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Nursing Students' Technological Equipment Usage and Individual Innovation Levels

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Technological equipment is an indispensable part of many people's lives. In parallel with this development, the role of innovation is critical to nurses' ability to provide patient care. Today, nursing students have grown up with technology. Therefore, the field is expected to be more open to innovation in nursing care. It is thought that the use of technological equipment influences the level of innovation. The purpose of this study was to determine nursing students' technological equipment usage, individual innovation levels, and the relationship between them. This descriptive study employed a correlational design during the 2015–2016 academic year at a Nursing Department in the Faculty of Health Sciences in Istanbul. The study population comprised 199 nursing students. The study sample included 165 students who volunteered to participate and were chosen at random. Most (93.3%) of the students were women, and the mean age was 20.92 ± 1.63 years. Data were collected using a devised structured-question form, the Technological Device Use Habits Scale, and the Individual Innovation Scale. Participants' mean scores on the Technological Equipment Usage (a subscale of the Technological Device Use Habits Scale) and on the Individual Innovation Scale were 135.15 ± 27.09 and 61.02 ± 8.89, respectively. Students' technological equipment usage subscale was higher than the other subscales; furthermore, their individual innovation levels revealed that they were "questioners." Several factors affected students' technological equipment usage and individual innovation levels including their age, income, work status, usage of social networking sites, Internet connection type, and if they considered themselves as innovative. The role of technological innovation is critical to nurses' ability to provide patient care.

KEY WORDS: Innovation, Nursing students, Technological equipment

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The fact that the Internet provides quick access to information and opportunities for online processes along with innovative technology has made technology a key component of daily life and has made it necessary for individuals to carry the Internet with them. The Internet is a communication tool that is widely used in the world, where many computer systems are interconnected. The development of technology has produced many disadvantages as well as advantages. Differences have arisen between newly developed technology and how new generations integrate this technology into their social lives. Consequently, the individual use of technological equipment has risen at a fast pace, and technological tools have become an indispensable part of many people's lives. Technological devices are becoming increasingly portable and useful and provide nearly constant access to the Internet and a variety of software applications and digital media. The development of technological devices addresses everyone of every age in their interest area. In general, it is agreed that technology is increasingly more apparent in day-to-day activities.[1–5] Increases in the use of technological equipment have introduced individuals to the concept of innovation, and science, technology, and environmental changes have urged people to change and innovate. Innovation is a new and valuable idea, product, or process that is turned into a social benefit.[6]

Health services, one of the primary fields where innovation occurs, face new necessities due to multiple reasons, such as changing population structure, increasing chronic diseases, and loftier societal expectations. In line with these requirements, substantial changes are taking place.[7,8] Vital health professionals such as nurses accommodate these changes and reflect these innovations in the community. Innovation is important in the development and maintenance of quality in nursing care. It is important for the nurses to be open to newness in order to recognize and respond to the needs of the patient. In order to be able to exhibit the "innovative" role in the working environment, nurses must have an innovative way of thinking. It is thought that the training of innovative nurses is possible if nursing education is carried out within the framework of innovation. Therefore, nursing students need to be innovative and create and maintain innovation using technological equipment as part of their contemporary roles and responsibilities so that they can excel in the workforce.[6–8]

Differences have arisen between newly developed technology and the changing integration of this technology into the social lives of subsequent generations.[3] Because of this, technological equipment usage has increased all over the world. According to the Study of Household Use of Information Technologies (2016), which was conducted by the Turkish Statistical Institute, the rate of computer and Internet use was 54.9% and 61.2%, respectively, among individuals aged 16 to 74 years in April 2016. Specifically, it was 64.1% and 70.5% for men and 45.9% and 51.9% for women, respectively.[9] In 2015, the following respective rates for household numbers were found regarding access to the Internet and possession of mobile phones or smart (Android) phones, desktop computers, and laptop computers: 69.5%, 98.6%, 25.2%, and 43.2%.[10] Increasing use of technological tools has led individuals to innovate.[6] Rogers[11(p163)] defined innovation as "an idea, practice, or an object that is perceived new by an individual, group or society." Consistent attention has been paid to the global importance of innovation, which is a value created particularly by novelties and in parallel with technology and is seen as the key to development in every sense. The phenomenon of innovation emerges because of people's needs, which products and services can satisfy. Individuals' innovation levels which are at the center of innovation and the conditions of adoption are defined as individual innovation.[12,13] Individual innovation is also defined as the capacity to take risk in the face of newness; to adapt, adopt, and tolerate it; and to be open to novel experiences.[14] In other words, individual innovation is the desire to seek and find new approaches for problem solving utilizing currently available technology.[15]

