age, sex, access to computers, computer games played, hours per week the students played computer games, outdoor games played; and hours per week the students played outdoor games; 2) evaluate the effects of computer games on students' physical fitness; 3) analyze the effects of outdoor games on students' physical fitness; 4) determine the strategies may be proposed to address the negative effects of games on the physical fitness of high school students.

Methodology

The researcher felt the relevance and appropriateness of the survey design using the descriptive method of research and made use of the questionnaire checklist, unstructured interview, documentary analysis, and/or focused group discussion.

This study required the participation of third-year students enrolled in two (2) specialization subjects (Computer Hardware Servicing and Internet Connectivity Facilities) in Libon Agro-Industrial High School (LAIHS). It considered the total enumeration of the third-year students taking the cited courses in the locale of the study. Hence, the researcher requested permission from the Department of Education to conduct the study.

Other sources of data that served as reference materials in the analysis of the findings of the study were books, magazines, theses and dissertations, and records of the Department of Education. Likewise, the study considered non-print materials appearing on the internet and from other means.

The responses of the students were consolidated using frequency count, percentage, and rank statistics. These were computed with the use of Microsoft Excel®. In the analysis and interpretation of the research findings, tables and graphs were used.

Results and Discussions

1. Profile of the Students

The students' profiles referred to in this study are age, sex, access to computers, computer games played, hours per week the students played computer games, outdoor games played, and hours per week the students played outdoor games. Findings describing their profile are as follows:

Age. The result of the analysis is to the age of the student respondents as reflected in Figure 1 revealed that half (38 or 50.00%) of them are 14 years old. Impliedly, the other half consisted of 15 (34 or 44.74%) and 16 (4 or 5.26%) years old, respectively. This situation is attributed to the implemented regulation of the department many years back where admission to grade one was six/seven years old. In other words, the age reported by the students is consistent with the policy implemented at the time they were accepted in the said grade level prescribed by the public school. But later on, this would no longer be the same as envisioned by the present K to 12 2010 Secondary Curriculum wherein there will be an addition of three years in basic education. This could be 17, 18, or 19 years a few years from now following the trend or change in the distributions as a result of enrolment data.

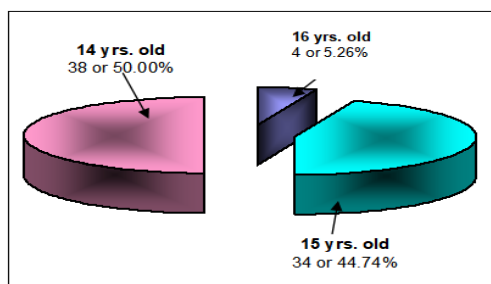


Figure 1. Age of the Students

Sex. The student respondents of the study consisted of 48 or 63.16 percent females and 28 or 36.84 percent males. With this finding is the information that there is a tendency for the school to be populated by female students rather than males. From the current findings, this seems to affect the choice or preference of computer and/or outdoor games of the students. Notably, the males played in each context more often than females where the younger age generally spent greater amounts of time playing than older students while the present study.

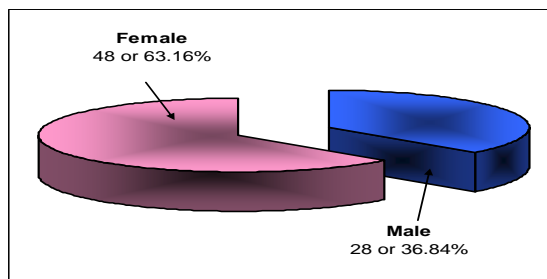


Figure 2. Sex of the Respondents

Access to computers. Figure 3 provides the information on access to the computer by the students. As can be noted, three of every four students do not have computers of their own. They are regular clients of computer shops referring to 57 students or 75.00 percent.

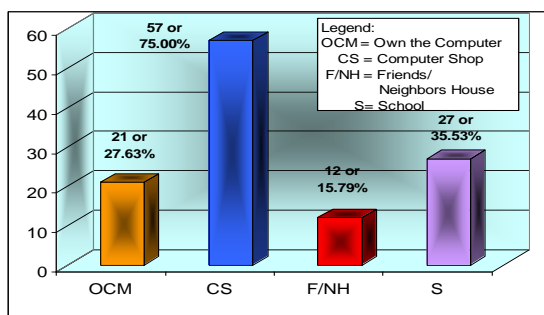


Figure 3. Access to Computers

Moreover, only one-third of the students have access to the computers owned by the school. This is as far access is limited since not the absence of a one-to-one student: computer ratio in most the schools, especially in typical Philippine communities. It also revealed that nearly twenty (12 or 15.79%) percent of them availed the computer of friends and neighbors.

