A Scholar Case Study of IT Education Knowledge Through Practice for Development in a Post-Conflict Region Kosovo:
Increased Investment in Private Education

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ABSTRACT

The technological advancements have enormously changed the way humans live today. According to literature studies, countries that have placed a strong emphasis on the IT revolution could benefit from the rewards of the industrialization era. The study's conclusions have drawn attention to Kosovo's lack of computer applications and IT integration in its educational system. The facts highlighted that Kosovo faces a lack of incorporations of computer application and IT in their educational system. There exists a significant disparity between the public and private educational institutes in this nation in terms of emphasis on IT in their educational system. It has been observed that more emphasis is being given in private sector educational institutes on IT incorporation in these schools and associated curriculums. The survey research has been conducted in person in schools and universities of Kosovo.

KEYWORDS

IT, Modern Education, Post-Conflict, Sustainable Development

INTRODUCTION

Based on the latest country profile as of 2017, the Republic of Kosovo can be observed to be a territory stretching to 10.908 km2. The Republic of Kosovo has approximately 1.9 million people residing in the country. In context to the location of the nation, it is situated in South-East Europe, which is surrounded by other nations like Albania, Montenegro, Macedonia and Serbia.

Kosovo is a subject of a complicated past, as a part of Serbia for over one century. After a conflict in 1999, Kosovo became administered during the transition from United Nations Mission in Kosovo (UNMIK).

As an emerging country, Kosovo experiences a rigid transition from its tremendous past and volatile present system. For over two decades, developing countries are inflowing aid to help the country move from a post-war condition to a developing society, considering its mostly unemployed substandard population (World Bank, 2016; Kosovo Country Profile, 2017; Bellaqa & Bashki, 2021).

Bellaqa (2021) argues that most weak business cases found in the literature were poor economic development-low skills and productivity-related (Bellaqa, 2021).

Education problems include factors similar to the problems of economic development. Issues within education in developing countries, typically relate with finance and the lack of knowledge in technology, through missing skills and computer literacy (Ihesiene, 2014; Krasniqi, 2016; Krasniqi, 2010; Berisha, 2009; Soni & Veseli, 2011).

The role of IT in economic development is crucial, since the element of success and growth of jobs and trade market, is allowing information share and business in an instant time (Caputo et al, 2018; Riza, Ajdari & Hamiti, 2023). Particularly in developing countries, IT contributes to reducing production costs for business growth and advanced communication (Majeed, 2018).

Due to the mentioned lack of technological skills, one of the major concerns of enterprises in this nation is their development and performances associated with IT and innovation, which has resulted in these enterprises shifting their focus on these aspects of their operation (Walrave & Gilsing, 2023).

Considering numerous the issues mentioned above, the research aim is to find out the level of digitalization available in post-conflict regions like Kosovo. Whether the digitalization available can provide necessary knowledge and practice.

Furthermore, the study would focus on the scope and the current situation in the private sector. The study would also aim at analyzing the present situation of higher education in Kosovo. In this context, the availability and use of IT in schools, and emphasis on subjects and research would also be analysed.

BACKGROUND

IT Implementation, Solution for Modern Sustainable Education

Information technology in theory deals with comprehensive cutting-edge information, but the technology application is effective only when science or knowledge is put into practical use. One of many Information and Communication Technology ICT theories is cognitivism, a concept that argues about the need of acquiring knowledge through experience.

Compeau and Higgins in 1995, based on social cognitive theory argue for technology acceptance theory, on the model of how teachers preservice their intentions to use ICT for teaching in the future (Compeau & Higgins, 1995). Based on a similar theory Bozdogan & Ozen 2014 worked on the technology acceptance model TAM, and concluded that the majority of teachers find themselves self-efficacious in the ICT use for teaching (Bozdogan & Ozen, 2014; Sayaf et al, 2022).

IT for Education Sustainable Development ESD can assist in deficient knowledge issues, missing skills and computer literacy in the young workforce to come. It is an assuring process of applying modern education, that will direct human resources towards economic restoration, and globalization, to implement skillful world for sustainable goal standards (Barryman & Sauve, 2020).

Pioneer of modern education Adamson in 1921, argued in defense of direct and unmistakable relationships between theory and practice, through devices that took the earliest modern shape in education (JW Adamson, 1921).

The latest theory argues about the integration of knowledge between theory and practice in 'project-based learning in secondary education', but also argues that life's tasks require a different form of interdisciplinary knowledge and practice (Helle et al, 2006; Brewer & Cunningham, 2023).

Modernized skills especially in IT are essential to achieve environmental sustainability (Komatsy & Rappleye, 2023). New devices are vital for functions in modernized appliances: help cut energy waste and storage for clean air, plastic recycling for degradation, world communication for a global market economy, accessible solar energy for poverty (Bibri & Krogstie, 2020).

The advancement of varied technologies is an indication of modernized education. Many things line with modern understanding (Wu, Zhan, 2012). Modern education has been considered a process of the rapid growth of the volume of information. In cognition, the process is a method of turning the acquisition of knowledge environment into entertaining Edutainment. When technology

implementation with forms of entertainment is included in traditional lectures, is a feature of Edutainment (Anikina, Yakimenko, 2015).

John Dewey greatest American philosopher emphasized that for human existence, learning is fundamental. He also pointed out that for problem-solving skills, the development of creativity is important, and at no point, is education to be an unpleasant process (Devey, 1897). Noddings argued as well that, the main aim of education should be the happiness of human life (Noddings, 2003). Zuhal quoted Buckingham D (2005), to define Edutainment hybrid education model. Mostly based on visual material and in a game, form tends to be less formal (Okan, 2003; Siripipathanakul et al, 2023).

Technology in education allows interesting ways and opportunities. The main motivation claimed is the learning conditions improvement through flexible education per individual adjustment (Erneling, 2010; Jobirovich, 2022). It is also an interesting way of the combination of traditional with new technology. Allows students through creativity to study their activities and practical results (Scanlon, 2005).

According to the European Commission, non-formal and informal education are going to be increased for more student focus, and relationship and meaningful learning environments (Cerrny, 2015; Jones & Brady, 2022).

The era of the 21st century is a technological one. Modern students prefer to use technology in their learning because they find it more attractive when aided by it. ICT has a tremendous impact on education for active learning, collaboration and cooperation (Tinio, 2002; Alaida et al, 2020).

The positive impact enhances teaching and learning with no geographical limitations. The negative impacts lie mostly on writing skills decline, lack of focus and cheating possibilities (Raja & Nagusbramani, 2018). Still, in the case of Wasit University, innovation education is utilized from education at large in the classrooms to use time viably.

The latest UNICEF research reports a lack of modernized skills resulting from poor quality of education. Even young students in Kosovo are very eager for innovation and a modern one (UNICEF, 2011). This research intends to examine young students' practice learning perspective, regarding technology availability and use in Kosovo, from primary to tertiary education level.

Youth in Kosovo is considered to be an important demographic group in Balkan and Europe. Kosovo has the youngest population in the continent of Europe with over 50% of it. Youth is considered the main driving and prosperous force for a country's future. Even as a majority, young people were left out after the war in government decision-making (MCYS, 2017). Small research has been done on education issues in regions of post-conflict, like Kosovo. In Kosova, there are insufficient research materials available, especially ones that include direct youth opinions.

Research Objectives

The focus of this study is the examination of the availability and use of IT in the Kosovo education system. The aim is to:

- To identify the availability of computers in schools;
- To quantify the computer knowledge provided, or deficiencies in the schools examined;
- To measure the level of computer practice in the education programs;
- To examine the difference between the public and private sectors;
- To examine the usage of computers in schools, in IT subjects, and in other teaching formats; and
- To explore the IT availability provided for students in higher-level education.

Research Questions

The study explores the following research questions:

- What is the availability of digitalization in the education systems of post-conflict regions?
- How regularly does digitalization provide the necessary knowledge and practice in Kosovo schools?

- Is there a difference between public and private sectors?
- Are computers used only in IT subjects, or as well as for non-IT subjects?
- How often are college or university students using computers, and are there sufficient computers available to conduct research?

Post-conflict countries with low economic development lack available resources, knowledge and practice, of IT in their education systems. Mainstream approaches to identify education practices that are potentially useful for richer synergies (Komatsu & Rappleye, 2023). To examine this further, we test the following hypothesis:

H1: Most of the primary, secondary and tertiary-level schools in Kosovo do not have computers available to provide IT knowledge in education.

H2: Schools that have computers available do not have a sufficient number for everyday use in classes with a slight difference in private sector education.

H3: The computers, when available and used in schools, are mostly for IT subjects and few or none are available for use in non-IT subjects; there is minimal availability for research purposes in higher education.

LITERATURE REVIEW

A Solution in Other Countries Sustainable Education

Sustainable education development to enlist everyone became a phrase approaching the end of the 20th century. The 1992 earth summit in Rio de Janeiro, produced the agenda for Education, Training and Public Awareness. On Education issues, it was agreed that adult illiteracy is cut by half, possibly education for all children (RIO, 1992).

World conventions continued with the Johannesburg Summit for sustainable development (UNESCO, 2002). A decade later the next level of Sustainable Development introduced the Education notion on top of it (UNDESD, 2014).

Nikolai Marfenin theorized that "modern ideologies should be based on a choice between short-term and long-term-benefits", which raises the importance of the idea of ESD ([Marfenin, 2007] in Ursul & Ursul, 2018).

ESD was promoted as the best form of education for sustainability based on critical reflection in twenty-first-century learning (Alam, 2022). A learning approach to provide quality education, human development and transform oneself and society (UNESCOBKK, 2017). Malone and Somerville argue that ESD besides those leading to transformative change in the student, it does also activate critical thinking and collaborative decision-making among them (Malone and Somerville, 2015; Al-Nuaimi & Al-Ghamdi, 2022).

As opposed to traditional teaching based on memorization, ESD is an approach that deals with concrete teaching. It is a pedagogy that promotes cooperation and collaboration, and among others serves to meet students' needs (Yamaoka, Ochiai, 2022).

According to Laurie, in practice, EDS is real-world education because the concrete knowledge that students gain contributes to the developing economy (Alharbi, Elfeky & Ahmed, 2022). A higher knowledge of practical issues and real-world problems, generates higher competence in future work problems (Laurie et al, 2016). Students should be the central component of education (UNESCO MOD 23, 2017).

Different countries have different perspectives on ESD. Korea's perspective on ESD is; actual problem-solving skills for students, similar to Sweden; they get further in knowledge and development and work on meaningful perceptions. Curriculum with ESD increases student commitment, engagement and self-esteem/awareness like in Canada, Germany, Japan, and Estonia. The main goal

is to support the majority of students in developing knowledge, values and skills for a sustainable future and development (UNESCO, 2017).

IT for Sustainable Modern Education, Solution Reforms

One of the most significant challenges of the 21st century is sustainable development (Pearce & Atkinson, 1998). To be sustained is to support life by developing people in education, economy and through that a regional society (Haghseta, 2003). The significant trend of rapid development and application of IT is a revolution that leveraged sustainable development, especially empowering developing countries.

Experiential learning is a process of engaging one which is based on learning by doing. It is an opportunity for students to engage intellectually, creatively, and physically (McCarthy, 2016). In a case study in Malaysia and Arabia, the research on a technology acceptance model showed that; students had high intention and satisfaction with technology use in education. It was considered ICT to have a significant influence on sustainable education (AL-Rrahmi et al, 2020).

A development learning process that produces multiple intelligence by combining theory and practice, is a crucial one for growing sustainable economies. The concept of development suggests that regions grow to become self-sustaining partners in the so-called global economy (Ogunode & Akimki, 2023). This concept was raised from the need for an information society, aided by information sharing and the application of knowledge (Qureshi, 2005).

Practice and, Other Countries' Perspective Contribution

A PRISMA methodology is literature-based research that analyses significant predictors of a learning experience (Sousa at el, 2022). Analysing literature arguments lie on behalf of ICT use for effective and efficient development, through many success stories.

Duncombe and Heeks (2002) suggest that the role of ICT in enabling information and knowledge is important for social and economic development, as an intermediary market information provider, customers, and suppliers (Duncombe & Heeks, 2002; Zafar, 2022). Through communication, locals were able to articulate their understanding, knowledge and views (Puri&Sahay, 2003).

ICT contributes also to poverty reduction. Improvements in healthcare have been shown to reduce poverty like telemedicine diminishes the distance to travel for medical attention, services and workers (Kimaro & Nhampossa, 2005; Gu at el, 2023).

(ITD) Information Technology for Development stimulates constructivism of social and economic development, through powerful communication components (World Bank, 2003; p.1). Steered by that pattern, the trend of IT for development has become a global phenomenon.

The greatest skill for the knowledge society in the 21st century is the ICT practice used for student improvement (Anderson, 2008).

Education seems to strengthen with the ICT implementation skills in South Africa and Malaysia. The establishment of learning centers brought greater computer literacy training.

In the case of golf countries; Arabia, Emirates, Qatar, and more, the investment in general use and availability of ICT in formal mass education, has had a great impact on nations' innovation and economic growth (Al-Mamari et al, 2022). ICT was quickly implemented to build capacity knowledge through the national education system. The incorporation of ICT in all levels of education has increased dramatically and it was considered the catalyst of education and knowledge development (Wiseman & Anderson, 2012).

In primary schools in Spain, teachers had a great influence on teaching practices. They combined learning mobile technology and media as a good instrument for pedagogical transformation. It resulted in more knowledge sharing among students, engagement and autonomous learning. Teachers should focus on new ways of their teaching practices, by facilitating access to information, engagement and collaboration (Domingo & Gargante, 2016).

Quantitative research paradigm in primary schools of Belgium on ICT integration backs up the theory that ICT use should be the school's phenomenon, not teachers only. More so, institutionalizing ICT use in schools creates a positive association with competence and professional development, but it may vary on school differences (Vanderlinde, Aesart & Braak, 2014).

Often is claimed that the quality of education is associated with the use of technology and starts with understanding its role in it (Haleem et al, 2022). From the internalist approach research in the US, the use of ICT for teaching in universities needs to be an organizational phenomenon with strong support. IT in the industry is a demand for success that facilitates time and is a bullet for quality and cost. Governments usually influence universities directly or indirectly. So, the education system gets analyzed by governments. If they do not facilitate the education system, they are considered to hinder factors (Nnazor, 2009).

The Focus of the Article

Systems, Reforms and Education in Kosovo

The need for change is an all-time principle, especially in education is highly vital in every step we take (Fullan, 1999, p.1). Hilker (2011), argues that education can also act as a powerful force for peace and recovery factors for fundamental needs especially in developing regions (Hilker, 2011; Michael, 2001).

The theoretical framework and practical implementation known as digital twin DT has been known for over a decade ago as a tool to perceive benefits for successful implementation (Sharma et al, 2022).

Until 1999, formal education in Kosovo followed the European system, but after the war education followed the traditional system, which needed radical reform (Fullan, 1999). In cases like Kosovo; escorting weak infrastructure, and transforming policy into reality is a difficult task and leaves the country of poor quality in the education system.

Traditional education has been considered the main grounds for Kosovo to fall in the PISA test, ranking among three bottom countries (Pupovci, 2017; Shala, Graicevci & Latifi, 2021).

From the end of the war in 2000, many programs were involved in developing the education sector till today (KESP, 2016). Most of the programs involved teacher training, accreditation and licensing (MESTKCF, 2011).

There were attempts to cooperate with international partners to develop e-content and upgrade ICT in schools. UNICEF established children's funds for education reforms and pointed out the need to shift from traditional education to more contemporary (Tahirsylaj, 2013, p.3).

According to Schmidt and White, no education change can be successful if the teachers and students are not involved (Schmidt and White, 2004). The previous traditional education system and teacher training involved one, they have included teachers but not students.

Clearly, in the Kosovo case, we have seen more top-down approaches, but bottom-up changes that included direct students are at a minimum, or none. The system remains loaded with inadequate quality on both teaching and learning platforms, with a lack of professional development chances (Tahirsyaj, 2013, p.12).

Digital, Investment and Minimal IT Use

Analysing literature different organization has shown different progress, as an assumption of missing digitalization in the education system of Kosova. Most of the companies examined, possessed computers, but with a lack of knowledge and experience in technology. The ratio of digitalization possession is 80% to 20%.

Most of the companies were nominal on the Information Technology investment. In the public sector rate is lower than 29%. The country did not undergo investments in youth education competence, for expanding knowledge in information technology (Cocaj, 2022).

Work environments show substandard results of minimal IT tools used, compared to the level of maximum use possibility. The best-case scenario is halfway usage, whereas the average does not exceed a third of 30% (Cocaj, 2022).
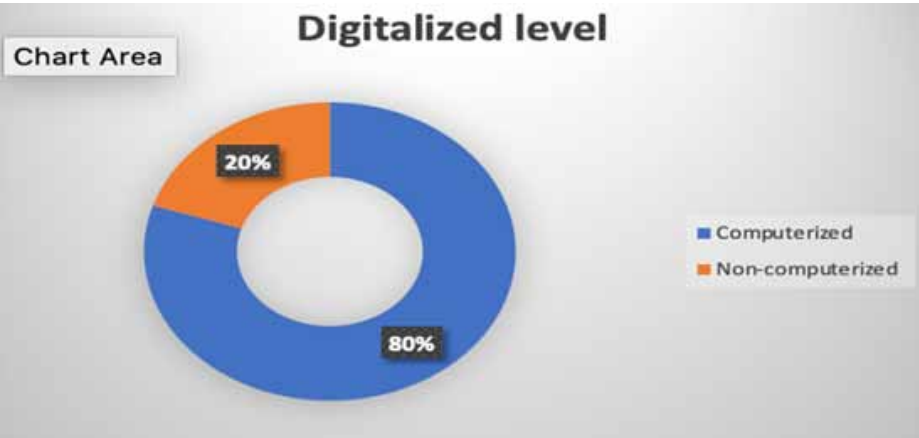
Figure 1. Chart 1: IT digitalized level

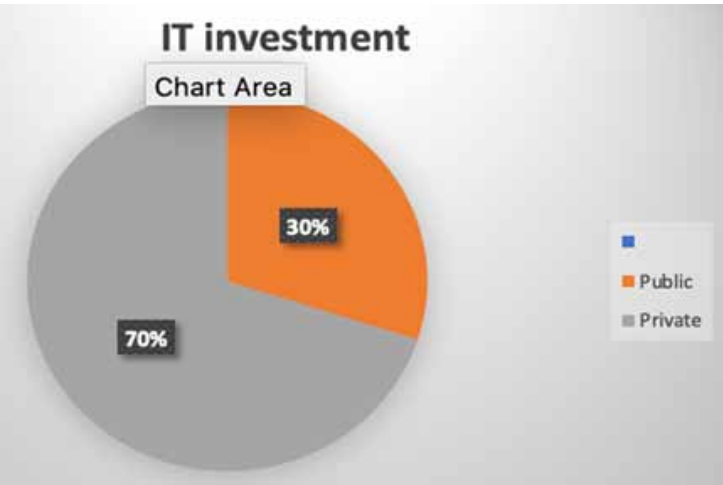**Figure 2. Chart 2: IT investment level**

Figure 3. Chart 3: IT tools possible use

Post-conflict countries require development. They have minimal use of IT and investment. Their future development requires technology use in education, for skilled and innovative workforce generations. The present situation of Kosovo digitalization suspects sufficient IT availability for skills and utility. Observations provide material for unique research in IT education, as a means for poor country development. The material provides measurements of IT education and its importance for developing transition countries, as well as empirical work for students for the referring categories. For post-conflict regions literature available is deficient, as they are examined at minimal in the IT and education.

