Lack of Confidence in Females while playing Computer Games

Tabeer Maajid, Dr Wajeeha Khalil

[1](Tabeer Maajid) Department of Computer Science & Information Technology, University of Engineering and Technology, Peshawar, Pakistan; [2](Dr Wajeeha Khalil) Department of Computer Science & Information Technology, University of Engineering and Technology, Peshawar, Pakistan.
Email: maajidtabeer@gmail.com

ABSTRACT

In the current era, the emergence and expansion of digital technologies has enhanced the knowledge, connectivity, and familiarity for the users. Technology has no bounds for males or females but the later have avoided it whereas the former have adopted it. The numbers revealed by National Institute of statistics show that 60.3% of people aged from 16 to 74 use minimum possible computer technology. In this number there is a greater percentage of males. This is because the females do not adopt new technologies as they are discouraged, and this results in lowering their confidence levels as far as adoption and utilization of technology is concerned. This is most seen in developing countries where women are still not considered as a free entity of society. In this research, the gaming sector is chosen on purpose to relate women behavior and confidence levels with the adoption of technology. The major focus of the research is to investigate the reason of lower confidence in females and their troublesome behavior. The research is confined to Pakistani females and the research paper shows the reasons of lack of their interest in technology and computer games. For this paper, qualitative and quantitative methods of research are incorporated. The sample size is 100 students taken from a university in Peshawar, Pakistan which consist of 50 males and 50 females. These students are from the age group of 17-18 years. The results of the research showed that girls with less or negligible experience were hesitant towards the computer games whereas the boys were quite comfortable with the setup. The female representation from computer science department was 10% whereas the boys were 22%. This shows that females are uncomfortable with computer games. The detailed results have been discussed under the section of results and discussions and the implications have been drawn out in conclusion.

Keywords : Digital technologies; Female Confidence; Computer Games; Females and STEM; Females Gaming

1 INTRODUCTION

THIS research paper investigates the reasons of lack of confidence in females as far as computer gaming is concerned. Females have issues with adjustment to the technology particularly computer gaming. There are numerous factors that accumulate in decreasing their confidence threshold in the utilization of technology. For instance, one factor is the lower portrayal of females in IT and science, technology, engineering, and mathematics which is widely known as STEM. Also, the females are less inclined towards mechanics of materials as well as services. In developing nations, the issue of lower confidence levels in women has been more challenging and it has become the need of the hour to differentiate the reasons and the causes which have played their part in making the women feel so troubled in this sector. The first step to solve a problem is to identify that there is a problem. With the current technological advancements in the modern era, this issue is becoming the limelight in international media as the slogans of women empowerment are being heard from every corner of the planet. Hence, to improve females' confidence, it is necessary to recognize the grey areas and the factors which have resulted in this chaos to ameliorate girls' confidence in technology, STEM, and IT. This will also improve their well-being in adapting the new technological inventions as well. Thus, females would be soon equivalent to males in all the modern technological awareness and can help themselves in growing their professions related to these fields as well. Also, this research paper is based on such a methodology that it will examine the results of the investigation and conclude the major reasons of absence of confidence in girls as far as computer games are concerned.

1.1 Background

In the contemporary world, the spread of technological advancements has enhanced the knowledge and advantages for users in terms of finances as well as awareness. Using Information and Communication Technology (ICT), researchers have examined 'Human Computer Interaction' to conclude the findings based on the production of these technologies and its usage by human beings. PC technology has been given immense importance by the instructional institutes to raise awareness among the students on how to benefit from the technological advancements [1]. There is no limited to its usage in terms of the gender. Females as well as males have complete rights to use computer and ease up their lives. However, it is seen that the females are much reluctant when it comes to computer usage as well as its awareness. They feel uncomfortable when surrounded by these technological gadgets. Hence, the skills are also biased as males are more into the computers and latest developments. This result in high confidence of males and provision of more opportunities to them as well. In this paper, the main focus revolves around the difficulties female face in interacting with computers and computer games within the boundaries of STEM. Researchers

have drawn numerous conclusions saying that a gender gap exists in STEM education and due to the perennial issue of gender inequality, this issue has picked up pace in the world of technology as well [2]. Females are not allowed to take the important decisions of their lives [6]. On the contrary, males have dominated the technological world by every means and have taken up the majority of power in their hands [7]. Considering the numbers of National Institute of Statistics, around 60.3% in the age group of 16-74 use as much less computer as possible in their life.

1.2 Research Motivation

The research revolves around female patterns associated with their lower confidence and technology. It examines the role of society and the factors associated with this lack of confidence in females linking it to the hurdles they have to face in their lives and the never-ending gender inequality. These postulates focus that whenever the females are discouraged in any phase of their life, it affects them in various aspects and one of them is their weak connection with the technology and computer. They are discouraged to learn the usage of computer, and this is more common in developing countries where women are thought as an object to be placed at home. These factors raise the slogans of women empowerment in such societies and recently it has been recognised as a universal issue. The field of technology is no different. It is also linked with the females' daily life activities. As they are kept away from these advancements, they grow a sense of being troubled when surrounded by these gadgets and eventually when they get a chance to represent themselves or participate in a gaming contest at their college, they refuse to do so because their confidence threshold is too low to play even a simple game. In developed countries, the case is totally different where females have equal opportunities, and they prove themselves in every field. That is why women in developed countries are financially stable and have equal rights and are aware of their status in the society. The purpose of choosing computer gaming was to investigate that why the females have low representation in technological fields. With the help of results from this research, it would be more accurate to draw patterns and link them to women' lack of confidence in computer gaming.

1.3 Aims and Objectives

The major aim of the research paper is to investigate the reason of lower confidence threshold in women. Also, the research focuses on the troubles face by the women and its reasons. The results of this research can help researchers in drawing more precise and accurate correlations in women and technology. Some of the important objectives are:

1. To find the hurdles that result in low confidence levels of females
2. To examine why girls, feel uncomfortable near computers
3. To look for the reasons of lower female representation in gaming contests
4. To find the factors such as theme or characters of game that move girls away from it
5. To investigate the time females spent on playing games

1.4 Game Introduction

This section provides a brief introduction to the game mentioning its purpose, selection, development, and modes.
Purpose of the game: to investigate the confidence level in females
Choice of game: a video game is selected to fulfil the necessities of the research
Development of game and the storyline behind it: the game is developed using the RPG tool and is based on three kingdoms, that are snow kingdom, desert kingdom and mountains kingdom. The game has multiple levels and associated difficulties. The game starts with the details of the story and then the user enters the 1st level of Snow castle. The gameplay also provides the option to save your progress during the game and if the user gets defeated, he/ she can resume the game from that saved point. There are various options of 'Attack', 'Magic', 'Guard' and 'Item' and have respective functions.

2 LITERATURE REVIEW

The literature review of this research hovers around the comprehension about the 'the role of women in technology' and 'females and gaming'. It paves a way for the research and then gives a detailed analysis on the different parameters that were incorporated in the research which help in getting the answers to various questions, taking in consideration the opinions of different authors. Some of the parameters have been discussed in this research paper which have been drawn from the work of various authors.

2.1 Technology and Females' Attitude

According to [20], the researchers performed quantitative research to investigate why women lack confidence in computer games as well as the reasons of their lack of interest and adaptation towards the technology. It also examines the causes of low representation of female in online gaming contests and how this affects their confidence in technological fields. The researchers are of the view that women generally have a negative attitude towards technology and that is why they hesitate in adopting it and getting benefits from it. Hence, they avoid the careers as well that are related to technological fields.

2.2 Female anxiety and Negative Stereotypes

2.2.1 Female anxiety:

According to the research of [29], confidence levels determine the relation between the genders, that is males and females, and their association with computers. The lower confidence of females refrains them from playing games and adapting to the technological advancements.

