Tablet-Based Cognitive Gaming Platform for seniors

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IO1 Cognitive skills based training scheme for seniors

National report Turkey

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Introduction

Data Collection and Participants

All of the participants were chosen voluntary-based and randomly from public places. In general, senior citizens were reached via nursery houses, associations for retired people and public gardens. On the other hand, younger adults were mainly reached through social media accounts, e-mail groups and announcement in public places. All participants were given a consent form before they started to fill the instrument. Based on the preference of senior citizens, the instrument was applied with the help of the researcher. That is, the researcher read the questions explicitly, she noted down the answers of the participant and she confirmed the given answer by repeating after writing. Senior citizens who preferred to fill the questionnaire on their own were only guided if they wanted to ask any question related with the explanation of the instrument items. All of the younger participants filled the questionnaire by themselves after the instructions given by researcher. After the out-of-range data is excluded, the participants of the present study are 104 elderly adults (aged 55-90 ; M = 66.80, SD = 5.84)

Elderly participants were 49 female (47,1 %) and 55 male (62,5 %). The gender distribution of the participants is given in Figure 1.

Figure 1. Gender distribution of the participants
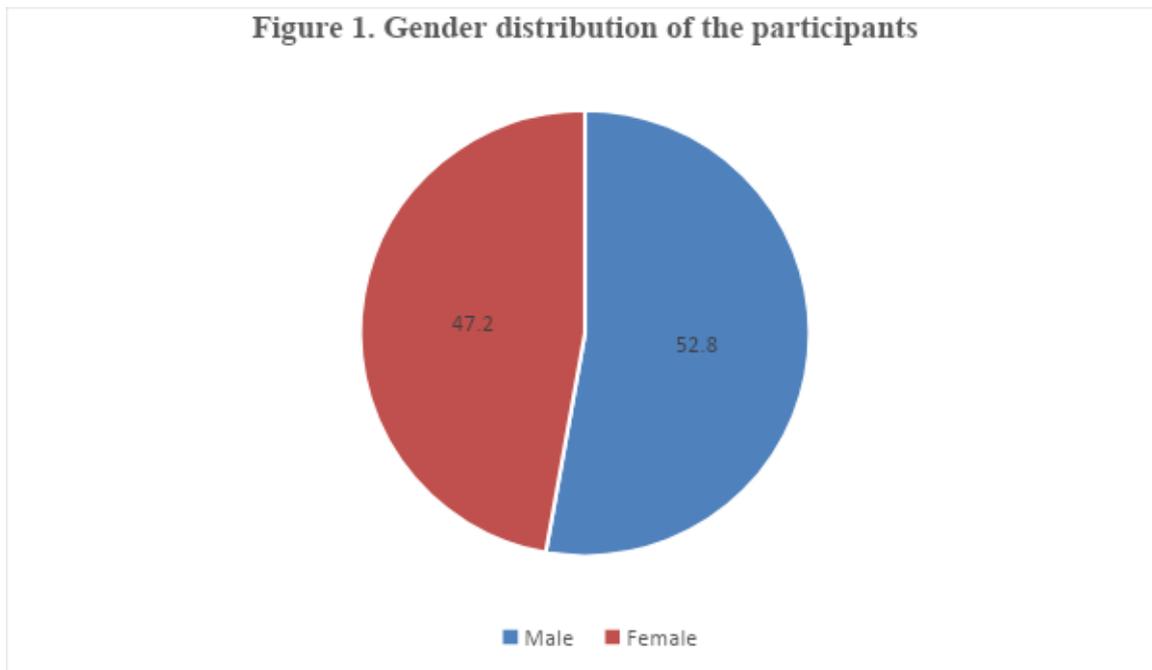
The age of senior citizens varied in the range of 55-90 years old. 29 participants were in the range 55-60 (27,8,%) years old; 12 participants were in the range of 61-65 years old (11,5 %); 21 participants were in the range of 66-70 years old (25%); 15 participants 71-75 years old (17,9 %), 3 participants 76-80 years old (3,5 %), 14 participants were over 81 years old (13,46 %) The age distribution of the senior citizens is shown in Figure 2.