METHODS

In this section of the study, the researcher would specify the methods being adopted by the researcher for data collection and analysis required to meet the objective of the study. It would be effective to evaluate the reliability and validity of the study. The research would highlight the research approach, research design, data collection methods, data analysis approach, and research paradigm, which have been opted by the researcher. The primary focus of conducting the survey was to determine the primary relationship among the research variable for testing the hypothesis.

IT for ESD Survey

In regards to the method being adapted for data collection, the researcher has emphasized on a collection of primary data from students of private and public schools.

In this regard, the researcher had considered factors like the lack of accessibility to an internet connection for the young students to respond to the questionnaire and the lack of possession of computers or internet availability for senior students as well, which may adversely impact the number of response collection for the study. It included learning institutes or schools of 5 different cities, wherein the survey was conducted in standards of schools ranging 1-5 standard, that is primary school, 6-9 standards or middle school, high school, and tertiary institutes.

From each of these standards of schools or educational institutes, 3 schools were chosen. Thus, a total of 18 schools from both private and public educational institutes have been chosen for the study. The researcher considered 10 respondents from each public schools as well as private school were considered.

Based on the convenience of evaluating the IT knowledge in the education system, along with the availability of computer facilities for the classes, the survey groups were classified into primary, secondary and tertiary students, wherein students from both private as well as public schools were considered. This provided the researcher with the scope to compare the level of IT facilities and knowledge along with its disparity in private and public schools.

IT for ESD Design

The survey questionnaire comprised closed-ended questions. It included questions having yes or no responses. Furthermore, to quantify the level of quality or perception of the students, a three-point scale, similar to the 5-point Likert scale was used, which used raking from 1-5, along with low, medium or high. The reason for considering the incorporation of one open-ended question in the survey is that, it would provide the respondents with an opportunity to freely express their experience, without needing to restrict their responses to close-ended or pre-defined options for responses.

Opting for the close-ended survey questionnaire helped in ensuring that optimum responses are gathered, which can have numerical descriptions based on which the outcomes of the responses can be evaluated. The variables considered for developing the questionnaire include:

Independent variables:
- ◦ PS- primary school
- ◦ HS-high school

◦   TS- tertiary school
Mediating variables:
   ◦   CA-computer available
   ◦   CU- computer use
   ◦   CK-computer knowledge
Dependent variables:
   ◦   PU- public
   ◦   PR- private

DATA ANALYSIS

Primary Schools (Questionnaire - Under 16 Is Referred)

Public

Which primary school level do you belong to?
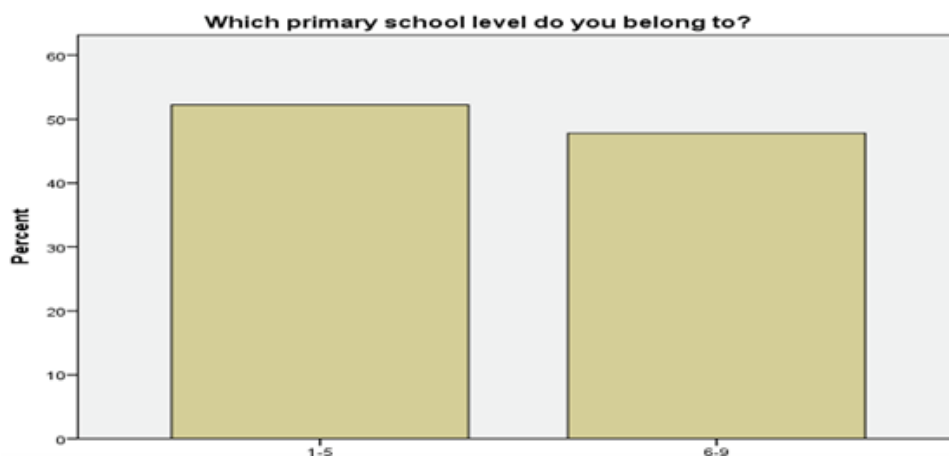From the below table, we can see that there are 52.2% of respondents are in 1- 5 primary school level.
   The table and Bar graph are attached below.

Table 1. Public-primary school level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	1-5	94	52.2	52.2	52.2
	6-9	86	47.8	47.8	100.0
	Total	100.0	100.0	100.0	

**Figure 4. Graph 1: Public-primary school level**

Do you have a computer in your school?
From the below table, we can see that there are 35.6% of respondents did not have computer in their
   school. The table and Bar graph are attached below.

Table 2. Computer in school primary school public

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	58	32.2	32.2	32.2
Valid. No	64	35.6	35.6	67.8
Don't Know	58	32.2	32.2	100.0
Total	180	100.0	100.0	

Figure 5. Graph 2: Computer in school primary school public
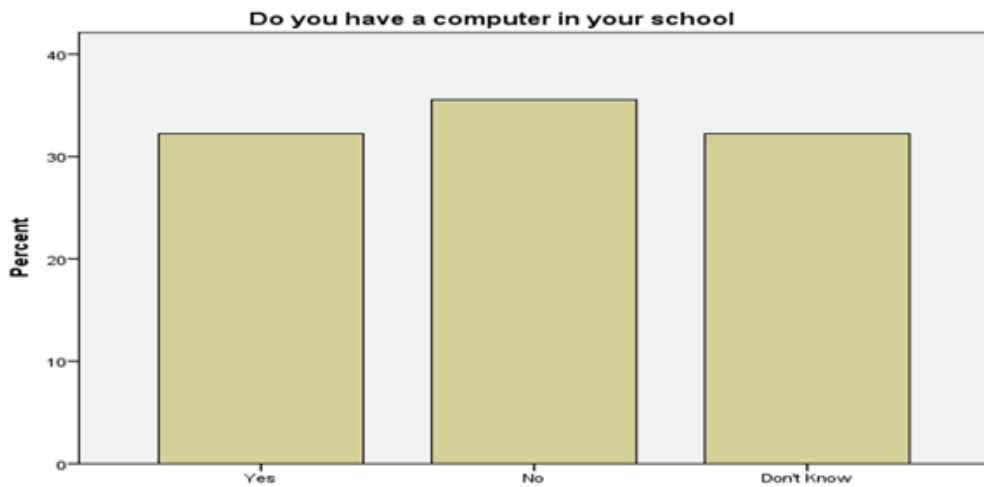
Do you have practice hours on the computer?
From the below table, we can see that there are 55.0% of respondents did not have practice hours on the computer. The table and Bar graph are attached below.

Table 3. Practice hours in primary public

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	81	45.0	45.0	45.0
Valid. No	99	55.0	55.0	100.0
Total	180	100.0	100.0	

**Figure 6. Graph 3: Practice hours in primary public**

Do you have a computer in your class?
From the below table, we can see that there are 50.6% of respondents did not have computer in their
class. The table and Bar graph are attached below.

Table 4. Computer in class primary public

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	89	49.4	49.4	49.4
Valid. No	91	50.6	50.6	100.0

**Figure 7. Graph 4: Computer in class primary public**
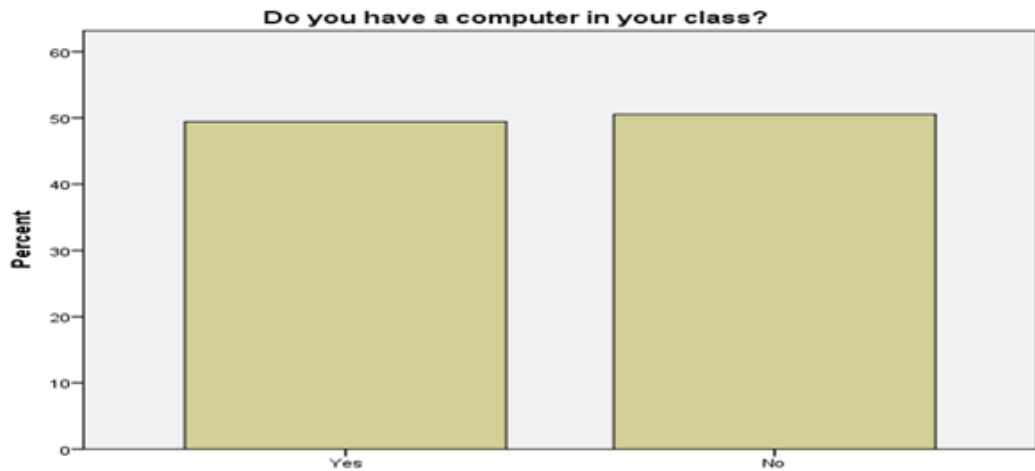
Do you have a separate computer cabinet?
From the below table, we can see that there are 35.6% of respondents did not have a separate computer cabinet. The table and Bar graph are attached below.

Table 5. Computer cabinet primary public

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	62	34.4	34.4	34.4
Valid. No	54	30.0	30.0	64.4
Don't Know	64	35.6	35.6	100.0
Total	180	100.0	100.0	

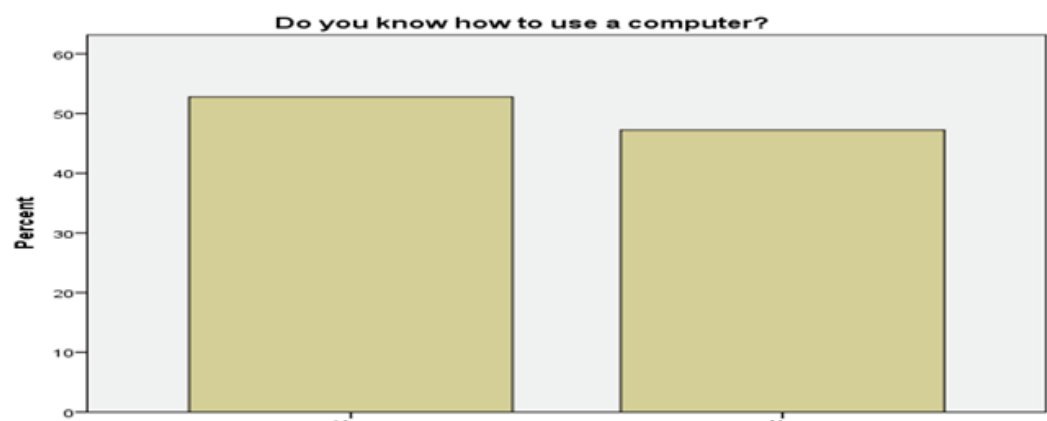Figure 8. Graph 5: Computer cabinet primary public
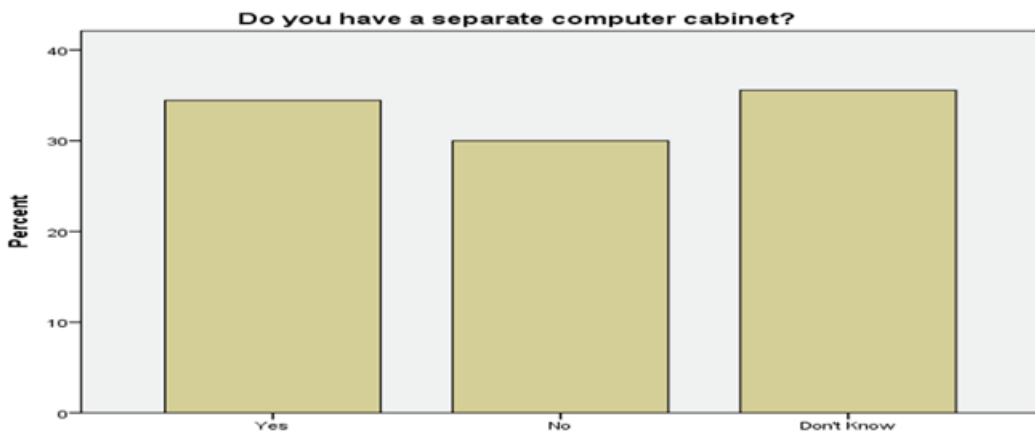
Do you know how to use a computer?
From the below table, we can see that there are 52.8% of respondents did know how to use a computer. The table and Bar graph are attached below.

Table 6. How-to use primary public

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	95	52.8	52.8	52.8
Valid. No	85	47.2	47.2	100.0
Total	180	100.0	100.0	

**Figure 9. Graph 6: How to use primary public**

If yes, how much?

From the below table, we can see that there are 36.1% of respondents did know how to use a computer on a lower level. The table and Bar graph are attached below.

Table 7. How-to level primary public

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	65	36.1	36.1	36.1
Valid.	Medium	61	33.9	33.9	70.0
	High	54	30.0	30.0	100.0
	Total	180	100.0	100.0	

**Figure 10. Graph 7: How to level primary public**
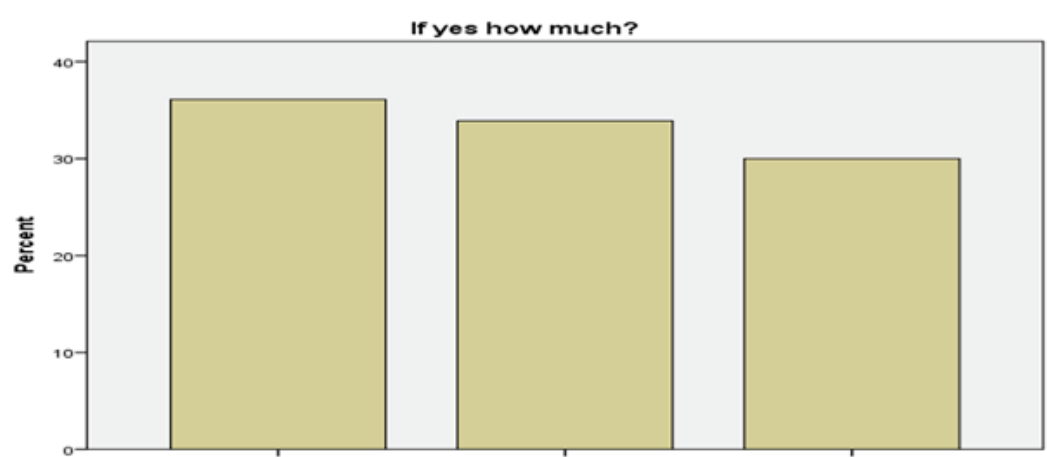
How to use from school or home
From the below table, we can see that there are 51.7% of respondents use from home. The table and
Bar graph are attached below.

Table 8. School-or-home primary public

		Frequency	Percent	Valid Percent	Cumulative Percent
	School	87	48.3	48.3	48.3
Valid.	Home	93	51.7	51.7	100.0
	Total	180	100.0	100.0	

Figure 11. Graph 8: School-or-home primary public
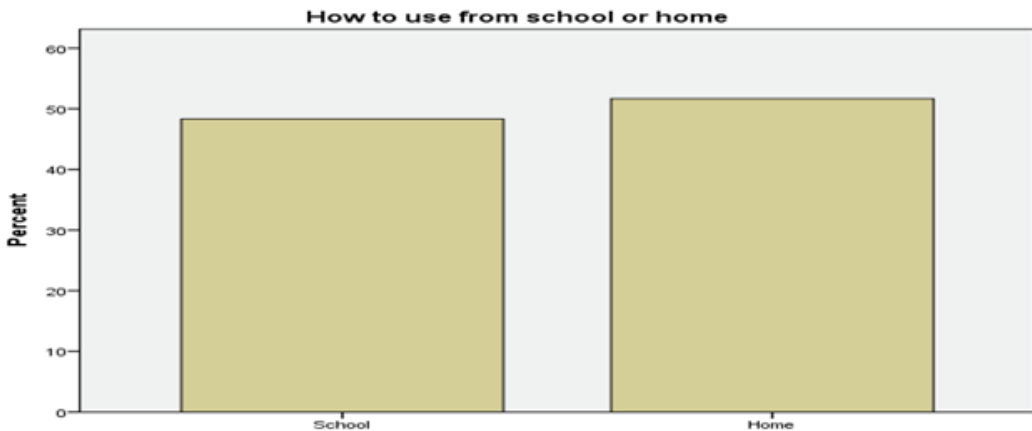
Private

Which primary school level do you belong to?
From the below table, we can see that there are 56.7% of respondents are in 1- 5 primary school level.
The table and Bar graph are attached below.

Table 9. Private primary level belonging

		Frequency	Percent	Valid Percent	Cumulative Percent
	1-5	102	56.7	56.7	56.7
Valid.	6-9	78	43.3	43.3	100.0
	Total	180.0	100.0	100.0	

**Figure 12. Graph 9: Private primary level belonging**
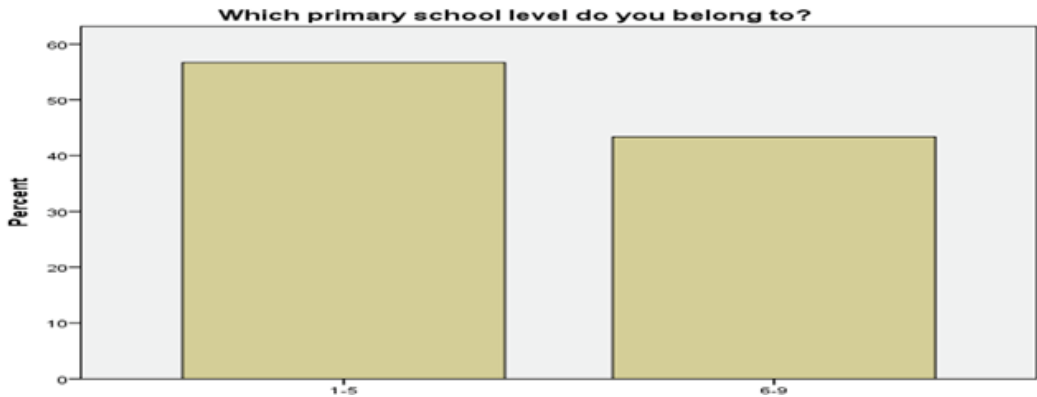
Do you have a computer in your school?
From the below table, we can see that there are 36.7% of respondents did not have computer in their
school. The table and Bar graph are attached below.

Table 10. Private-school computer primary

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	62	34.4	34.4	34.4
Valid. No	66	36.7	36.7	71.1
Don't Know	52	28.9	28.9	100.0
Total	180	100.0	100.0	

Figure 13. Graph 10: Private-school computer primary
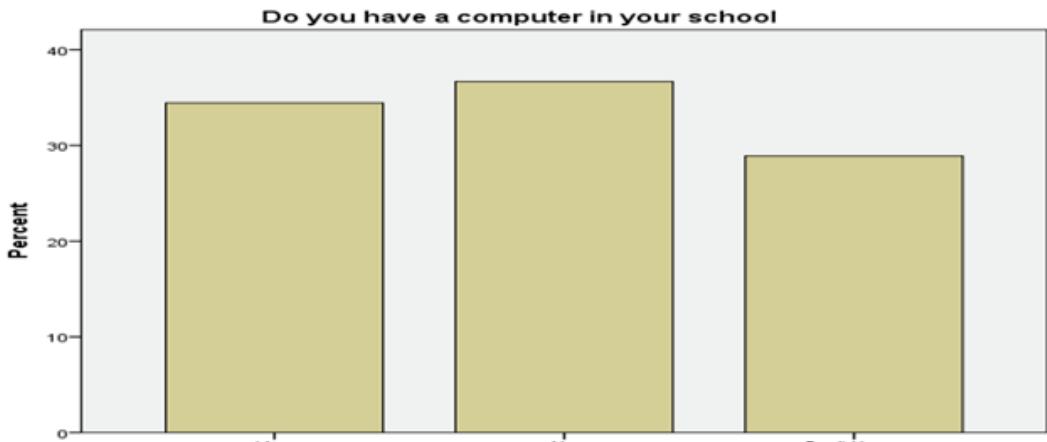
Do you have practice hours on the computer?
From the below table, we can see that there are 52.2% of respondents did have practice hours on the computer. The table and Bar graph are attached below.