Hence, the use of computer in their lives is also decreased. The negative and conventional challenges related to computer as well as technology and the fear of failure has increased their abandonment from computers and gaming. This increases the anxiety in females which make them think that they are not capable of playing these games because they will fail. Gradually, this sense of inability chases them in other technological fields as well which decreased their confidence, and they hesitate in getting closer to technology [30]. Their technical expertise also gets highly affected due to which they are not hired at major roles in technological companies. This aspect increases the negative element in their minds, and they develop anxiety toward these fields. The researchers in [31] stated that lack of awareness and fewer skills in women have affected their behaviour as well which reduces their confidence, and they consider themselves as incapable to take part in games with boys.

2.2.2. Negative Stereotype of Females and Technology:

Research was conducted in UK, mentioned in [24], which examined the negative stereotypes about women role in STEM and the data was accumulated qualitatively as well as quantitively, after which the researchers concluded that although females were getting admissions in engineering and technological fields, their enrolment and representation was quite less. It is true that females are victim of gender stereotypes related to technological fields and are told that these fields are only suitable for men and are masculine in nature. This increases the anxiety in girls as they already have very low awareness regarding computers, and they start feeling uncomfortable when surrounded by them. They were not motivated to learn computer usage due to which their confidence levels were so low. Hence, in order to reduce their anxiety, women have to stand up and get close to computers to learn the new technological inventions.

2.3 Gender Gap

2.3.1 Gender Gap in Information Media:

Considering the results gathered in [33], it reveals that females contributing to any field in Wikipedia are 15% less than the total number of people involved in contribution. Hence, it can be seen that there is a hug gender gap in online platforms as well. This number is only of one site and there are millions of online information platforms which means that female involvement is quite less than men. It is a fact that females are not supported in online media fields due to which their representation is quite low. This is also supported by the research work done in [34]. According to [34], the researchers reached to a conclusion saying that there is a massive gap between the two sexes, that is, the males and females. It also stated that most of the fields have been heavily dominated by men and thus the females get a very low representation in every field in terms of information media online. They are only considered to do secondary work.

2.3.2 Gender Gap in Computer Games:

According to the research work done in [37] and [38], the researchers were of a view that there is a huge gender gap in computer games between males and females. The main reason they concluded was that the females are always discouraged to learn the technology, and this develops a fear in them which makes them hesitant towards computers. With time, they lose interest in games as well and their representation also decreases. To stop this from spreading further, women need to be encouraged by their parents as well as teachers to get involved in online practices like computer gaming to reduce the fear of technology they have in their mind. This would also decrease their anxiety and they would be more comfortable in a room with computers [37]. Another issue is that most of the games are male oriented due to which the females are not interested in gaming. This is because the game developers are mostly males, so they plan the game accordingly. And women interest shift towards puzzles [38]. Thus, there also lies a great need to develop games for females to enhance their interest in gaming which will slowly improve their interest in the fields of technology.

2.4 Gaming Statistics of Females

Computer gaming is an effective tool to measure the adoption and utilization of computer technology by students including males as well as females. Generally, it is seen that there is a lower female representation and participation in gaming contests in schools as well as universities. According to [57], the percentage of female gamers is 46% having an average age of 34 whereas that of males is 54% having an average age of 32. Out of these 46% females, 58% use their smart phones to play games. The main genres of the games played by the female are ‘Family/Farming Simulator’, ‘Casual’ and ‘Environment Exploring’ and games including action or shooting are least played by girls. These numbers reveal that the percentage of females is less, and the average age is higher than that of males which also implies that the young ones are not so attracted and attached to computer or mobile games. The study also shows that females have a lower threshold of confidence in these digital games. Also, most of them use their mobile phones for gaming purpose, which makes the computer usage by them very low.

3 METHODOLOGY

The methodology undertaken in this research paper is explained in this section. The survey and questionnaire have also been included and explained. The steps involved in game development have also been shown by the help of related pictures. The sample size and population are also mentioned along with the data collection and data analysis methods. his section introduces the methodology adapted for this research. The research strategy and approach are explained in this section. Also, the survey and game developed for this research are also explained in this section.

3.1 Research strategy and approach

The research method undertaken for this research paper is a mixed method, that is qualitative and quantitative methods of research. This strategy is devised because in this way the primary as well as secondary data collection are interpreted in a more effective manner [67]. The research question is based on quantitative and qualitative methods and is explained in a detailed manner in this section. Basically, a computer-based game which is played offline is developed and 'Controlled Behaviour technique' is taken into consideration [69].

3.2 Qualitative methodology

Qualitative methodology is performed with the help of literature review. The results show that females possess low confidence levels in computing gaming. They are hesitant towards adapting and utilizing the technological fields. Women have low patience levels and give up due to the fear of losing. This results in low representation of them in the gaming contests. In order to support the literature review implications, quantitative approach is chosen for this research paper so that research question of this paper is answered and analysed extensively.

3.3 Quantitative methodology

The Quantitative methodology in this research paper is performed on the basis of an experiment and questionnaire survey. The survey design is attached below, and the parameters incorporated in it are discussed in the results section. The survey design is explained below.

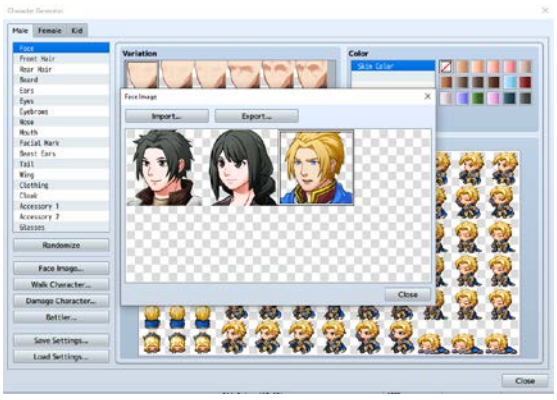
3.3.1 Survey design

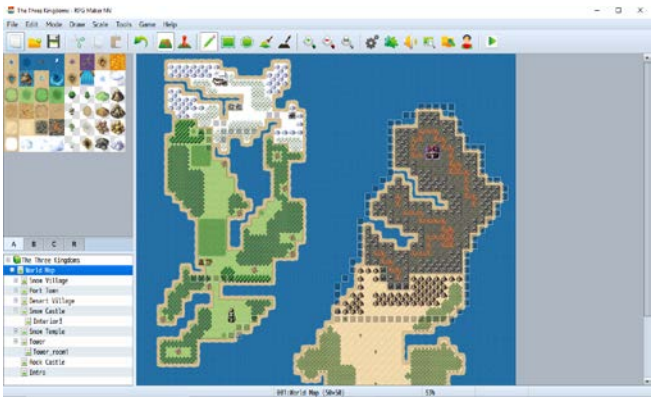
The questionnaire survey comprises of 10 parameters which help to extract primary as well as secondary data from the students who undertook the experiment. These 10 parameters exclusively accumulate the data regarding the females and their association with computer gaming and technologies. It helps in measuring their confidence levels once they have gone through the game. The details of the survey have been attached below.