Computer games were played. The computer games played most of the time by the students are presented in Figure 4. Fighting (24 or 31.58%) and Sports (24 or 31.58%) for a total of 48 (63.16%) were the two most popular computer games the students played. Nearly one for every five (16 or 21.05%) students played Shooting Game. Others (12 or 15.79%) were interested enough in WarCraft Game.

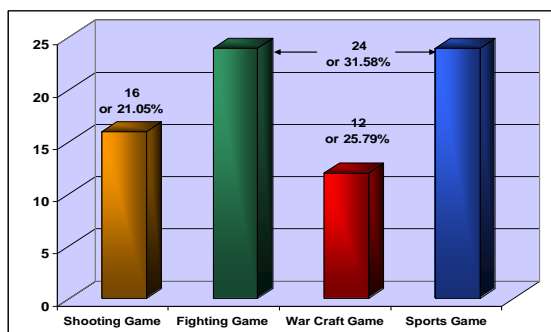


Figure 4. Computer Games Played Most of the Time

In the same way, some of the games are played online or through online gaming which would require team or group participation.

Hours/Week the students played computer games. On the number of hours in a week the students played computer games whereas 32 students, or 42.11 percent played for up to two hours. Other students indicated that 4 students (5.26%) played for the highest number of hours, which is more than 8 hours. These are their playing hours in a one-week duration. So that in a month, a student would have an accumulated playing time of eight to 32 hours or equivalent to nearly one and a half days on average. Should a student avail of commercial establishment for a 5-hour computer game, he needs to have an average of Php 100.00. Student respondents should know how to budget their time because time is a great resource, time is money. They should learn how to budget their time wisely.

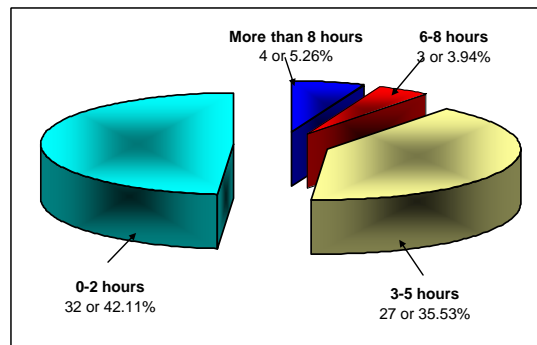


Figure 5. Hours/Week the Students Played Computer Games

Outdoor games. Badminton was the most popular (25 or 32.90%), followed by basketball (24 or 34.29%) and ‘mga laro ng lahi’ or traditional games (17 or 22.37%). It appeared that the leading sports would require the installation of some gadgets. The third category includes indigenous games or sports that would not oftentimes require equipment or gadgets.

Most of these sports except for field events need sports equipment that the school should provide. The community and/or local government could also make facilities including a playground, available for the students.

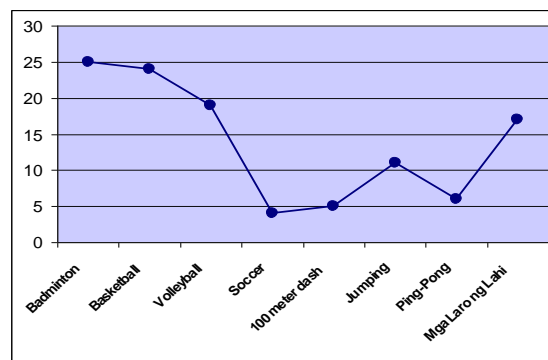


Figure 6. Outdoor Games Played by the Students

The Number of hours the students played outdoor games. As to the number of hours the students played outdoor games, nearly six (43 or 56.58%) of every ten students consumed a maximum of 2 hours in a week.