In the health system, which is at the forefront of innovation and the area in which innovation is most widely applied, nurses are the most vital health professionals to reflect innovation.[7] Nurses, above all, should not be resistant to innovative approaches; they should be open to innovation, implement innovation in practice, display the role of an innovator efficiently, and integrate technological equipment into patient care to cater to the requirements of their patients.[16] If a nurse implements innovation in the workplace, he/she is supposed to have a value system with an individual innovation mindset. According to the International Council of Nurses,[17] "Innovation in Nurse Care for a Quality Care, and Better Service for Communities" plays a key role regarding supporting the well-being in nursing practices, prevention of diseases, determining and preventing risk factors, enhancing behaviors that improve health, providing better-quality care, and finding current information, approaches, and practices.

While nurses provide a vital and complex service in patient care, they have the responsibility to reflect upon the service they provide, question whether it is appropriate and effective, and do research about how and in what ways they can administer more efficient, quality, and cost-effective care.[17] The individual values and professional values of the nurses require innovation to be open, and it is important that these values are open to the use of technological tools. One of the most important features of critical thinking in nurses is to be open to innovation and change. Nursing students need to be innovative and create and maintain innovation through the use of technological equipment as part of their contemporary roles and responsibilities so that they can excel in their future careers. Technology can enhance learning and productivity, and, according to recent literature, nursing education should embrace these benefits.[18] Consequently, this study investigated nursing students' use of technological equipment, their individual innovation levels, and the correlations among them.

METHODS

Participants

This descriptive, correlational study was conducted during the 2015–2016 academic year at the Nursing Department of the Faculty of Health Sciences in Istanbul. The study population consisted of 199 nursing students, and the study sample included 165 students who volunteered to participate and who were chosen through random sampling, which is a method of improbable sampling.

Design

This study was planned as descriptive and cross-sectional, and the purpose of the study was to examine nursing students' use of technological equipment, their individual innovation levels, and the correlations among them. The main research questions were as follows:

1. What are the sociodemographic qualities of nursing students?
2. What is the status of nursing students' use of technological equipment?
3. What are nursing students' individual innovation levels?
4. Is there any correlation between their use of technological equipment and individual innovation?
5. Are more technologically savvy younger students more innovative?

Instrument

A structured-question form, the Technological Device Use Habits Scale, and the Individual Innovation Scale were used to collect data for the research.

The structured-question form was prepared by the researchers considering relevant literature.[1–8] It included 20 questions related to sociodemographic characteristics such as age, sex, marital status, place of residence, their use of social networking sites, smartphone usage time, technological tool use, and innovation.[1–3]

The Technological Device Use Habits Scale was designed by Biçen and Arnavut[2] to determine the effect of students' use of technological equipment on their social life. The validity and reliability of the scale consist of 60 items and five subscales: 24 items concerning "technological equipment usage," 12 items concerning "social media," eight items concerning "role of technology in life," nine items concerning "educational use," and seven items concerning "communication." Responses are made using a 5-point Likert scale: 5 = strongly agree, 4 = agree, 3 = cannot decide, 2 = disagree, and 1 = strongly disagree. Previously, its Cronbach's α was found to be .89.[2] In this study, Cronbach's α was .87.

