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Third-Age University Students' Use of Gerontechnological Products and Their Attitudes Towards the Use of Gerontechnological Products: The Example of 60+ Refreshment University

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ABSTRACT

The research was carried out to determine the rate of use of gerontechnological products, which factors affect their use, and the attitudes towards using gerontechnological products of individuals aged 60 and over who participated in the third-age university. A quantitative research method and survey technique were used in the study. Kruskal-Wallis and Mann-Whitney U tests were performed. It was found that there was a statistically significant difference between the sub-dimensions of the use of gerontechnological products and age, education, working status, economic status, and health status. In factor analysis findings, four factors were obtained: perceived usefulness of technology, perception of using technology, access to technology and transportation, and anxiety regarding technology use. It was revealed that the participants' use of gerontechnological products was high and that as product use increased, the anxiety about using technology also increased.

KEYWORDS: Older Adults; Aging; Gerontechnology; Lifelong Education; Third-Age University

KEY PRACTITIONER MESSAGE

1. Planning extensive theoretical and applied education studies on technology use by older adults is of utmost importance.
2. Prioritizing planned technology training according to older people's needs and expectations, including their cognitive and physical limitations, is vital.

INTRODUCTION

Aging has become an increasingly important phenomenon worldwide (Tuna & Tenlik, 2017). In Türkiye, the decrease in birth rates and the prolongation of life expectancy have caused an increase

in the proportion of older adults in the total population. According to the numbers in the Turkish Statistical Institute [TUIK] 2020 Report: "Old People with Statistics," the population aged 65 and over increased from 8.2% in 2015 to 9.5% in 2020. Türkiye's projected proportion of older people is expected to reach 11.0% in 2025, 12.9% in 2030, and 16.3% in 2040, as indicated by population dynamics (TUIK, 2020).

Advances in medicine and technology allow individuals a healthier and longer life span. Along with the extended human life span, a longer aging period is experienced today more than ever. Due to this, both the individual and society have different needs for adaptation to the prolonged old age period. Interventional opportunities of applied gerontology to prevent and compensate for aging are limited because of relatively increasing diversity with the increase in the proportion of the older population. This also makes social and physical environmental arrangements for older people essential and creates a necessity to evaluate them with a holistic perspective to define the problems related to aging, to produce solutions, and to plan a healthy, quality, and successful aging process.

Technology is another field advancing as rapidly as the older population today. It is almost impossible to imagine a society without technology in daily activities, work, education, and health. The proliferation of technical items across several domains of human life is quickly expanding in terms of both quantity and diversity.. Technology can be used in care, health, safety, protection, mobility, participation in independent living, and social life for older individuals. In many situations, gerontechnological improvements can be life-saving (Ekici & Gumus, 2016).

Gerontechnology

New understandings and models are needed to improve older people's access to and benefit from modern technology. Many developed and developing countries accept studies in this field and define this area as "gerontechnology." Gerontechnology facilitates the lives of older people and the lives of family members, caregivers, and many people who come into contact with the older individual. Gerontechnology can be used in many areas, such as increasing the quality of life, participation in social life, and supporting independent living, health, and care (Harrington & Harrington, 2000). Although technology has become an integral aspect of modern human existence, opinions about how older individuals will use it or whether they want to use it are still unclear in Türkiye. The old age period is gradually extending, and the perceptions and behaviors of the majority of older people about using technology will change soon (Kalinkara et al., 2016).

Technology Acceptance and Use by Older People

The acceptance and adoption of technology by older

people are as crucial as where older people can use this technology. In addition, older people can adopt different technological products and services only at the same level as the cognitive and physical changes brought by the old age period, the individual's culture, education, economic status, and environment. It is challenging to balance these changes because technology acceptance and development factors are changing so fast.

Although most older individuals have a positive attitude toward technology, they are less likely to adopt new technologies as quickly as young people for various reasons (Kuo et al., 2012). Several studies have been conducted to determine the factors that affect older people's acceptance or rejection of technology.