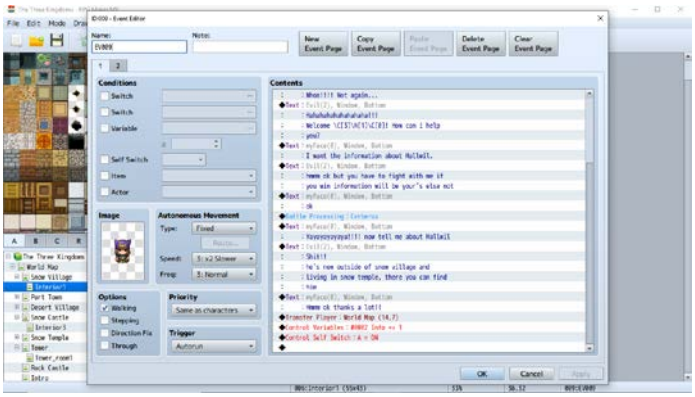
Parameter	No. of Questions	Types of Questions
Personal Information	3	Age, Gender, Education Level
Computer Use	Home Use: 9 Institutional Use: 9	Close Ended i.e. Yes, No Questions, MCQs
Gender Issues	13	Open Ended, Close Ended, Agree Disagree Scale Questions
Computer Science and Other Subjects	College Students: 3 University Students: 13	Close Ended i.e. Yes, No Questions, MCQs and Open Ended Questions
Leisure Time Preferences	1	Close ended MCQ
Questions regarding Game Played	8	Yes, No Questions, Open Ended and MCQs
Games and social media	19	Open Ended, MCQs, Agree Disagree Scale Questions
Students' Teamwork	4	Closed Ended MCQs
General Computer Related Questions	20	Open Ended, MCQs. Yes No and Agree Disagree Scale Questions
Computer Utilization	2	MCQs

3.4 Game development

The game is developed with the help of 'character generator' in RPG platform. Through this, the characters are easily developed and their facial features like eyes, nose, ears, clothes etc. are selected and a character is developed. The option of 'map' allows the development of map and different interfaces of the game can be created. A figure containing the 'control variable' on 'The Three Kingdom' has also been attached for more clarity.







3.5 Population and sample

Students in various universities of Pakistan are taken as the target population. The age group of the population is 17- 18 years. The sample population comprised of 100 students of which 50 were males and 50 were females. These 100 students belonged to Islamia University Peshawar. These students were from 3 departments, namely BBA, Computer Science and Botany. Students from one university are taken because it is not feasible to conduct experiment in every university. Hence, to make the results effective, these students belonged to three different departments of the university.

3.6 Data collection method

The data for the research was collected by carrying out an experiment. This experiment was conducted in the computer lab of Islamia University Peshawar. The participants were taken from 3 departments, that were, BBA, Computer Science and Botany. A time slot of 30 mins was given to the students undertaking the experiment. Controlled behaviour technique was used by the researcher to measure the progress of the participants. This technique was meant for the participant to obtain a fair result as a specific game was given to them. They could not play a game of their own will.

3.7 Experiments for checking confidence levels

The experiment was performed with the students of Islamia University Peshawar which belonged to three different departments that are BBA, Computer Science and Botany.

3.7.1 Scenario 1

At first, the students, males as well females of BBA department were asked to play the game on computers in the university's computer lab. As the students played the game, the researcher jotted down the concerned points in terms of complexity of the game. Both the males and females were examined. After playing for 30 minutes, the students were given a survey form to fill, and their progress was noted down by the researcher.

3.7.2 Scenario 2

This time, students from Computer Science department were asked to play the game. During the gameplay, the researcher inspected the students who undertook the game. They were then presented a survey form so that results from the experiment could be drawn to deduce implications from it.

3.7.3 Scenario 3

A similar form was given to the students of the Botany department as well. The students, males and females, were asked to play a game and their progress was examined by the researcher. After the completion of the game, the students were asked to fill the survey form.

3.8 Data Analysis Methods

In this research paper, the data analysis method was done by interpreting the observations made by the researchers during the time when the game was being played by the students, that is males and females. MS Excel was used for the analysis of the responses obtained from the survey and then Graphs and Charts were drawn. In the upcoming section, that is, results and discussions, the charts have been discussed in detail and implications from those results have been drawn out. The conclusions from the graphs are explained according to the research questions through qualitative analysis.

4 RESULTS AND DISCUSSION

This section mentions the results gathered from the experiment and surveys and the various parameters are also discussed in this section.

4.1 Experiment results

The research incorporated two ways of data collection from this experiment. First, to explore the attitude with existing games played by males and females, online as well as offline. Second, controlled behaviour technique is applied, and the results are drawn.

4.2 Sample population

The sample population for this research comprised of 100 students from Islamia University Peshawar i.e., 50 boys and 50 girls. Three departments were selected for the experiment including BBA, Computer Science and Botany.

4.3 Survey results

The questionnaire developed by the researcher comprised of 10 parameters. After the collection of data, MS Excel is used to draw charts to form a correlation between the males and females' behavioural patterns. The results of the parameters are explained below and their respective table and chart is attached up in the Appendices section.

4.4 Parameters

4.4.1 Parameter 1

Table 1 shows that women had lower representation in computer science department.

4.4.2 Parameter 2

Table 2 states that 10% females never used computer at school or university level. Hence, the institutes should focus on encouraging females to user computers more often. Graph 1 tells that majority of the students had a computer at their home and its usage is not linked with its availability. Graph 2 states that most of the students used computers at home but the usage is different for boys and girls. The results from graph 3 state that males prefer to play games online whereas females prefer to do work related assignments online. Graph 4 states that boys are more encouraged to use computer than girls. According to graph 5, the teachers must encourage girls in institutions to use computer more often.

4.4.3 Parameter 3

Table 3 states that female teachers can work well on computers. Graph 6 states that males and females get equal benefits in computer fields. Graph 7 states that males have a higher confidence level than females. According to graph 8, females have low representation due to low confidence levels. Graph 9 shows that women apply in lower grade posts in computer fields due to lesser support from the family.

4.4.4 Parameter 4

Graph 10 states that majority of the students had computer awareness. Graph 11 states that female have fewer preferences for computer fields than males. Table 4 shows the negative effects on females due to the STEM field.

4.4.5 Parameter 5

Graph 12 reveals that females are more interested in using computer if they are being supported by their parents.

4.4.6 Parameter 6

Graph 13 states that males prefer action games whereas females prefer adventure games. Graph 14 shows that females have low patience levels, and they give up easily and lose their interest if they fail. Graph 15 states that males judged the game as fighting whereas the females recognised it as adventure. Graph 16 shows that females are more focused during playing games.

4.4.7 Parameter 7

Graph 17 reveals that females have 1 social media account and males have more than one account. Graph 18 states that females in real life participate in lesser games than males in the fields of computer. Graph 19 shows that females like computer games due to the boundaries set by the society in playing physical games. Graph 20 tells that female play games with more focus and excitement. Graph 21 states that females like to play offline games due to the online harassment. Graph 22 tells that male have a higher strength in gaming via mobile phones. Graph 23 tells that female like puzzles whereas males like fighting games. Table 5 states that gaming portrays positive effects on everyone.

4.4.8 Parameter 8

Graph 24 shows that females perform well in teams as compared to males. Graph 25 implies that working with opposite gender is the reason of low representation of females in gaming.

4.4.9 Parameter 9

Table 6 states that women are far behind in fields like computer because they think that they are not expert enough to play games in the male dominated era. Graph 26 states that cultural issues indirectly affect the low representation of females in computer gaming. Graph 27 tells that female enjoy more than males while working on the computers. Graph 28 tells that female consider time spending on computer as a waste. Graph 29 shows that women can perform well in STEM due to their self-confidence. Graph 30 states that females are scared while playing on computers and they get uncomfortable. Graph 31 tells males are confident whereas females are nervous when playing games on computer. Graph 32 states that female have a lesser number involved in computer gaming. Graph 33 tells that female are dependent on others to solve their related problem.

4.4.10 Parameter 10

According to graph 34, a smaller number of females are involved in the use of computer and those who are using, avoid technical tasks relative to males.

5 CONCLUSION

The results and discussion section comprehensively talks about the charts drawn from the survey result. The research question 'why females show less confidence in accepting and adapting the technology' is extensively answered. The ten parameters mentioned in the survey form were very effective and proved vital in obtaining the implications of the results. The results revealed that the lower confidence of females was due to the lack of knowledge and attention towards the technology. The females had little or no experience in playing computer games. They had a fear of losing the game due to which they did not play it in most of the cases. STEM and other technology related fields are male dominant and females hesitate in advancing in these fields. Hence, their representation decreases in terms of technological fields. If women develop a positive attitude towards these computer games, they will certainly develop interest in them and would learn a lot about the new advancements. Thus, they would get better opportunities in the future. But the females are deviated towards offline games due to harassment and bullying on online platforms. They mostly play games on their cell phones so that they have negligible experience of playing games on PC. Thus, they do not participate in gaming contests in their universities because they get uncomfortable near PCs. The female behaviour in some cases has accepted that they cannot play online games because they are tricky. Due to this, their overall representation is very low, and their confidence is shattered, and they have gone far behind men in these fields. In developing countries like Pakistan, cultural and societal norms also grow boundaries against women to play computer games as they consider it a sign of masculinity. The research shows that there are numerous reasons to lack of confidence in females in gaming and it is the need of the hour to indulge females in STEM and technological fields to grow awareness among them and help them improve their lives in the future.