The Individual Innovation Scale was designed by Hurt et al[19] to measure individual innovation levels and what innovation category they belong to. The original language of the scale is English. Its Turkish adaptation was devised by Kılıçer and Odabaşı.[20] The scale includes 20 items and is answered using a 5-point Likert-type scale: strongly disagree to strongly agree. Twelve items are positive (1, 2, 3, 5, 8, 9, 11, 12, 14, 16, 18, and 19); eight items are negative (4, 6, 7, 10, 13, 15, 17, and 20). Innovation score is calculated by subtracting the sum of negative item scores from the sum of positive item scores and adding 42 to the result (total range = 14–94). Individuals are categorized in the context of 57 innovations depending on their final scores. Accordingly, individuals are categorized as "innovative" for scores over 80, "pioneer" for scores between 80 and 69, "interrogator" for scores between 68 and 57, "skeptical" for scores between 56 and 46, and "traditional" for scores below 46. Moreover, it is possible to comment on individuals' innovation levels depending on their scores obtained from the scale. Accordingly, individuals with scores over 68 are described as rather innovative, whereas those with scores below 64 are low on innovativeness.[20]

The Turkish scale was found to have a 4-factor structure that was valid. Specifically, factor loading values ranged from 0.360 to 0.787, and the general internal consistency coefficient was 0.82. Its test-retest reliability coefficient was 0.87.[20] In this study, the scale's Cronbach's α was .80.

Data Analyses

Data were analyzed using IBM SPSS Statistics 22.0 (IBM Corp, Armonk, NY). Frequency, percentage, minimum, maximum, mean, and SD were calculated for descriptive analyses. The Shapiro-Wilk test was conducted for normality. The Student's t test was utilized for comparison of the quantitative data showing a normal distribution, while the Mann-Whitney U test and the Kruskal-Wallis test were used for comparing two groups or more than two groups that did not follow a normal distribution, respectively. Statistical significance was set at $P \leq .05$.

Ethical Considerations

Before starting the research, written consent was obtained from each research institution. The research protocol was approved by an ethics committee. Students participating in the research were ensured that researchers would adhere to the principles of loyalty and confidentiality by not making their personal information public, not sharing this information with third parties, or not using this information in any way other than for the purpose explained to them in the study. The data were collected after a scheduled class time. Survey packets were distributed to participants in the classroom. The survey took approximately 20 to 25 minutes to complete. Participants placed the completed survey form and incentive sheet in separate envelopes.

RESULTS

Participant Sociodemographic Characteristics

Most (93.3%) of the participants were women, and the mean age was 20.92 ± 1.63 years.

Participant Use of Technological Equipment

The mean length of time spent on social networking sites was 2.32 ± 1.89 hours, and the mean time spent on technological equipment was 4.45 ± 3.34 hours.

Most participants (85.5%) used social networking sites (83% used them every day) and had access to Wi-Fi (80.6%). More than half (52.1%) considered themselves competent in information technologies, while 30.3% regarded themselves as innovative.

Participant Level of Technological Equipment Usage and Individual Innovation

Table 1 shows that participants' mean score on the Technological Device Use Habits Scale was 135.15 ± 27.09. The mean scores for the subscales were 50.44 ± 14.51 for "technological equipment usage," 27.86 ± 10.09 for "social media," 27.53 ± 7.68 for "the role of technology in life," and 16.01 ± 5.20 for "communication." Participants total average score obtained from the Individual Innovation Scale was 61.02 ± 8.89.

Correlation Between Participant Levels of Technological Equipment Usage and Individual Innovation

Table 2 shows that there was a negative correlation between the technological equipment usage ($r = -0.168$, $P < .05$) and communication ($r = -0.161$, $P < .05$) subscales of the Technological Device Use Habits Scale and the Individual Innovation Scale total scores. On the other hand, a positive correlation was observed between the role of technology in life subscale ($r = 0.191$, $P < .05$), educational use subscale ($r = 0.200$, $P < .05$), and total scores obtained from the Individual Innovation Scale.