Figure 2. The age distribution of participants
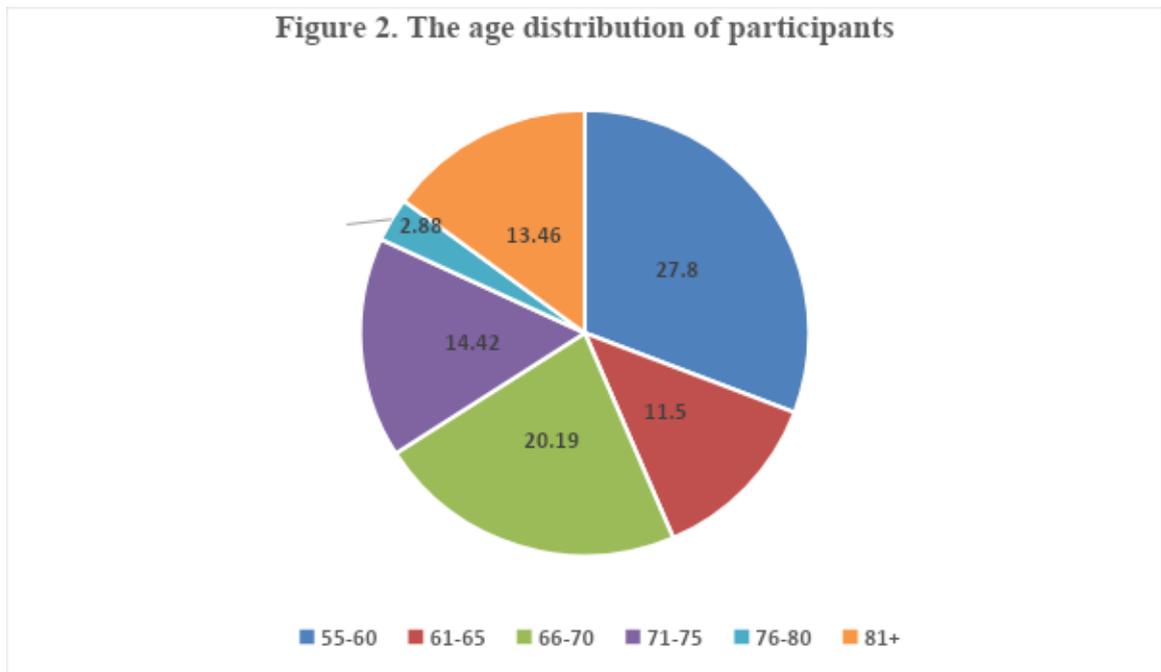
28,6 % of the participants stated that they have health problems.


Health-related challenges
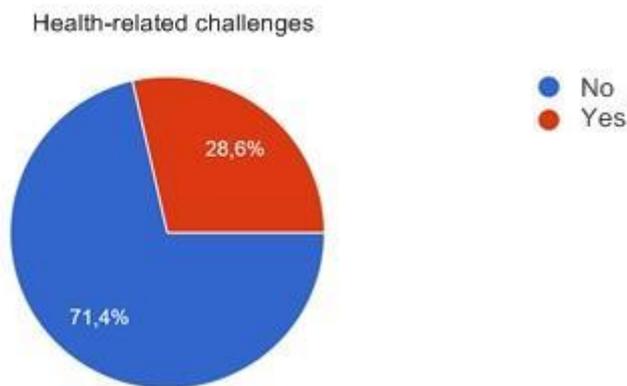
Diagnosed with Dementia symptoms 2,38%, Epilepsy 3,57%, Visual problems severe visual difficulty or blindness) 10,71%, Diabetes 39,29%, Hearing problems 17,86%, Heart problem 28,57%, Mobility problems 35,71%

Other 15,48%   (Leukemia 1 (1,19%), Waist and knee pains 2 (2,38%) , Prostate 4 (4,76%), Hypertension 6(7,14%). Distribution of the health problem shown in Figure 4.
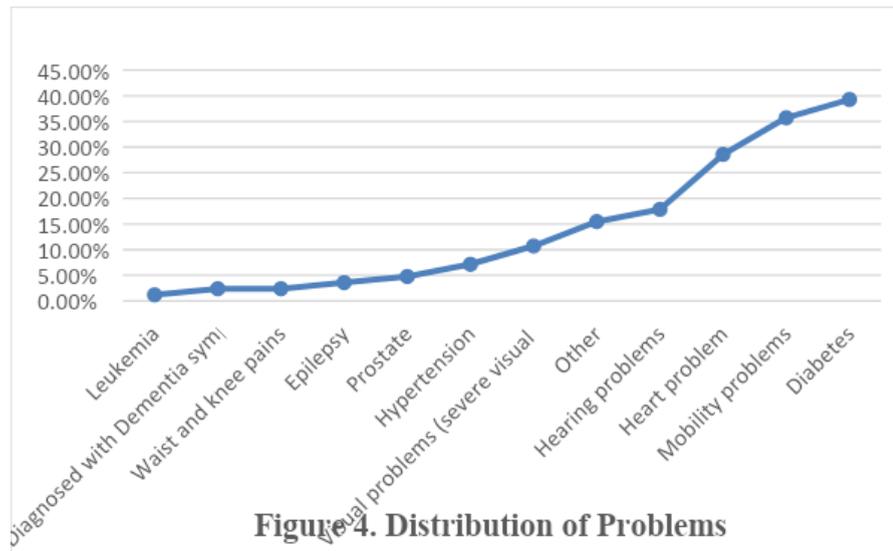
Figure 4. Distribution of Problems