Table 11. Private-school practice primary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	94	52.2	52.2	52.2
	No	86	47.8	47.8	100.0
	Total	180	100.0	100.0	

Figure 14. Graph 11: Private-school practice primary

Do you have a computer in your class?
From the below table, we can see that there are 50.0% of respondents did and also did not have computer in their class. The table and Bar graph are attached below.

Table 12. Private-school in-class primary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	90	50.0	50.0	50.0
	No	90	50.0	50.0	100.0
	Total	180	100.0	100.0	

**Figure 15. Graph 12: Private-school in-class primary**
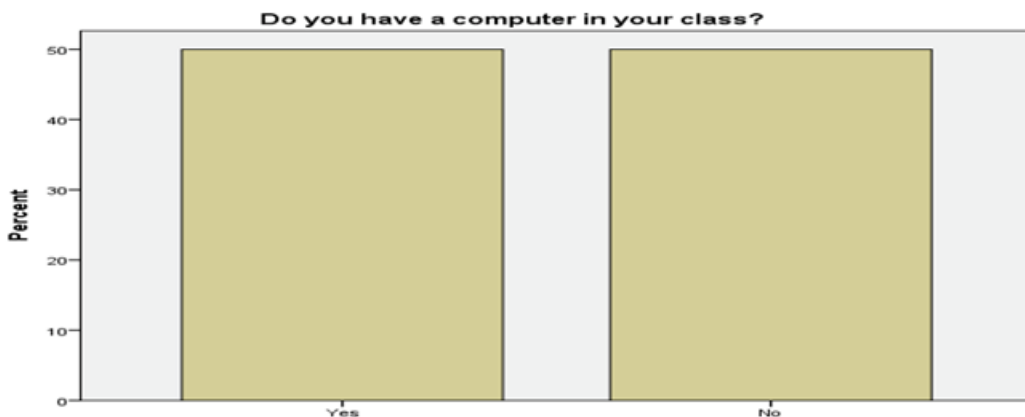
Do you have a separate computer cabinet?
From the below table, we can see that there are 37.8% of respondents did not and didn't know that they have a separate computer cabinet. The table and Bar graph are attached below.

Table 13. Private-school cabinet primary

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	44	24.4	24.4	24.4
Valid.	No	68	37.8	37.8	62.2
	Don't Know	68	37.8	37.8	100.0
	Total	180	100.0	100.0	

**Figure 16. Graph 13: Private-school cabinet primary**
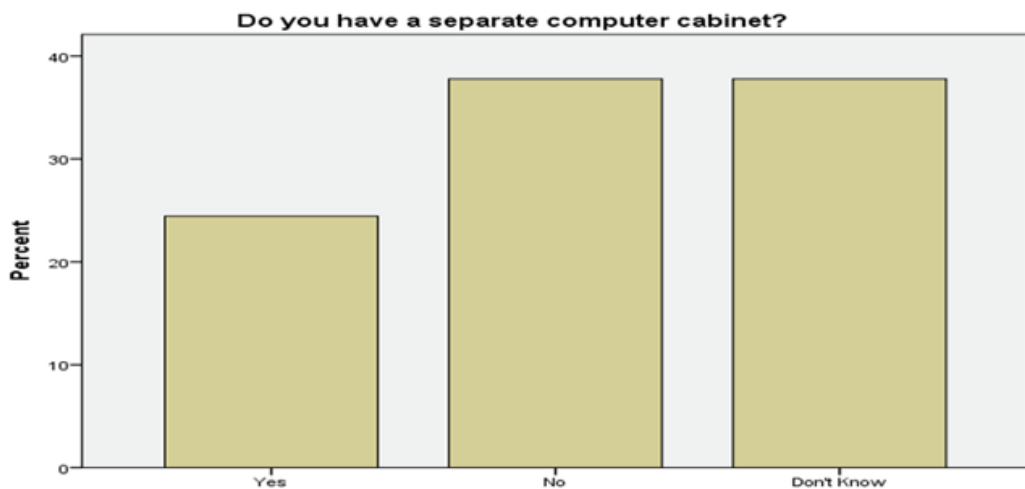
Do you know how to use a computer?

From the below table, we can see that there are 50.6% of respondents did how to use a computer. The table and Bar graph are attached below.

Table 14. Private-school use-knowledge primary

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	91	50.6	50.6	50.6
Valid.	No	89	49.4	49.4	100.0
	Total	180	100.0	100.0	

Figure 17. Graph 14: Private-school use-knowledge primary
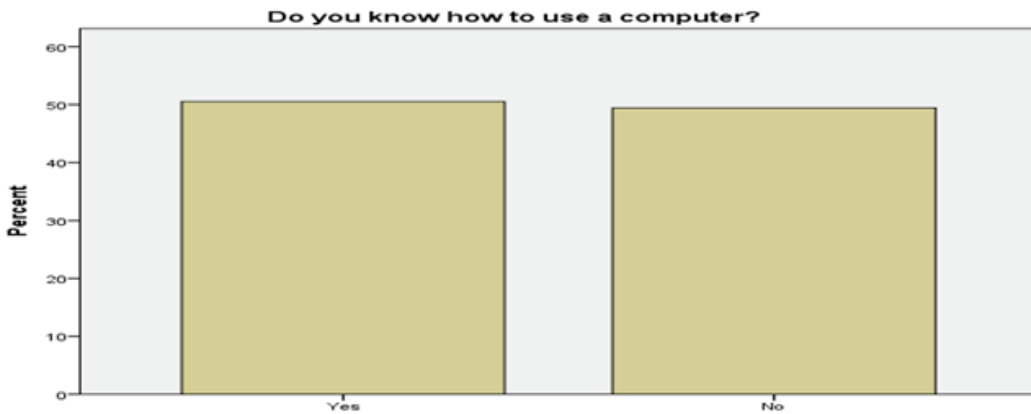

If yes, how much?

From the below table, we can see that there are 37.8% of respondents did know how to use a computer on a medium level. The table and Bar graph are attached below.

Table 15. Private-school use-level primary

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	59	32.8	32.8	32.8
Valid.	Medium	68	37.8	37.8	70.6
	High	53	29.4	29.4	100.0
	Total	180	100.0	100.0	

Figure 18. Graph 15: Private-school use-level primary
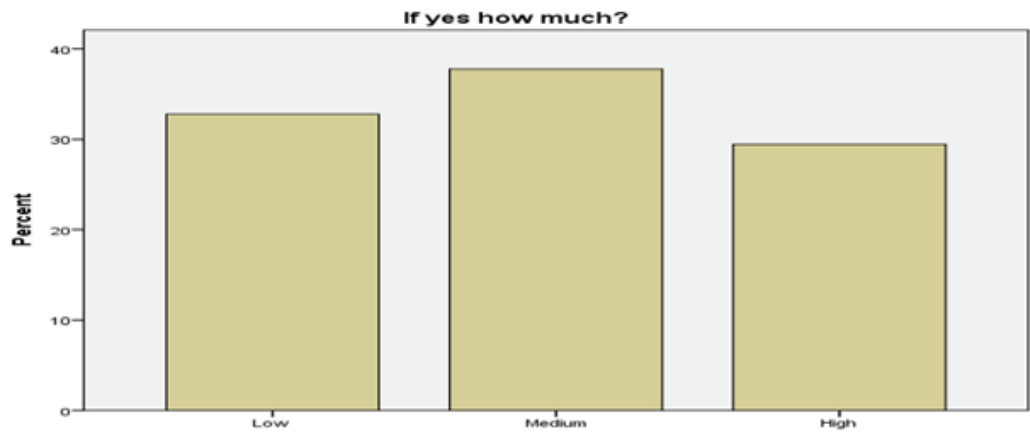
How to use from school or home
From the below table, we can see that there are 50.0% of respondents use from school and home. The table and Bar graph are attached below.

Table 16. Private-school school-or-home primary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	School	90	50.0	50.0	50.0
	Home	90	50.0	50.0	100.0
	Total	180	100.0	100.0	

Figure 19. Graph 16: Private-school school-or-home primary

Likert Scale Details

Part B: Tools and Methods Currently Used in Kosovo Schools

The below table, states the level of agreeableness on the statements under this item.

We can see that there are 51.7% of respondents agree on the statement *"Online Course Module"*. The table and Bar graph are attached below.

Table 17. Likert scale of methods used primary

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
	Row N %	Row N %	Row N %	Row N %	Row N %
Video – Instructional	19.4%	21.1%	18.3%	24.4%	16.7%
Textbooks	17.8%	17.2%	24.4%	18.9%	21.7%
Syllabus	17.2%	17.8%	25.6%	19.4%	20.0%
Reference Material	17.2%	24.4%	18.9%	17.8%	21.7%
Quiz/Test	18.9%	21.7%	22.2%	19.4%	17.8%
Projector	26.1%	16.1%	18.3%	23.9%	15.6%
Presentation	14.4%	25.0%	19.4%	25.6%	15.6%
PowerPoint Slides	18.3%	18.3%	24.4%	21.7%	17.2%
Posters	18.9%	18.3%	17.8%	22.2%	22.8%
Photographic Image – Instructional	13.9%	11.1%	11.7%	45.6%	17.8%
Overhead	9.4%	9.4%	25.6%	39.4%	16.1%
Other Reading Materials	8.9%	12.2%	11.1%	43.9%	23.9%
Open Textbook	16.7%	10.0%	13.9%	40.0%	19.4%
Online Course Module	12.2%	12.8%	9.4%	51.7%	13.9%
Models	8.3%	11.1%	12.8%	40.0%	27.8%
Maps	9.4%	10.6%	14.4%	48.3%	17.2%
Illustration/Graphic	9.4%	12.2%	23.3%	40.0%	15.0%
Hybrid/Blended Course	10.6%	11.1%	8.3%	45.6%	24.4%
ePortfolio	12.2%	9.4%	11.1%	44.4%	22.8%
Drill and Practice	9.4%	14.4%	12.8%	47.2%	16.1%
Development Tool (e.g. web sites, learning objects, apps)	9.4%	7.8%	18.9%	38.3%	25.6%
Computers	11.1%	11.7%	13.9%	40.0%	23.3%
Charts	9.4%	11.7%	12.2%	43.9%	22.8%
Audio And Video Resources	11.1%	11.7%	13.3%	30.6%	33.3%
Assessment Tools like Forms, templates, and technologies	11.1%	10.6%	14.4%	48.3%	15.6%
Animation	8.9%	11.7%	13.3%	45.0%	21.1%
Allocating Assignments for self-completion	10.6%	16.7%	12.8%	36.1%	23.9%

Reliability

Cronbach's Alpha is a reliability test conducted within SPSS to measure the internal consistency i.e., reliability of the measuring instrument.

It is most commonly used when the questionnaire is developed using multiple Likert scale statements and therefore to determine if the scale is reliable or not.

The below table, shows the reliability statistics of sample data of 180 sample size. Here we can see that Cronbach's alpha is 0.854, which indicates good internal consistency for our scale with this specific sample.

Hypothesis Testing

H_{01}: Tools and methods currently used in Kosova schools do not have a significant impact on the Confirmation and Actual Use of Digital Products.

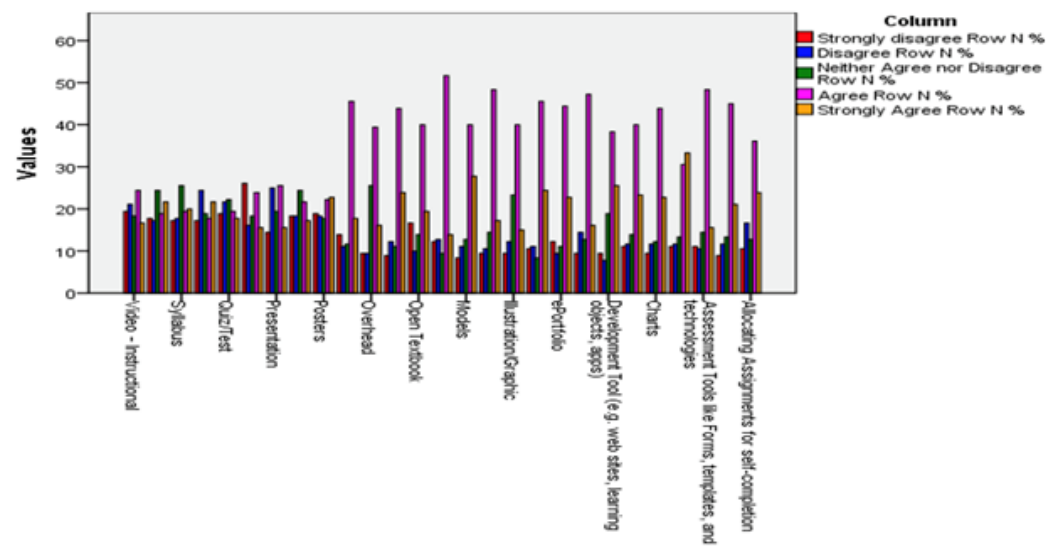**Figure 20. Graph 17: Likert scale of methods used primary**

Figure 21. Reliability statistics

Cronbach's Alpha	N of Items
.854	70

H_{11}: Tools and methods currently used in Kosova schools do have a significant impact on the Confirmation and Actual Use of Digital Products.

We have conducted a Correlation analysis to prove this hypothesis.

From the below table, we can see that there is a significant effect of correlation present (r = .651, p-value = .000 <0.05). Therefore, we can accept the alternative hypothesis that *Tools and methods currently used in Kosova schools do have a significant impact on the Confirmation and Actual Use of Digital Products.*

Secondary: (questionnaire – under and over 16 is referred)

Table 18. Correlation analysis for primary level

Correlations		ConfirmationandActualUseoftheDigitalProducts	ToolsandmethodscurrentlyusedinKosovaschools
ConfirmationandActualUseof theDigitalProducts	Pearson Correlation	1	.651**
	Sig. (2-tailed)		.000
	N	180	180
Toolsandmethodscurrentlyu sedinKosovaschools	Pearson Correlation	.651**	1
	Sig. (2-tailed)	.000	
	N	180	180

**. Correlation is significant at the 0.01 level (2-tailed).

Public

Which secondary school level do you belong to?
From the below table, we can see that there are 53.3% of respondents are in 6 - 9 secondary school
   level. The table and Bar graph are attached below.

Table 19. Public-secondary school level

		Frequency	Percent	Valid Percent	Cumulative Percent
	1-5	42	46.7	46.7	46.7
Valid.	6-9	48	53.3	53.3	100.0
	Total	90	100.0	100.0	

Figure 22. Graph 18: Public secondary school level
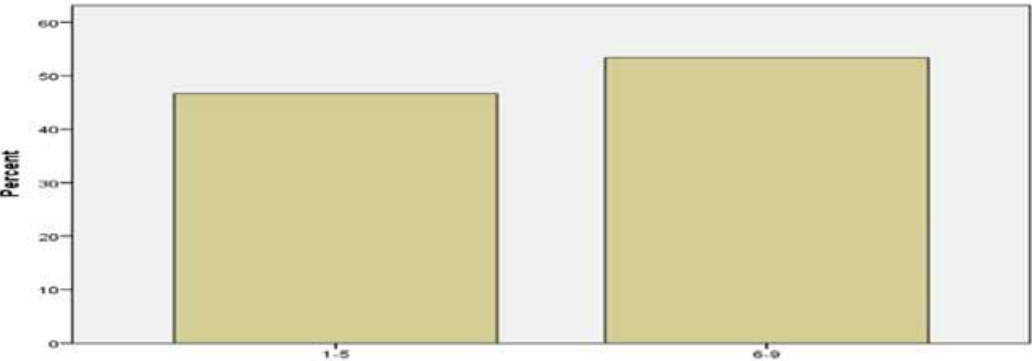
Do you have a computer in your school?
From the below table, we can see that there are 35.6% of respondents did have computer in their
   school. The table and Bar graph are attached below.

Table 20. Computer in school secondary school public

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	32	35.6	35.6	35.6
Valid.	No	27	30.0	30.0	65.6
	Don't Know	31	34.4	34.4	100.0
	Total	90	100.0	100.0	

Figure 23. Graph 19: Computer in school secondary school public
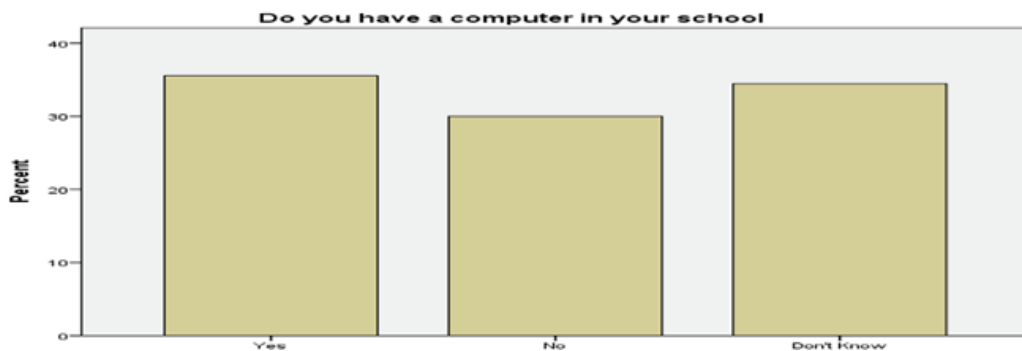
Do you have practice hours on the computer?

From the below table, we can see that there are 50.0% of respondents did and also at the same time did not have practice hours on the computer. The table and Bar graph are attached below.

Table 21. Practice hours in secondary public

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	45	50.0	50.0	50.0
Valid.	No	45	50.0	50.0	100.0
	Total	90	100.0	100.0	

**Figure 24. Graph 20: Practice hours in secondary public**

Do you have a computer in your class?

From the below table, we can see that there are 52.2% of respondents did not have computer in their class. The table and Bar graph are attached below.

Table 22. Computer in class secondary public

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	43	47.8	47.8	47.8
	No	47	52.2	52.2	100.0
	Total	90	100.0	100.0	

**Figure 25. Graph 21: Computer in class secondary public**
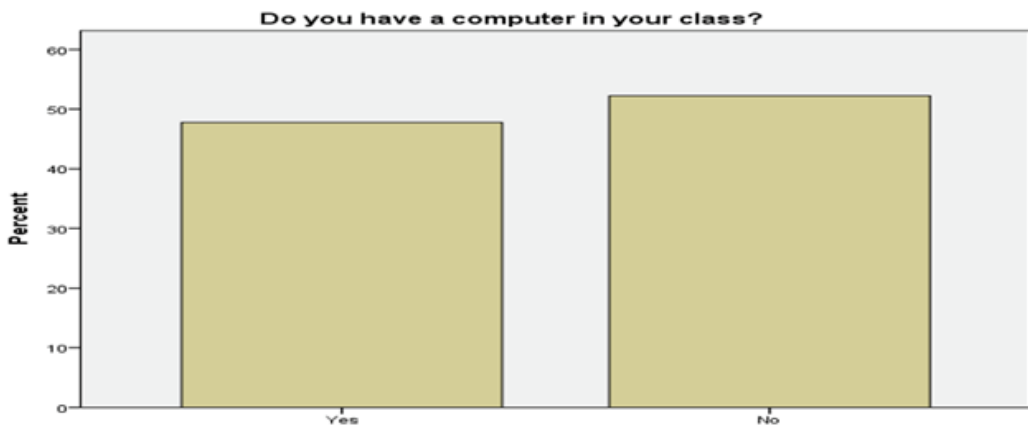
Do you have a separate computer cabinet?