Davis (1989) suggests two critical determinants of technology use: perceived usefulness and ease of use. Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance." Perceived ease of use is "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989, p. 320).

Technology acceptance is a cognitive and physical process that is affected by the perception, expectation, and emotions that occur in the older person's mind until the completion of the adoption, adaptation, and use of innovations in technological products and services (Ozsungur, 2018). Considering the possible decline in their cognitive and physical abilities, reducing the complexity of applications is essential for older users. Obtaining the opinions of older practitioners on technological products and services will be an essential factor in determining technology acceptance levels..

Senior Technology Acceptance Model (STAM)

Different models were developed to show the effects of multidimensional factors and attitudes affecting technology acceptance. Model structures and theories support each other and have been adapted from 1975 to the present by improving previous models. The senior technology acceptance model (STAM) of Chen and Chan (2014), developed from various models and theories for understanding technology acceptance by older adults, constitutes the theoretical framework of this study. The model developed by Chen and Chan (2014) extended previous technology acceptance models and theories by adding older people's age-related health and ability characteristics (Shore et al., 2018).

Selection, Optimization, and Compensation Theory

The selection, optimization, and compensation theory (SOC) (Baltes & Baltes, 1990) focuses on how resources are applied to support individuals' growth and maintenance of functioning in the face

of age-related loss. According to the SOC model, successful aging focuses on selecting appropriate developmental areas according to one's resources, maximizing developmental potential, and compensating for losses, thus maintaining functioning and minimizing losses (Schulz et al., 2014).The conceptual framework of the selection, optimization, and compensation (SOC) theory is a valuable tool for integrating research that promotes life-span improvement across functional domains (Riediger et al., 2006). Lindenberger et al. (2008) use this general framework to discuss how intelligent assistive technology, which constantly adjusts the balance between environmental support and individual abilities, can maximize an individual's potential.

Third Age University Model: 60+ Refreshment University

Education and training in several fields have changed with modernization and globalization. The need for the emergence of *"lifelong learning"* and for education to take place in every period of life has arisen. Lifelong learning in all areas of life refers to the learning process in multiple situations throughout life and daily (Kolland, 2017). In developed countries, the participation of older people in educational activities is supported, and services in this field are expanded. With different models and concepts of lifelong education, countries can diversify the education program's content according to society's needs and expectations. These models can be defined differently as adult education, old age academies, retirement learning institutes, and leisure universities. Studies on education in old age have become widespread in the literature, with the most common concept of lifelong learning: the third-age university.

The first third-age university model, *"60+ Refreshment University"*, a new movement in gerontology in Türkiye, was established in 2016 by Prof. Dr. Ismail TUFAN. 60+ Refreshment University is an ongoing *"social responsibility"* project within the body of the Akdeniz University Aging Studies Research and Application Center. It sets an example as the most widespread and sustainable lifelong education program applied in the field of old age in Türkiye. This project also contributes to positive change in individuals and society's negative thoughts about old age (Tufan et al., 2018). 60+ Refreshment University is a lifelong education model that is compatible with the expectations of society, helps individuals aged 60 and over to protect and develop their physical, psychic, and social abilities, helps the development of memory and intelligence abilities related to learning ability, and also supports socialization in old age (Tufan et al., 2018).

METHOD

Population and Sample of the Research

The research population included 746 students

aged 60 and over, who were 1st, 2nd, and 3rd-year students continuing their education at Akdeniz University 60+ Refreshment University Campus. The study sample was determined with simple random sampling to be 254 with ±5 error margin and 95% confidence level from this population. Interviews were conducted by the researcher using the face-to-face survey technique, and 364 people were reached. After the implementation of the data collection tools used in the research was completed, the answer key was checked, and the research was carried out with a total of 318 participants, excluding those who gave incomplete information.