The frequency of use of digital tools for seniors is;
Mobile phone   Every day (92,86 %), Few times per week (5,95 %), Few times per month (1,19 %), Never 0. Smart Phone Every day (92,86 %), Few times per week (5,95 %), Few times per month (1,19 %), Never 0.
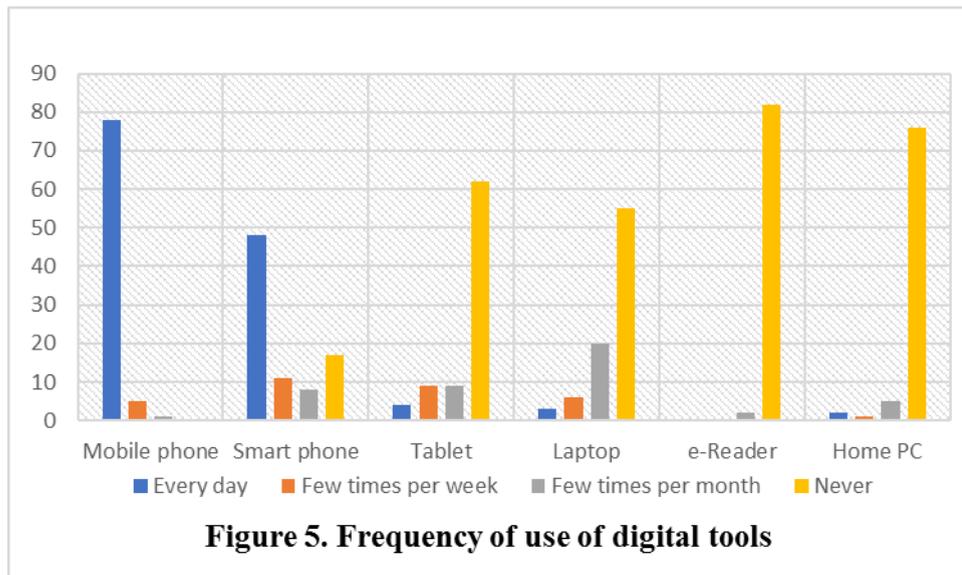
Figure 5. Frequency of use of digital tools

Cognitive capacities and skills in the day life;

-Easy to remember everyday things; No 1,19 %, I have difficulties very often 21,42%,I have difficulties sometimes 17,85 ,Yes 58,33 %, I don't know 1,19 %.

-Remember where put personal items (keys, phone, documents, etc.) No 3,57 %, I have difficulties very often 17,85% ,I have difficulties sometimes 7,14 ,Yes 70,23 %, I don't know 1,19 %.

-Remember events (important dates) or other information from the past No 3,57 %, I have difficulties very often 17,85%,I have difficulties sometimes 7,14 ,Yes 47,61 %, I don't know 1,19 %

-Find it easy to remember things planned for the future (appointments, shopping list, taking drugs, etc.)

No 67,14 %, I have difficulties very often 25 %,I have difficulties sometimes 21,42 ,Yes 39 46,42 %, I don't know 1,19 %.

21% of the respondents experienced problems; to remember everyday things very often, 17,8% of the respondents experienced problems remember events (important dates) or other information from the past very often,

Figure6. Cognitive capacities and skills in the day life
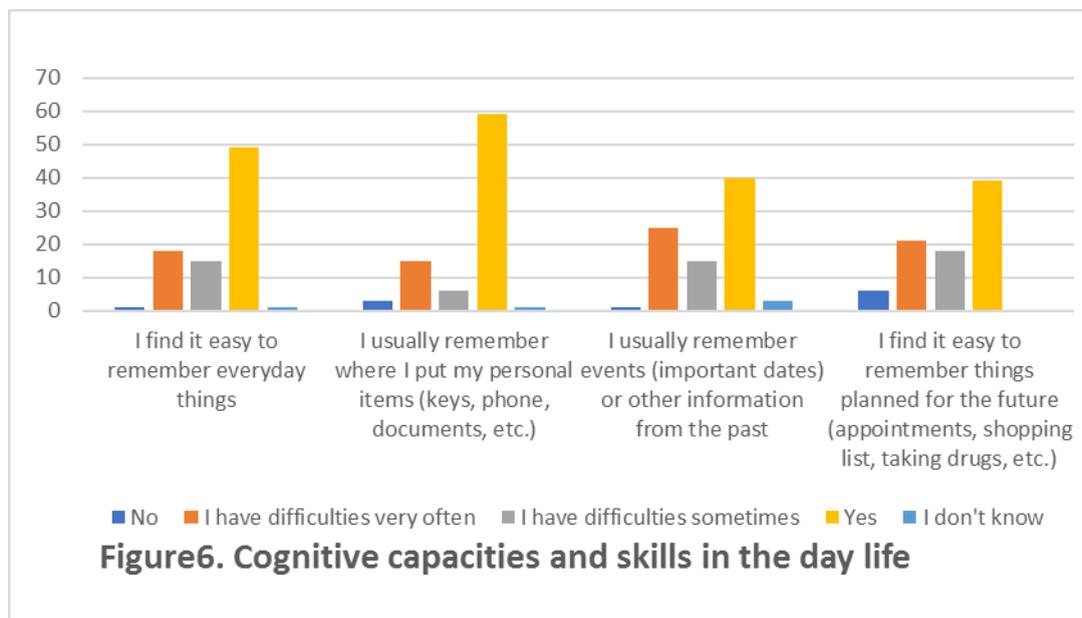
Attention Capacities
The respondents reported experiencing sometimes problems with the implementation of more than one task at the same time.
45.23% of respondents had problems stay focused on task for a sustained period of time.
32,14% of respondents don't find it easy to concentrate while driving