From the below table, we can see that there are 36.7% of respondents did not have a separate computer cabinet. The table and Bar graph are attached below.

Table 23. Computer cabinet secondary public

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	26	28.9	28.9	28.9
	No	33	36.7	36.7	65.6
	Don't Know	31	34.4	34.4	100.0
	Total	90	100.0	100.0	

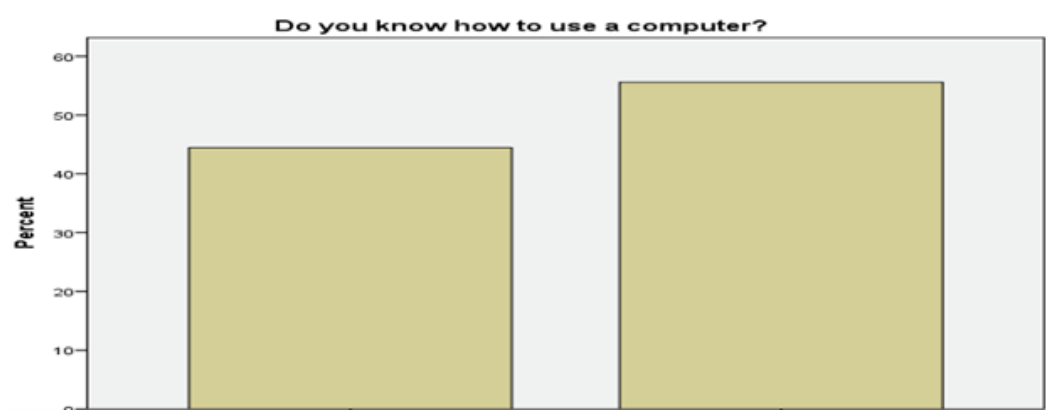**Figure 26. Graph 22: Computer cabinet secondary public**
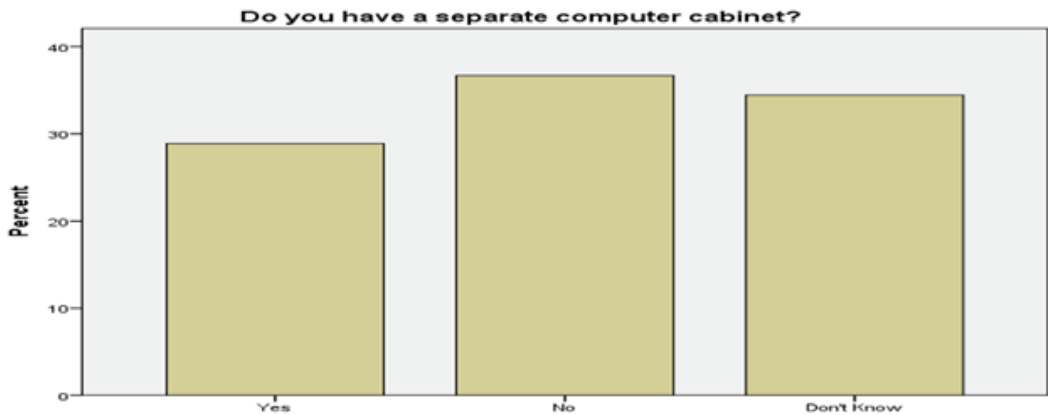
Do you know how to use a computer?

From the below table, we can see that there are 55.6% of respondents did not know how to use a computer. The table and Bar graph are attached below.

Table 24. How-to use secondary public

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	40	44.4	44.4	44.4
Valid.	No	50	55.6	55.6	100.0
	Total	90	100.0	100.0	

Figure 27. Graph 23: How to use secondary public

If yes, how much?

From the below table, we can see that there are 61.1% of respondents did know how to use a computer on a lower level. The table and Bar graph are attached below.

Table 25. How-to level secondary public

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	55	61.1	61.1	61.1
	Medium	31	34.4	34.4	95.6
	High	4	4.4	4.4	100.0
	Total	90	100.0	100.0	

Figure 28. Graph 24: How to level secondary public
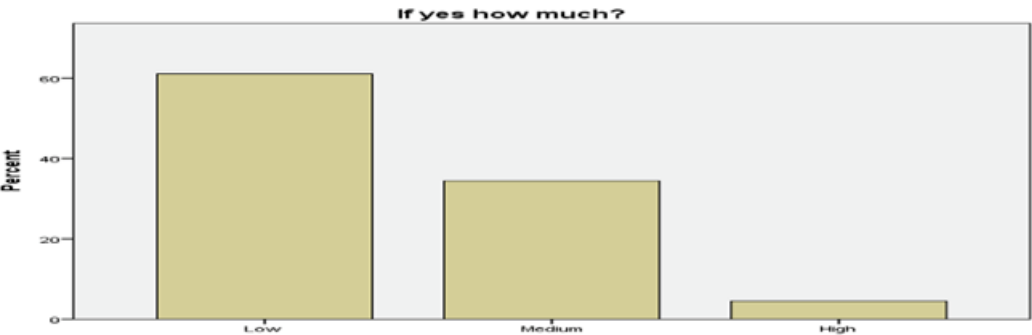
How to use from school or home
From the below table, we can see that there are 52.2% of respondents use from school. The table and Bar graph are attached below.

Table 26. School-or-home secondary public

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	School	47	52.2	52.2	52.2
	Home	43	47.8	47.8	100.0
	Total	90	100.0	100.0	

**Figure 29. Graph 25: School-or-home secondary public**
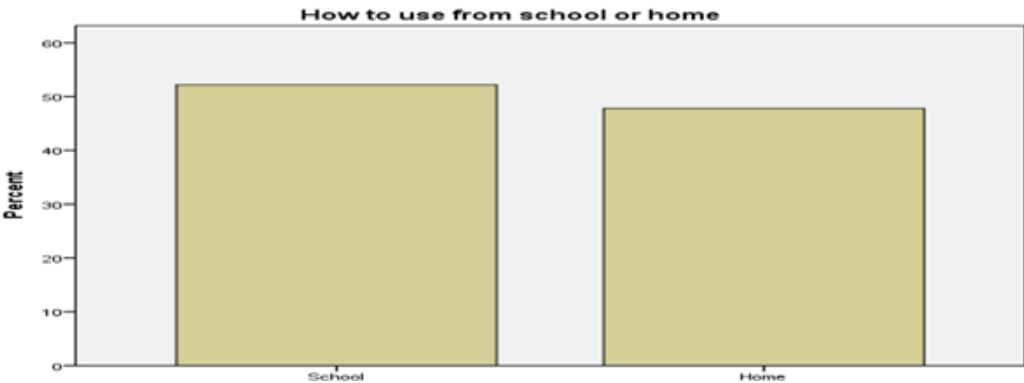
Private

Which secondary school level do you belong to?
From the below table, we can see that there are 54.4% of respondents are in 6- 9 secondary school level. The table and Bar graph are attached below.

Table 27. Private secondary level belonging

		Frequency	Percent	Valid Percent	Cumulative Percent
	1-5	41	45.6	45.6	45.6
Valid.	6-9	49	54.4	54.4	100.0
	Total	90	100.0	100.0	

**Figure 30. Graph 26: Private secondary level belonging**
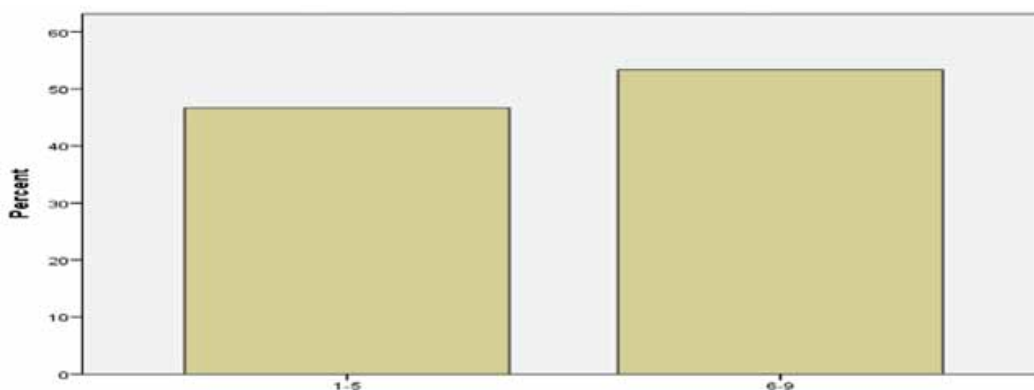
Do you have a computer in your school?
From the below table, we can see that there are 37.8% of respondents did have computer in their school. The table and Bar graph are attached below.

Table 28. Private-school computer secondary

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	34	37.8	37.8	37.8
Valid.	No	24	26.7	26.7	64.4
	Don't Know	32	35.6	35.6	100.0
	Total	90	100.0	100.0	

Figure 31. Graph 27: Private-school computer secondary
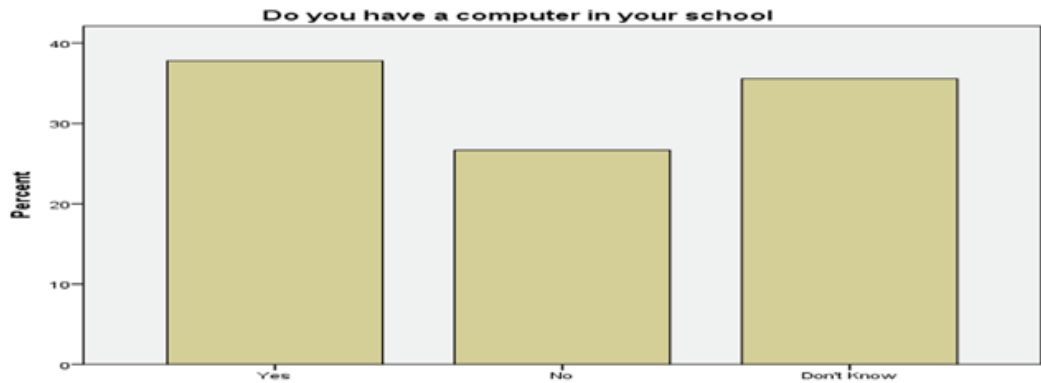
Do you have practice hours on the computer?
From the below table, we can see that there are 56.7% of respondents did have practice hours on the
computer. The table and Bar graph are attached below.

Table 29. Private-school practice secondary

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	51	56.7	56.7	56.7
Valid.	No	39	43.3	43.3	100.0
	Total	90	100.0	100.0	

**Figure 32. Graph 28: Private-school practice secondary**

Do you have a computer in your class?
From the below table, we can see that there are 62.2% of respondents did have computer in their
class. The table and Bar graph are attached below.

Table 30. Private-school in-class secondary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	56	62.2	62.2	62.2
	No	34	37.8	37.8	100.0
	Total	90	100.0	100.0	

**Figure 33. Graph 29: Private-school in-class secondary**
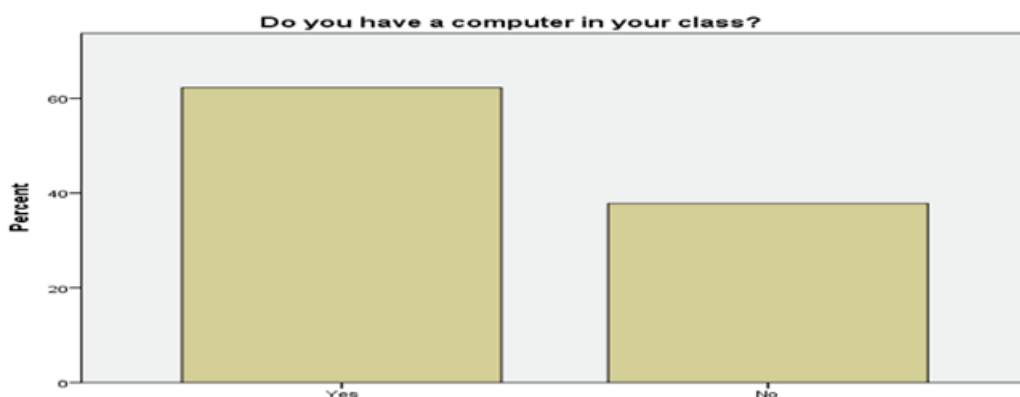
Do you have a separate computer cabinet?

From the below table, we can see that there are 34.4% of respondents did and did not have a separate computer cabinet. The table and Bar graph are attached below.

Table 31. Private-school cabinet secondary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	31	34.4	34.4	34.4
	No	31	34.4	34.4	68.9
	Don't Know	28	31.1	31.1	100.0
	Total	90	100.0	100.0	

Figure 34. Graph 30: Private-school cabinet secondary
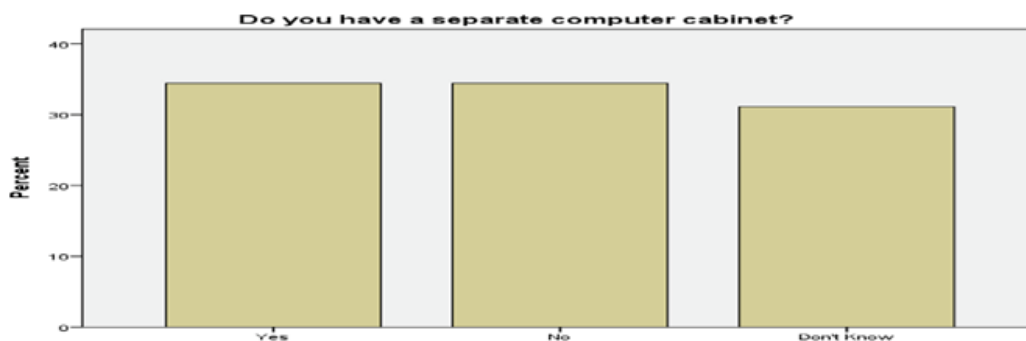
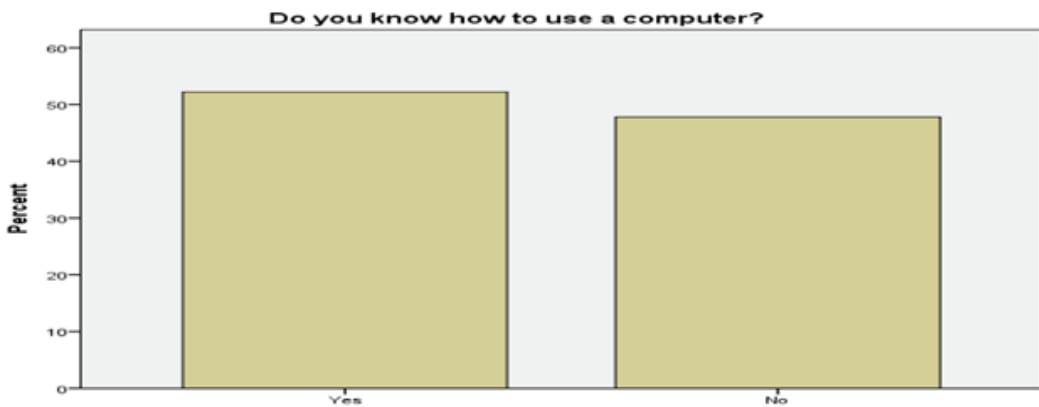Do you know how to use a computer?
From the below table, we can see that there are 52.2% of respondents did know how to use a computer. The table and Bar graph are attached below.

Table 32. Private-school use-knowledge secondar

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	47	52.2	52.2	52.2
Valid.	No	43	47.8	47.8	100.0
	Total	90	100.0	100.0	

Figure 35. Graph 31: Private-school use-knowledge secondary

If yes, how much?
From the below table, we can see that there are 40.0% of respondents did know how to use a computer on a medium level. The table and Bar graph are attached below.

Table 33. Private-school use-level secondary

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	31	34.4	34.4	34.4
Valid.	Medium	36	40.0	40.0	74.4
	High	23	25.6	25.6	100.0
	Total	90	100.0	100.0	

**Figure 36. Graph 32: Private-school use-level secondary**
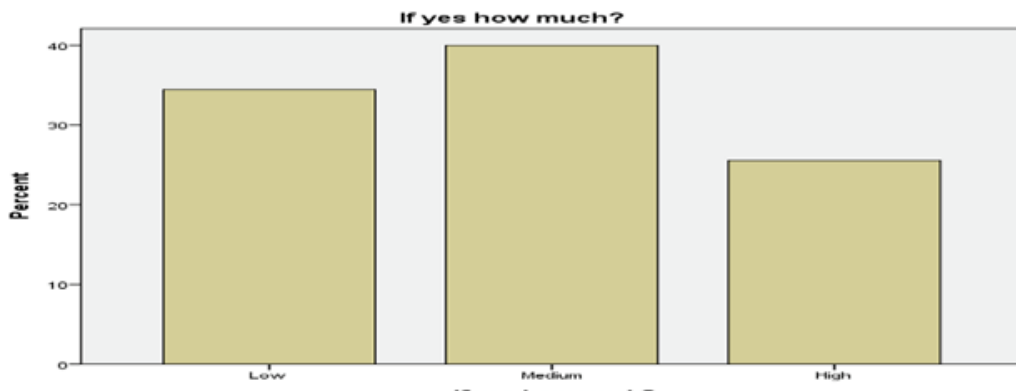
How to use from school or home
From the below table, we can see that there are 54.4% of respondents use from school. The table and
Bar graph are attached below.

Table 34. Private-school school-or-home secondary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	School	49	54.4	54.4	54.4
	Home	41	45.6	45.6	100.0
	Total	90	100.0	100.0	

Figure 37. Graph 33: Private-school school-or-home secondary
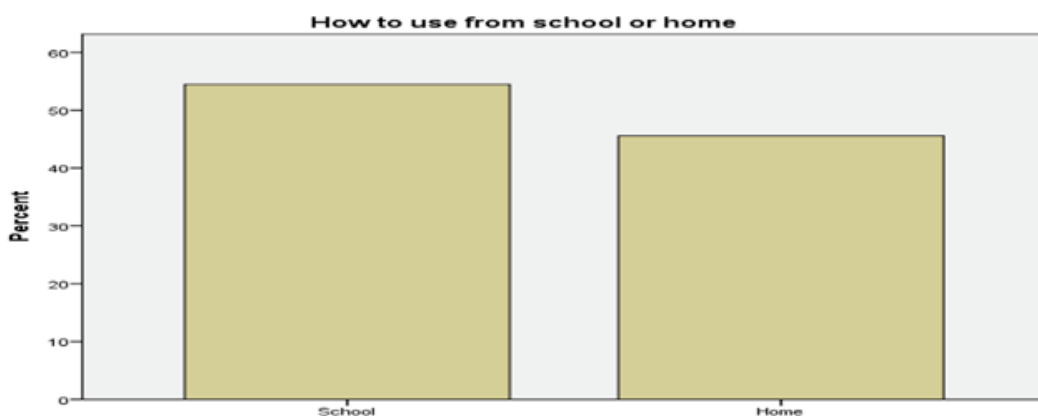
*Part C: Knowledge of Technology Use*

The below table, states the level of agreeableness on the statements under this item.

We can see that there are 65.6% of respondents agree on the statement *"I am well aware of e-textbooks"*. The table and Bar graph are attached below.