Table 1. Distribution of Scores From Technological Device Use Habits Scale and Individual Innovation Scale

		Min-Max	Average ± SD	Median
Technological Device Use Habits Scale	Technological equipment usage	24–98	50.44 ± 14.51	51
	Social media	12–89	27.86 ± 10.09	27
	Role of technology in life	8–87	27.53 ± 7.68	28
	Educational use	9–71	29.32 ± 7.19	29
	Communication	7–32	16.01 ± 5.20	15
	Total	53–203	135.15 ± 27.29	136
Individual Innovation Scale		29–86	61.02 ± 8.89	59

Abbreviations: SD, standart deviation; Max, maximum; Min, minimum.

More Technologically Young Students Are More Innovative

Table 3 shows that scores for the total Technological Device Use Habits Scale and the "social media" subscale obtained by participants aged 20 years and younger were significantly higher than those aged over 20 years ($P < .05$).

Participants who were a member of any social networking sites had significantly higher total scores on the Technological Device Use Habits Scale ($P < .01$) and the "social media" subscale compared to those who did not use these sites ($P < .05$).

Participants who used social media sites every day and once a week had significantly higher total scores on the Technological Device Use Habits Scale, the social media subscale, and educational use than the other groups ($P < .05$, $P < .01$, and $P < .05$, respectively). Regarding Internet connection options, those opting for 3G or 4.5G scored significantly higher on the "social media" and "communication" subscales (both $P < .01$) than those showing preference for ADSL ($P = .016$) and Wi-Fi ($P = .012$). Social media scores achieved by those who considered themselves competent in information technologies were significantly higher ($P < .05$). When self-perception about innovation was considered, traditionalists performed significantly differently from others on the Individual Innovation Scale ($P < .05$) (Table 3).

Table 2. Correlation Analysis of the Scores From Technological Device Use Habits Scale and Individual Innovation Scale

	Individual Innovation Scale	
Technological Device Use Habits Scale	***r***	***P***
Technological equipment usage	−0.168	.031[a]
Social media	0.005	.946
Role of technology in life	0.191	.014[a]
Educational use	0.200	.011[a]
Communication	−0.161	.039[a]
Total	0.019	.806

[a]Pearson's correlation analysis, $P < .05$.

DISCUSSION

Technology, including the Internet, has become an irreplaceable part of many people's lives. People's normal lives are equipped with technological devices.[1,4] The development of the Internet at such a fast pace has sparked the creation of a variety of technological tools and the promotion of innovation. The current study was conducted to determine nursing students' technological equipment usage and individual innovation levels as well as the correlation between them.

Participant scores on the technological equipment usage subscale were higher than for other subscales. University students have started to use technological tools (eg, smartphones) actively in recent years, especially for communication.[21,22] The current findings are consistent with past literature.[23,24] Moreover, participants' individual innovation levels revealed that they were "questioners." The concept of innovation has brought a new point of view in parallel with technological development and has led people to adopt technology. Therefore, an increase in individual innovation levels has been observed.[25] Individuals exhibit diverse qualities regarding innovation and are categorized into five distinct groups: innovators, pioneers, questioners, skeptics, and traditionalists. Innovators are more than willing to experience new ideas immediately. Pioneers are more part of society than innovators, but they do not have as much international relevance as innovators. Thanks to these features, innovation is influential in the acceptance of other parts of the society. Questioners are careful individuals in addition to being skeptical. Skeptics are cautious about accepting innovation and do not accept innovation without it being accepted by most of society. Traditionalists are individuals who are at the end of the process of accepting innovation in society. They have no leadership qualities.[11,20] Past studies have also shown that students' individual innovation levels are typically at the questioning level.[6,26,27] This finding explains the status of participant use of technological

Table 3. Analysis of the Scores From Technological Device Use Habits Scale and Individual Innovation Scale in Terms of Participants' Sociodemographic Characteristics and Their Use of Technological Equipment

