

Teaching IT to seniors

Adham el Kordy

Thesis seminar and workshop,
THE7TF900
September 2015



Author(s) Adham el Kordy	
Degree programme Bachelor of Business Information Technology	
Report/thesis title Teaching IT to seniors	Number of pages and appendix pages 22 + 8
<p>Computers have become a part of everyday life. Computers are used everywhere. Even little children are using various technologies from desktop to portable ones. This is not the case with elderly people. Computers have not been part of their life so far. That is why some of them are facing problems in today's computerized society.</p> <p>The main goal of this thesis was to learn to understand the seniors' computer behaviour and how they would learn the best possible way to use their own personal computers.</p> <p>The survey was made in four different sections of Helsingin Työväenopisto. The course participants were Finnish elderly or retired people, who wanted to learn how to use computers. The Survey was made by using Google questionnaire forms and it was send via the internet to the teachers to distribute among students. Half of the students answered the questionnaire in a paper format. The questions concerned the senior's computer usage, their areas of interest and their learning habits.</p> <p>The research showed that the seniors' main concern was to learn the basic use of computer and knowing how to do the banking was important. They learned the easiest from the teacher and by practising their own. The study reveals most of them understood at least some of the basics.</p> <p>The learning and studying must be always cherished. If the person is not old today it would not mean that he or she will not have problems with technology in the future. People always have to respect not fear the technology. If someone thinks he or she knows everything it means he or she have not searched deep enough.</p>	
Keywords Elder, Helsingin Työväenopisto, IT, Information Technology, Learning, Teaching	

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1 Introduction

Computers have always been part of the future and always will be in rise for the future as technology goes further and further. According to Guardian the UK tries to save the amount of £1.8bn by moving the transactions of the citizens to the internet. By moving the citizens to online the government tries to boost the economy by £63bn by developing better digital skills across the country. By the evidence it is said that by using internet the users can save money and also to have a better access to public and commercial services. (Guardian 2013.)

1.1 The research questions

An average user who has been using computers for most of his life might still have a problem adapting to the incoming digital changes. However, there is a large amount of older people who haven't had a chance to learn how to properly use the modern technologies. Similarly, other groups such as people with learning difficulties will need more support with computers as well. These are problems that will be increasing as technology is constantly advancing. How can we change the future for most beneficial situation for the slow-learning and elder people in order for them to keep up with the upcoming changes of technology? How should and could the companies prepare themselves for the upcoming waves of people who have not kept up with the modern technologies? Also, it has to be known that even though some people who do know currently how to use computers may have problems in the future while trying to learn the future technologies. How can companies and schools offer courses and products for the elder people who have not used computers ever in their whole lifetime? Furthermore, how can we support lifelong learning while taking into account the problems caused by aging such as declining vision?

1.2 The research objectives

The objectives of the research were to understand how elder people use computers and what kind of help they would acquire with learning the use of computers and applications. In addition, information was collected in order to find out if the customers of Helsingin Työväenopisto would need more courses or certain kind of teaching methods to learn the use of computers and different applications in the better way. The objective was also to know which way elder people absorb the teaching to themselves and what are the best possible methods for them to learn it.

1.3 The research method

The whole research was made in a quantitative way. The research was made by making a questionnaire for people in Helsingin Työväenopisto offered for the elder people. The answers to the questionnaire questions were collected by doing the paper copies of the questionnaire and giving in it in the end or beginning of the course for the students and helping them to answer to it. Answering to the questionnaire was made also possible by sending emails to the teachers. The teachers were informed about what the questionnaire was for and that the questionnaire could be distributed to the students as a link.

The scope is based on the learning of the elder people and their computer use behaviour. In this research, the scope was based on the students of Helsingin Työväenopisto from age 50 and up. Out of scope were left all the other elder people who weren't studying in Työväenopisto.

1.4 Terminology

Information technology

Information Technology also referred, as IT definition is everything related to computers from the computer itself to the applications and communication between the computers and the systems.

Operating system

Operating system or also referred, as OS is the system that the whole computer is built on. All the settings and installed applications that computer user is using installing or uninstalling is on the operating system. As example operating systems are Windows 7-10, Linux (Cinamon, Kernel etc.), Android and iOS also earlier known as iPhone Operating System etc.

Software

Software in the thesis is everything that people can install and uninstall from the operating system. This includes as an example all the applications related to writing, IT security and others. Examples of applications can Microsoft word, F-secure, Libre office etc.

Personal computer

Personal computer that can be also referred as PC or pc is a computer that is used by home users. Personal computer includes software and different operating systems from Windows to Linux. In this thesis, still the main meaning of personal computer is pc running under Windows operating system from Widows 7 to Windows 10.

Communication

Communication means in this thesis communication between elder people and their family members in different home to school environment. Communication is done with Skype or Facebook that the elders use.

2 Need of computers

Researches made by Jeffrey T. Fouts explain how computers have made a major impact to schools. In year 2000 it was estimated that there were 10 million computers in schools and that schools' annual investments in technology were \$6 billion. It was also said that 53% of teachers used some software for teaching purposes. (Fouts 2002.)

Worldometers, which has good sources like Gartner, mentions that in the year 2002 the amount of sold personal computers reached the first billion and the second billion in 2007. It was also said it took 27 years to sell the first billion computers but second billion was sold already in the following 5 years which points out the increase in sales and the growing need of computers. (Worldometers 2015.)

2.1 Learning

In website of Hechinger report's article "Will co-teaching with computers improve students learning?" says that term used as blended learning is a thing used for combining the casual instructions of the students with the online learning, helping the teachers gain the data for their students' performance. On this knowledge that the teachers have gained they are able to group students with their individual learning needs. This would offer a solution for Montero's problem in teaching where some of the students understood everything that was handled and the other group that had problems in staying along. (Hechinger report 2014.)

Learning of the elder people is more problematic. According to Xie Bo's research it is said that elder people made a lot more errors in text editing software than their counterparts. It was also explained that they had more issues in learning new things in computing than younger people. (Older adults, computers, and the Internet: Future directions 2003.)

2.2 Entertainment

L.A Times described that people using television has decreased. According to the news article the watching of entertainment from different devices than television from 55 years and up had increased 55% in the last quarter compared to the last year. It was also said that most common way of watching television shows from computers had increased a lot. (L.A Times 2014.)

2.3 Communication

It was announced in Techradar Skype explaining that in 2013 there are more than 2 billion call minutes per day. The use of Skype had risen up enormously according the news. (Techradar 2013.)

According to Exeter University research social media would improve well-being of elder people and also help them to get away from isolating themselves from the world. (Training elderly in social media improves well-being and combats isolation 2014.)

2.4 Banking and official

Computers can also be used for banking. Banking has become more internet oriented and the user is able to pay the bills. Mckinsey & Company's employee Tunde Olanrewaju said on the article in the company's website that the customers are becoming more and more digital. More than two thirds are in online banking. Most of the people also buy their flight tickets and do their other transactions online. (The rise of the digital bank 2014.)