Table 35. Likert scales level of use secondary

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
	Row N %	Row N %	Row N %	Row N %	Row N %
I am familiar with the use of interactive exercises, games, and presentations.	17.8%	21.1%	15.6%	23.3%	22.2%
I know how to operate audio and video equipment for learning.	6.7%	4.4%	14.4%	62.2%	12.2%
I know how to use a digital projector.	8.9%	7.8%	23.3%	51.1%	8.9%
I am familiar with online course materials.	3.3%	4.4%	11.1%	58.9%	22.2%
I know that I can use smartphones, tablets, laptops, or computers for accessing digital learning platforms.	3.3%	10.0%	5.6%	58.9%	22.2%
I am well aware of e-textbooks.	2.2%	11.1%	7.8%	65.6%	13.3%
I am very much familiar with interactive boards as a tool for digital learning.	5.6%	7.8%	26.7%	54.4%	5.6%
Digital education includes learning through computers and other devices.	11.1%	2.2%	6.7%	55.6%	24.4%

Figure 38. Graph 34: Likert scales level of use secondary
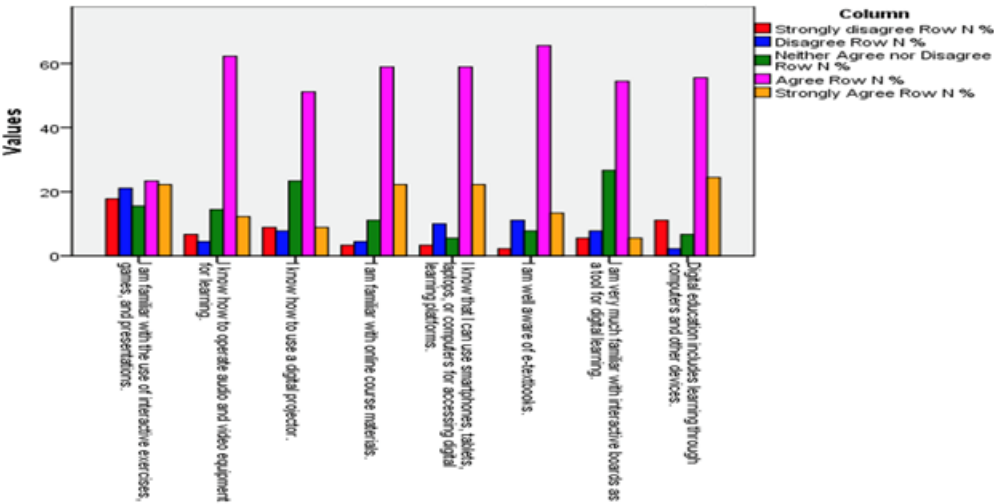
Reliability

Cronbach's Alpha is a reliability test conducted within SPSS to measure the internal consistency i.e., reliability of the measuring instrument.

It is most commonly used when the questionnaire is developed using multiple Likert scale statements and therefore to determine if the scale is reliable or not.

The below table, shows the Reliability statistics of sample data of 90 sample size. Here we can see that Cronbach's alpha is 0.840, which indicates good internal consistency for our scale with this specific sample.

Figure 39. Reliability statistics

Cronbach's Alpha	N of Items
.840	70

Hypothesis Testing

H_{01}: Tools and methods currently used in Kosova schools do not have a significant impact on the Confirmation and Actual Use of Digital Products.
H_{11}: Tools and methods currently used in Kosova schools do have a significant impact on the Confirmation and Actual Use of Digital Products.

We have conducted a Correlation analysis to prove this hypothesis.

From the below table, we can see that there is a significant effect of correlation present ($r = .401$, p-value $= .000 < 0.05$). Therefore, we can accept the alternative hypothesis that *Tools and methods currently used in Kosova schools do have a significant impact on the Confirmation and Actual Use of Digital Products.*

Table 36. Correlation analysis for secondary level

Correlations

		ConfirmationandActualUseoftheDigitalProducts	ToolsandmethodscurrentlyusedinKosovaschools
ConfirmationandActualUseoftheDigitalProducts	Pearson Correlation	1	.401**
	Sig. (2-tailed)		.000
	N	90	90
ToolsandmethodscurrentlyusedinKosovaschools	Pearson Correlation	.401**	1
	Sig. (2-tailed)	.000	
	N	90	90

**. Correlation is significant at the 0.01 level (2-tailed).

## University: (Questionnaire - Above 16 Is Referred)

Public

Do you have a computer in your university?
From the below table, we can see that there are 36.7% of respondents did have computer in their university. The table and Bar graph are attached below.

Table 37. Computer available public university

|	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	33	36.7	36.7	36.7
Valid. No	29	32.2	32.2	68.9
Don't Know	28	31.1	31.1	100.0

Figure 40. Graph 35: Computer available public university
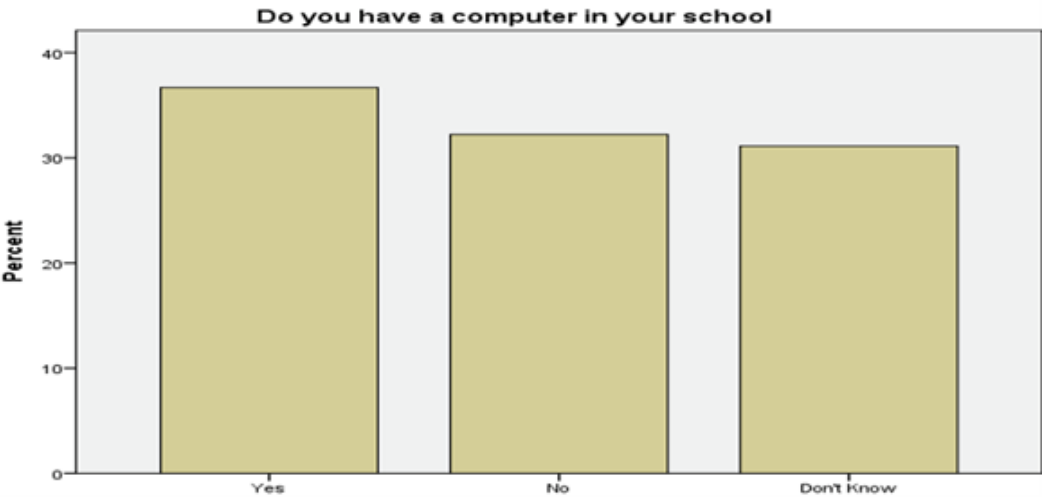
Do you have practice hours on the computer?
From the below table, we can see that there are 56.7% of respondents did not have practice hours on the computer. The table and Bar graph are attached below.

Table 38. Practice hours public university

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	37	43.3	43.3	43.3
Valid. No	51	56.7	56.7	100.0
Total	90	100.0	100.0	

Figure 41. Graph 36: Practice hours public university
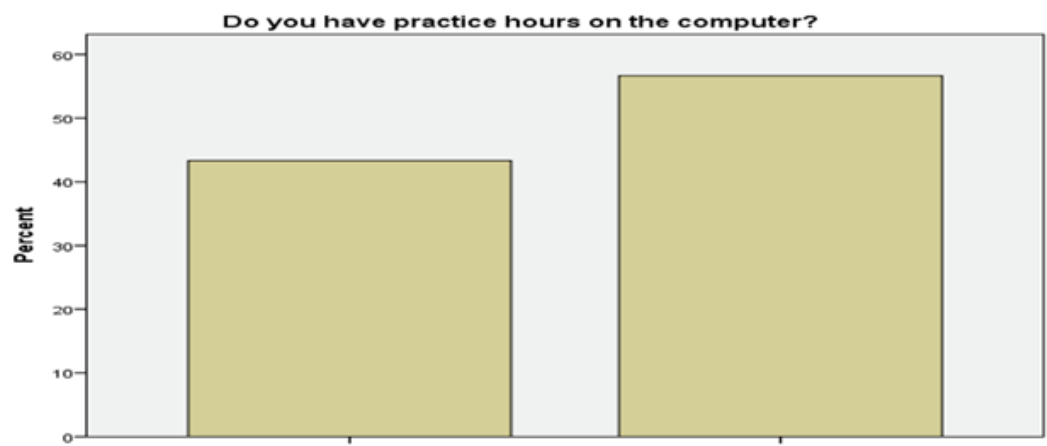
Do you have a computer in your class?
From the below table, we can see that there are 58.9% of respondents did have computer in their class. The table and Bar graph are attached below.

Table 39. Computer in-class public university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	53	58.9	58.9	58.9
	No	37	41.1	41.1	100.0
	Total	90	100.0	100.0	

Figure 42. Graph 37: Computer in-class public university
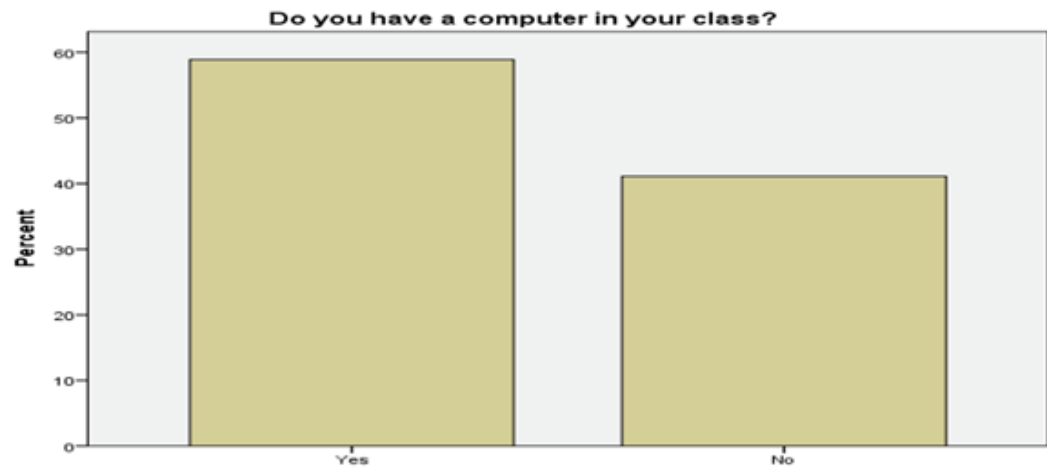
Do you have a separate computer cabinet?

From the below table, we can see that there are 37.8% of respondents did have a separate computer cabinet. The table and Bar graph are attached below.

Table 40. Computer cabinet public university

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	34	37.8	37.8	37.8
Valid. No	33	36.7	36.7	74.4
Don't Know	23	25.6	25.6	100.0
Total	90	100.0	100.0	

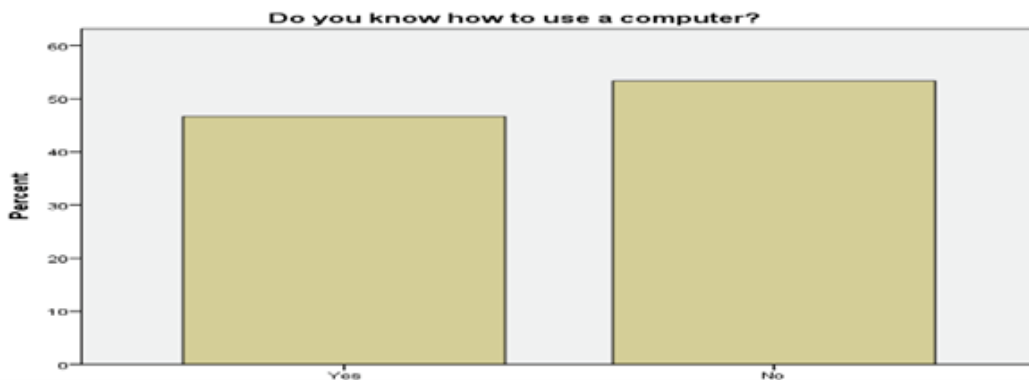Figure 43. Graph 38: Computer cabinet public university
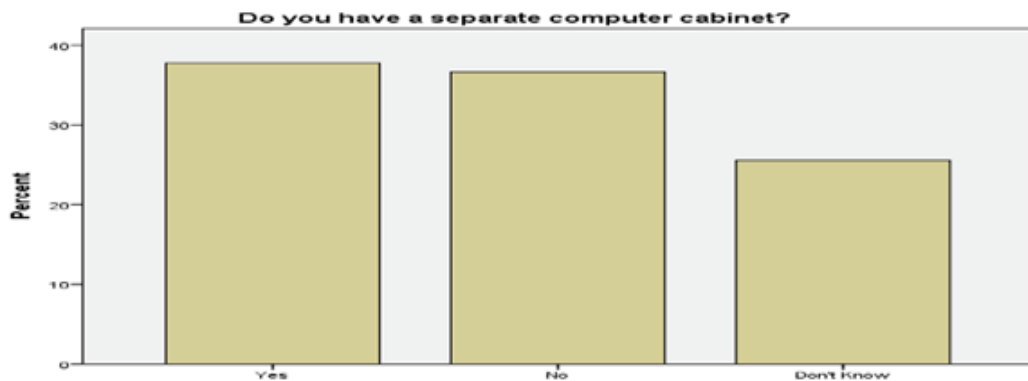
Do you know how to use a computer?

From the below table, we can see that there are 53.3% of respondents did not know how to use a computer. The table and Bar graph are attached below.

Table 41. Use-knowledge public university

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	42	46.7	46.7	46.7
Valid. No	48	53.3	53.3	100.0
Total	90	100.0	100.0	

**Figure 44. Graph 39: Use-knowledge public university**

If yes, how much?
From the below table we can see that there are 42.2% of respondents did know how to use a computer on a medium level. The table and Bar graph are attached below.

Table 42. Use level public university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	26	28.9	28.9	28.9
	Medium	38	42.2	42.2	71.1
	High	26	28.9	28.9	100.0
	Total	90	100.0	100.0	

Figure 45. Graph 40: Use level public university
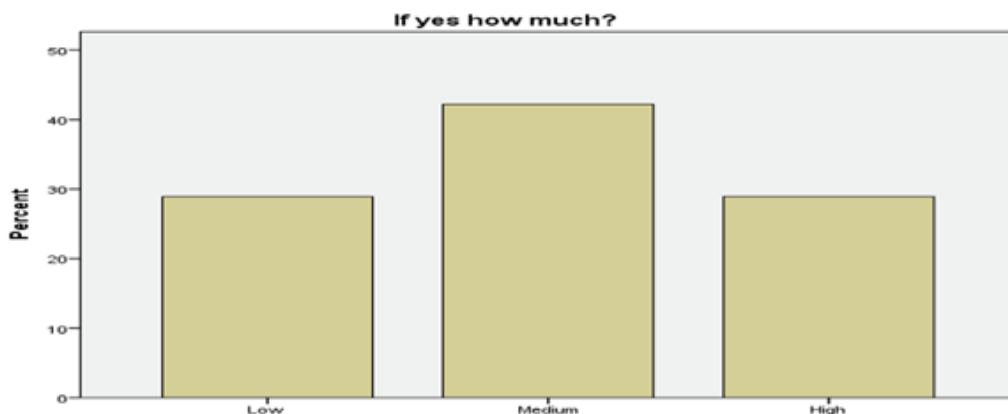
If yes, how many days a week do you use the computer in school?
From the below table, we can see that there are 24.4% of respondents use the computer in the university 5 days a week. The table and Bar graph are attached below.

Table 43. Days of use public university

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
1 day	14	15.6	15.6	15.6
2 days	17	18.9	18.9	34.4
3 days	20	22.2	22.2	56.7
4 days	17	18.9	18.9	75.6
5 days	22	24.4	24.4	100.0
	90	100.0	100.0	

Do you use the computer in the IT subject?
From the below table, we can see that there are 51.1% of respondents use the computer in IT subject.
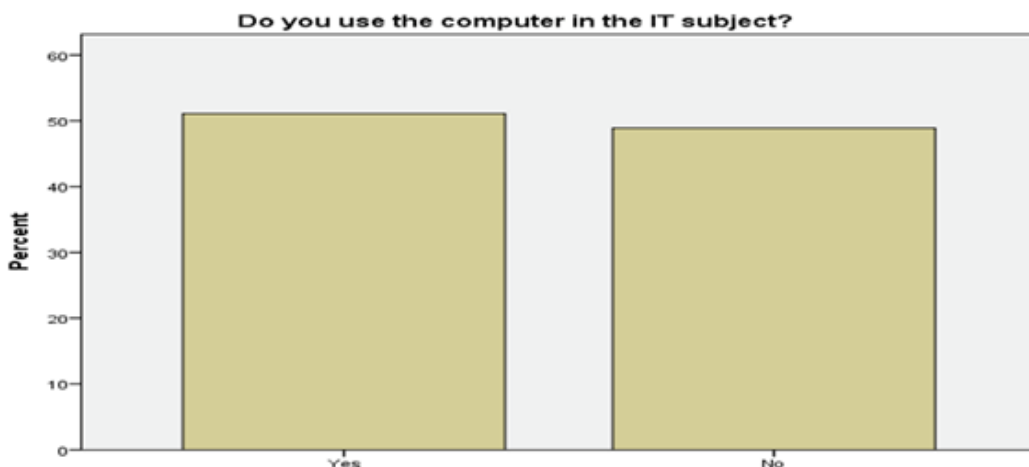The table and Bar graph are attached below.

Figure 46. Graph 41: Days of use public university

Table 44. IT-subject use public university

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	46	51.1	51.1	51.1
Valid. No	44	48.9	48.9	100.0
Total	90	100.0	100.0	

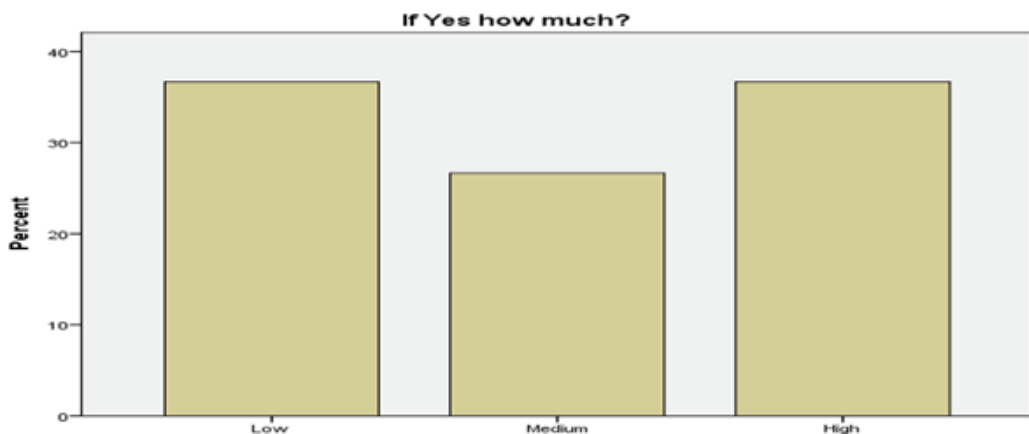**Figure 47. Graph 42: IT subject use public university**

If yes, how much?

From the below table, we can see that there are 36.7% of respondents use computer for IT subject at both low and high level. The table and Bar graph are attached below.