7 APPENDICES

7.1 Appendix A

Table 4-1: Demographics of Participants

Demographics						
	Males			**Females**		
Age	17 Years	18 Years	19 Years	17 Years	18 Years	19 Years
	40%	60%	0%	28%	72%	0%
Gender	50%			50%		
Department	BBA	Computer Science	Botany	BBA	Computer Science	Botany
	44%	22%	34%	38%	10%	52%

Table 4-2: Computer Use Parameter

Question	Options	Males' Responses	Females' Responses
How often you use computer at home	Weekly	34%	32%
	Daily	49%	44%
	2-4 times a week	17%	12%
	never	0%	2%
Do your Parents support or encourage you for using computers?	Yes	86%	80%
	No	14%	20%
How often do you use the computer at educational institute?	Never	4%	10%
	Once a month	2%	2%
	2-4 times a month	6%	6%
	Once a week	64%	62%
	Daily	16%	12%
	Twice a week	8%	6%
	Once every 2 weeks	0%	2%

Table 4-3: Gender Issues Parameter

Question	Options and Responses				
	Strongly Agree	Agree	Certain	Disagree	Strongly Disagree
Computer gives more benefits to men than women	Males: 2% Females: 2%	Males: 2% Females: 8%	Males: 8% Females: 16%	Males: 42% Females: 38%	Males: 46% Females: 36%
Females teachers have less skills than male teachers	Males: 6% Females: 0%	Males: 10% Females: 12%	Males: 10% Females: 8%	Males: 30% Females: 32%	Males: 44% Females: 48%
Men work more creatively with computers than women	Males: 4% Females: 0%	Males: 20% Females: 18%	Males: 6% Females: 8%	Males: 40% Females: 42%	Males: 30% Females: 32%
In computer class male teachers consider women role as unrecognized or do not support them	Males: 32% Females: 22%	Males: 22% Females: 28%	Males: 30% Females: 22%	Males: 10% Females: 18%	Males: 6% Females: 10%
In computer class male teachers consider men as main role	Males: 24% Females: 28%	Males: 26% Females: 22%	Males: 18% Females: 20%	Males: 22% Females: 20%	Males: 10% Females: 10%

Table 4-4: Computer Science & other Subjects Parameter

Question	Males' Responses	Females' Responses
If you consider there are any subjects' boys' study or take interest more than girls, which subject's boys' study more? (Choose all that apply)	Doctor: 12% Dentist: 8% Biology Sciences: 4% Pharmacy: 18% Agriculture: 12% Law: 10% Education: 2% Physical Sciences: 6%	Doctor: 10% Dentist: 0% Biology Sciences: 6% Pharmacy: 2% Agriculture: 4% Law: 10% Education: 0% Physical Sciences: 6%

	Computer Sciences: 6% Engineering: 30% Technologies: 4% Urdu: 0% English: 6% Social Studies: 2% BBA: 14% Software Engineering: 24% Mathematics: 26% Arts and Design: 0%	Computer Sciences: 30% Engineering: 46% Technologies: 8% Urdu: 0% English: 0% Social Studies: 4% BBA: 12% Software Engineering: 40% Mathematics: 20% Arts and Design: 0%
Do you consider there are any subjects' girls' study or take interest more than boys?	Yes: 76% No: 24%	Yes: 98% No: 2%
If you consider there are any subjects' girls' study or take interest more than boys, which subject's girls' study more? (Choose all that apply)	Doctor: 30% Dentist: 12% Biology Sciences: 28% Pharmacy: 14% Agriculture: 6% Law: 4% Education: 8% Physical Sciences: 4% Computer Sciences: 4% Engineering: 2% Technologies: 0% Urdu: 4% English: 18% Social Studies: 8% BBA: 4% Software Engineering: 2% Mathematics: 4% Arts and Design: 14%	Doctor: 48% Dentist: 10% Biology Sciences: 36% Pharmacy: 20% Agriculture: 2% Law: 12% Education: 8% Physical Sciences: 4% Computer Sciences: 0% Engineering: 0% Technologies: 0% Urdu: 14% English: 28% Social Studies: 8% BBA: 8% Software Engineering: 0% Mathematics: 2% Arts and Design: 26%

Table 4-5: Games and Social Media Parameter

Question	Options and Responses				
	Strongly Agree	Agree	Certain	Disagree	Strongly Disagree
I will delay or even skip daily tasks for play games.	Males: 6% Females: 6%	Males: 28% Females: 12%	Males: 20% Females: 30%	Males: 28% Females: 34%	Males: 18% Females: 18%
I prefer to play games rather than go out with friends or family	Males: 22% Females: 2%	Males: 16% Females: 8%	Males: 6% Females: 4%	Males: 34% Females: 40%	Males: 22% Females: 46%
Does gaming have positive effects on health?	Males: 18% Females: 10%	Males: 18% Females: 30%	Males: 10% Females: 12%	Males: 38% Females: 36%	Males: 16% Females: 12%
Can we make friends through gaming?	Males: 12% Females: 14%	Males: 62% Females:	Males: 12% Females:	Males: 10% Females:	Males: 4% Females: 4%

		50%	16%	16%	

Table 4-6: General Computer Related Parameter

Question	Options and Responses				
	Strongly Agree	Agree	Certain	Disagree	Strongly Dis-agree
Do you think working with computers have to sit in front of computer for many hours?	Males: 8% Females: 8%	Males: 62% Females: 44%	Males: 14% Females: 18%	Males: 2% Females: 24%	Males: 14% Females: 6%
Do you think computer is a very tough field?	Males: 8% Females: 12%	Males: 40% Females: 36%	Males: 24% Females: 18%	Males: 18% Females: 28%	Males: 10% Females: 6%
Do you like to work with computers?	Males: 14% Females: 18%	Males: 68% Females: 54%	Males: 12% Females: 16%	Males: 4% Females: 10%	Males: 2% Females: 2%
Most computer scientists are men	Males: 10% Females: 12%	Males: 66% Females: 64%	Males: 12% Females: 14%	Males: 10% Females: 10%	Males: 2% Females: 0%
For using computers, you have to be expert in computer	Males: 18% Females: 10%	Males: 38% Females: 44%	Males: 20% Females: 22%	Males: 6% Females: 18%	Males: 18% Females: 6%

7.2 Appendix B

Left image shows males results and right image shows females results. ‘P’ means parameter and ‘Q’ means question,