2.5 Learning methods

Learning can be an issue. It always depends of the students' interest in learning and in what ways they can learn. According to Bepko Learning Center the three main cognitive learning styles are called visual, auditory, and kinaesthetic learning (Bepko Learning Center). Combining these different methods usually helps a student to learn the best way (Bepko Learning Center).

Dlsweb explains that visual learning is where the student learns by seeing the information e.g. seeing charts, seeing the overview of the task or the project and prefer to write themselves and read the information rather than listen to tape or teacher speaking. Ways for the student to remember are for example writing down notes of a lecture, highlighting the important things with certain colour and also using mind maps. (dlsweb 2007.)

Dlsweb says about auditory learners that they are people who learn the most by listening and discussing with people. They also learn as an example by recording classes or lectures on a recorder, by reading their writings or reading the subject and also by explaining what they have learnt to somebody else. (dlsweb 2007.)

It is said of kinaesthetic learners on dlsweb site that they learn well by drawing and by imagining the situation as they have done it. The best way for them to learn is by doing. (dlsweb 2007.)

3 Teaching use of computers for elder

Elder people can encounter many issues with computers and technology. One of these challenges is physical. Physical challenges do not just mean that the user cannot use the keyboard as they are slow but there are also health issues such as eyesight decreasing by age. It is said on Pewinternet that many of the seniors suffer from physical problems that make it difficult to use new technologies. It is also said that around 2 out of 5 have reading problems. (Pewinternet 2014.)

The website also said that most of the people who are not using the internet suffer from the lack of knowledge (Pewinternet 2014). It was also said about difficulties of learning new technology that significant amount of elder people would need a helping hand to learn the use of different computer service. (Pewinternet 2014.)

4 The Case

The people who answered to the questionnaire were between age 50 and up and Finnish speaking. The questionnaire was made with Google questionnaire forms. The elders were taught in school environment and they were in four different courses. Their answers were about their knowledge of computers, the ways that they learn to use computers and how the teaching could be improved. The questionnaire questions were made in Finnish language. It was conducted between 17 September and 21 of October. The questionnaire was made in paper version and as internet link to the teacher to spread them to students. Työväenopisto classes where the questions were answered were in Kannelmäki, Vuosaari, Malmi and Oulunkylä. Most of the answers were in paper form (22 females and 13 males). The rest of the answers were through the internet link (15 females and 7 males). All together there were 57 answerers including 35 females 22 males.

Asked questions were based to see the whole picture of people participating in the courses of Helsingin Työväenopisto and will of learning new things about computers. The groups were divided by gender to see which group men or female were more interested of computers. The age groups were to build the age range of students for the year 2015 to understand which age groups were most interested of learning of personal computers. The other questions were asked to build the common understanding what the elder people knew about computers. In addition, there were questions that involved the ways how the teachers taught the pupils. Last questions were to present students best ways to learn and gain knowledge to be better computer users. The questions were asked in paper and internet as it was important to see how the elders react on the new situation where they were forced to work with computers.

5 Results of the research

Figure 1 shows the answerers all together were 57 and from whom 37 were female and 20 male.

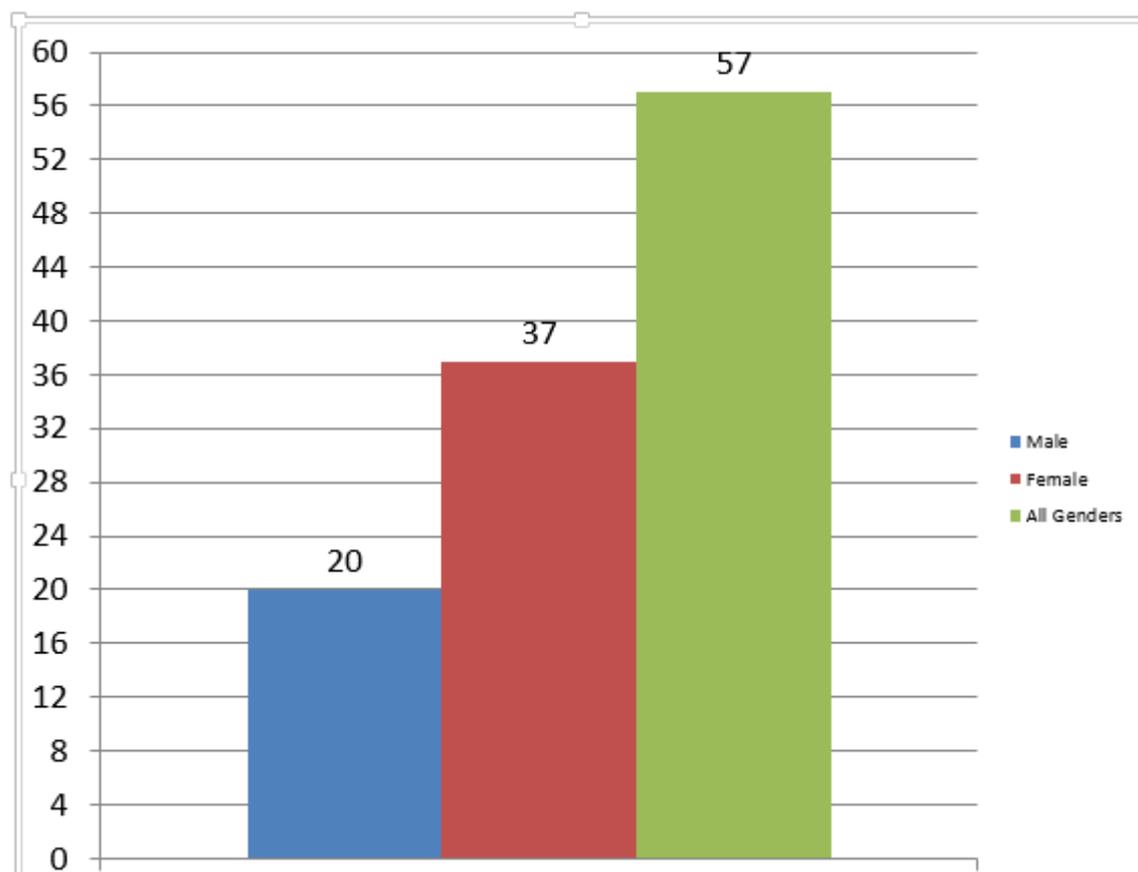


Figure 1. Gender of the answerers

Figure 2 shows the age of the answerers from 50 to 100 and up.