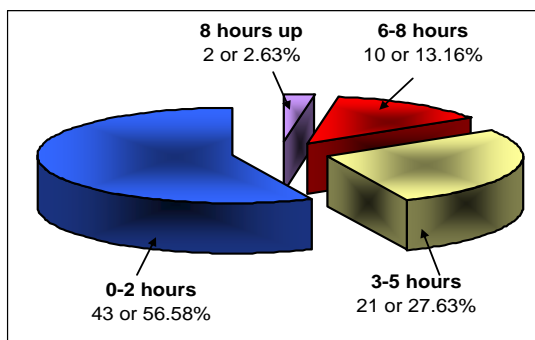


Figure 7. Hours the Students Played Outdoor Games

Moreover, some of the students played for 6 to 8 hours (10 or 13.16%) while the rest of the students played for more than 8 hours (2 or 2.63%). In other words, the three hours or more in a week for outdoor games was reported by four for every ten students. It can also be inferred that there is acceptance of indoor and outdoor games among the students.

2. The Effects of Computer Games on High School Students’ Physical Fitness

Table 1
Effects of Computer Games on Students’ Physical Fitness

	Effects	f	%	Effects
1.	The computer game is more fun than playing outdoor sports activities	15	19.74	Negative
2.	Computer games I can be myself only	11	14.47	Negative
3.	Computer game is a form of reducing my worries/ anxieties	40	52.63	Positive
4.	My friend does not accept me into the group when I play computer games	7	9.21	Negative
5.	I am enjoying playing computer games more than playing outdoor games	19	25.00	Negative
6.	To play and buy computer games is cheaper than to play and buy outdoor games equipment	19	25.00	Negative
7.	My parents like me to stay home more than to go outside	45	59.21	Positive
8.	Computer games increase my self-confidence and self-esteem as I master the games	33	43.42	Negative

The leading effect of computer games on students’ physical fitness was the parents’ preference to stay at home more than to go outside. This was observed and reported by nearly six of every ten (45 or 59.21%) student respondents.

Some of the findings coincide with Liboeños culture where the parents particularly mothers like their adolescent children to be home as they do computer games. Once in a while, they can watch and monitor what computer games their children are playing. They can give positive parental guidance such as asking their children what knowledge, desired skills, and right attitude they can learn by doing computer

games. Besides, the Department of Education (DepEd) has approved some multimedia online games supportive of the standards of the secondary curriculum.

The cited effect of computer games was true to the respondents of this study. Also, this finding was supported by the study of Papastergiou that educational games can be effective as a teaching method but players' enjoyment, engagement, and interest must be kept high through the use of video game design techniques. Bell Lab's explained that efforts of facing school knowledge with an entertaining (though passive) medium were highly successful.

3. The Effects of Outdoor Games on High School Students' Physical Fitness

As to the effects of outdoor games on the physical fitness of the student, the result of the self-assessment showed that nearly eight (60 or 78.95%) of every ten students said that the games are essential for the physical growth and development of their bodies.

Table 2
Effects of Outdoor Games on Students' Physical Fitness

Effects	f	%	Effects
1. Games are essential for the physical growth and development of my body	60	78.95	Positive
2. Taking part in outdoor games help me to reduce laziness in my studies/ work	38	50.00	Negative
3. Games reduce the addiction of students to TV, Video and computer games	47	61.84	Positive
4. Games make me active	47	61.84	Positive
5. Games helps me to stay fit and healthy	51	67.11	Positive
6. Games help me to prevent disorders like obesity	43	56.58	Positive
7. Games help to polish my hidden talent in sports	48	63.16	Positive
8. Games help me to improve my social skills and develop team spirit	57	75.00	Positive
9. Taking part in outdoor games helps me to improve my confidence level	52	68.42	Positive
10. Games reduce stress related to studies/work and help me to experience free, fresh and open environment	52	68.42	Positive

Some of the information depicted in the statement shared by Cockson (2011), such as the “students’ interest in sports, supported my ambitions, talent, and good physique might be a good opportunity for success in both educational and professional fields.” The key to good health practice is largely a matter of better health knowledge and a motivation to put this information to use.

Two other positive effects brought about by outdoor games with the same frequency or 52 students or 68.42 percent each were identified by them. These were in taking part in outdoor games: (a) help improve the confidence level and (b) reduce stress related to studies/work and experience a free, fresh, and open environment.

Another effect adhered to by 48 students or 63.13 percent was the idea that games help them polish their hidden talent in sports.