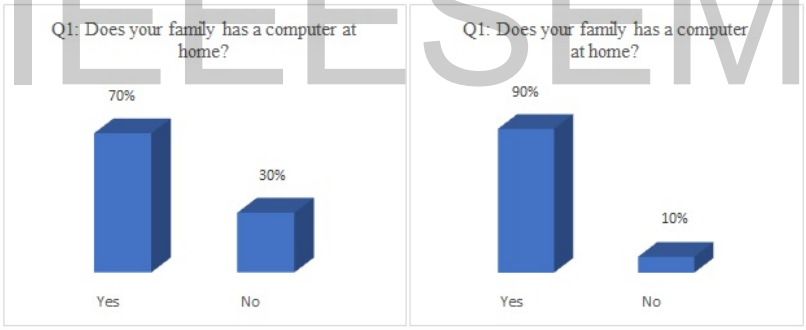


Figure 4-1: P2 Q1

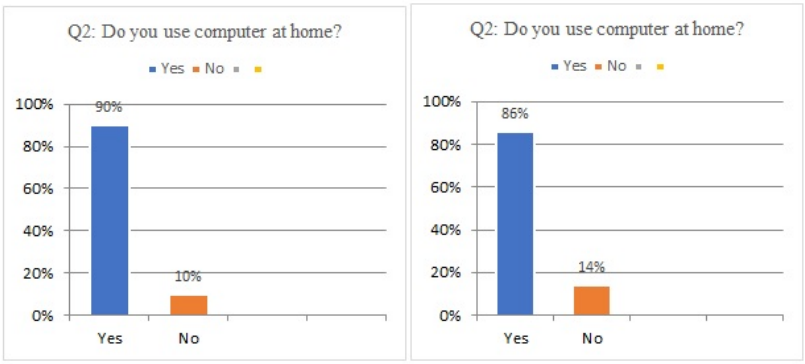


Figure 4-2: P2 Q2

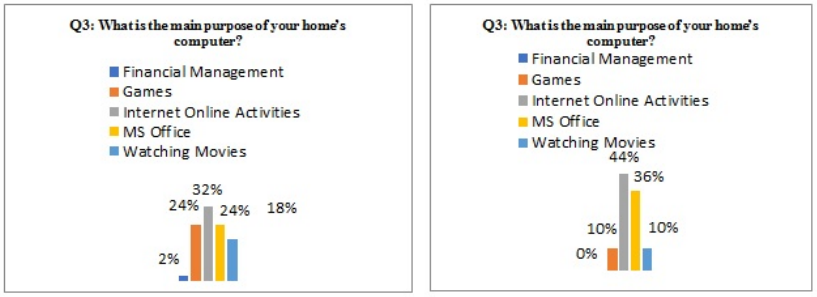


Figure 4-3: P2 Q3

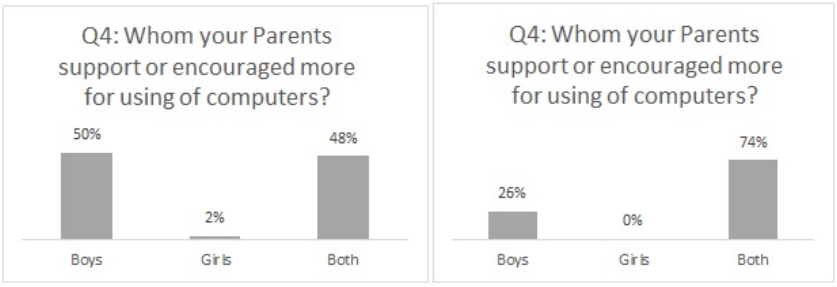


Figure 4-4: P2 Q4

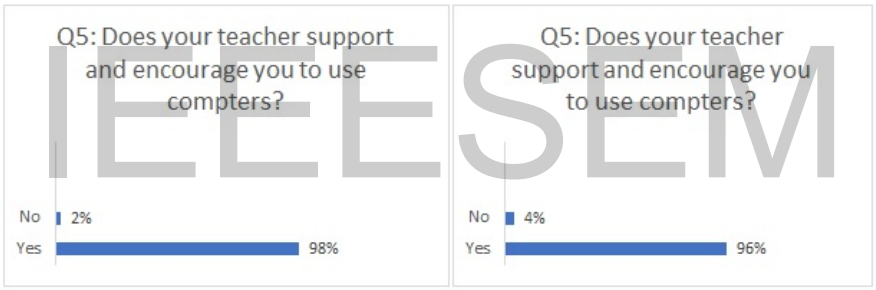


Figure 4-5: P2 Q5

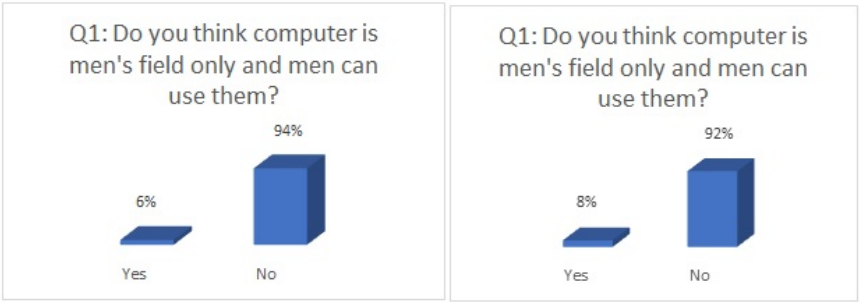


Figure 4-6: P3 Q1

Figure 4-7: P3 Q3

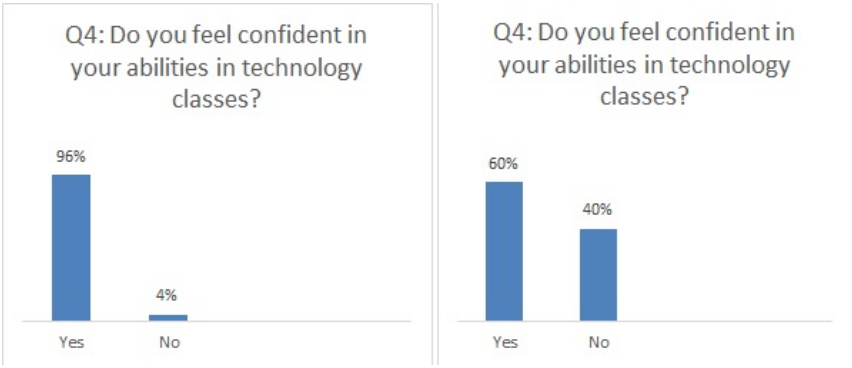


Figure 4-8: P3 Q4

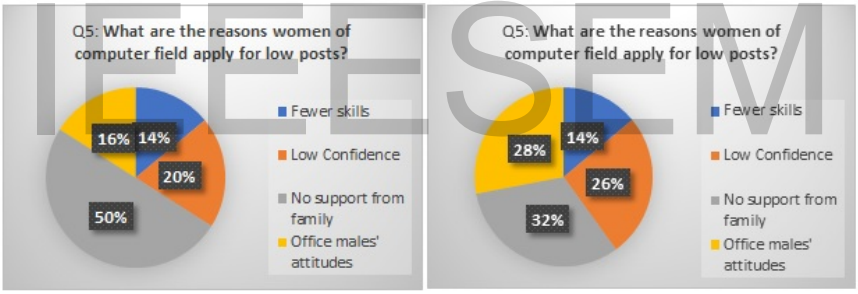


Figure 4-9: P3 Q5