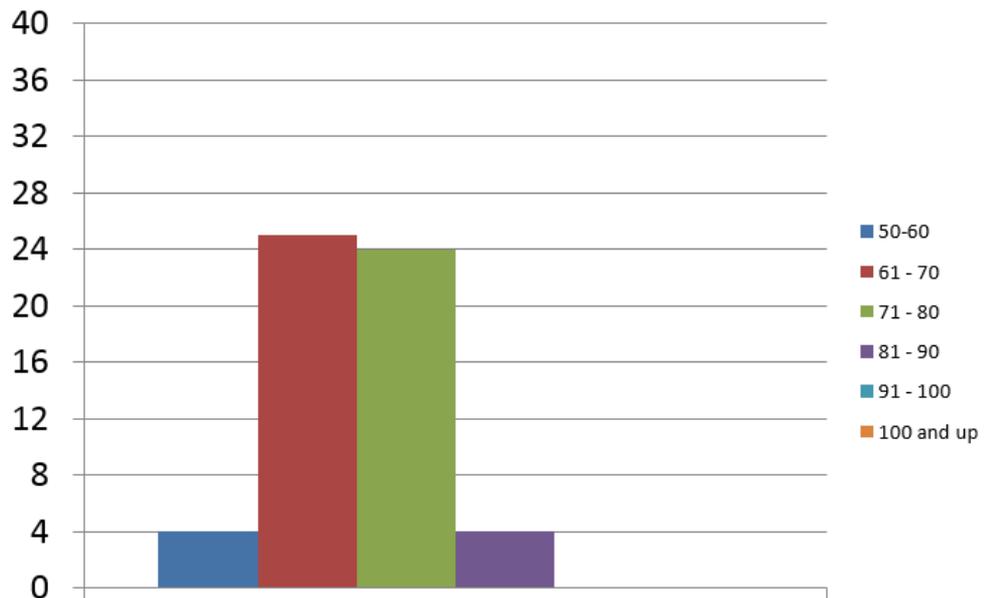


Figure 2. Age of the answerers

Figure 3 shows the reasons why elder people started to use computers. This was divided by casual users and people who wanted to learn to use internet for fun and for formal purposes.

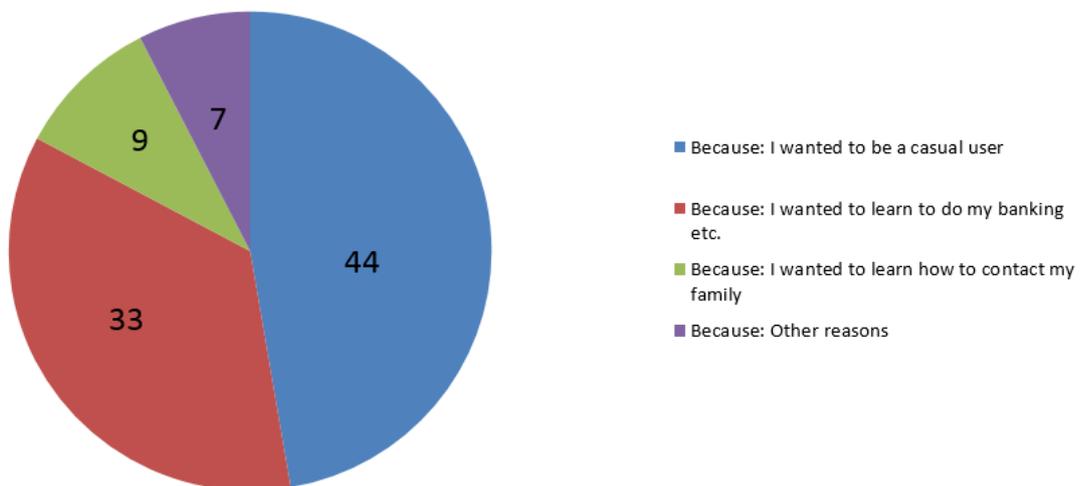


Figure 3. Reasons why elder people started to use computers.

Figure 4 show how often the elder person uses his or her computer in a week. The other describes if the person didn't have a computer or if he or she had another devices that they used.

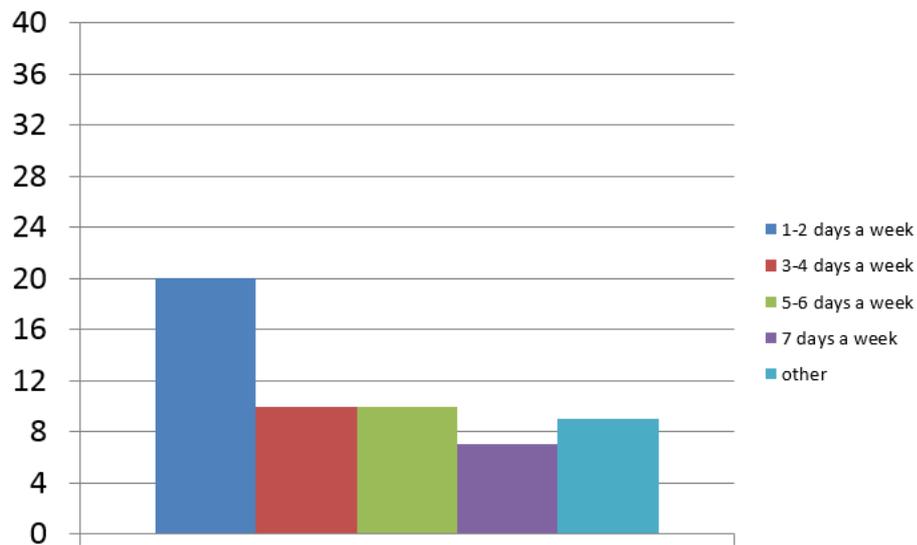


Figure 4. How many times per week the elder use their computers?

Figure 5 shows the challenge of basic computer use among old people. Basic use in this case meant opening the computer and using some basic applications.

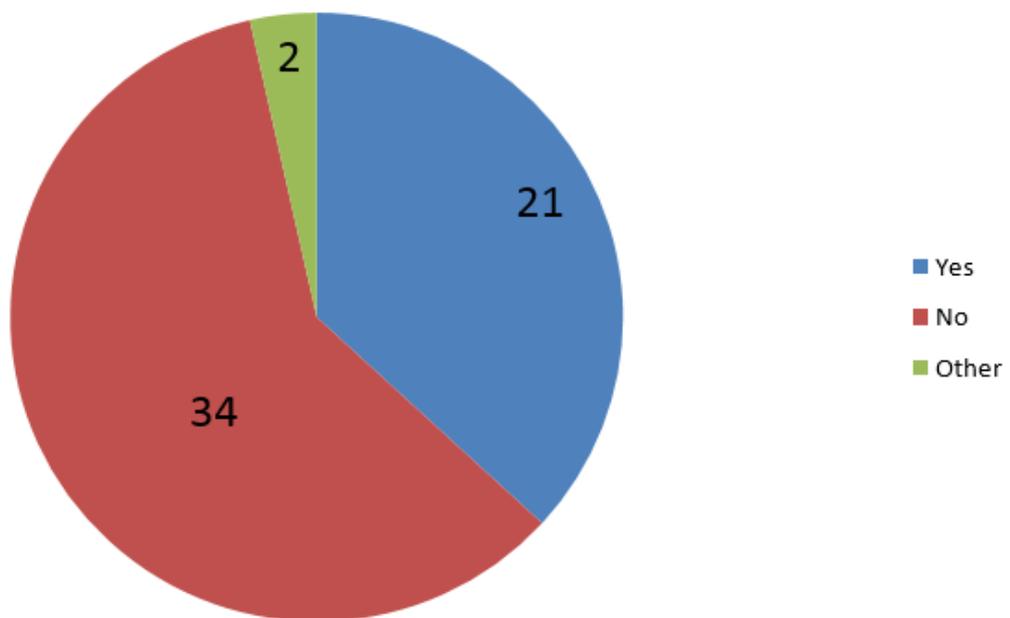


Figure 5. Is basic use of computers hard?