- Stay focused on task despite distractions No 21,42 %, I have difficulties very often 25 %,I have difficulties sometimes 10,71 ,Yes 42,85 %, I don't know 0

-Stay focused on task for a sustained period of time (e.g. reading a long text)No 45,23 %, I have difficulties very often 29,76 % ,I have difficulties sometimes 17 20,23 % ,Yes 4,76 %, I don't know 0

-Find it easy to do two things at the same time No 28,57 %, I have difficulties very often 21,42 % ,I have difficulties sometimes 25% ,Yes 23,80 %, I don't know 1,19 %.

-Find it easy to stay concentrated when driving No 25 %, I have difficulties very often 2,38 %,I have difficulties sometimes 2,25% ,Yes 32,14 %, I don't know 19,04 %.

Figure7. Attention Capacities
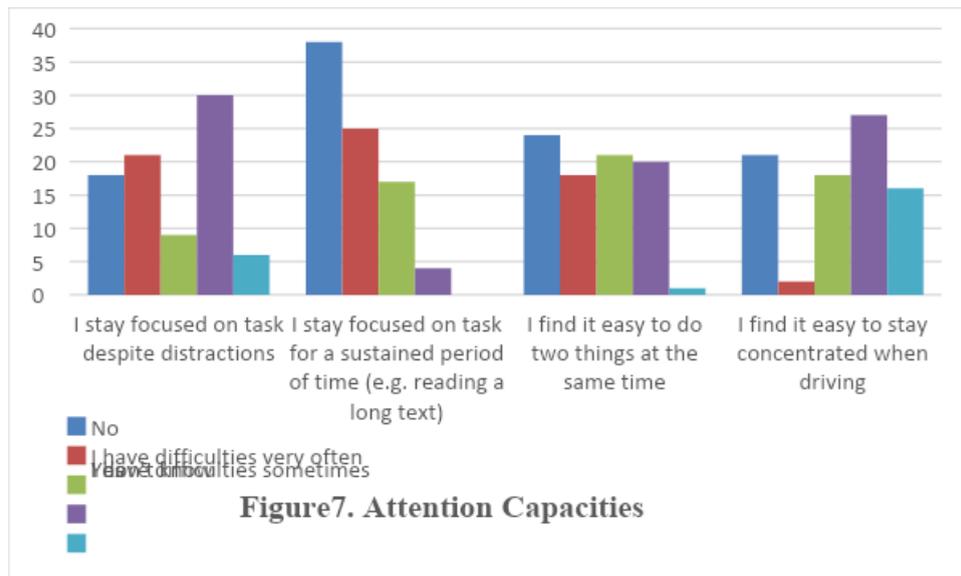
Visual Perception Capacities

In relation to visual perception capacities, more than 55% of the participants have good competence in visualizing images and associating scenarios to accomplish a specific task. Approximately 67% of the interviewees have problems with diagrams or charts. Approximately 67% of the interviewees are able to interpret the maps easily but have problems with diagrams or charts.

-Think about something, can visualize it in images or scenarios No 17,85 %, I have difficulties very often 17,85 % ,I have difficulties sometimes 7,14%,Yes 57,14 %, I don't know 0

- Easily interpret maps No 15,47 %, I have difficulties very often 17,85 %,I have difficulties sometimes 22,61% ,Yes 44,04 %, I don't know 0

- Easily organize and interpret diagrams or charts No 67,85 %, I have difficulties very often 19,04 %,I have difficulties sometimes 5,95% ,Yes 7,14 %, I don't know 0

Figure 8. Visual Perception Capacities
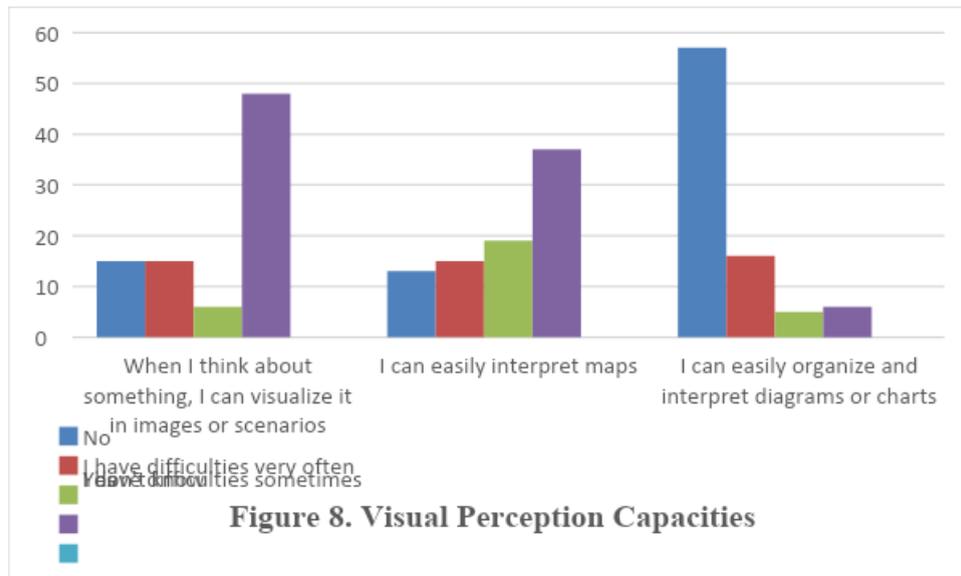
Reasoning and Planning Capacities