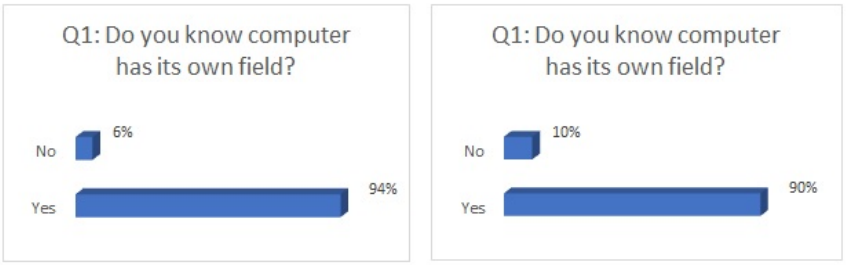


Figure 4-10: P4 Q1

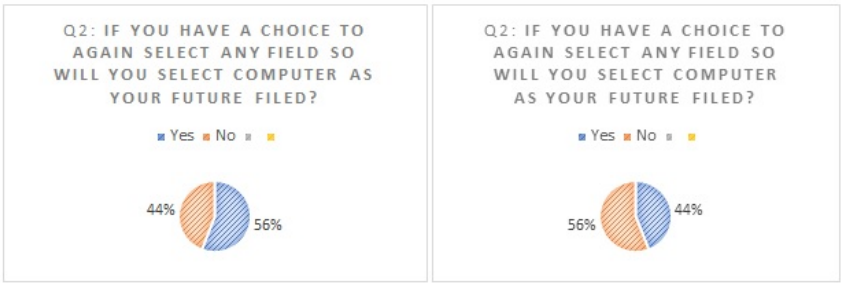


Figure 4-11: P4 Q2

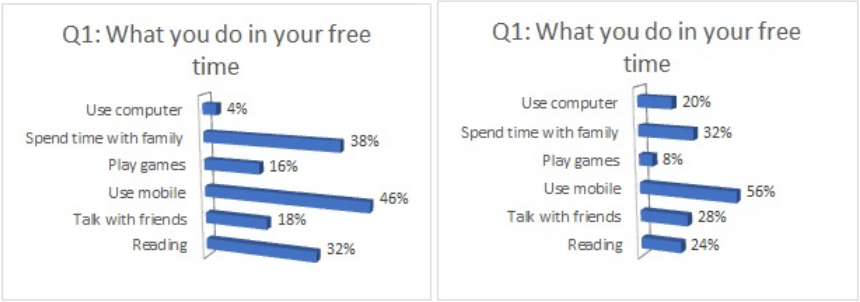


Figure 4-12: P5 Q1

Figure 4-13: P6 Q1

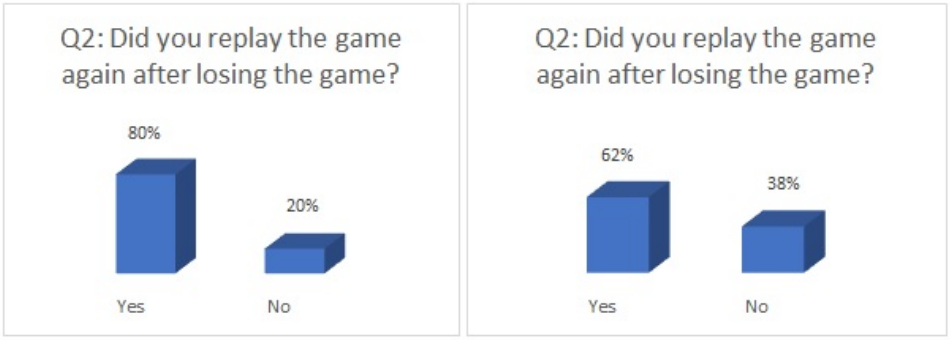


Figure 4-14: P6 Q2

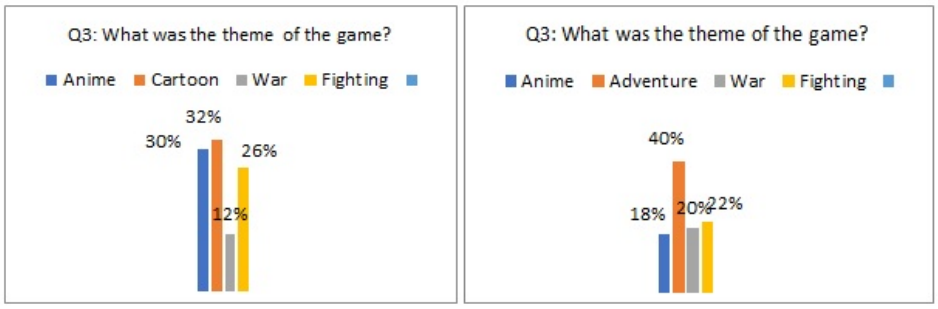


Figure 4-15: P6 Q3

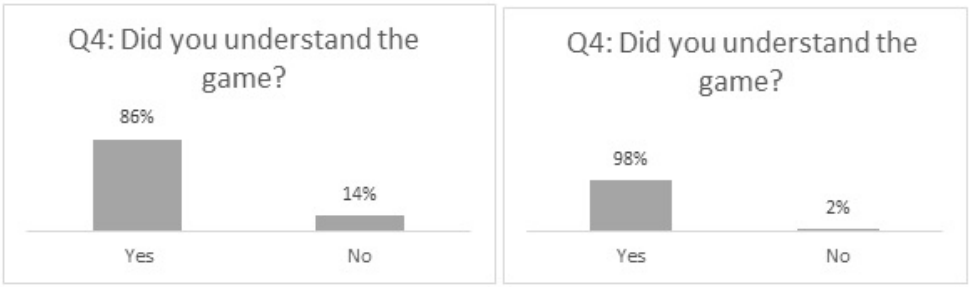


Figure 4-16: P6 Q4

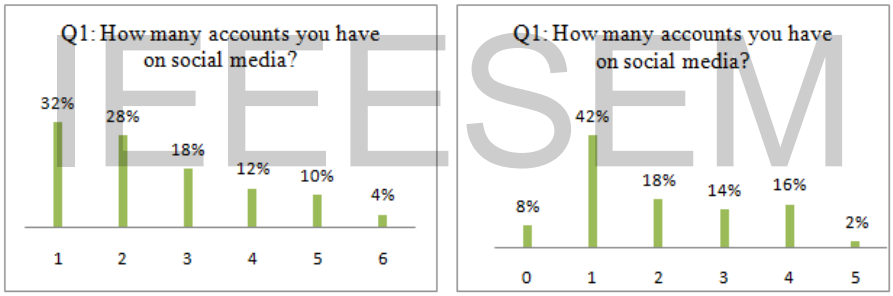


Figure 4-17: P7 Q1

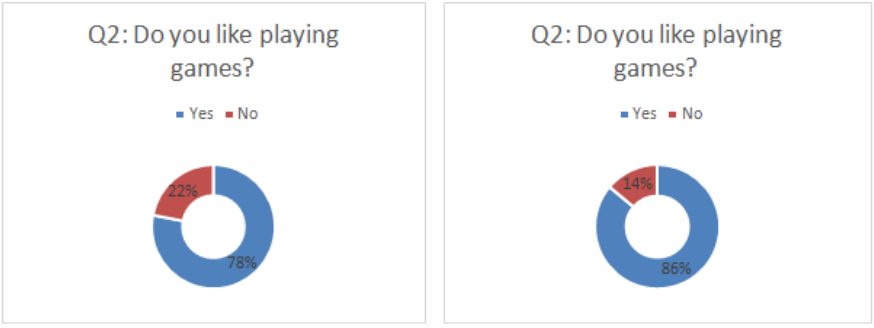


Figure 4-18: P7 Q2