Figure 6 shows what the users wanted from their computers and if they were happy with their normal computer. Questionnaire answerers could take 1-2 options, if they didn't choose "no, my computer is good as the way it is."

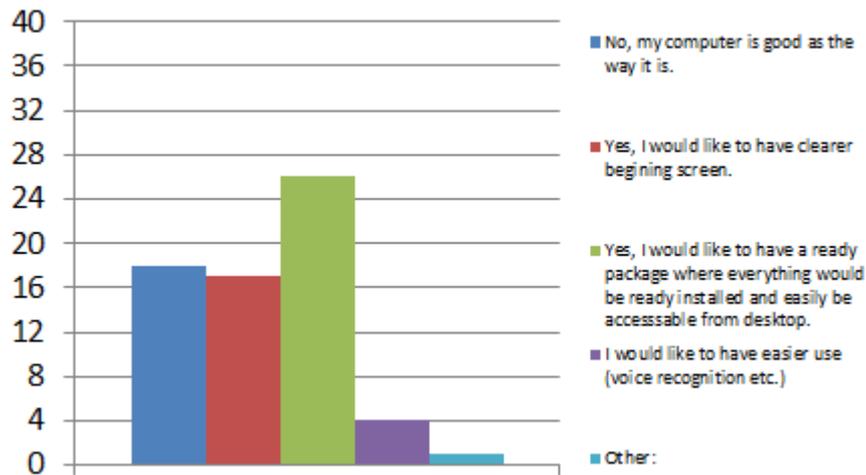


Figure 6. Things that would offer help for computer usage

Figure 7 describes free time software usage. Questionnaire answerers were able to answer several options.

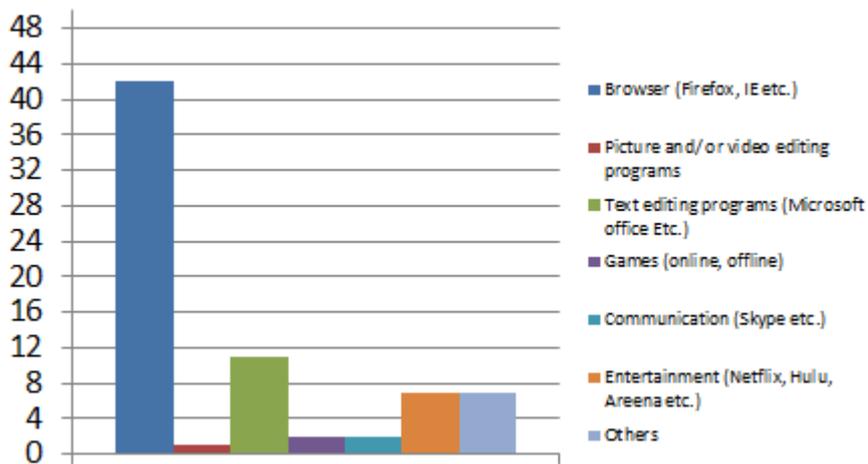


Figure 7. Free time software usage

Figure 8 describes the things users understood well when using computers in the class environment. Answerers could choose from 1 or several options

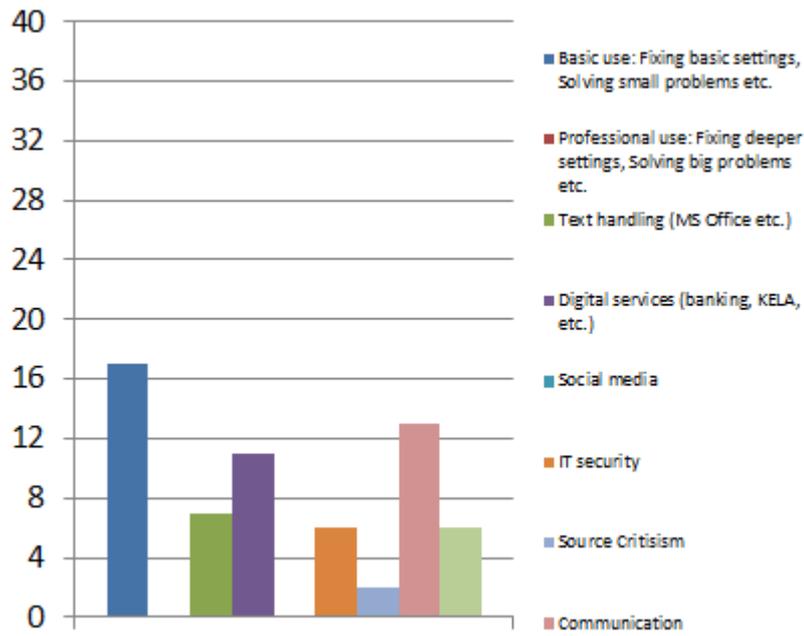


Figure 8. Easily understandable things while using computers

Figure 9 describes the main challenges the users met while using computers. The answerers could choose from 1 or several options

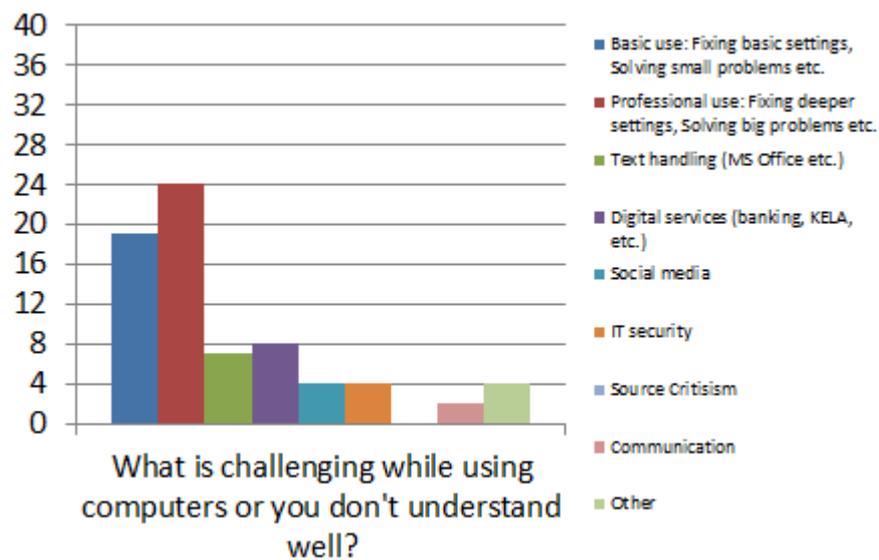


Figure 9. Challenges while using computers

Figure 10 describes the best ways the students learn in the class environment. The answerers could choose from 1 or several options.