With regards to reasoning and planning capacities, around 87 % of the respondents did not experience any problems in terms of forming ideas and organising something for a specific topic.

-Find it easy to reason and form ideas;No 3,57 %, I have difficulties very often 17,85 %,I have difficulties sometimes 8,33% ,Yes 86,90 %
-Find it easy to solve problems No 1,19 %, I have difficulties very often 3,57 %,I have difficulties sometimes 7,14%,Yes 88,09 %
- Do easily plan or organize something for a specific topic No 7,14 % , I have difficulties very often 15,47 % ,I have difficulties sometimes 17,85% ,Yes 88,09 %

Figure 9. Reasoning and Planning Capacities
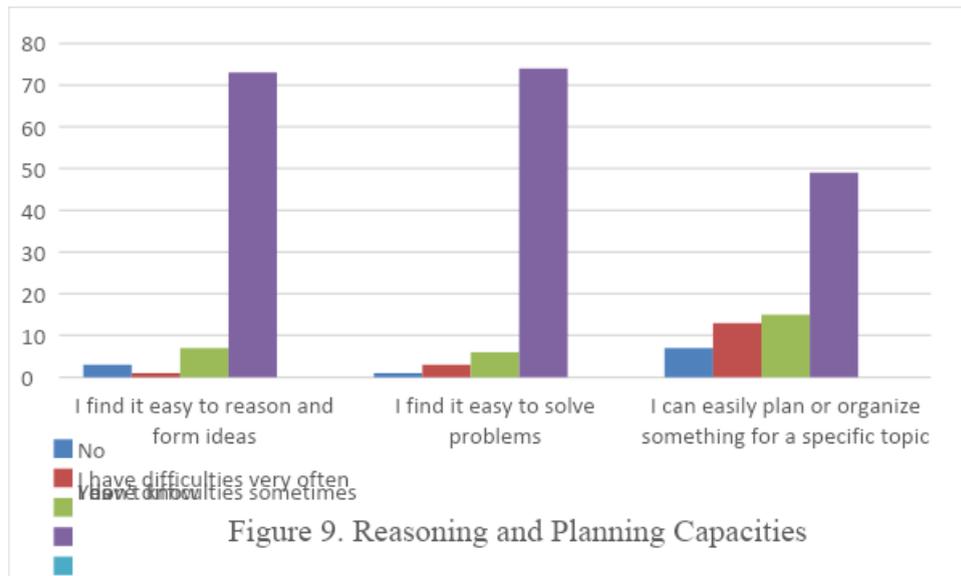
Processing Speed Capacities

In terms of processing speed capacities, respondents have experience problems with accurate calculation while shopping, They can calculate shopping bill easily and solve simple math problems %50, without the need of a calculator or another supported device.

-Calculate shopping bill quickly and accurately No 29,76 %, difficulties very often 9,52 %, difficulties sometimes %   11,20, Yes 49,52 %
- React quickly and adapt to the environment No 2,38 %, difficulties very often 8,33 %, difficulties sometimes 19,04% , Yes 70,23 %.
-Solve simple math problems in my head   No 50 % , difficulties very often 32,14 %, difficulties sometimes 7,14 % , Yes 10,71 %


Figure 10. Processing Speed Capacities
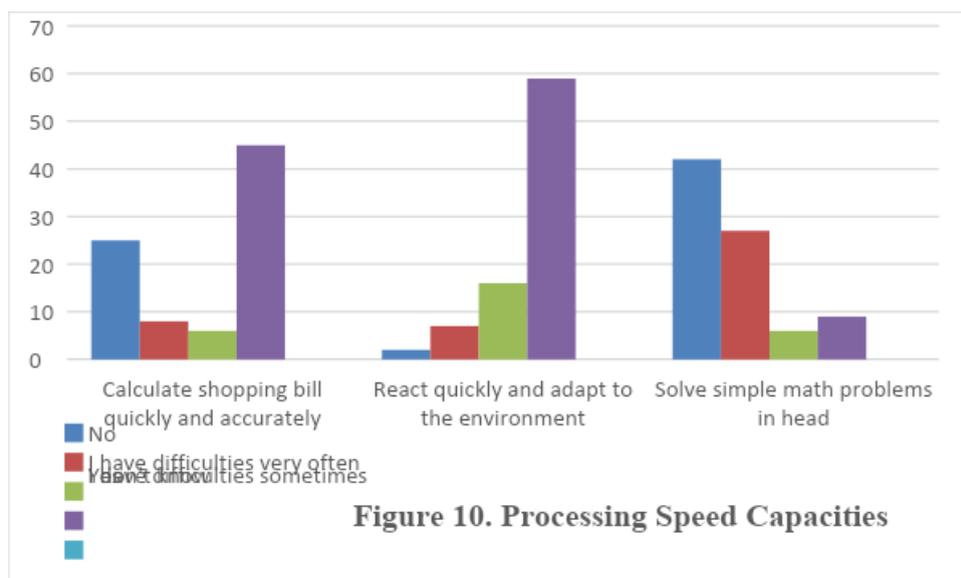
Sequential Processing Capacities