Table 45. IT-level use public university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	33	36.7	36.7	36.7
	Medium	24	26.7	26.7	63.3
	High	33	36.7	36.7	100.0
	Total	90	100.0	100.0	

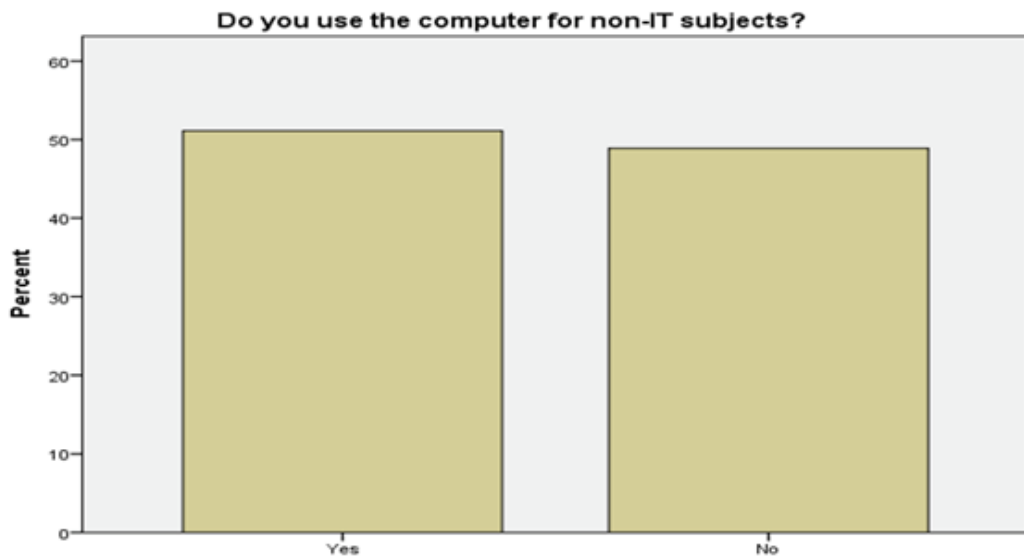**Figure 48. Graph 43: IT-level use public university**

Do you use the computer for non-IT subjects?

From the below table, we can see that there are 51.1% of respondents use computer for non- IT subjects. The table and Bar graph are attached below.

Table 46. Non-IT subject use public university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	46	51.1	51.1	51.1
Valid.	No	44	48.9	48.9	100.0
	Total	90	100.0	100.0	

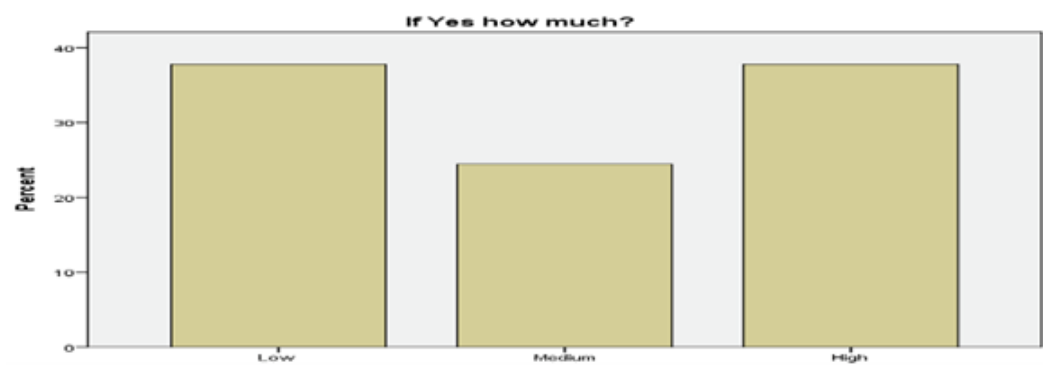**Figure 49. Graph 44: Non-IT subject use public university**

If yes, how much?

From the below table, we can see that there are 37.8% of respondents use computer for non - IT subject at both low and high level. The table and Bar graph are attached below.

Table 47. Non-IT level use public university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	34	37.8	37.8	37.8
Valid.	Medium	22	24.4	24.4	62.2
	High	34	37.8	37.8	100.0
	Total	90	100.0	100.0	

**Figure 50. Graph 45: Non-IT level use public university**

Do you use the computer for research?
From the below table, we can see that there are 53.3% of respondents do not use computers for research. The table and Bar graph are attached below.

Table 48. IT-for-research public university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	42	46.7	46.7	46.7
Valid.	No	48	53.3	53.3	100.0
	Total	90	100.0	100.0	

**Figure 51. Graph 46: IT-for-research public university**
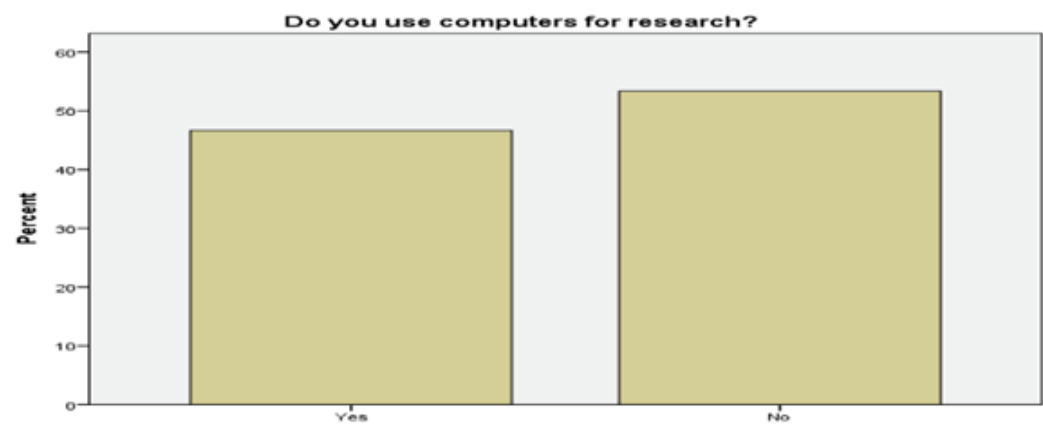
If yes, how much?
From the below table, we can see that there are 42.2% of respondents use computer for research at low level. The table and Bar graph are attached below.

Table 49. IT-research-use-level public university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	38	42.2	42.2	42.2
	Medium	21	23.3	23.3	65.6
	High	31	34.4	34.4	100.0
	Total	90	100.0	100.0	

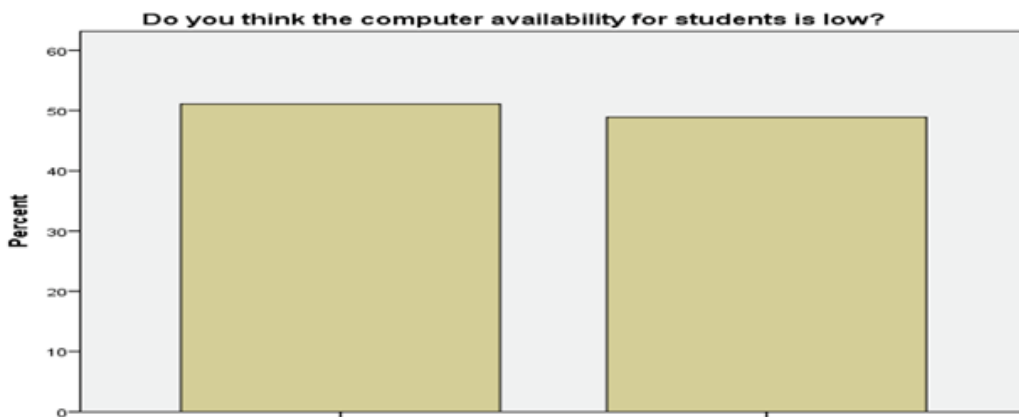**Figure 52. Graph 47: IT research use level public university**
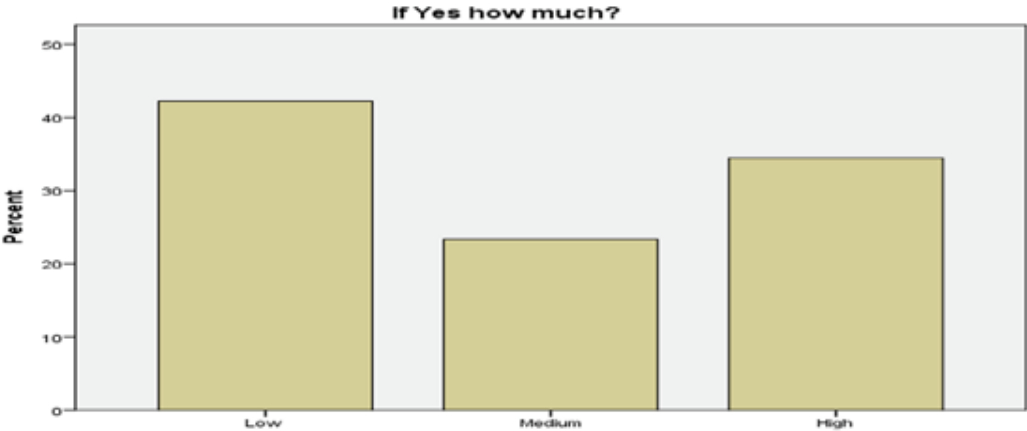
Do you think the computer availability for students is low?
From the below table, we can see that there are 51.1% of respondents think computer availability for students is low. The table and Bar graph are attached below.

Table 50. Availability opinion public university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	46	51.1	51.1	51.1
	No	44	48.9	48.9	100.0
	Total	90	100.0	100.0	

Figure 53. Graph 48: Availability opinion public university

If yes, how much?

From the below table, we can see that there are 37.8% of respondents think computer availability for students is low at a low level. The table and Bar graph are attached below.

Table 51. Availability opinion level public university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	34	37.8	37.8	37.8
	Medium	27	30.0	30.0	67.8
	High	29	32.2	32.2	100.0
	Total	90	100.0	100.0	

Figure 54. Graph 49: Availability opinion level public university
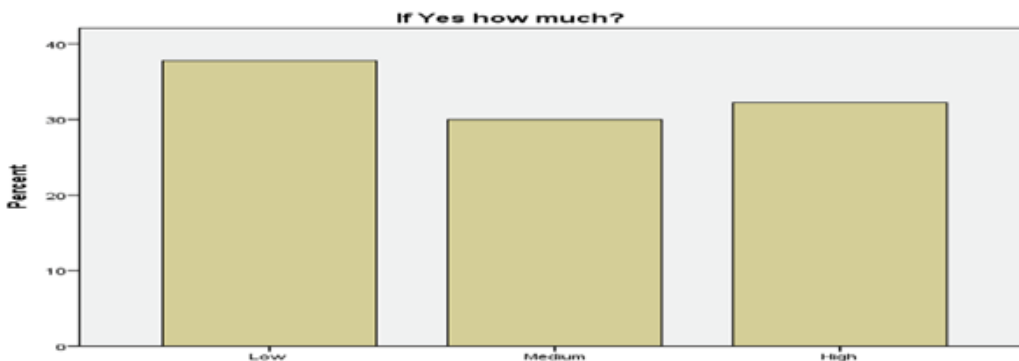
How to use from school or home

From the below table, we can see that there are 55.6% of respondents use from home. The table and Bar graph are attached below.

Table 52. School-or-home-use public university

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid. School	40	44.4	44.4	44.4
Home	50	55.6	55.6	100.0
Total	90	100.0	100.0	

Figure 55. Graph 50: School-or-home use public university

How to use from school or home
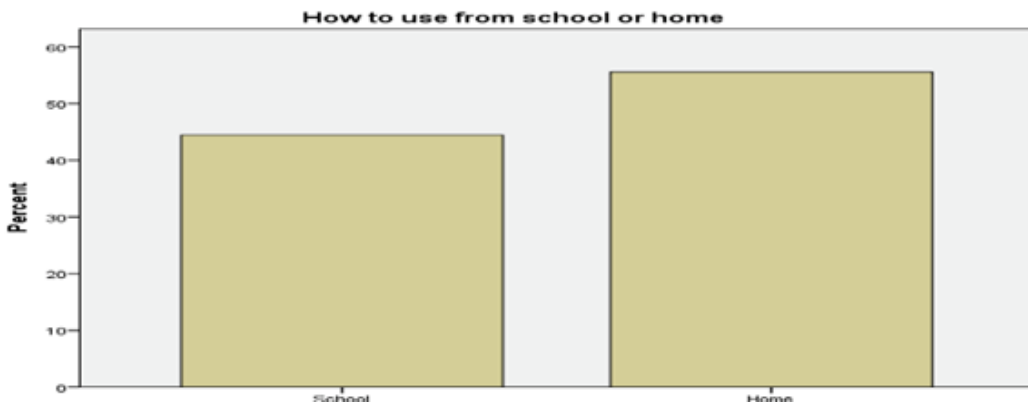
Private

Do you have a computer in your university?

From the below table, we can see that there are 38.9% of respondents did have computer in their university. The table and Bar graph are attached below.

Table 53. Computer available private university

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid. Yes	35	38.9	38.9	38.9
No	24	26.7	26.7	65.6
Don't Know	31	34.4	34.4	100.0
Total	90	100.0	100.0	

**Figure 56. Graph 51: Computer available private university**
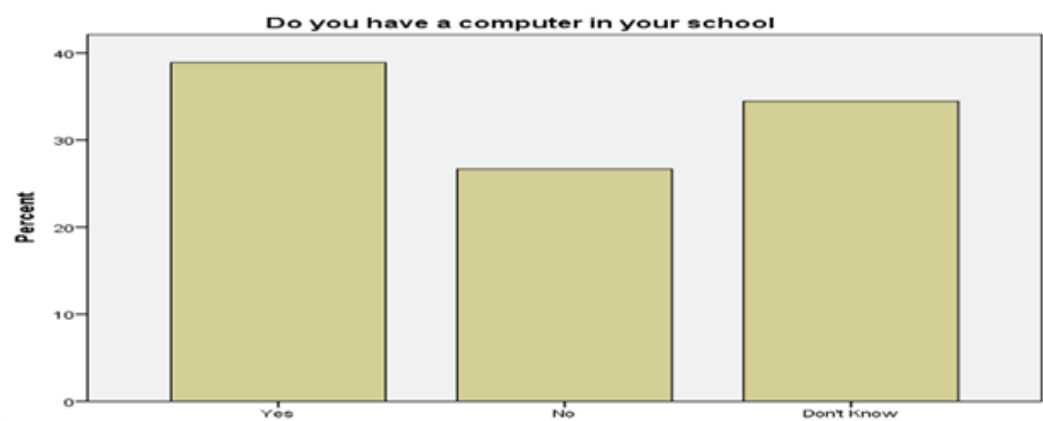
Do you have practice hours on the computer?
From the below table, we can see that there are 52.2% of respondents did not have practice hours on
the computer. The table and Bar graph are attached below.

Table 54. Practice hours private university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	43	47.8	47.8	47.8
Valid.	No	47	52.2	52.2	100.0
	Total	90	100.0	100.0	

**Figure 57. Graph 52: Practice hours private university**
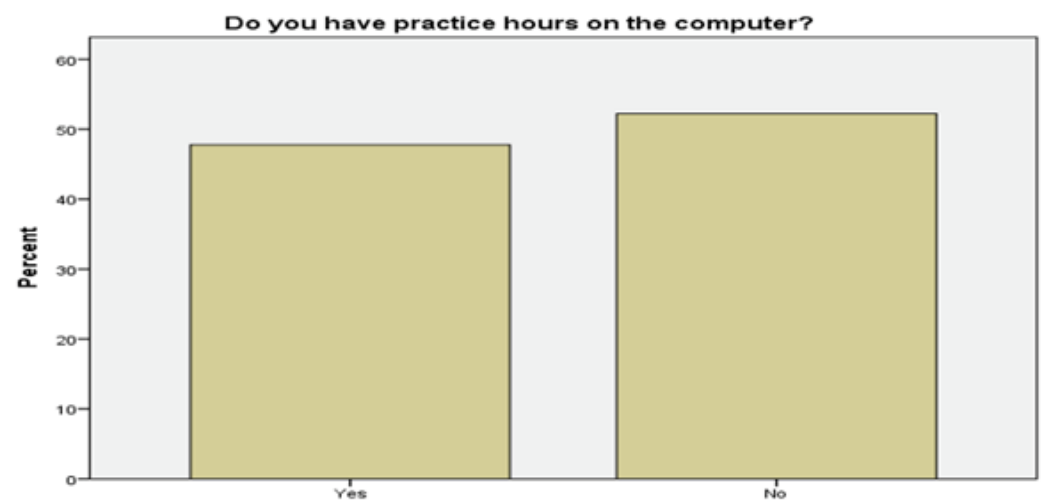
Do you have a computer in your class?

From the below table, we can see that there are 56.7% of respondents did have computer in their class. The table and Bar graph are attached below.

Table 55. Computer in-class private university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	51	56.7	56.7	56.7
Valid.	No	39	43.3	43.3	100.0
	Total	90	100.0	100.0	

Figure 58. Graph 53: Computer in-class private university
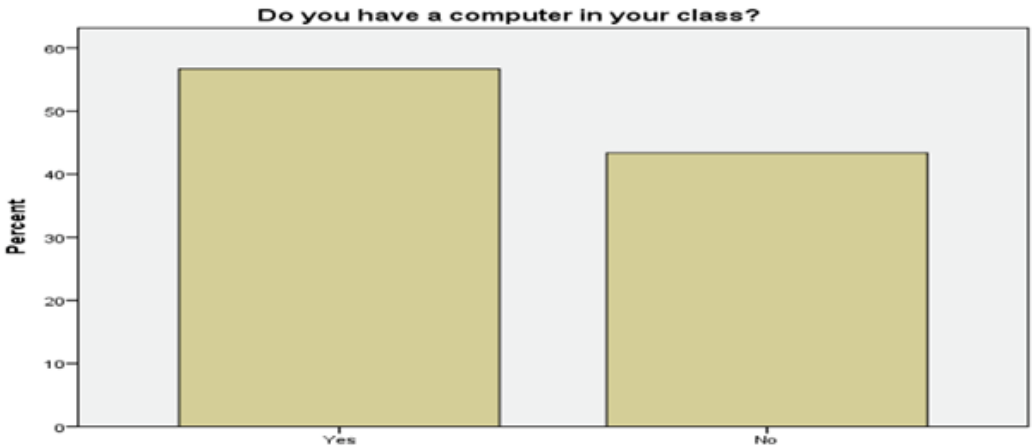
Do you have a separate computer cabinet?

From the below table, we can see that there are 51.1% of respondents did have a separate computer cabinet. The table and Bar graph are attached below.