The socio-demographic characteristics of the participants (N=318) indicate that 72.3% of the study's participants were within the age range of 60-69, 64.2% were female, 44.0% resided with their spouses, and 57.5% held college/university degrees. It was seen that 89.6% of them were married, 89.6% were retired, 92.1% were making a living with a pension, 89.6% were middle-income, and 60.4% had health problems that prevented them from continuing their daily lives (Table-1).

Data Collection Tools and Analysis of Data

In this study, a quantitative research method and survey technique were used. The research questionnaire was developed by Chen and Chan (2014), and the validity and reliability study of the scale was conducted by Kalinkara et al. (2016). The questionnaire consists of three main parts: *"Demographic characteristics," "use of gerontechnological products by older people,"* and *"attitudes and perceptions towards accepting gerontechnological products."* The interviews were carried out voluntarily, and after information was given to the participants describing the aim of the research, their informed consent was obtained and analyzed with the SPSS 23.0 statistical program.

In order to determine the appropriate statistical method for the data analysis, the Kolmogorov-Smirnov test of normality was applied to check if the data had a normal distribution. As a result of the test, it was determined that the data did not have a normal distribution. Due to this, the non-parametric Kruskal-Wallis and Mann-Whitney U tests were used in the analysis. If a significant difference was found due to the Kruskal-Wallis analysis, pairwise comparisons were made with the Bonferroni-corrected Mann-Whitney U test to determine which groups differed. The value obtained by dividing the number calculated using the formula n(n-1) /2 with Bonferroni correction, where the number of groups of the variable is *"n,"* is accepted as the new significance value (Field, 2009). Factor analysis determined the participants' attitudes toward using gerontechnological products. Correlation analysis was applied to determine the relationship between the use of gerontechnological products and attitudes

Table-1. The socio-demographic characteristics of the participants (N= 318).

Groups	Frequency	%	Groups	Frequency	%
Age			*Working status*		
60-69 years	230	72.3	Working full time	3	.9
70-79 years	83	26.1	Works part-time	12	3.8
80-89 years	5	1.6	Retired	285	89.6
Gender			Never worked	18	5.7
Female	204	64.2	*Income source*		
Male	114	35.8	Salary / Income	16	5.0
Living with			Pension	293	92.1
Family members	70	22.0	Property income	6	1.9
Spouse	140	44.0	Other	3	.9
Alone	108	34.0	*Levels of income*		
Educational status			Rich	16	5.0
Primary school	16	5.0	Middle	293	92.1
Secondary school	106	33.3	Poor	6	1.9
College / University	183	57. 5	Very poor	12	.9
Postgraduate Education	13	4.1	*Health status*		
Marital status			No health problems	122	38.4
Married	179	56.3	Health issues that don't affect daily life	192	60. 4
Divorced / Separated	53	16.7	Health issues (unable to live alone)	4	1.3
Widowed	75	23.6			
Never married	11	3.5			

towards the use of gerontechnological products.

Research Hypotheses

H_0: There is no significant difference between the sub-components of gerontechnological product use and demographic variables.

H_1: There is a significant difference between the sub-components of gerontechnological product use and demographic variables.

H_0: There is no positive relationship between the factors affecting gerontechnology product acceptance and the

sub-dimensions of gerontechnological product use.

H_2: There is a positive relationship between the factors affecting gerontechnology product acceptance and the sub-dimensions of gerontechnological product use.

RESULTS

Sub-Dimensions of Participants' Use of Gerontechnology Products

Among the gerontechnological products of the individuals participating in the research, the most used products were remote control devices from home daily life technologies (95.9%), mobile phones/ mobile phones from communication technologies (98.4%), electric blood pressure monitors from health technologies (73.3%), and digital cameras from education and recreation technologies (62.9%). In health technologies, 49.4% of the participants stated that they had never heard of telecare; this was the variable with the highest rate in the group of those who had never heard of it (Table-2).