General Characteristics		n	Technological Device Use Habits Scale						Individual Innovation Scale, Average ± SD
			Technological Equipment Usage, Average ± SD	Social Media, Average ± SD	Role of Technology in Life, Average ± SD	Educational Use, Average ± SD	Communication, Average ± SD	Total, Average ± SD	
Age group	≤20 y	65	52.65 ± 13.05	30.69 ± 11.19	28.62 ± 9.18	29.32 ± 7.70	16.42 ± 4.46	141.28 ± 24.72	60.60 ± 8.48
	>20 y	100	49.00 ± 15.27	26,02 ± 8.89	26.83 ± 6.47	29.32 ± 6.88	15.75 ± 5.63	131.17 ± 28.26	61.29 ± 9.17
	t, *P*[a]		1.585; 0.115	2.974; 0.003[b]	1.465; 0.145	0.003; 0.998	0.803; 0.423	2.356; 0.020[c]	−0.486; 0.627
Income status	Ends meet	144	49.63 ± 14.42 (50)	27.33 ± 9.99 (27)	27.49 ± 7.87 (28)	29.26 ± 6.43 (29)	15.69 ± 5.04 (15)	133.71 ± 26.82 (133,5)	61.02 ± 9.01 (59)
	Ends don't meet	21	55.95 ± 14.26 (57)	31.52 ± 10.32 (33)	27.86 ± 6.35 (29)	29.71 ± 11.33 (29)	18.24 ± 5.8 (17)	145.05 ± 29.10 (146)	61.00 ± 8.17 (59)
	Z, *P*[d]		−1.893, 0.058	−1.979, 0.048[c]	−0.804, 0.422	−0.412, 0.681	−1.936, 0.053	−1.692, 0.091	−0.010, 0.992
Being a member of any social media site	Yes	141	51.05 ± 14.29 (51)	28.83 ± 9.64 (28)	27.87 ± 7.57 (28)	29.73 ± 6.83 (30)	16.02 ± 5.07 (15)	137.48 ± 25.81 (137)	61.16 ± 8.88 (59)
	No	24	46.83 ± 15.54 (50.5)	22.17 ± 10.99 (17)	25.54 ± 8.16 (26.5)	26.92 ± 8.81 (26.5)	15.96 ± 6.00 (16)	121.46 ± 32.07 (119.5)	60.21 ± 9.09 (57)
	Z, *P*[d]		−0.928, 0.326	−2.958, 0.003[b]	−1.212, 0.226	−1.635, 0.102	−0.039, 0.969	−2.214, 0.027[c]	−0.893, 0.372
Frequency of social media site use	Every day	137	51.32 ± 14.30 (51)	28.66 ± 9.99 (28)	27.34 ± 5.66 (28)	29.78 ± 6.88 (30)	16.20 ± 5.18 (16)	137.09 ± 25.61 (136)	61.07 ± 8.82 (59)
	Once a week	10	49.93 ± 15.02 (52)	27.93 ± 6.77 (29)	31.53 ± 16.91 (28)	29.80 ± 6.89 (27)	15.40 ± 4.55 (16)	139.20 ± 26.23 (136)	59.80 ± 8.13 (57)
	Others	18	41.69 ± 14.31 (41)	19.38 ± 11.05 (14)	25.00 ± 9.05 (25)	23.92 ± 9.02 (24)	14.69 ± 6.14 (14)	110.00 ± 34.56 (107)	61.85 ± 10.85 (59)