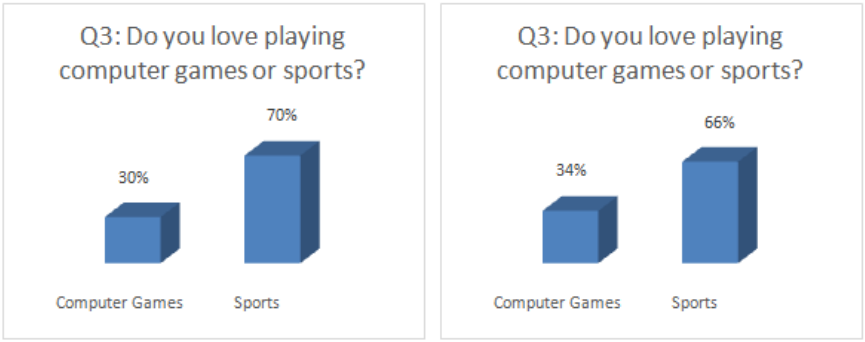


Figure 4-19: P7 Q3

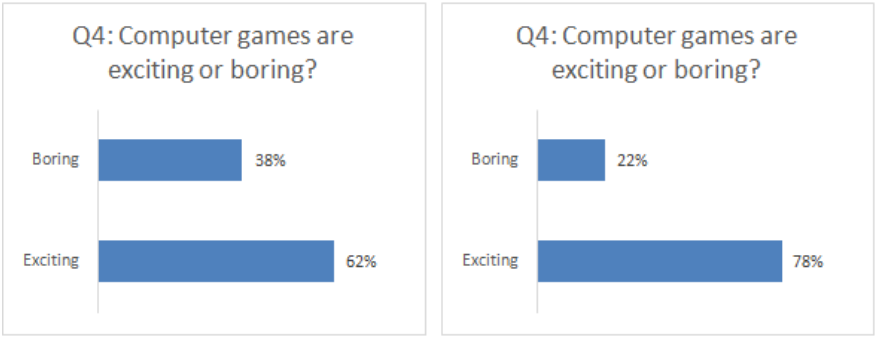


Figure 4-20: P7 Q4

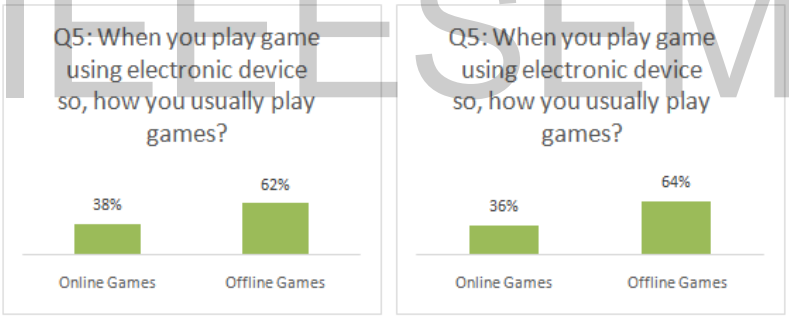


Figure 4-21: P7 Q5

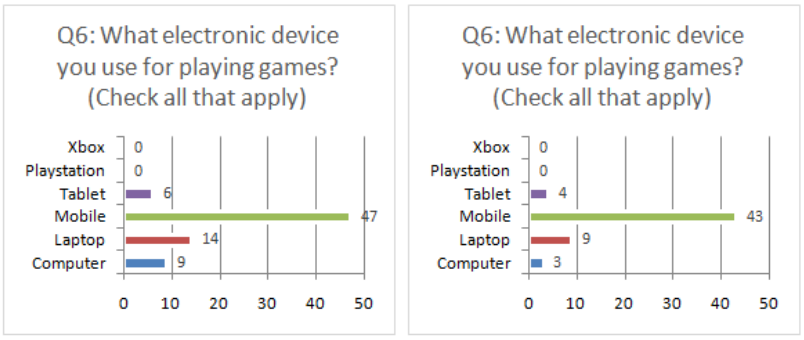


Figure 4-22: P7 Q6

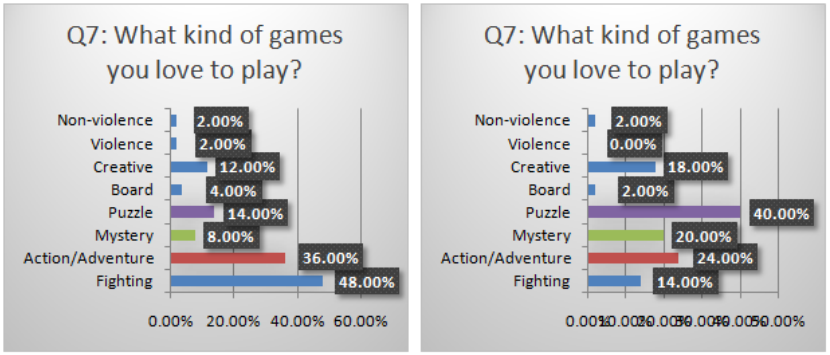


Figure 4-23: P7 Q7

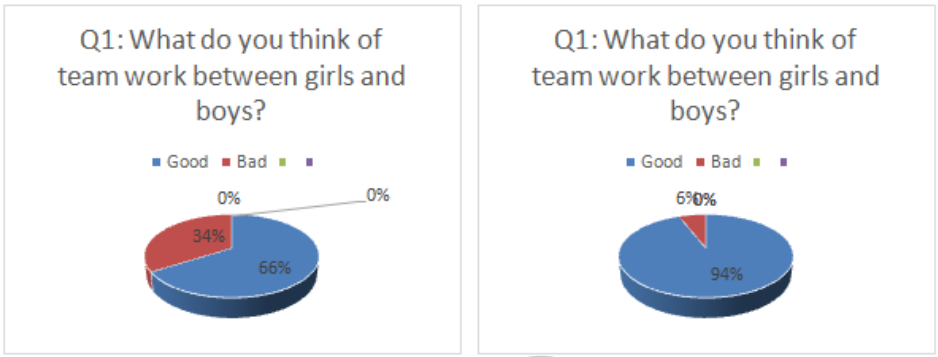


Figure 4-24: P8 Q1

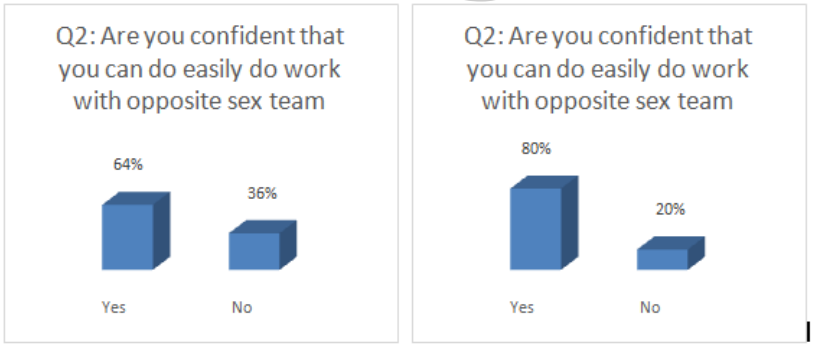


Figure 4-25: P8 Q2

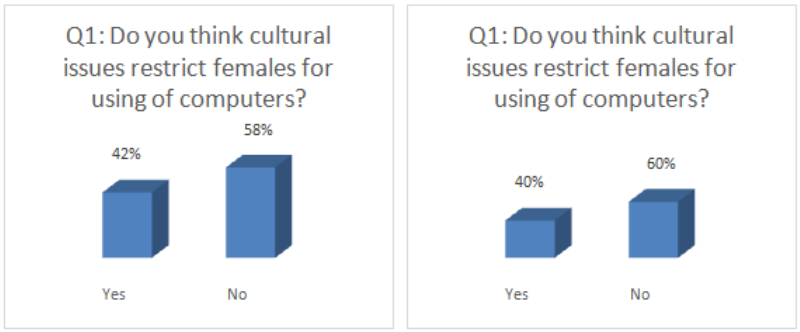


Figure 4-26: P9 Q1

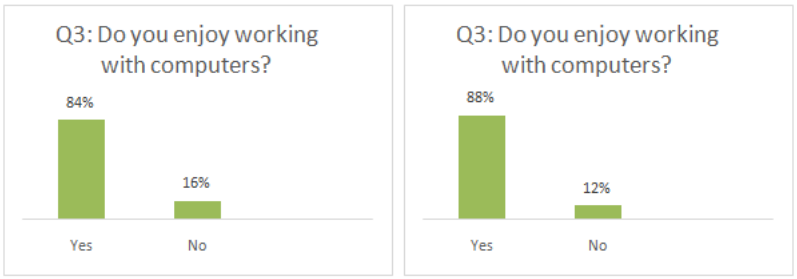