Table-2. Findings regarding sub-dimensions of participants use of gerontechnology products.

Product	Tools and Equipment	I've Never Heard		I've Never Used It		Used / Still Using	
Home and Daily Life Technologies	Electric Cooking Tools	1	.3	31	9.7	286	89.9
	Remote Control Devices	3	.9	10	3.1	305	95.9
	Cash Dispenser	5	1.6	10	3.1	303	95.3
	Credit Card	6	1.9	53	16.7	259	81.4
	Smart Cards	13	4.1	89	28.0	216	67.9
Communication Technologies	Mobile phone / Cell phone	3	.9	2	.6	313	98.4
	E-mail	2	.6	83	26.1	233	73.3
	Computer and Internet	3	.9	35	11.0	280	88.1
Health Technologies	Health Products and Sports Equipment	13	4.1	112	35.2	193	60.7
	Emergency Alert Products / Services	27	8.5	222	69.8	69	21.78
	Electronic Sphygmoma-nometer	8	2.5	77	24.2	233	73.3
	Telecare	157	49.4	136	42.8	25	7.9
Education and Recreation Technologies	Electronic Dictionary and Book	24	7.5	184	57.9	110	34.6
	Digital Camera	11	3.5	107	33.6	200	62.9
	CD/ MP3/MP4	16	5.0	134	42.1	168	52.8
	DVD / VCD Player	14	4.4	125	39.3	179	56.3

Demographic Variables from Participants' Gerontechnological Product Use Sub-Dimensions

In this section, the relationship of the variables of age, gender, living together, education, marital status, working status, income source, economic status, and health status with home and daily life technologies, communication technologies, health technologies, and education and recreation technologies is examined.

The Kolmogorov-Smirnov (KS) normality test was applied to examine whether the sub-headings average for using gerontechnological products in older people were normally distributed. According to the results of the test, since the mean KS statistic of home and daily life technologies values is D (318) = .262, $p < .05$, the null hypothesis that the data are normally distributed is rejected; that is, it is seen that they do not comply with the normal distribution. When the mean KS statistic of communication technologies values (D(318) = .409, $p < .05$), the mean KS statistic of health technologies values (D(318) = .158, $p < .05$), and the mean KS statistic of education and recreation values (D(318) = .191, $p < .05$) are considered, it is understood that they do not comply with the normal distribution.

When the demographic variables are analyzed according to the sub-dimensions of the participants' use of gerontechnological products, it is seen that there are significant differences between age group and communication technologies. The difference is statistically significant, as indicated by a chi-square value of 7.41 and a p-value of .025. The usage of communication technology differs significantly between age groups, with the 60-69 age group showing a higher preference compared to the 70-79 age group (Z = -2.67, p = .008).

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Usage of home and daily technologies (X^2 = 9.09, p = .025), communication technologies (X^2 = 25.90, p = .001), and educational and recreation technologies (X^2 = 20.41, p = .001) varies significantly based on education categories. Participants with a college/university education level showed significantly higher usage of "home and daily life technologies" (Z = -2.75, p = .006), "communication technologies" (Z = -4.95, p = .001), and "education and recreation technologies" (Z = -3.799, p = .001) compared to those with primary school education.

A significant difference was noted between the employment status category and health technologies (X^2 = 7.98, p = .047), as well as education and recreation technologies (X^2 = 13.08, p = .004). The use of health technology is significantly higher among part-time working participants compared to retired participants

(Z = -2.18, p = .029). Part-time employees exhibit a notable advantage in their utilization of education and recreation technologies (Z = -3.33, p = .001) in comparison to individuals who have never been employed.