	χ^2, *P*[a]		4.142, 0.126	11.207, 0.004[b]	2.417, 0.299	6.616, 0.037[c]	0.956, 0.620	8.276, 0.016[c]	0.502, 0.778
Preferred connection type	ADSL	12	45.95 ± 15.78 (46,5)	24.10 ± 8.40 (25)	27.65 ± 8.25 (28)	32.55 ± 8.07 (32)	14.65 ± 5.59 (14)	130.25 ± 27.17 (135)	59.70 ± 9.79 (60.5)
	Wi-Fi	78	50.41 ± 14.12 (50)	27.66 ± 10.16 (27)	27.53 ± 7.79 (28)	28.74 ± 7.11 (29)	15.80 ± 4.90 (15)	134.34 ± 27.26 (133)	61.00 ± 8.74 (59)
	3G/4.5G	48	58.25 ± 14.54 (55)	36.33 ± 7.40 (36.5)	27.33 ± 5.69 (29.5)	30.42 ± 5.18 (31.5)	20.58 ± 5.85 (20.5)	152.33 ± 23.31 (153)	63.42 ± 9.24 (60)
	χ^2, *P*[a]		4.694, 0.096	14.647, 0.001[b]	0.185, 0.912	4.817, 0.090	8.437, 0.015[c]	6.682, 0.035[c]	0.862, 0.650
Seeing oneself competent at information technologies	Yes	86	52.01 ± 15.09	29.47 ± 11.14	27.36 ± 6.74	30.03 ± 8.32	16.70 ± 5.95	138.87 ± 28.72	60.81 ± 9.85
	No	79	48.72 ± 13.74	26.11 ± 8.55	27.72 ± 8.62	28.54 ± 5.67	15.27 ± 4.13	131.10 ± 25.22	61.24 ± 7.76
	Z, *P*[d]		1.460, 0.146	2.154, 0.033[c]	−0.301, 0.764	1.333, 0.184	1.807, 0.073	1.840, 0.068	−0.307, 0.759
Level of seeing oneself innovative	Traditionalist	13	53.69 ± 19.43 (57)	27.54 ± 11.39 (28)	26.15 ± 7.44 (27)	29.77 ± 5.09 (30)	18.00 ± 6.30 (19)	137.15 ± 34.78 (131)	56.38 ± 7.57 (54)
	2	8	51.00 ± 16.20 (51)	28.50 ± 7.71 (26.5)	24.88 ± 3.23 (24)	29.75 ± 6.27 (29)	15.88 ± 5.08 (16)	134.13 ± 20.51 (129,5)	66.25 ± 10.63 (63)
	3	55	50.20 ± 15.02 (47)	27.85 ± 12.26 (27)	25.75 ± 5.49 (27)	27.89 ± 6.53 (28)	14.02 ± 4.29 (14)	131.69 ± 28.70 (135)	60.04 ± 8.99 (59)
	4	39	47.51 ± 13.07 (49)	25.72 ± 8.16 (25)	29.59 ± 5.77 (29)	28.74 ± 5.45 (29)	16,82 ± 5,61 (17)	131.56 ± 22.67 (129)	60.67 ± 7.63 (61)
	Innovator	50	52.04 ± 13.46 (52)	29.52 ± 8.77 (30.5)	28.68 ± 10.64 (29)	31.16 ± 9.22 (31)	17.08 ± 5.00 (16)	141.4 ± 27.67 (143.5)	62.74 ± 9.25 (60)
	χ^2, *P*[a]		0.047, 0.828	0.048, 0.827	0.829, 0.363	0.160, 0.689	0.299, 0.585	0.295, 0.587	5.794, 0.016[c]