In related to the sequential processing capacity of the respondents %48 % of interwieeves have diffuciltues sometimes about the put things in order when thinking. They can also easily plan activities and events in a reasonable sequence.

-Put things in order when thinking No 3,57 %, difficulties very often 15,47 %, difficulties sometimes 48,33%, Yes 32,61%
- It is easy for me to plan activities and events step by step No 5,95 %, difficulties very often 9,52 %, difficulties sometimes 22,14%   , Yes 62,38%

Figure 11.Sequential Processing Capacities
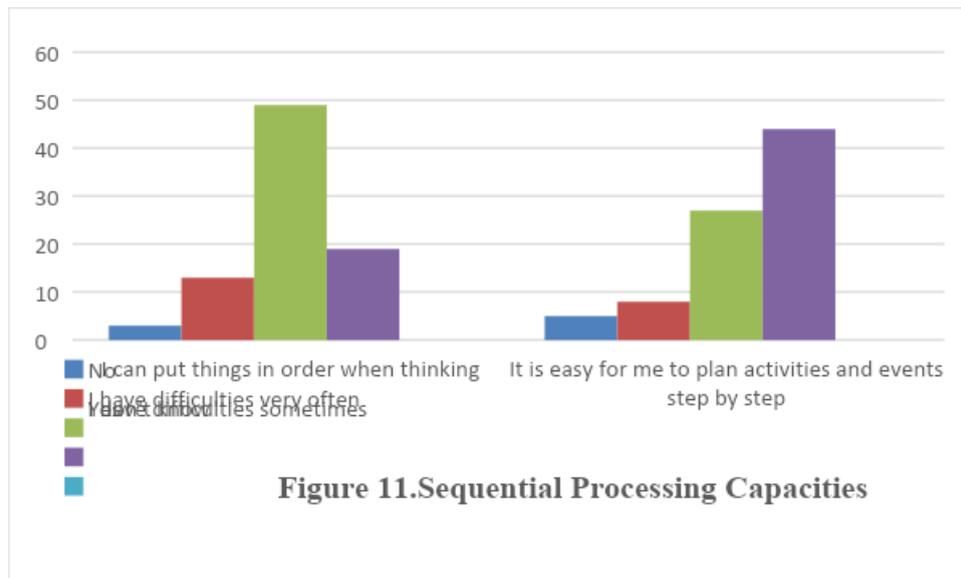
Learning needs and new technologies

More than 50% of respondents stated that they found it important to use smartphones. %85 of interviewees did not find it important to use email to communicate with family members or friends.

25% of the respondents are using internet to check the status of their bank account or to submit their tax declarations.
It can be said that their attitudes towards the use of social media are moderate.
Seldom the respondents are using internet to shop online, to edit photos and videos, check the status of their bank account, manage health record

- Find it easy to use smart phone , Not important 14,28 %, Maybe it's useful 22,61 %, It's important 33,33 % , Very important 29,76 %

- Use email to communicate with family members or friends, Not important 85,71 %, Maybe it's useful 10,71 %, It's important 2,38 % , Very important 1,19 %

- Skype, Messenger, etc. to communicate with family and friends Not important 52,38 %, Maybe it's useful 27,38 %, It's important 17,85 %, Very important 2,38 %

- Facebook, Twitter, Instagram or other social media Not important 38,09 %, Maybe it's useful 20,23 %, It's important 17,85 % , Very important 2,38 %

- Use phone/tablet/PC to edit photos & videos and save them for future reference Not important 77,61 %, Maybe it's useful 121,42 %, It's important 5,95 % , Very important 0

-Tax declaration or other governmental declarations through the Internet Not important 65,47 %, Maybe it's useful 27,38 %, It's important 5,95 % , Very important 1,19 %

- Shop through the Internet Not important 53,57 %, Maybe it's useful 19,04 %, It's important 5,95 %, Very important 21,42 %

- Check the status of my bank account through the Internet Not important 73,80 %, Maybe it's useful 15,47 %, It's important 8,33 % , Very important 2,38 %