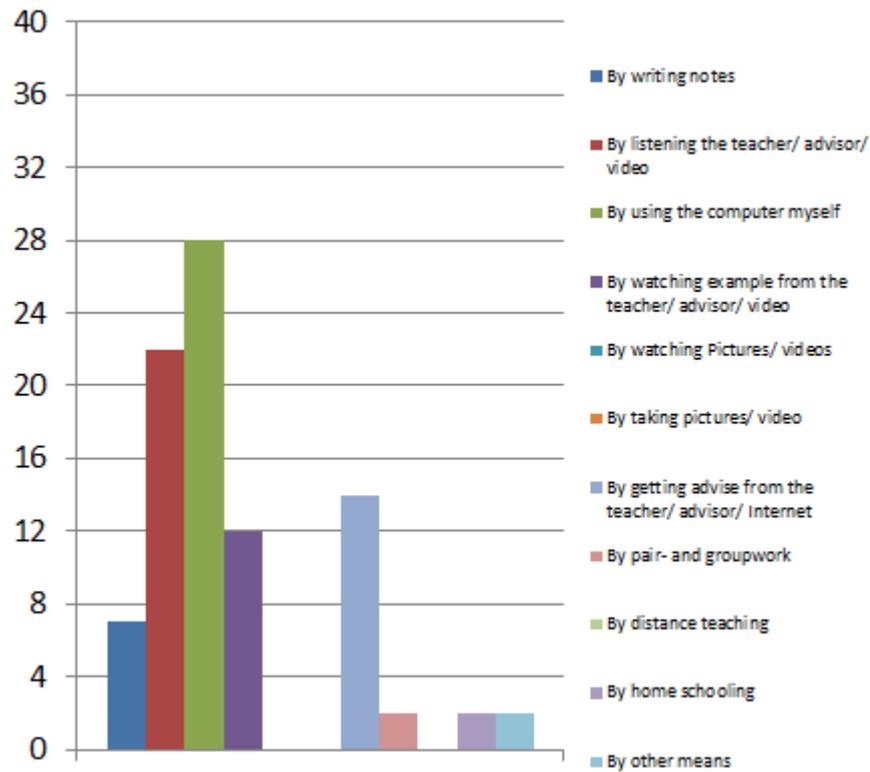


Figure 10. Best ways to learn.

Figure 11 shows the ways the teacher taught the elder students in the class environment. The students were able to choose from 1 or several options.

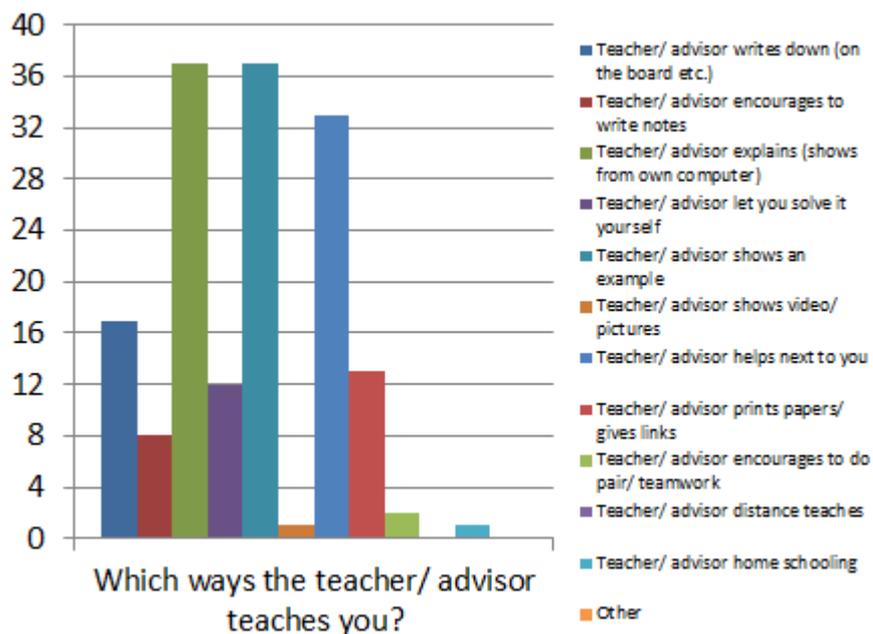


Figure 11. The ways teacher teaches the student

Figure 12 describes the ways the teacher was successful in his or her teaching. The students were able to choose many options.

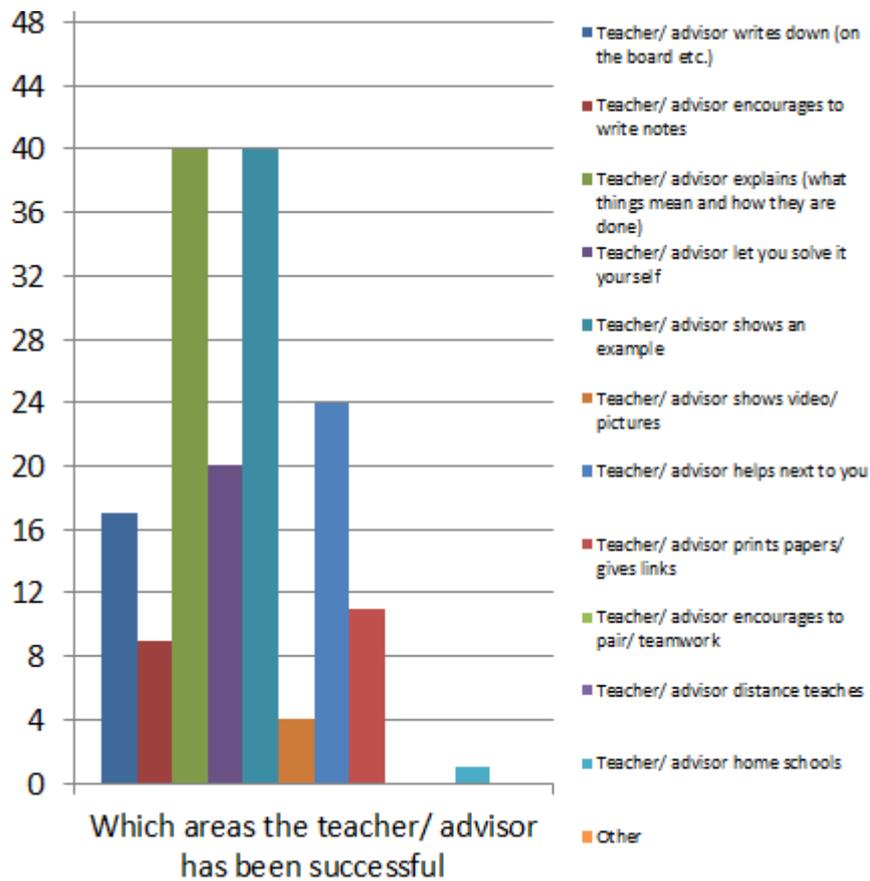


Figure 12. The areas the teachers have been successful in his or her teaching

Figure 13. Explains in which specific area the teacher could put more effort in his or her working.