A significant difference was observed in the utilization of communication technologies (X^2 = 10.74, p = .013), health technologies (X^2 = 10.74, p = .013), and education and recreation technologies (X^2 = 19.00, p = .oo1) across different economic status categories. Participants who self-identified as "rich" compared to those who self-identified as "poor" showed significant differences in the usage of communication technologies (Z = -2.58, p = .010), health technologies (Z = -2.847, p = .004), and education and recreation technologies (Z = -3.42, p = .001).

Within the demographic variables, a notable difference was found between the health status category and the utilization of communication technologies (X^2 = 10.90, p = .004) as well as education and recreation technologies (X^2 = 10.31, p = .006). Individuals who did not have any health issues exhibited a higher propensity to utilize communication technologies (Z = -3.28, p = .001) and education and recreation technologies (Z = -3.20, p = .001) compared to individuals who had health problems that did not impact their everyday activities.

Factor Analysis

Factor analysis was applied to determine 60+ Refreshment University students' attitudes toward using gerontechnological products. As a result of the test performed to understand whether the sample size is suitable for factor analysis, the KMO value is .829. It is understood that the sample size is sufficient for factor analysis; as a result of the factor analysis for the scale of acceptance of gerontechnological products by older adults, factors with eigenvalue statistics greater than 1 and 4 factors were determined. The factor analysis demonstrated that accounting for 69.46 % of the total variance. The first factor (Perceived Usability in Technology) explained 38.41 % of the variance, the second factor (Perception of Using Technology) ex-plained 15.10 % of the variance, the third factor (Access to Technology and Transportation) ex-plained 9.52 % of the variance, and the fourth factor (Concern about Use of Technology) ex-plained 6.43 % of the variance. After determining the number of factors in the analysis, the factor matrix formed with the eigenvalue is checked to determine which factor determines the variables. The factor rotation matrix was used for the ones close to the factor matrix components and those difficult to separate (Yildiz, 2012). Which variables will be included in which factors were decided according to the transformed matrix values? Variable and factor distribution are shown in Table-3. The Cronbach alpha technique was employed to ascertain the internal consistency. The Cronbach

Table-3. The factorial structure of the scale of acceptance of gerontechnological products

	Factor 1	Factor 2	Factor 3	Factor 4
It's a good idea to use technology	.264	.858	-.002	-.083
You like the idea of using technology	.301	.853	.026	-.097
Using technology will increase its ef-fectiveness in life	.220	.748	.197	-.139
Using technology will make my life easier	.723	.480	.095	.005
I see technology as useful in my life	.728	.472	.102	.014
I see technology as something easy to use	.785	.208	.172	-.212
I can be adept at using technology	.773	.232	.183	-.229
If someone shows me how I can com-plete a job using technology	.792	.155	.244	-.068
If there are instructions for use, I can do a job using technology	.758	.125	.273	-.064
I get worried when it comes to the use of technology	.006	-.166	.005	.845
I avoid using technology for fear of making a mistake I can't fix	-.143	-.046	-.027	.874
I do not have the necessary knowledge to use the system	-.212	-.047	.303	.726
I have a person or group to help me with the technology challenges	.114	.020	.599	.074
The financial situation does not restrict technology use activities	.040	.087	.718	.140
Technology tools are available to me when I want to use it or need to use it	.365	.077	.743	-.059
My family and friends want / support me to use technology	.266	.054	.734	.009

alpha coefficient for a set of 16 items was calculated to be 0.79. Therefore, it may be concluded that the scale has a moderate level of reliability. The four variables' Cronbach alpha coefficients for attitudes range from .71 to .91. The first factor, perceived usability in technology, has a Cronbach alpha value of .91; the second, perception of using technology, has a coefficient of .85; the third, access to technology and transportation, has a coefficient of .71; and the fourth, concern about using technology, has a coefficient of .79.

Correlation Analysis

Correlation analysis was performed to determine the relationship between the use of gerontechnological products and attitudes towards the use of gerontechnological products. The correlation coefficient varies between +1 and -1. If the correlation coefficient is +1, it means that there is a perfect positive relationship between the variables; if it is 0, there is no relationship between the variables; and if it is -1, it means that there is a perfect negative

relationship be-tween the variables (Kose, 2008). Analysis results are shown in Table-4.