Finally, taking part in outdoor games helps reduce laziness in their studies/work according to half of the students (38 or 50.00%). It seems that they are always active or dynamic rather than passive or in a stationary position. Laziness is a sin. As students, they should be industrious, especially in their chosen career to be experts in Computer Hardware Servicing and Internet Connectivity Facilities. The presence of Information and Communication Technology (ICT) facilities does have advantages if used properly by

the students. Take the case of US President Barack Obama when he initiated the "Educate to Innovate" campaign on September 23, 2009, aimed at improving the technological, mathematical, scientific, and engineering abilities of American students. This campaign stated that it planned to harness the power of interactive games to help achieve the goal of students. Some of these competitions included the Stem National Video Game Competition and the Imagine Cup.

4. Strategies to Address the Negative Effects of Games on the Physical Fitness of Respondents

Table 3

Strategies to Address the Negative Effects of Computer and Outdoor Games on High School Students' Physical Fitness

Strategies	f	%
1. Identify computer games that may enhance outdoor games	35	46.05
2. Identify computer games good for male and female students respectively	36	47.37
3. Identify specific basic skills to be learned in outdoor games that may be done in computer games	42	55.26
4. Suggest the right number of hours per week that may be spent on computer games and for outdoor games for secondary students	54	71.05
5. Provide computer rooms for students by scheduling specific time for computer games	34	44.74
6. Provide playgrounds for outdoor games	43	56.58
7. Provide astrodome for indoor games	27	35.53
8. Provide professional coaches for specific in/ outdoor games	26	34.21
9. Prepare a work and financial plan for computer games and in-outdoor games year-round	26	34.21

From their perspectives, the need to determine the right number of hours per week for computer games and outdoor games ranked first. This was reported by 54 (71.05%) or seven for every ten students.

It is important for every high school student needs to know how to budget his time. Everyone enjoys the twenty-four-hour-a-day time limit. The teacher in Values education during their first year should require their students to write their schedules. Included in this schedule should be time, important daily routine, place, the person involved, budget, and expected outcome. As television always reminds people, "Time is a great resource, time is money."

In the same table, there is the second suggestion made by nearly six for every ten (43 or 56.58%) students to provide playgrounds for outdoor games. Utmost, this will require collaborative efforts of government, schools, and other sectors of the community since it shall involve bigger funding. It is noteworthy to mention that in Libon; there is a gymnasium and Lawn Tennis Court where students can play outdoor games.

Furthermore, a suggestion to provide computer rooms for students by scheduling specific times for computer games was also made by 34 (44.74%) students. This is a very specific request for the school manager to consider in the preparation of the school improvement plan. A review of the physical facilities' utilization policy and practices allows them to accommodate this issue. The Libon Agro-Industrial High School does have an air-conditioned computer room because this is part of the requirement of the Department of Education (DepEd). The school principal has to source funds for its maintenance as

mandated by Republic Act 9155, “Governance of Basic Education Act” under the duties and responsibilities of school heads. Students are scheduled with specific time allotments to make use of the ICT facilities to learn and be experts in their chosen specialization. Computer games were used as a tool in the teaching-learning processes by the teacher and students. Two other suggestions were cited by the same number of students (26 or 34.21%) each. These were to: (1) provide professional coaches for specific indoor/outdoor games; and (2) prepare work and financial plans for computer and in-outdoor games year-round. The guidance or services of professional coaches for specific outdoor games are very important, particularly for novice sports-interested individuals.

Conclusions

Based on the findings of the study, the following conclusions are deduced:

1. The majority of the student respondents are their age typical to their year level, females, without computer sets of their own but access to different facilities where they play computer games for two to more than eight hours a week.
2. Their playtime for outdoor games was similar to indoor games.
3. There are more positive than negative effects on students’ physical fitness brought about by playing computer and outdoor games.
4. Several suggestions were given to address the negative effects of computer games and outdoor games. The proposed action plan is meant to minimize the negative effects of computer and outdoor games.
5. A similar study should be conducted in other schools using different grade and year levels.

Recommendations

Based on the findings and conclusions, the following recommendations are presented for consideration of the Department Education: there should be close monitoring of the games being played, places and time used by the students; games should be encouraged with the guidance of the parents, school personnel and other stakeholders; the students should be advised on the importance of selecting educational games that are worthwhile in the development of wholesome physical fitness, and a proposed action plan meant to minimize the negative effects of computer games and outdoor games should be incorporated in the school improvement plan.

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