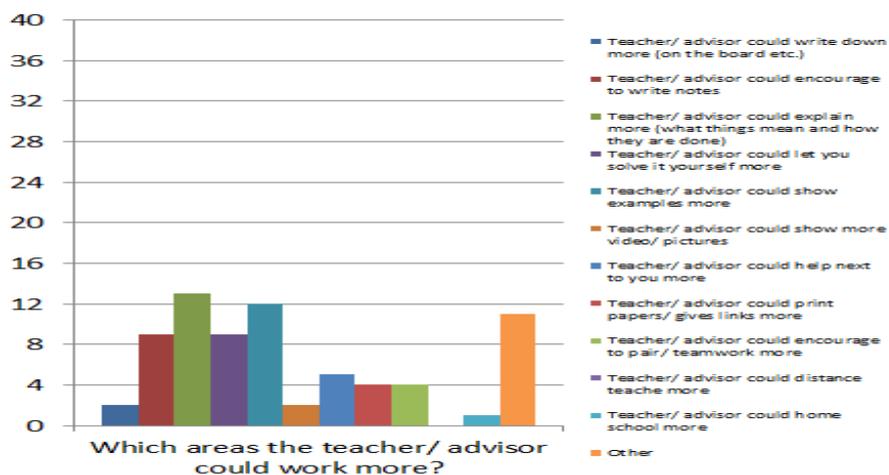


Figure 13. The areas teacher could work on more.

Figure 14 shows what material the students would have had more in their classes.

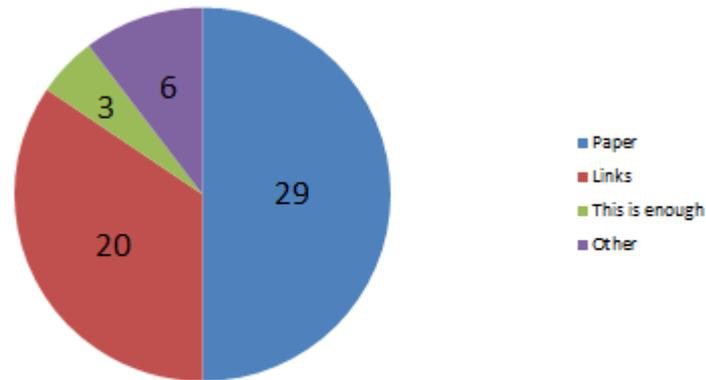


Figure 14. The material students would want more in their classes

Figure 15 describes the courses the student would like to have more.

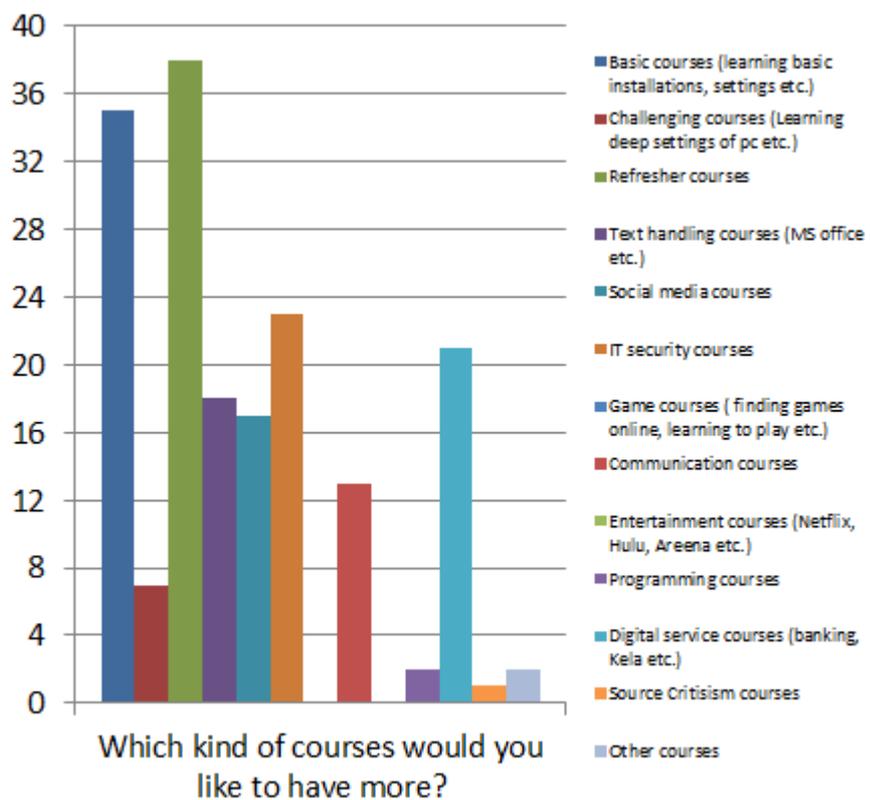


Figure 15. Which kind of courses the student would prefer to have more

6 Analysing of the research results

Most of the people who answered were females which could possibly indicate that females are more interested in learning to apply modern technologies in future. In addition, the longer lifespan compared to males could be a reason why females feel they have a stronger need to acquire at least the basic skills to survive in their future. Also, the four computer classes in Työväenopisto have been full of students which indicates that the classes have been in demand and popular. The majority of the students were between the ages 61 and 80.

The main goal for the participants was to learn how to become a casual computer user which includes acquiring the basic skills such as sending emails and browsing the internet. The second biggest amount of users wanted to learn how to do online banking and all the things that they have to do in staying with the technology like paying the bill, contact doctors etc. This would explain that the elders have realized the importance of computers. Contacting the family and other reasons such as watching videos online wasn't such a big interest among the elders. Answer for this could be as of course you have to learn the basics before doing professional things.

Most of the users used the computer 1-2 times a week which indicates that the users were most interested only in paying the bills and do the compulsory things. Also there was a smaller amount of users who used computers more often which could explain the users' interests on other things than just paying the bills and they would be using computers for reading news and other interesting facts online. This can be connected with the people who wanted to learn to be casual users. In other section the users explained mainly that they didn't have a computer in their own home yet and that they used the computers only in the class environment. In there they wanted to highlight that their use was only in classes and they didn't use computers in any other environment.

When the people were asked if they felt basic computer use hard, more than a half answered that it wasn't challenging and around the third said it would be hard. This can be explained that possibly the majority who felt the computer use very easy on the basic use had had earlier encounter with computers. The other third that felt the computers challenging might have never used computers before going to the classes and therefore had problems with staying on track with the teacher. In the other part the people told that the banking or other basic use was challenging and they can't be blamed as they were in the beginner course.