Table-4. Correlation analysis between use of gerontechnological products and attitudes towards gerontechnological products

	Home and Daily Life Technologies	Communication Technologies	Health Technologies	Education and Recreation Technologies
Factor-1	-.27***	-.33***	-.25***	-.21***
Factor-2	-.39***	-.26***	-.25***	-.27***
Factor-3	-.22***	-.33***	-.17***	-.17***
Factor-4	.28***	.25***	.17***	.33***

Note-1. Factor-1 = Perceived Usability in Technology, Factor-2 = Perceptions of Using Technology, Factor-3 = Access to Technology and Transportation, and Factor-4 = Concern about the Use of Technology; *Note-2*. *** $p \leq .001$

Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a negative relationship between perceived usefulness in technology and home and daily life technologies (-.27), communication technologies (-.33), health technologies (-.25), and education and recreation technologies (-.21). Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a negative relationship between the perception of using technology and home and daily life technologies (-.39), communication technologies (-.26), health technologies (-.25), and education and recreation technologies (-.27). Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a negative relationship between access to technology and transportation and home and daily life technologies (-.22), communication technologies (-.33), health technologies (-.17), and education and recreation technologies (-.17). Among the sub-dimensions of attitudes towards the use of gerontechnological products, there is a positive relationship between anxiety about technology use and home and daily life technologies (.28), communication technologies (.25), health technologies (.17), and education and recreation technologies (.33).

DISCUSSION

The high rate of mobile phone use by the individuals participating in the research supports the findings of previous studies (Chen et al., 2012). It is thought that the low price of mobile phones compared to the past, their widespread use, and the fact that they are the primary source of communication with family members and close circles affect the usage rates. At the same time, the communication and announcements made via mobile phone and the calling or short message systems in the education program that the individuals attend greatly impact phone use.

Today, remote control devices are becoming more and more common. Televisions, CD-DVD players, security systems, and even the doors of cars can be opened and closed with remote control systems.

Remote control devices save time and speed in many vehicles, systems, and living space arrangements.

The use of electric sphygmomanometers in health technologies is becoming increasingly widespread. The number of people who prefer it for quick intervention or blood pressure monitoring is increasing due to its practical use. Especially after retirement, people have a digital camera to pursue a hobby or profession and to keep their memories of trips or tours, and they desire to improve its use by going on photography courses.

It was found that there was no significant difference between the use of gerontechnological products and the variables of gender, living together, marital status, and income source. There was no statistically significant difference between men and women in the participants' use of technological products. However, according to the TUIK (2019) data, it was found that older men using the Internet used the Internet more than women. A study conducted in Hong Kong based on technology acceptance concluded that women tended to use technology more than men (Chen et al., 2012). It is thought that the gender variable is generally effective in using gerontechnological products. However, in this study, there was no significant difference be-tween men and women in the use of technology due to the high education level of the individuals participating in the third-age university program and the fact that they were a homogeneous group.

It was revealed that there was a significant difference between the use of gerontechnological products and the variables of age, education, economic status, and health status. It was seen that individuals in the age group of 60-69 used communication technologies more than individuals in the age group of 70-79. This shows that the use of technological products decreases with aging, and in this case, the design of the products does not include losses in advanced ages (Chen & Chan, 2014).

The TUIK (2019) household information technology usage survey revealed that the rate of individuals in the 65-74 age group using the Internet had increased four times. While there was a difference between the educational status of the participants and the use of communication technologies and education and recreation technologies, it is seen that education was ineffective in health technologies and the use of home and daily life technologies. Since home and daily life technologies are frequently used and shared and can be understood by everyone compared to other technology groups, it is seen that the status of education correlates with health technologies since the majority of individuals aged 60 and over have health problems.