- Manage my electronic health record   Not important 41,66 %, Maybe it's useful 26,19 %, It's important 15,47 % , Very important 16,66 %
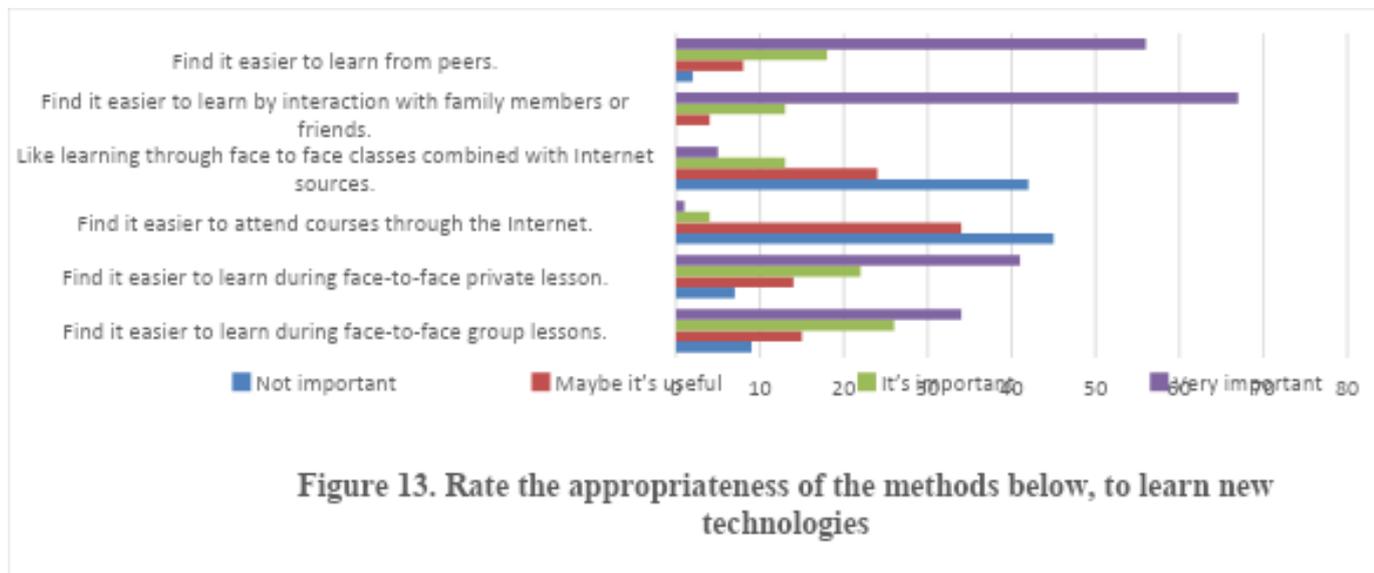

Figure 12. Learning needs and new technologies
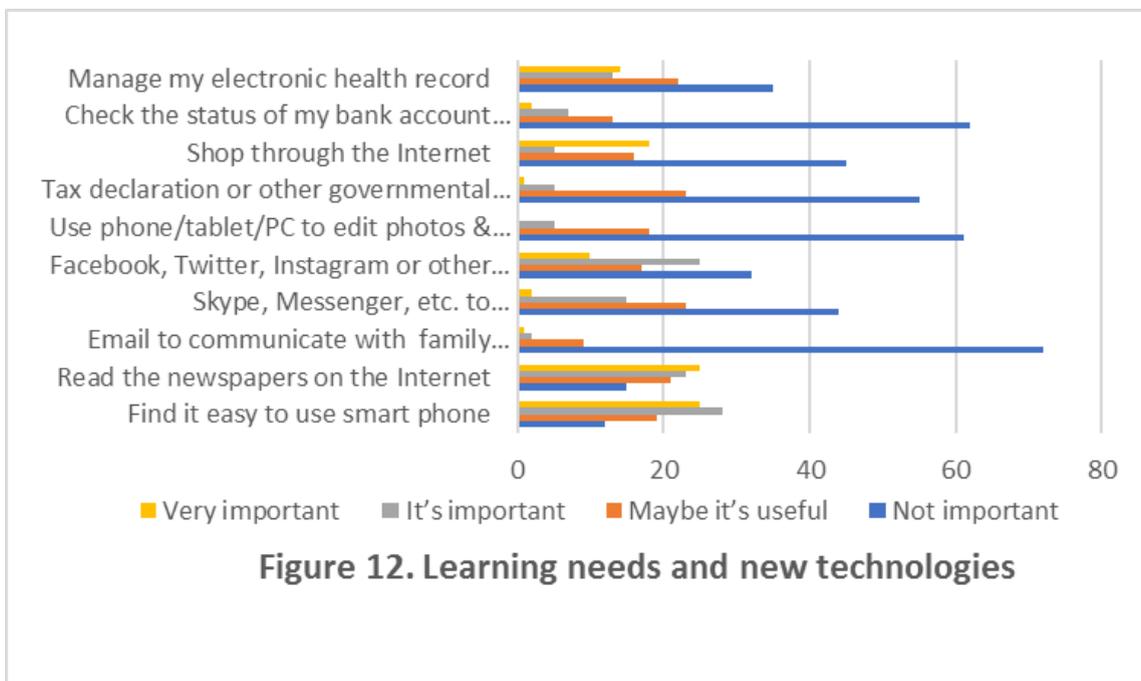
Rate the appropriateness of the methods below, to learn new technologies