On the free time application use the majority of the answerers said that they mostly used the internet browser. This can be explained as most of the things like news articles and banking are done online. Some of the users were also using the text handling as they wanted to practice their text writing skills. Minority of the users were interested of entertainment.

When asked what the elder people understood well they said the basics of computers such as solving small problems as setting screen size etc. and installing applications. The second thing that they highlighted was the source criticism which could be explained as elder people are more sceptic and knowledgeable than today's computer users who are from younger generations. Also they had some kind of understanding how social media would work. At the same time some of the people felt that there could be problems with basic settings. The main issue was still the professional installing and solving their big problems. This could be that most of the courses that people were interviewed were mostly in basic courses of computers and not in the deeper courses of computing. Even though of course they get excellent teaching and their questions get answered well but these harder settings are in deeper courses and this could indicate the worry of not knowing very well those things.

They learned best by doing themselves. This is common for many people as they learn by mistakes. Practicing by doing is important as the main idea is to learn to use the computer in home environment where there is possibly no help at all. The next that

the students pointed out was the teacher. This can be understood as the students trusted the teacher and for the good reasons. It also points out the importance of personal teaching and the teachers help is a must to proceed in learning. The image from the answers showed out that they wanted more similar classes and especially from their excellent teacher.

The students wanted more material in the paper form. Need for paper form can be explained as it is easiest to read and keep with you as an older person. They wanted most the refresher courses as they wanted to refresh their memory and gain help from the same talented teacher. Elder people forget much easier and they need more repetition than youth so this is another important reason to be pointed out. It was also seen that they wanted to have basic courses so they would be able to stay on track.

7 Further work and self-valuation

This analysis gave only a small picture of the technological acting of elder people. The improvements that could be made are making the questionnaire broader by including more classes and more people by giving more time to make the research, make interviews and go ask from different institutions and from different students or people how they would like or see the future to be. One person working on the research means tighter schedule and some of the aspects can't be handled so well. The work could have been possibly a tighter package, by that it is meant that the factual base could have been stricter and explain more precisely the research and give better picture of the group's problems. Also the group could have been much larger as this time the group was less than 100. Due to the limitation of time the research had to be cut to fewer persons.

8 Conclusion

It is very difficult if not impossible to survive in modern society without computers. The services are moving to internet and for example paying the bills in the bank is tiresome and expensive. Also making doctors' appointments is much faster when made online. The Internet also provides a lot of knowledge, news and instructions. The majority of elder don't have sufficient skills to necessary computer use. But one does not need to be a brain surgeon to adopt those technical skills.

Self-learning is not an option for elder people in most cases. They need teaching and teachers. It does not have to be in school environment or in a group. Lectures can offer teaching for a bigger audience but personal instructor is often needed. Computer teacher does not have to be an IT-professional; an experienced user can do the job. Enthusiasm is needed though to make the elder learn.

To know how to use computer can be compared to literacy and writing skills! That is why spreading computer skills to elder people is vital to help them to be active members of society.

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Appendix

Appendix 1 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the questions 1-3 in original form.

Seniorien tietokoneiden käyttö ja oppiminen

Haaga-Helia opinnäytetyö kysely

1. Vastaaja:*

Mies

Nainen

2. Ikäryhmä:*

50 - 60

61 - 70

71 - 80

81 - 90

91 - 100

101 ja ylöspäin

3. Mikä on pääsyy siihen, että aloitit käyttämään tietokonetta?*
Valitse niin monta vaihtoehtoa, kuin haluat.

Halusin oppia peruskäyttäjäksi (Oppia selaamaan internettiä, kirjoittamaan tekstinkäsittelyohjelmalla, lukemaan sähköpostia jne.)

Halusin oppia hoitamaan pankki/ muut viralliset asiat tietokoneen avulla.

Halusin oppia ottamaan yhteyttä sukulaisiini.

Muu:

Appendix 1.

Appendix 2 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the questions 4-5.5 in original form.

4. Kuinka monta kertaa käytät tietokonetta vapaa-ajallasi keskimäärin?*
Valitse 1 vaihtoehto.

- 1 - 2 päivää viikossa.
- 3 - 4 päivää viikossa.
- 5 - 6 päivää viikossa.
- 7 päivää viikossa.
- Muu:

5. Koetko perustietokoneen käytön vaikeaksi?*
Valitse 1 vaihtoehto.

- Kyllä
- Ei
- Muu:

5.5 Jos vastasit, kyllä kuvaile tyypillinen ongelma jonka kohtaat.

Appendix 2.

Appendix 3 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the questions 6-7 in original form.

6. Tarvitsisitko jotakin tietokoneen käyttöä helpottavia ominaisuuksia?*
Valitse 1-2 vaihtoehtoa.

- En, tietokoneeni on toimiva juuri tällaisena kun se on.
- Haluaisin selkeämmän aloitusnäytön (helpommat kovalinkit esim. sähköpostiin, kirjoitusohjelmiin jne.)
- Haluaisin valmiiksi asennetun paketin, jossa kaikki tarvitsemani olisi valmiiksi asennettu tietokoneeseeni ja helposti saatavilla työpöydältä.
- Haluaisin helpomman käyttötavan (esim. Puheentunnistus, kosketusnäyttö jne.)
- Muu:

7. Mitä ohjelmia käytät vapaa-ajallasi eniten?*
Valitse 1 vaihtoehto.

- Internetiä (Firefox, Chrome, Internet explorer jne.)
- Kuvan ja/ tai videon muokkausohjelmia (Photoshop jne.)
- Tekstinkäsittely (sisältää Microsoft officen sekä muut tekstityökalut).
- Peliohjelmia (nettipelit, Mahjong, Palapelit jne.)
- Kommunikointi ohjelmia (Skype, Facebook, jne.)
- Viihde ohjelmia (videon katseluohjelmat, Katsomo, Areena Netflix jne.)
- Muu:

Appendix 3.

Appendix 4 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the questions 8-9 in original form.

8. Minkä koet helpoksi käyttäessäsi tietokonetta tai ymmärrät kunnolla?*

Valitse 1 vaihtoehto.

- Peruskäyttäminen (asetusten peruskorjaaminen ja pienien ongelmien ratkaisu jne.)
- Ammattimainen käyttäminen (asetusten syvälinen säätäminen suurien ongelmien ratkaisu jne.)
- Tekstinkäsittely (sisältää Microsoft officen, sekä muut tekstityökalut).
- Sähköinen asiointi (pankit, Kela jne.)
- Sosiaalinen media (Facebook, Twitter jne.)
- Tietoturva (F-secure jne.)
- Lähdekriittisyys (uutisten tulkitseminen jne.)
- Kommunikointi (sähköposti, Skype jne.)
- Muu:

9. Minkä koet vaikeaksi käyttäessäsi tietokonetta tai et ymmärrä kunnolla?*

Valitse 1 vaihtoehto.