Ozkan and Purutcuoglu (2010) emphasized in their research that educational status was effective in accepting and using technology. Since most of

the participants in the lifelong education program in this study are college/university graduates, educational status is considered an influential variable. It was concluded that there was a significant difference between working status and the use of gerontechnological products. It is seen that they used education and recreation technologies more than retired and part-time employees and participants who had never worked. It is understood that individuals working on lifelong education activities can spare less time. It was found that there was a significant difference between the economic situation and the use of gerontechnological products. There was a difference in communication technologies between the poor and middle-class participants. There was also a significant difference between individuals who stated they had a rich and poor economic situation with health, education, and recreation technologies. It is seen that there was a significant difference between health status and the use of gerontechnological products. It is seen that there was a significant difference between those who did not have a health problem and those who had health problems that prevented them from continuing their daily life. It is thought that participants who do not have health problems use communication, education, and recreation technologies more.

As the use of gerontechnological products by the students of the third age university participating in the research increased, their anxiety about the use of technology increased. Kalinkara et al. (2016) stated that the increase in the use of gerontechnological tools reduced anxiety in the results of their research in three different regions of Türkiye. Among the reasons for the difference between the results, 72.3% of the individuals participating in this research were in the early old age (60-69) period, which is considered adequate. It is thought that individuals who retire early are trying to integrate themselves because they stay away from technology due to the intervention of time. Individuals who have recently retired cannot allocate much time to technologies in the fields of home, daily life, communication, health, education, and recreation in their business life. At the same time, it is seen that 61.6% of the participants have a high school, university, or postgraduate education status. It is thought that as the education level increases, the use of gerontechnological products increases, but individuals experience difficulties in using products and services due to standardization, and they experience anxiety because they have difficulty solving complex systems. In technology acceptance and use by older adults, which emerged as a result of factor analysis, it is seen that the factors with the highest reliability among the factors of usefulness, perception of using technology, access

to technology and transportation, and use of technology are perceived usefulness in technology and the perception of using technology. The most influential factors obtained from the research are similar to the most influential factors suggested by Davis (1989) based on his previous research. In their studies, Schepers and Wetzels (2007) revealed that the Senior Technology Acceptance Model (STAM) for older adults could vary in different cultures. According to the findings, the effect of perceived usefulness in Western cultures supports the *"perceived usefulness"* factor. In the factor analysis, it is thought that the economic situation and education level are the main factors in the *"access to technology and transportation,"* which is one of the factors affecting technology acceptance by older adults. The opportunities for older adults with economic independence to benefit from the opportunities of modern society will increase (Tufan et al., 2019). While self-efficacy in using gerontechnological products includes the feeling of using technology successfully, anxiety refers to the concern faced in using gerontechnological products (Venkatesh et al., 2003). The variable with the highest mean among the factor variables of the research belongs to the statement, *"I stay away from using technology for fear of making a mistake that I cannot fix"* (.874). The second highest mean is *"It is a good idea to use technology."* While the highest variable belongs to anxiety towards technology use, the second highest variable belongs to the perception of using technology. While the participants' opinions about the use of technology are positive, the anxiety they experience in using technology due to the fear of making mistakes shows that they are reluctant to use technology. At the same time, the fact that the design of technological products is unsuitable for older adults is an important factor in the fear of making mistakes. In addition to the physical and cognitive abilities of older people, psychological mood, the size of their social network, retirement, role loss, life-cycle characteristics, and tasks have important effects on their self-efficacy in technology use and anxiety about using technological products (Ryu et al., 2009)

CONCLUSION

This study evaluated the socio-demographic characteristics of individuals aged 60 and over who attended the third age university, the use of technological products, the influential factors, and attitudes in using the products. As a result of the research, for individuals aged 60 and over participating in the lifelong education program who had a high level of education, the most commonly used tools and equipment in the use of gerontechnological products, mobile phones, remote control devices, electric blood pressure monitors and digital cameras. Demographic

features practical in using gerontechnological products are age, educational status, economic status, working status, and health status.