Figure 4-27: P9 Q3

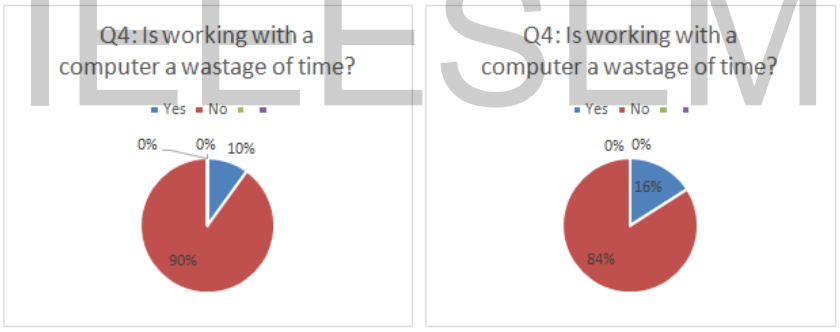


Figure 4-28: P9 Q4

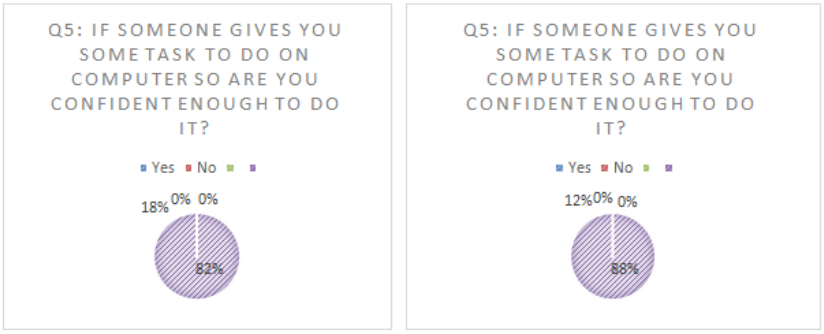


Figure 4-29: P0 Q5

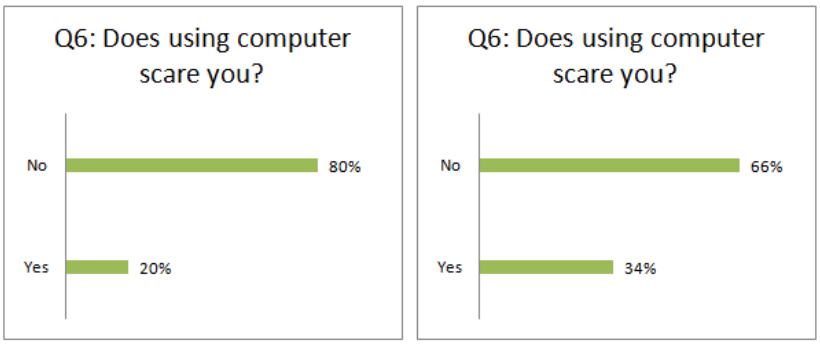


Figure 4-30: P9 Q6

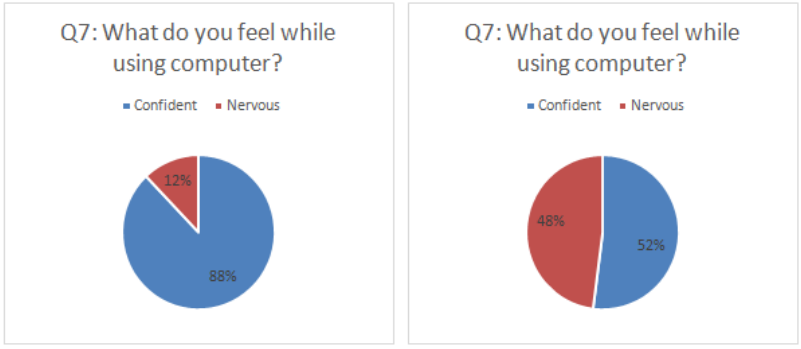


Figure 4-31: P9 Q7

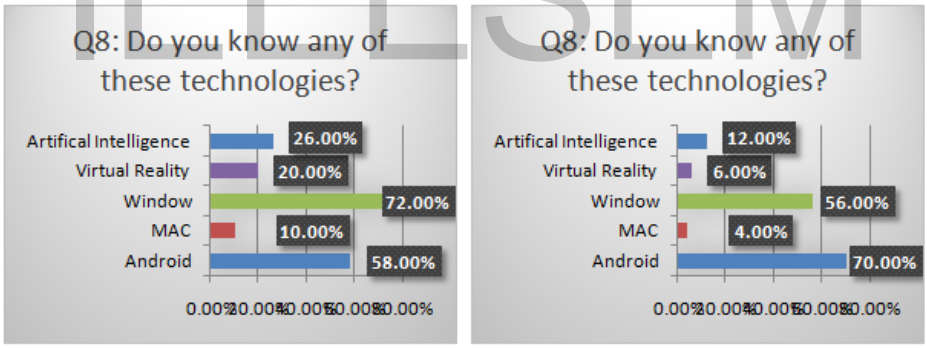


Figure 4-32: P9 Q8

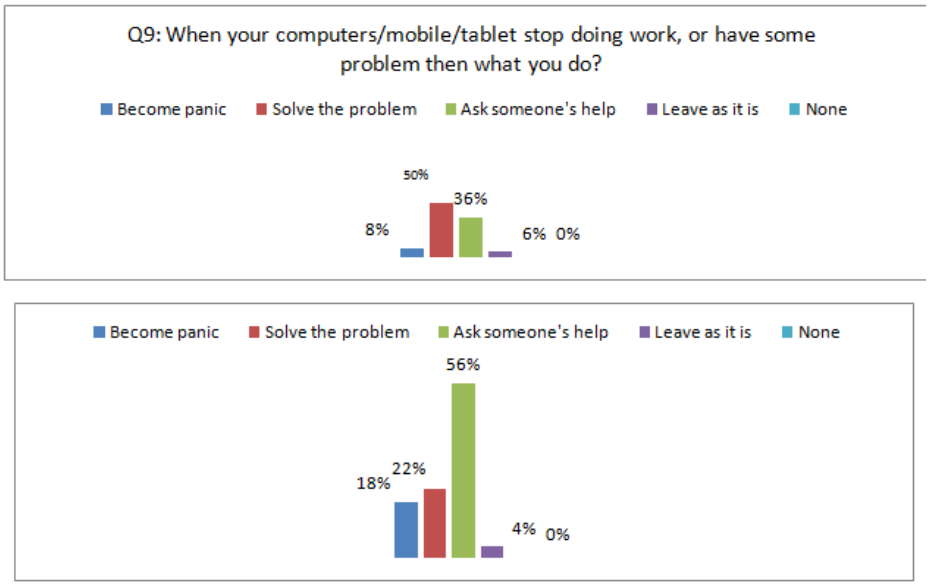


Figure 4-33: P9 Q9

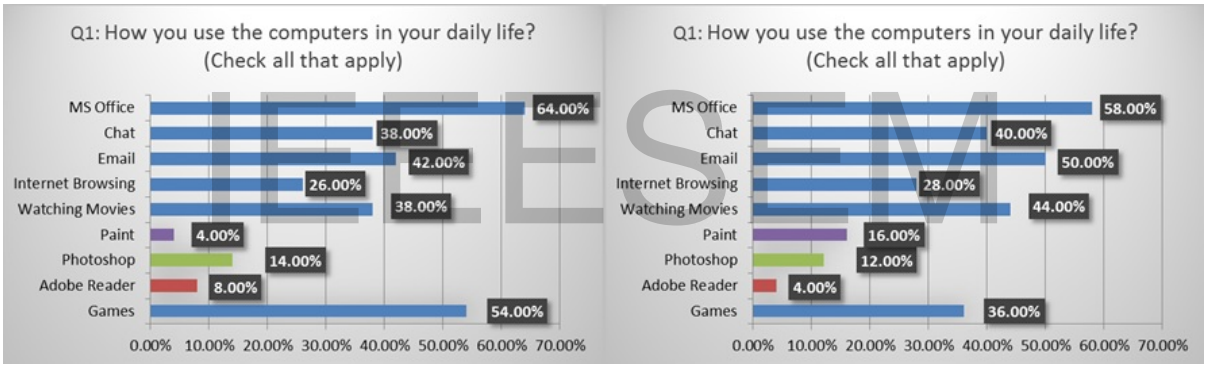


Figure 4-34: P10 Q1

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