[a]Kruskal-Wallis' test.
[b]$P < .01$.
[c]$P < .05$.
[d]Mann-Whitney's *U* test.

equipment and individual innovation levels (Research Questions 2 and 3).

The higher participant levels of technological equipment usage and communication, the more negative the individual innovation levels were. This finding can be attributed to the fact that the use of technological equipment prevents individuals from discovering and developing their innovative characteristics. In addition, as the levels of the subscales "role of technology in life" and "educational use" increased, individual innovation levels increased in a positive direction, which shows that technology contributes to education and innovation. According to the literature, technology cannot be used functionally and actively, and individuals' innovative qualities cannot be discovered without knowing the role of technological innovations in society and ensuring its educational use.[7,20] For this reason, educational use of technology is an essential component in determining the function of technology in society and the extent to which the use of technology for educational purposes helps individuals gain innovation skills.[28] This finding shows that there was a correlation between their use of technological equipment and individual innovation (Research Question 4).

Participants aged 20 years and younger scored higher on the Technological Device Use Habits Scale and its social media subscale than those aged older than 20 years. Participants aged 20 years and younger were interested in technological equipment. Problems such as changes in socioeconomic structure, the increase in urbanization, and the reduction of green areas lead the current youth to be introduced to computers and the Internet at a younger age.[29] Many students consider the Internet and technology as tools that need to be with them all the time.[29] The current findings are consistent with the literature.[30]

Participants who could not make both ends meet were found to have higher mean scores on the social media subscale of the Technological Device Use Habits Scale. Social media plays a key role in making ends meet. This finding indicates that participants used social media as a money-making tool, which is consistent with Küçükali's study.[30]

Participants who used social networking sites had higher scores on the Technological Device Use Habits Scale and its social media subscale. The fact that social networking sites have spread rapidly over the last few years has led to the widespread creation and more intense use of technological devices.[4] The Study of Household Use of Information Technologies[9] conducted by the Turkish Statistical Institute showed that 96.9% of Turkish homes have mobile or smartphones, 22.9% own desktop computers, and 36.4% have laptop computers/tablets. Moreover, 82.4% of the individuals who used the Internet in the first 3 months of 2016 created an online profile, sent messages, or shared content such as photos, while 74.5% of those people watched videos via sharing sites. These statistics reveal Turkish people's interest in new communication technologies, which is consistent with the current results.

Participants using social media every day or once a week achieved higher scores the social media subscale of the Technological Device Use Habits Scale. Past studies reveal that people spend an increasing amount of time on social media, and they create a "new world" using this platform.[4,31] This finding not only shows that regular social media users score high on the social media subscale, but also directly indicates the role of the Internet in participants' lives.

Regarding the frequency of social media site use, participants who used social networking sites every day had higher total scores on the Technological Device Use Habits Scale and its educational use subscale. Social media and its accompanying technological applications have contributed to students' education, including communication and interaction, active participation, sharing information and resources, and promoting critical thinking.[32–34] Ellison claims that, even though social media sites are used informally, their proper use supports learning and teaching activities.[35] Moreover, consistent with this study, nursing students believe the Internet is an education and communication tool, and they regularly use it.[4]

Participants who preferred 3G or 4.5G for Internet connection had significantly higher scores than did those who opted for ADSL or Wi-Fi. This indicates that participants preferred smartphones more for social media and that existing connection types are not safe in certain environments. Further, Internet connection speeds are not fast enough due to overuse, and participants did not like having to enter their username or change their password.

Participants who saw themselves as capable at information technologies scored higher on the social media subscale. Developments in information technologies are increasing due to globalization.[36] Therefore, it is necessary that users remain up-to-date on social media sites and virtual sharing. As expected, participants who used social media felt competent about themselves when it came to social media.

When self-perception about being innovative is considered, those who regarded themselves as "traditionalists" had higher total scores on the Individual Innovation Scale. Traditionalists have prejudices against innovation and tend to be the last to adapt to new innovations. In addition, they expect innovations to be experienced by others first and wait for the results before adopting them.[20] All over the world, higher education programs are working to expand educational capacities, in order to meet future labor needs by applying innovative strategies. To produce qualified nurses who can meet the requirements of a globalized world, nursing education must implement innovative strategies.[37] Perhaps nursing students, who express themselves as traditionalists in

the face of dazzlingly fast-developing information technologies, cannot be indifferent to such changes. These findings show that some sociodemographic qualities and the attitude toward using technological equipment affect technological equipment usage and innovativeness (Research Question 5). In the light of these results, studies may be planned to increase the quality of nursing care within the innovative role of nursing students and to ensure the use of technological tools in solving problems.

Limitations

This study was conducted only with participants studying in the Nursing Department of the Faculty of Health Sciences. For this reason, the findings cannot be generalized to other populations.

CONCLUSIONS

This study determined participant use of technological equipment and individual innovation levels as well as the correlation between the two. Participants' technological equipment usage subscale scores were higher than other subscales, and their individual innovation levels revealed that they were "questioners." The following factors affected participants' technological equipment usage and individual innovation levels: age, income, work status, use of social networking sites and the frequency of use, Internet connection type, and if they considered themselves innovative. Consequently, the following future directions are recommended: first, in nursing education, the Internet and technological equipment should be used to target health risks and their potential consequences; second, students should participate in scientific activities such as panels, seminars, and conferences about the use of the Internet and technological equipment; third, innovation should be promoted among students who are developing technology; and fourth, comprehensive studies should be conducted to ensure that technological devices are used properly and effectively in universities.

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