In terms of the relevant learning methods to acquire knowledge the respondents agreed that it is easier and convenient for them to learn from and together with peers.
They like both ways of learning: face to face private lessons as well as group learning activities.
Aproximately 46% of the respondents would like to learn new things via internet

- Find it easier to learn during face-to-face group lessons.Not important 9 (10,71 %), Maybe it's useful 15 (17,85%), It's important 26 (11,90 %) , Very important 34 (40,47 %)
- Find it easier to learn during face-to-face private lesson. Not important 7 (8,33 %), Maybe it's useful 14 (16,66%), It's important 22 (26,19 %) , Very important 41 (48,80 %)
- Find it easier to attend courses through the Internet. Not important 45 (53,57%), Maybe it's useful 34 (40,47 %), It's important 4 (4,76 %) , Very important 1 (1,19 %)
- Like learning through face to face classes combined with Internet sources. Not important 42 (50 %), Maybe it's useful 24 (28,57 %), It's important 13 (15,47 %) , Very important 5 (5,95 %)
- Find it easier to learn by interaction with family members or friends. Not important 0, Maybe it's useful 4 (4,76 %), It's important 13 (15,47 %) , Very important 67 (79,76 %)
- Find it easier to learn from peers. Not important 0, Maybe it's useful 2 (2,38 %), It's important 8 (9,52 %) , Very important 56 (66,66 %)


Figure 13. Rate the appropriateness of the methods below, to learn new technologies

Free time activities

More than half of the respondents shared that they like play mind games, learn new things via books, movies, performances, go out with friends and planning activities.

Playing mind games (Sudoku, crosswords, etc.) 51 %, Playing board games (Scrabble, cards, Monopoly, etc.) 36%,
Playing chess or backgammon 44 %, Learning new things via books, movies, performances, etc. 52%,
Going out with friends and planning activities 55 %.

Figure 14. Free time activities
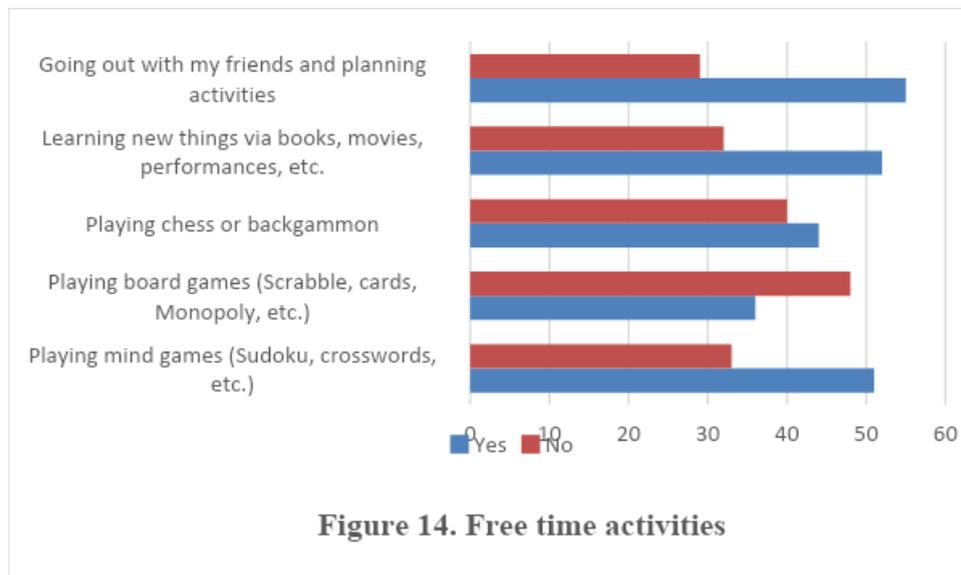
CONCLUSIONS

Most of the senior citizens stated that they used non-smart mobile phones in daily life. Accordingly, a smaller group of participants reported that they were using Internet and smart phone. Although some participants stated that they could easily interpret maps, they could not interpret flow diagrams. most of the participants stated that they learned more easily than their families and peers. The participants stated that they like to spend time with their friends in their spare time, playing card games and learning new things through performances (such as going to a concert).They frequently expressed a complain that they were not able to use ICT due to the lack of assistance, difficulty of learning and using ICT, as well as due to other constraints, such as aging and financial costs. Some of them also stated that they do not need to learn using ICT anymore because they are over a certain age.

The senior citizens emphasized that they had some concerns about using social media, internet shopping, checking the bank account due to its obscurity and insecurity.
Senior citizens usually expressed that they would like to learn and use ICT but they have several constraints to do so. Almost all of the elderly participants emphasized that they did not want to be excluded from the society. They usually complained about the lack of connection and communication with their children and younger people.

According to the results of the present study, a high number of senior citizens reported to they will use ıct for avoid dementia and alzheimer.