Table 56. Computer cabinet private university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	46	51.1	51.1	51.1
Valid.	No	44	48.9	48.9	100.0
	Total	90	100.0	100.0	

Figure 59. Graph 54: Computer cabinet private university
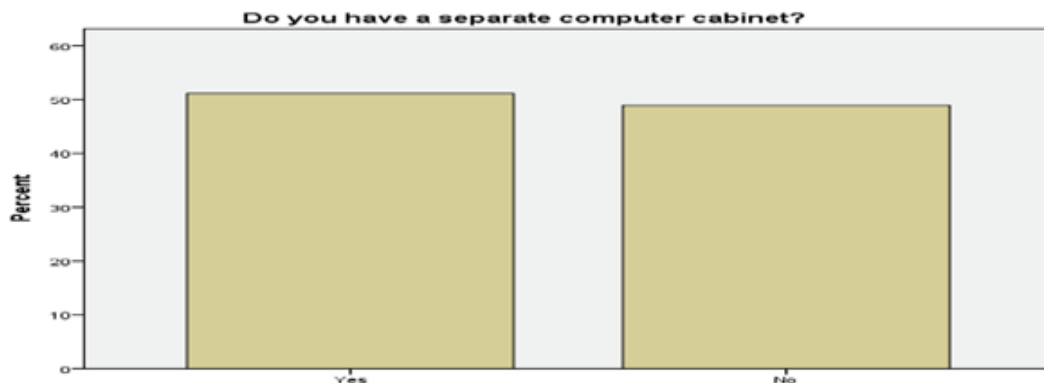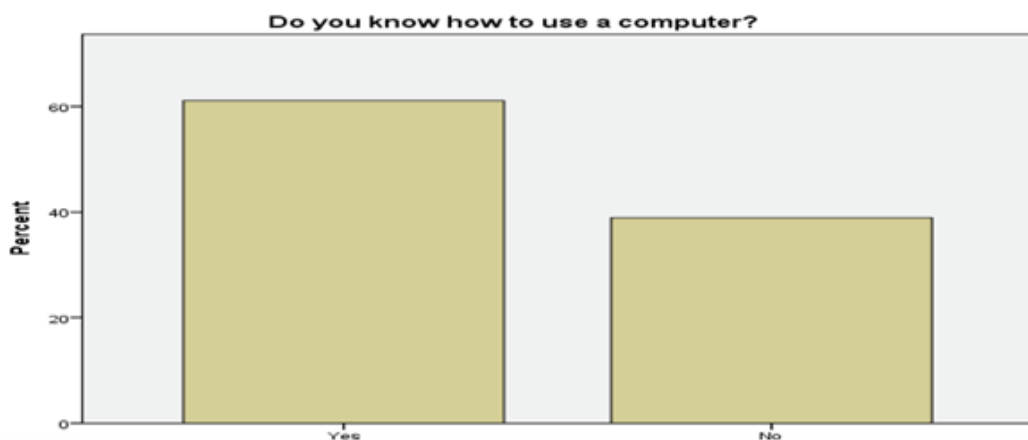

Do you know how to use a computer?

From the below table, we can see that there are 61.1% of respondents did know how to use a computer. The table and Bar graph are attached below.

Table 57. Use-knowledge private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	55	61.1	61.1	61.1
	No	35	38.9	38.9	100.0
	Total	90	100.0	100.0	

**Figure 60. Graph 55: Use-knowledge private university**

If yes, how much?

From the below table, we can see that there are 37.8% of respondents did know how to use a computer on a high level. The table and Bar graph are attached below.

Table 58. Use level private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	30	33.3	33.3	33.3
	Medium	26	28.9	28.9	62.2
	High	34	37.8	37.8	100.0
	Total	90	100.0	100.0	

Figure 61. Graph 56: Use level private university
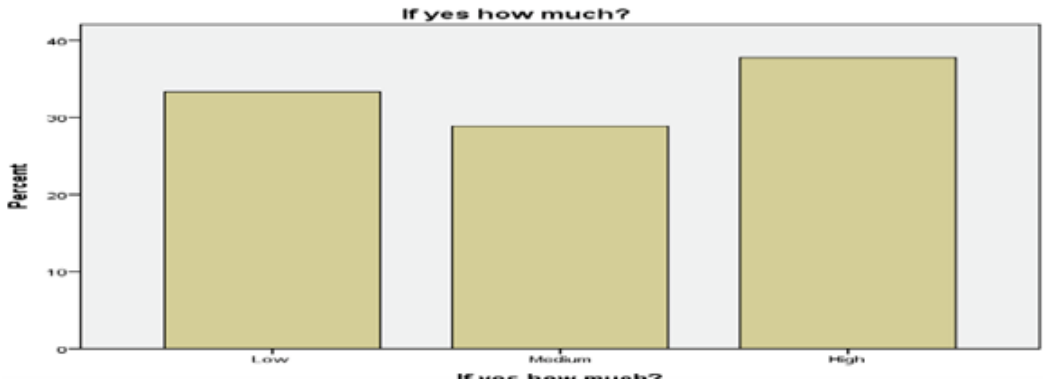
If yes, how many days a week do you use the computer in school?

From the below table, we can see that there are 25.6% of respondents use the computer in the university 5 days a week. The table and Bar graph are attached below.

Table 59. Days of use private university

Valid	Frequency	Percent	Valid Percent	Cumulative Percent
1 day	15	16.7	16.7	16.7
2 days	16	17.8	17.8	34.4
3 days	17	18.9	18.9	53.3
4 days	19	21.1	21.1	74.4
5 days	23	25.6	25.6	100.0
	90	100.0	100.0	

Figure 62. Graph 57: Days of use private university
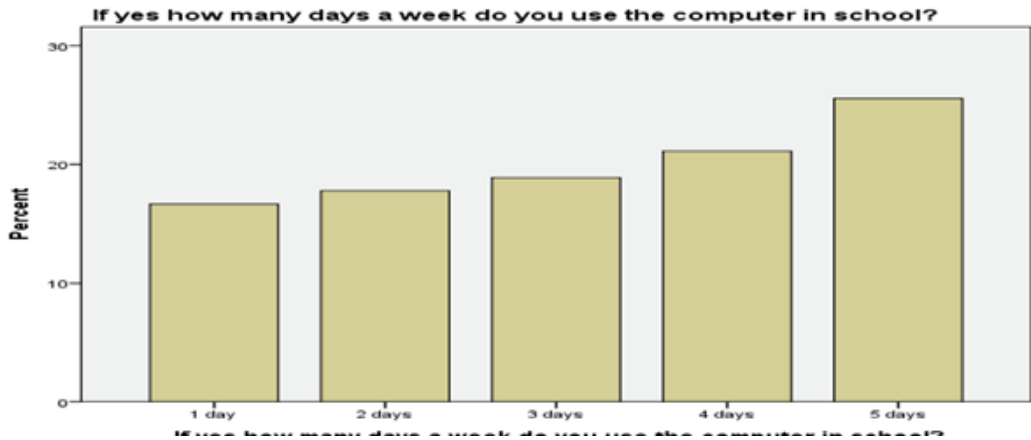
Do you use the computer in the IT subject?
From the below table, we can see that there are 56.7% of respondents use the computer in IT subject.
The table and Bar graph are attached below.

Table 60. IT-subject use private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	51	56.7	56.7	56.7
	No	39	43.3	43.3	100.0
	Total	90	100.0	100.0	

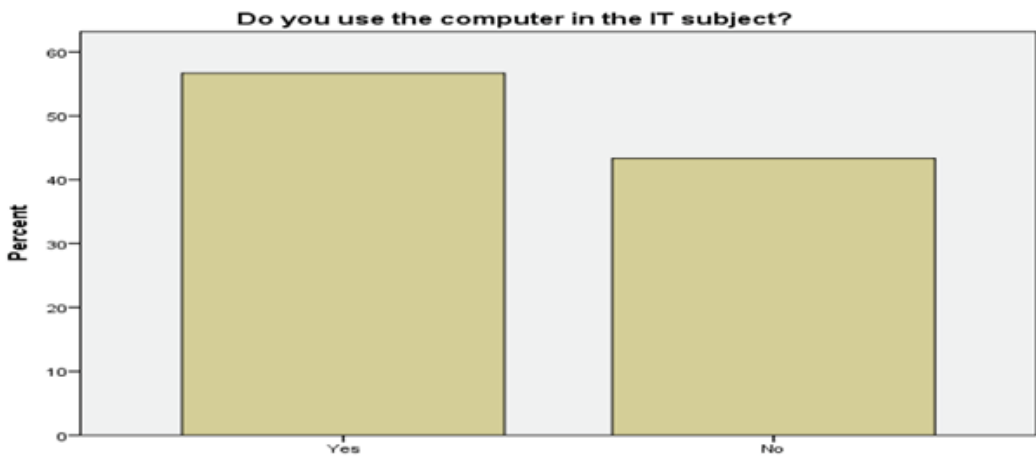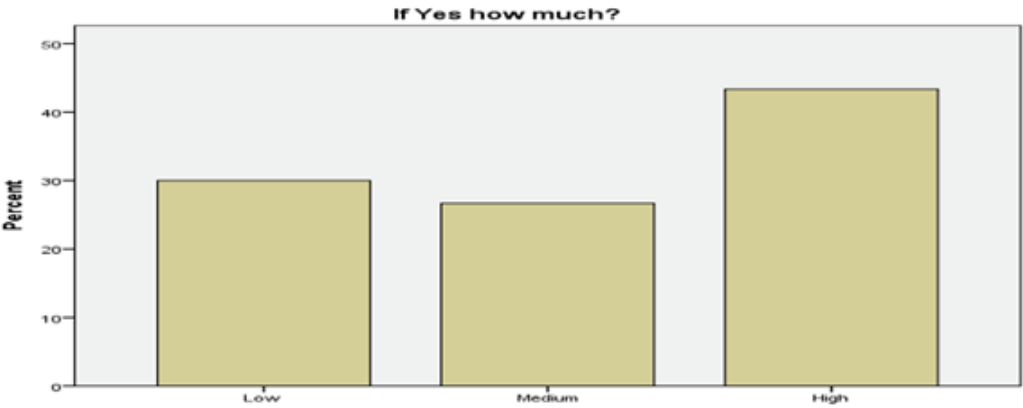**Figure 63. Graph 58: IT-subject use private university**

If yes, how much?

From the below table, we can see that there are 43.3% of respondents use computer for IT subject at high level. The table and Bar graph are attached below.

Table 61. IT-level use private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	27	30.0	30.0	30.0
	Medium	24	26.7	26.7	56.7
	High	39	43.3	43.3	100.0
	Total	90	100.0	100.0	

Figure 64. Graph 59: IT-level use private university

Do you use the computer for non-IT subjects?

From the below table, we can see that there are 54.4% of respondents do not use computer for non- IT subjects. The table and Bar graph are attached below.

Table 62. Non-IT subject use private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	41	45.6	45.6	45.6
	No	49	54.4	54.4	100.0
	Total	90	100.0	100.0	

Figure 65. Graph 60: Non-IT subject use private university
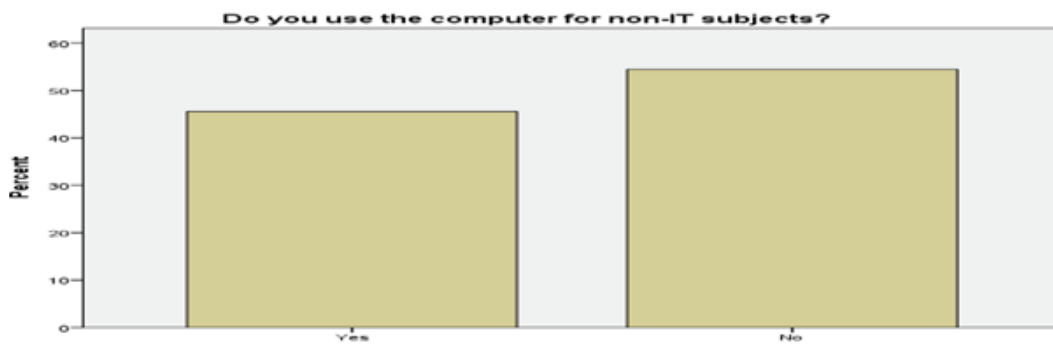
If yes, how much?

From the below table, we can see that there are 36.7% of respondents use computer for non - IT subject at medium level. The table and Bar graph are attached below.

Table 63. Non-IT level use private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	30	33.3	33.3	33.3
	Medium	33	36.7	36.7	70.0
	High	27	30.0	30.0	100.0
	Total	90	100.0	100.0	

Figure 66. Graph 61: Non-IT level use private university

Do you use the computer for research?

From the below table, we can see that there are 60.0% of respondents use computers for research. The table and Bar graph are attached below.

Table 64. IT-for-research private university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	54	60.0	60.0	60.0
Valid.	No	36	40.0	40.0	100.0
	Total	90	100.0	100.0	

Figure 67. Graph 62: IT-for-research private university

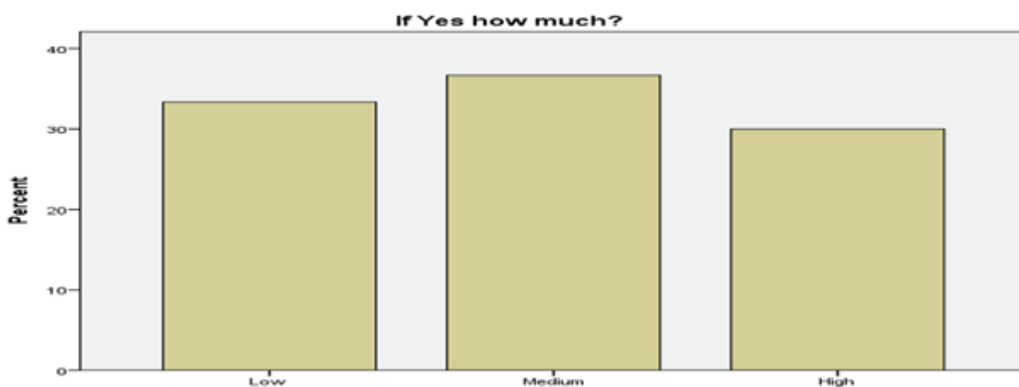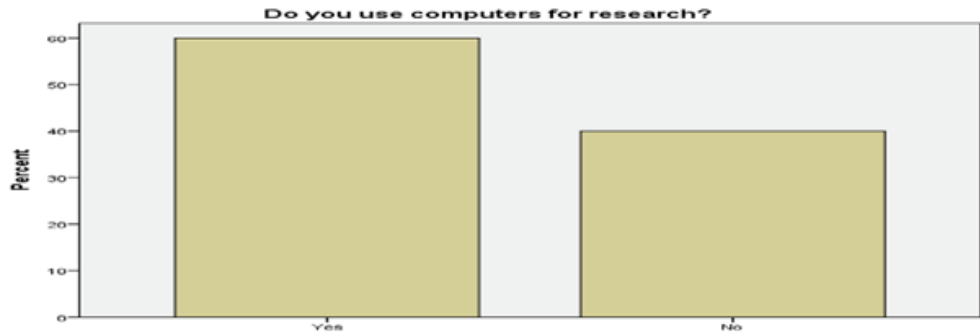

If yes, how much?
From the below table, we can see that there are 44.4% of respondents use computer for research at low level. The table and Bar graph are attached below.

Table 65. IT-research-use-level private university

		Frequency	Percent	Valid Percent	Cumulative Percent
	Low	40	44.4	44.4	44.4
Valid.	Medium	28	31.1	31.1	75.6
	High	22	24.4	24.4	100.0
	Total	90	100.0	100.0	

Figure 68. Graph 63: IT research use level private university
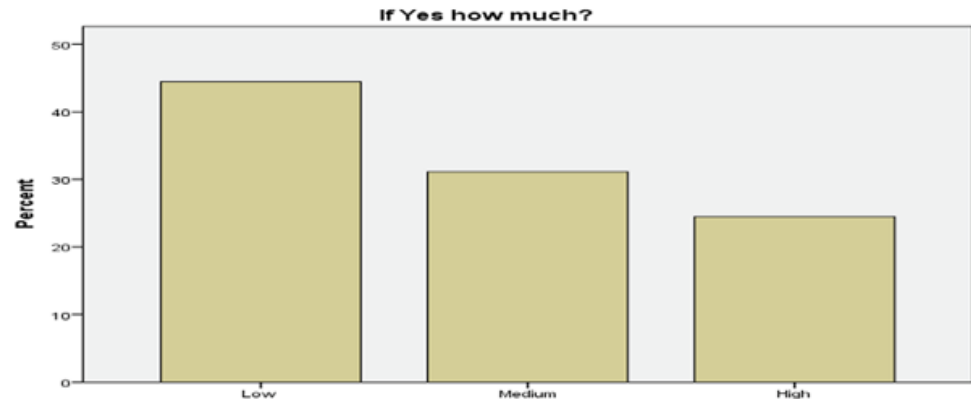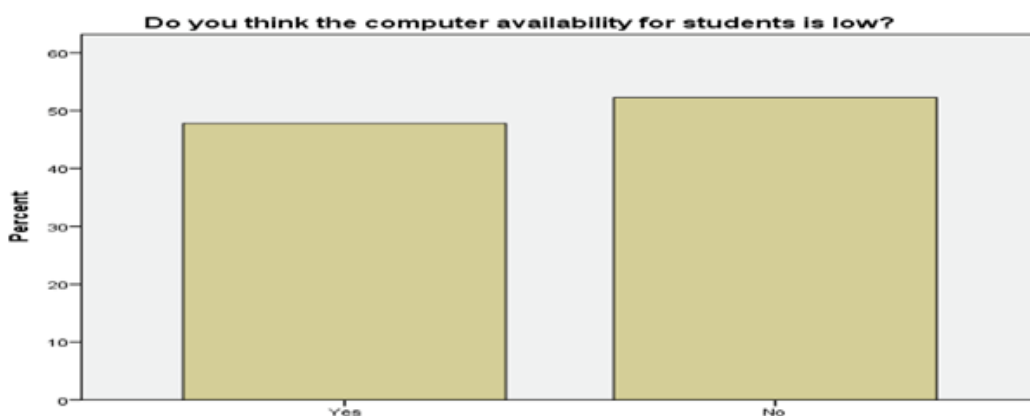
Do you think the computer availability for students is low?

From the below table, we can see that there are 52.2% of respondents think computer availability for students is low. The table and Bar graph are attached below.

Table 66. Availability opinion private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Yes	43	47.8	47.8	47.8
	No	47	52.2	52.2	100.0
	Total	90	100.0	100.0	

Figure 69. Graph 64: Availability opinion private university

If yes, how much?

From the below table, we can see that there are 41.1% of respondents think computer availability for students is low at a medium level. The table and Bar graph are attached below.

Table 67. Availability opinion level private university

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid.	Low	20	22.2	22.2	22.2
	Medium	37	41.1	41.1	63.3
	High	33	36.7	36.7	100.0
	Total	90	100.0	100.0	

Figure 70. Graph 65: Availability opinion level private university
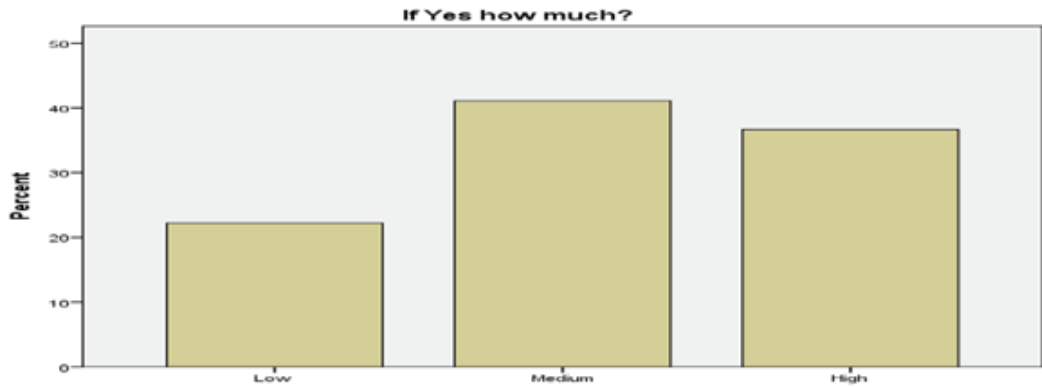
How to use from school or home
From the below table, we can see that there are 54.4% of respondents use from school. The table and
Bar graph are attached below.