- Peruskäyttäminen (asetusten peruskorjaaminen ja pienien ongelmien ratkaisu jne.)
- Vaikea käyttäminen (asetusten syvälinen säätäminen suurien ongelmien ratkaisu jne.)
- Tekstinkäsittely (sisältää Microsoft officen, sekä muut tekstityökalut).
- Sähköinen asiointi (pankit, Kela jne.)
- Sosiaalinen media (Facebook, Twitter jne.)
- Tietoturva (F-secure jne.)
- Lähdekriittisyys (uutisten tulkitseminen jne.)
- Kommunikointi (sähköposti, Skype jne.)
- Muu:

Appendix 4.

Appendix 5 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the questions 10 and half of 11 in original form.

10. Millä tavalla opit parhaiten?*
Valitse 1 vaihtoehto.

Kirjoittamalla muistiinpanoja.
 Kuuntelemalla opettajaa/ neuvojaa/ videota.
 Tekemällä itse (käyttämällä itse tietokonetta).
 Katsomalla opettajalta/ neuvojalta/ videolta mallia.
 Katsomalla videoita/ kuvia.
 Ottamalla kuvia/ videota.
 Saamalla neuvoja opettajalta/ neuvojalta/ Internetistä.
 Parityön ja ryhmätyön avulla.
 Etäopetuksella (Opettaja opettaa työpaikalta/ kotoa kun oppilas on kotona omalla tietokoneella).
 Kotiopetuksella.
 Muu:

11. Millä tavoilla opettaja/ neuvoja opettaa teitä?*
Valitse niin monta vaihtoehtoa, kuin haluat.

Opettaja/ neuvoja kirjoittaa ylös (taululle, tietokoneelle jne.)
 Opettaja/ neuvoja kannustaa kirjoittamaan muistiinpanoja.
 Opettaja/ neuvoja selittää (näyttää tietokoneelta, Selittää mitä asiat tarkoittavat).
 Opettaja/ neuvoja antaa ratkaista itse (tietokoneella).
 Opettaja/ neuvoja näyttää itse mallia.
 Opettaja/ neuvoja näyttää videoita/ kuvia.
 Opettaja/ neuvoja neuvoo vierestä.
 Opettaja/ neuvoja tulostaa tulosteita/ antaa linkkejä.

Appendix 5.

Appendix 6 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the questions second half of 11 and 12 in original form.

- Opettaja/ neuvoja kannustaa parityöhön/ ryhmätyöhön.
- Opettaja/ neuvoja etäopettaa (opettaja opettaa töistä/ kotoaan, kun oppilas on omassa kodissaan omalla tietokoneellaan).
- Opettaja/ neuvoja opettaa kotoa käsin
- Muu:

12. Millä opetusalueilla opettajasi/ nevojasi on onnistunut?*

Valitse niin monta vaihtoehtoa, kuin haluat.

- Opettaja kirjoittaa paljon (taululle, tietokoneelle jne.)
- Opettaja kannustaa kirjoittamaan muistiinpanoja.
- Opettaja selittää enemmän (mitä asiat tarkoittavat ja miten ne tehdään).
- Opettaja/ neuvoja antaa ratkaista enemmän itse (tietokoneella).
- Opettaja/ neuvoja näyttää itse mallia (miten asia ja asiat tehdään).
- Opettaja/ neuvoja näyttää videoita/ kuvia enemmän.
- Opettaja/ neuvoja neuvoo vierestä enemmän.
- Opettaja/ neuvoja tulostaa materiaalia/ antaa linkkejä enemmän.
- Opettaja/ neuvoja Kannustaa parityöhön/ ryhmätyöhön.
- Opettaja/ neuvoja etäopettaa Opettaja/ neuvoja voisi panostaa enemmän etäopettamiseen (Opettaja opettaa töistä/ kotoaan, kun oppilas on omassa kodissaan omalla tietokoneellaan).
- Opettaja/ neuvoja Kotiopettaa.
- Muu:

Appendix 6.

Appendix 7 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the questions 13-14 in original form.

13. Millä opetusalueilla opettajasi/ neuvojasi pitäisi parantaa toimintaansa mielestäsi enemmän?*

Valitse niin monta vaihtoehtoa, kuin haluat.

- Opettaja/ neuvoja voisi kirjoittaa enemmän (taululle, tietokoneelle jne.)
- Opettaja/ neuvoja voisi kannustaa kirjoittamaan muistiinpanoja enemmän.
- Opettaja/ neuvoja voisi selittää enemmän (mitä asiat tarkoittavat ja miten ne tehdään).
- Opettaja/ neuvoja voisi antaa ratkaista enemmän itse (tietokoneella).
- Opettaja/ neuvoja voisi näyttää itse enemmän mallia (miten asia ja asiat tehdään).
- Opettaja/ neuvoja voisi näyttää videoita/ kuvia enemmän.
- Opettaja/ neuvoja voisi neuvoa vierestä enemmän.
- Opettaja/ neuvoja voisi tulostaa materiaalia/ antaa linkkejä enemmän.
- Opettaja/ neuvoja voisi kannustaa parityöhön/ ryhmätyöhön enemmän.
- Opettaja/ neuvoja voisi panostaa enemmän etäopettamiseen (opettaja opettaa töistä/ kotoaan, kun oppilas on omassa kodissaan omalla tietokoneellaan).
- Opettaja/ neuvoja voisi panostaa kotiopetukseen.
- Muu:

14. Millaista materiaalia kaipaisit enemmän opettajaltasi/ neuvojaltasi?*

Valitse niin monta vaihtoehtoa, kuin haluat.

- Paperimuodossa olevaa tietoa.
- Sähköistä (Internet linkit, sähköposti jne.)
- Muu:

Appendix 7.

Appendix 8 describes the questions of the questionnaire that was given and also sends to students via the internet. These are the question 15 in original form.

15. Minkälaisia kursseja haluaisit enemmän?*

Valitse niin monta vaihtoehtoa, kuin haluat.

- Peruskursseja (Asetusten peruskorjaaminen ja pienien ongelmien ratkaisu jne.)
- Haastavia kursseja (Asetusten syvälinen säätäminen suurien ongelmien ratkaisu jne.)
- Kertauskursseja
- Tekstinkäsittelykursseja (Sisältää Microsoft officen, sekä muut tekstityökalut).
- Sosiaalisen median kursseja (Facebook, Twitter jne.)
- Tietoturva kursseja (F-secure jne.)
- Pelikursseja (Peliin löytäminen internetistä jne.)
- Kommunikointi tietokoneella kursseja (Skype, Facebook, jne.)
- Viihdeohjelma kursseja (Videon katseluohjelmat, Netflix jne.)
- Ohjelmointikursseja (Ohjelmointi kielen oppiminen C, C++, Java jne.)
- Sähköisen asioinnin kursseja (Pankit, Kela jne.)
- Internet lähdekirjittisyyteen opastavia kursseja (uutisten tulkitseminen jne.)
- Muu:

Appendix 8