According to the research results, there are four main factors in the attitudes of the older population towards the use of gerontechnological products: perceived benefit of technology, perception of using technology, access to technology and transportation, and anxiety about technology use. The factors with the highest reliability and validity are the perceived benefit of technology and the perception of using technology. The component with the highest mean among the factor subcomponents is "I stay away from using technology for fear of making a mistake that cannot be corrected." It has been concluded that as the use of gerontechnological products increases, the anxiety regarding the use of technology also increases.

Technology, once considered a luxury two decades ago, has now evolved into a fundamental necessity. While most young and adult individuals have made technology an indispensable part of their lives, older individuals have also gradually started to include technology in their lives. The use of new technologies requires learning new skills. Therefore, considering older adults' biophysical and psychosocial characteristics and the possibility of a decline in their cognitive abilities, selective attention, and working memory, they may take more time to acquire new skills than young people (Chen & Chan, 2014).

The impact of developing technology on individuals and societies differs from culture to culture. The acceptance and behavior of technology by individuals are affected by their experiences in their cultural life. Today, reconciling research, design, and production studies with the cultural characteristics of older adults is very important for their social progress in technology (Senel & Gencoglu, 2003). Technology education should be one of the main themes to be considered while creating the curriculum of third-age university programs, which is a new field in Türkiye and is applied in a limited way. Expanding technology courses and encouraging individuals to participate in life-long education programs can make a significant difference in the use of technology. While the participation of older adults in a lifelong education program is an encouraging reason for using technology, the difficulties they experience in using technology due to incomplete knowledge cause an increase in their anxiety about technology. Considering the abilities of older adults, special technology training should be given in line with their needs and expectations. Other-wise, the concerns of older adults will likely increase in the coming years with the development of technology. There is a difference between older adults who use and accept technology (Kalinkara, 2019). The main factor causing this situation is the rapid technological change. When products are constantly developed

and presented to consumers, older adults tend to buy another product in case a product loses its functionality or in case of need. In the meantime, product acceptance levels are changing due to the difficulties experienced in using the products. Even if older adults' perception of technology is thought to be negative today, technologies to support them should be developed and marketed. Considering the results of the research, the suggestions for future studies can be summarized as follows, based on the limited joint work in the field of gerontology and technology: planning extensive theoretical and applied education studies on technology use by older adults, dissemination of digital literacy to older adults, inclusion of technology-related education in the basis of lifelong education programs, planning technology training in line with the needs and expectations of older individuals, taking into ac-count their physical and cognitive abilities, considering anthropometric measurements in gerontechnological product designs, providing facilities for older people to access and transport technological products, reducing older people's sense of distrust towards technological products, involving individuals and groups that assist older people in technology use and to encourage multidisciplinary teamwork in developing technologies to support the older. Considering these issues, it is necessary to intervene in the lifestyles of older people by moving from the micro level, such as daily life activities, family and social relations, to the macro levels, such as health, care, and education with lifelong education programs (Ozkan & Purutcuoglu, 2010). With the changing structure of old age, in the future, old age individuals will struggle to be active, healthy, and productive and to maintain their social roles. In the future, not only the needs of the old age in health, care, and poverty but also their needs in education, art, sport, and activities will have to be met. The holistic society needs to plan practical services and policies for older adults in this area. One of the most critical steps in this field will be to include professional and qualified personnel in service planning and implementation. In this process, gerontologists have a crucial role. Gerontologists can support the transition process by optimizing the developmental processes of older people (Schulz et al., 2015). In order to meet the demands of the rapidly increasing older population, gerontologists play an essential role in developing cost-effective and widespread systems and interventions in the lives of older individuals with a more holistic perspective by bringing together different disciplines and practitioners.

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