Table 68. School-or-home-use private university

		Frequency	Percent	Valid Percent	Cumulative Percent
	School	49	54.4	54.4	54.4
Valid.	Home	41	45.6	45.6	100.0
	Total	90	100.0	100.0	

Figure 71. Graph 66: School-or-home use private university
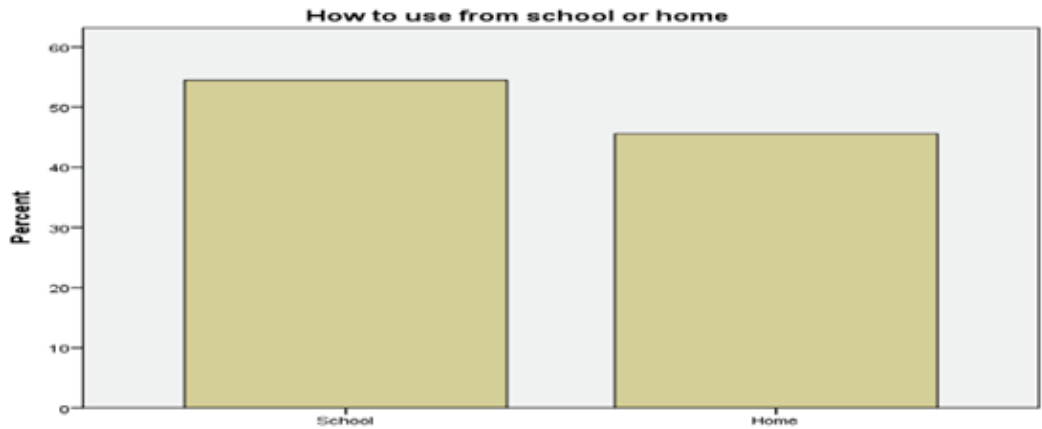
Part D: Perceived Usefulness of Digital Products for Learning

The below table, states the level of agreeableness on the statements under this item.

We can see that there are 66.7% of respondents agree on the statement *"I am well aware of e-textbooks."* The Table and Bar graph are attached below.

Table 69. Likert scale level of use university

|	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly agree
	Row N %	Row N %	Row N %	Row N %	Row N %
I am familiar with the use of interactive exercises, games, and presentations.	3.3%	8.9%	7.8%	63.3%	16.7%
I know how to operate audio and video equipment for learning.	18.9%	28.9%	20.0%	17.8%	14.4%
I know how to use a digital projector.	18.9%	22.2%	27.8%	16.7%	14.4%
I am familiar with online course materials.	14.4%	25.6%	25.6%	22.2%	12.2%
I know that I can use smartphones, tablets, laptops, or computers for accessing digital learning platforms.	17.8%	25.6%	14.4%	22.2%	20.0%
I am well aware of e-textbooks.	8.9%	5.6%	8.9%	66.7%	10.0%
I am very much familiar with interactive boards as a tool for digital learning.	6.7%	8.9%	24.4%	52.2%	7.8%
Digital education includes learning through computers and other devices.	3.3%	5.6%	8.9%	57.8%	24.4%

Figure 72. Graph 67: Likert scale level of use university
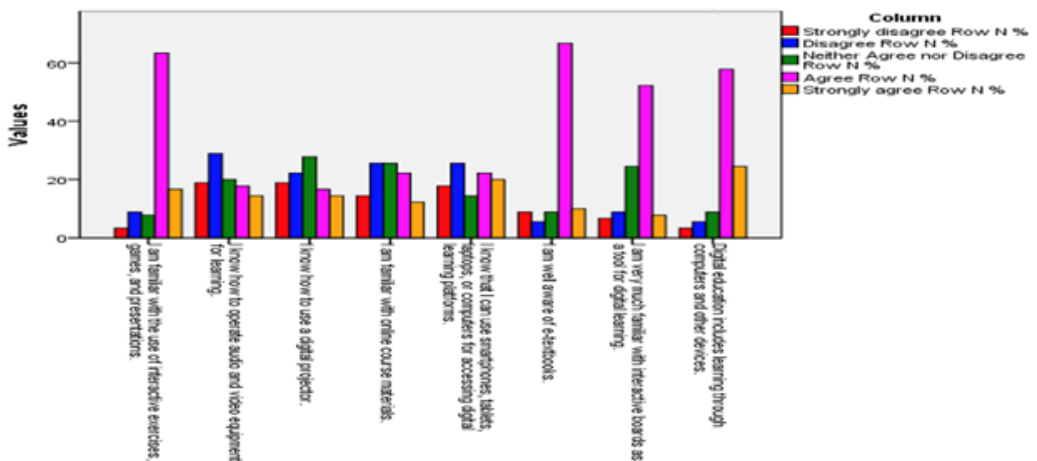
Reliability

Cronbach's Alpha is a reliability test conducted within SPSS to measure the internal consistency i.e., reliability of the measuring instrument.

It is most commonly used when the questionnaire is developed using multiple Likert scale statements and therefore to determine if the scale is reliable or not.

The below table shows the Reliability statistics of sample data of 90 sample size. Here we can see that Cronbach's alpha is 0.877, which indicates good internal consistency for our scale with this specific sample.

Figure 73. Reliability statistics

Cronbach's Alpha	N of Items
.877	70

Hypothesis Testing

H_{01}: Tools and methods currently used in Kosova schools do not have a significant impact on the Confirmation and Actual Use of Digital Products.

H_{11}: Tools and methods currently used in Kosova schools do have a significant impact on the Confirmation and Actual Use of Digital Products.

We have conducted a Correlation analysis to prove this hypothesis.

From the below table, we can see that there is a significant effect of correlation present ($r = .743$, p-value $= .000 < 0.05$). Therefore, we can accept the alternative hypothesis that *Tools and methods currently used in Kosova schools do have a significant impact on the Confirmation and Actual Use of Digital Products.*

Table 70. Correlation analysis for university level

Correlations		ConfirmationandActualUseoftheDigitalProducts	Toolsandmethodscurrentlyusedin Kosovaschools
ConfirmationandActualUseof theDigitalProducts	Pearson Correlation	1	.743**
	Sig. (2-tailed)		.000
	N	90	90
Toolsandmethodscurrentlyu sedinKosovaschools	Pearson Correlation	.743**	1
	Sig. (2-tailed)	.000	
	N	90	90

**. Correlation is significant at the 0.01 level (2-tailed).

RESULTS

Computer Applications in the Educational Institutions

Public Primary Schools

To start with the analysis of the extent of use of computer applications in the educational systems of the chosen educational institutions, the researcher enquired the respondents about the presence of computers in their schools. It has been noted in this regard that among the chosen respondents from public primary schools, considerably higher percentage of the respondents, stated that that their educational institution there is no computer, which has been opined by 35.6% of the respondents.

The respondents were further enquired about the practice hours on computers in their schools. Herein, it has been observed that the majority of the respondents, which is 55.0% stated that in their schools there is no practice hour on the computer. In alignment with the above-mentioned enquiries, when the respondents were further asked if there is a computer in their class, to which a comparatively higher percentage of the respondents, that is 50.6% stated that they do not have a computer in their class.

The respondents were also asked if their educational institutions have a separate computer cabinet. The respondents were also asked if knew about the use of a computer, to which a considerable percentage of the respondents, that is 52.8% stated that they did know how to use a computer. In this alignment, to further assess the level of knowledge of computers among the respondents, they were further asked to rate their level of knowledge between low, medium and high. It has been noted in this regard as high as 36.1% of the respondents had a low-level knowledge of the use of computers. When the respondents were asked whether they use computer from school or home, the majority of the respondents that is, 51.7% stated to use it home.

Private Primary Schools

In alignment with the data collected for computer applications in the educational system of public primary schools, on analyzing the private primary schools, a similar trend has been noted in regards to the presence of computers in private primary schools. In this regard, as high as 36.7% of respondents stated that their schools did not have computers in their school, whereas 28.9% of the respondents stated that they do not know whether their school's computer is in their school.

However, when the respondents were asked whether their schools have practice hours on the computer, it has been noted that the majority of the respondents, that is, 52.2% stated that their schools have practice hours on the computer. Furthermore, the respondents were asked about the presence of a computer in their class, to which, the response was 50:50, that is, 50.0% of the respondents yes to the presence of a computer in their class.

The respondents were enquired whether they know about the use of a computer, to which, a considerably higher percentage of the respondents stated that they did how to use a computer. To further assess their level of knowledge, the respondents were asked whether their level of knowledge was low medium or high, to which a comparatively higher percentage of the respondent that is, 37.8% leveled their level of knowledge to be medium. On enquiring where they use a computer, 50.0% of the respondent stated to use it from home.

Secondary Public School

When the respondents were asked about the presence of a computer in their educational institutions, it has been observed that a considerably higher percentage of the respondents, that is, 35.6% stated that they did have a computer in their school, on enquiring about the presence of practice hours on the computer in their educational institutions, 50.0% of the respondent stated yes to it.

When the respondents were asked whether there is a computer in their classes, 52.2% of the respondents stated that they did not have a computer in their class. On enquiring the respondents

whether they know how to use a computer, a significant percentage of the respondents, that is 55.6% stated that they did not know how to use a computer.

When the respondent assessed their of knowledge of respondents on computers, it has been observed that the majority of the respondents, that is 61.1 stated that they have a low level of knowledge. The respondents were further enquired about where they use computer, to which as high as 52.2% of the respondents stated that they use computers from school.

Secondary Private School

In contrast to public secondary schools, when the respondents from private secondary schools were asked about the presence of computers in their educational institution, it has been noted that as high as 37.8% of the respondents stated that they did have computers in their school. Furthermore, it has been noted that the majority of respondents, that is 56.7%, indicated that their schools have practice hours on the computer when asked whether they have access to computers for practice. In addition, the respondents were questioned about whether or not computers were present in the classroom.

The majority of the respondents, that is, 62.2% of the respondents stated that computers were present in the classroom. When asked if they knew how to use a computer, a significantly higher percentage of the respondents stated that they know how to use a computer. Herein as high as 52.2% of the respondents stated that they did know how to use a computer.

In addition, they were asked to rank their degree of knowledge from low to high. As high as 40.0% of the respondents were found to have a medium level of computer knowledge in this respect. When asked where they use computers 54.4% of the respondents stated to use computer from school

Public University

The respondents were enquired if there were computers in the universities they attended by the researcher. In this respect, it should be noted that among the selected respondents from public universities, a significantly higher proportion of respondents, that is, 36.7% reported that their educational institution does have a computer. Further questions regarding the computer practice hours in the respondents' universities were posed to them. The majority of respondents, that is, 56.7% of those surveyed, stated that their institutions do not offer a computer practice period.

Interestingly, a relatively larger percentage of respondents, i.e., 58.9%, responded that they do have a computer in their class in response to the subsequent question. 53.3% of the respondents stated that they did not know how to use a computer when enquired about whether they know about the use of computers or not. The respondents in this alignment were further asked to evaluate their level of computer knowledge to further assess their level of computer knowledge. As many as 42.2% of the respondents were found to have only a medium level of computer knowledge in this respect.

In alignment with the above-made inquiry, to further analyze the level of incorporation of information technology and computer in educational systems, the respondents were further asked about the frequency of use of computers in their universities. In this regard, it has been observed that as high as 24.4% of the respondents use a computer in the university 5 days a week.

The level of usage of computers in the curriculum of the educational institutions was further analyzed, wherein the respondents were enquired about the use of computers in the IT subject. In this respect, the majority of the respondents, that is 51.1% stated to have used a computer in the IT subject. Furthermore, the frequency of use of computer in their IT subject was also enquired by the researcher, wherein it has been observed that at both low and high level, 36.7% of the respondents use computer for IT subject, respectively. For further determining the level of incorporation of computers in the curriculum of the universities, the respondents were asked whether they use computers for non-IT subjects, to which, 51.1% of the respondents stated that they use computer for non-IT subjects, indicating a high level of integration of computer usage in the curriculum of public universities.

When enquired about the level of usage of computers in non-IT subjects it has been observed that 37.8% of the respondents use computers for non-IT subject at both low and high levels. However,

on asking the respondents about the use of computers in their institutions for research purposes, as high as 53.3% of the respondents stated that they do not use computers for research. On assessing the level of use of computers for research, it has been noted that the majority of the respondents, that is, as high as 42.2% of respondents use computers for research at a low level, while 34.4% of the respondents use them at a high level.

The researcher further enquired the respondents about their perception of availability of computers in their universities, to which, as high as 51.1% of respondents opined that they think computer availability for students is low. Furthermore, the respondents were asked about the level at which they think that the availability of computers is low in their educational institutions.

In this respect, the majority of the respondents, that is 37.8%, stated that they think computer availability for students is low in their universities at a low level, while a considerable percentage of the respondents, i.e., 32.2% stated that they think computer availability for students is low in their universities at a high level. When questioned whether they use their computers at home or university, the majority of respondents—55.6% —said they use them at home.

Private University

When respondents from private universities were questioned about the presence of computers in their educational institution, it has been observed that up to 38.9% of respondents stated that their school did have computers. It has also been noted that when asked if they have practice hours on the computer, the majority of respondents—52.2% —said their universities do not have computer practice times. The use of computers in the classroom was another question that was posed to the respondents. The majority of responses, or 56.7% of the total, said there were computers in the classroom.

To understand the level of knowledge or use of computers in the curriculum of these universities, the respondents were asked whether they know the use of a computer or not, to which, the majority of the respondents, which is 61.1% stated that they did know how to use a computer. To gauge the respondents' degree of computer proficiency further, the researcher asked them to rate their level of computer expertise. 37.8% of the respondents did know how to use a computer on a high level.

The respondents were further questioned about the frequency of computer use in their universities. In this regard, it has been noted that as many as 25.6% of the respondents use a computer five days a week at their university.

56.7% of respondents, who made up the majority, stated to have used a computer when studying IT subject, a trend also similar to the public universities. The scholar also asked respondents how often they use computers for studying IT subject, and it was found that as high as 43.3% of respondents uses computers for IT subject at a high level. When asked if they used computers for subjects other than information technology, 54.4% of respondents stated that they do not use computers for non-IT subjects. 36.7% of respondents, which is a significant percentage of the respondent responded that they use computers for research at medium levels, according to an assessment of the degree of use of computers for research. When the respondents were asked if their institutions used computers for research, a significant percentage of 60.0% of them responded that they use computers for research. The researcher on asking the level of use of computers for research purposes to the respondents, it has been noted that 44.4% of respondents stated that they use computer for research at a low level.

The researcher additionally asked the respondents about their perception on the availability of computer in their universities, to which, as high as 52.2% of respondents opined that they think computer availability for students is low. In terms of the level at which they think the availability of computers is low in their universities, it has been observed that 41.1% of the respondents think computer availability for students is low at a medium level and 36.7% of the respondents perceive it to be high. In terms of the use of computer from school and home, 54.4% of the respondents stated that they use computers from the educational institution.

DISCUSSION

In the current study it has been noted that in public educational institutions, for instance, in the public primary institutions, it has been observed that a considerably high number of the respondents were not aware whether their educational institution has any computer or not, which has been stated by as high as 32.2% of respondents. It is demonstrative of the lack of incorporation and emphasis on computers in the curriculum of public educational institutions. In this regard, in the research carried out by AL-Rahmi et al, (2020) the researchers have looked at the case study in Malaysia and Arabia, in which the students displayed high intention and satisfaction for technology utilization in education, which has been feasible owing to the integration and focus on IT in the education system, that can be observed to be contrary with the scenario of Kosovo.

Among the public institutions considered for the study, the lowest level of integration of computers has been noted in primary educational institutions as compared to the secondary institutions and universities. In public universities, it has been noted that the respondents practices computers 5 days a week, a trend also observed in private universities which are indicative of the high level of integration of information technology and computer usage in the curriculum of the educational institution.

A strong variation in the computer use in the academic programs of public universities and private universities were also observed when the respondents were enquired about the use of computer for non-IT subjects. Thus, it is a country's focus on and incorporation of IT into its educational system that causes its students to perceive and be satisfied with the use of technology in education.

CONCLUSION AND RECOMMENDATIONS

Post-conflict nations with limited growth lack the resources, IT expertise, and IT-related practices in their educational systems. Kosovo, one of them, experiences poor economic growth and prosperity, which is thought to be due to a lack of technological use and understanding in the educational system. From such reports, theorizing can only be backed after extensive fieldwork and education examination. Findings restate that, most educational institutions at the primary, secondary, and tertiary levels lack the computers necessary to acquire adequate information.

The public sector is now in a different position when compared to the private one. When it does, it is typically restricted to IT-related topics. It is minimal in public elementary schools and unknown to some very young students, while it is considerably greater in secondary schools and tertiary institutions.

Contrary to the private sector, where greater investment is presumed, availability is high across all schooling levels. Thus, findings from this study show that IT accessibility is inadequate, particularly in the public sphere.

The study reveals substantial studies on IT and education but calls for further need of examination.

Limitations on the variables used involve quantitative measures with few explanatory studies. Also, the limited quantity of the examined participating institutions and respondents. It may presume generalization of IT's role in education for modern skills.

A sustainable system is yet to be achieved for Kosovo, a country with a troubled history and a dismantled political system, through IT integration.

Recommendations

In this regard, to effectively integrate computer and information technology in the educational system of Kosovo, the following initiatives can be taken:

- To give schools, the necessary logistical assistance, there must be adequate infrastructure, including the right hardware, software, networks, and Internet access. The right technology can be acquired by either buying enhanced ones, upgrading older ones, or reinstalling them to run software that uses little processing power.

- The creation of a district-wide technology strategy with an emphasis on how to use technology to improve learning environments.
- The district should make a greater effort to educate instructors about software by putting less emphasis on tutorial activities and more on application, communication, and exploratory activities.
- The expansion and improvement of professional development classes on the practical application of technology in education. These initiatives must be ongoing and pertinent to teachers' requirements. Schools should be allowed a lot of flexibility in determining the type, extent, and frequency of the programs (Hilliard, 2015).
- More technical assistance should be given to instructors, including guidance on how to use technology both pedagogically and for administrative tasks.
- The installation of computers in classrooms so that instructors and students can easily utilize them when needed.
- A district-sponsored "group buy" of computers by instructors and students for use at home to lessen the possibility of incompatibility between classroom and home computers.
- Develop the provision of help and training for teachers using technology in the classroom. The right training institutions must be found, and collaboration arrangements must be made, to educate teachers and other school personnel on how to use technology successfully and efficiently for administrative and classroom purposes.
- A result-based evaluation is put into practice. Instead of emphasizing how much time students spent studying, assessments of their performance should focus more on what they can do. Examining a student's performance in a new, technologically enhanced learning environment in which understanding has been facilitated by discovery, collaboration, and communication is the goal of performance evaluation. Instead of ranking students against one another through written tests, assessment should evaluate the number of learning goals met.
- Gradually incorporating technology into lessons in the classroom. It is not advisable to drastically alter teachers' current classroom procedures without allowing them a sufficient amount of time to adjust to the inclusion and use of technology as a teaching tool. Teachers must use technology successfully for them to embrace it as a teaching tool. A smooth, gradual, and well-planned transition from traditional classroom teaching to a computer-based learning environment is required (Jhurree, 2005).
- Promoting collaboration between the public sector, private sector, and educational organizations like colleges and universities. All interested parties are included in this collaboration, which establishes a forum for their constructive cooperation in the technology incorporation process.
- Uniform allocation of resources. Funds must be allocated according to a proper scheme. This plan must include ongoing, recurring money in addition to one-time funding.
- Creating the classroom library and then computerizing it. The easiest and most convenient access to curriculum resources is required for both students and teachers. Having computerized libraries in classrooms will help with this. However, many institutions in developing nations lack libraries entirely. As a result, educational administrators place a high emphasis on creating libraries in schools. Additionally, libraries that are already present in classrooms can begin to be computerized.

AVAILABILITY OF DATA AND MATERIAL

This paper has been produced from survey data collection from students, and those data are presented in the paper through collection of tables and presented information.

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The author of this publication declares there are no competing interests.

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