Do the online information searching strategies affect individual innovativeness in nursing students?

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Abstract

Aim: The study was conducted to determine the effect of online information searching strategies on individual innovativeness in students taking the course of information techniques in nursing.

Material and Methods: The study was conducted as a descriptive and correlational study. The population of the study consisted of 548 students whoattended nursing faculty andtookthe course of information techniques in the nursing. In the study, the whole of the population was tried to be reached without using sample selection and the study was completed with 453 students. The data were collected by using Personal Information Form prepared by the researchers, Online Information Searching Strategies Inventory, and Individual Innovativeness Scale. Descriptive statistics, independent samples t-test, One way ANOVA, post-hoc tests, Correlation analysis, and the Cronbach's Alpha reliability analysis test were used to assess the data.

Results: It was found that OISSI and subscale mean scores of the nursing students were moderate. IIS mean scores of the students were 59.76±11.38 and they were early majority according to the scale evaluation. While a positive moderate correlation was determined between the OISSI subscale levels andindividual innovativeness levels of the students in the study, a positive strong correlation was found between the online information searching strategies andindividual innovativeness (p<0.01).

Conclusions: It was observed as a result of the study that as online information searching strategy levels of the students taking the course of information techniques in nursing increased, individual innovativeness increased.

Keywords: Information Techniques; Nursing; Online Information Searching Strategies; Individual Innovativeness.

INTRODUCTION

Internet has become an indispensable part of our lives each passing day as it responds to our increasing needs for accessing, storing and sharing information (1,2). As in every field, technology and the internet are highly effective in the development of nursing which is a practical profession. Nursing informatics is formed by using information technologies in information and practice fields specific for nursing (3,4). Nursing informatics, which has been developing rapidly since 2010, provides a decision support system to the nurses to evaluate and develop practices and plans of tools especially in patient care by allowing the data management (5).

The highly open internet environment is becoming quite complex with the inclusion of millions of new information every day (6,7). In order for the individuals to easily reach the information they seek in a correct and reliable way, they need to pass through various cognitive processes such as analysis, evaluation, and decision making. Thus, cognitive and metacognitive strategies people should have in this environment come into question (8). In order for the people to make the most effective use of web-based and online environments which are quite open-ended and have rich source content in accordance with these strategies, they should have problem solving skills, think critically, and create a perspective in information searching processes (9). Especially in educational context, students frequently use internet for assignments, projects or individual studies and search for online information. Accordingly,cognitive strategies of students and especially their information searching strategies are important to perform a successful searching on the internet (10).

In the changing world, the global importance of innovation, the value created by novelties along with the internet and technology is constantly paid attention and is considered

as the key of development (11). Innovativeness includes risk taking, openness to experience, and opinionleadership (12,13). Accordingly, the individuals in the society differ from each other in the context of innovativeness according to their characteristics. In terms of these differences, individuals adopt innovations earlier or later, or are more open or closed to the change (14). It is stated in global trend analysis studies that the innovative applications in the field of health have increased with the developing technology (15,16).

Preparing the curricula of the institutions providing nursing education in accordance with the innovative movements is important in terms of developing both public health and professional knowledge (17). Healthinformatics and innovation are included in the competencies nurses should have. This reveals the importance of innovativeness for the nursing profession (18).

This study was conducted to determine the effect of online information searchingstrategies of the students taking the course of information techniques which started to be included in nursing curriculum in the light of informatics which is one of the foci of today's world on their individual innovativeness levels.

MATERIAL and METHODS

The study was conducted as a descriptive and correlational study in nursing faculty of a university located in the eastern Turkey. The population of the study consisted of 548 nursing students who took the course of information techniques in nursing. In the study, the whole population was tried to be reached without sample selection and the study was completed with approximately 83% of the population (453). Between the dates of the study, 58 students discontinuing the courses, 20 students filling the forms incompletely or wrong and 17 students refusing to participate in the study were excluded from the study.

Data Collection
The data of the study were collected by the researchers between September and October 2018 using face-to-face interview technique during the course breaks. Researchers was personally responsible for participants' recruitment and information about the purpose of the study. All students had been informed about the study via written information and, those who voluntarily agreed to participate in the study, had to sign the informed consent. The unwillingness to participate had no consequences for the students' education. The data were collected by using the Personal Information Form prepared by the researchers, Online Information Searching Strategies Inventory and Individual Innovativeness Scale. Each interview lasted for about 15 minutes.

Course of information techniques in nursing are two hours per week. The course is opened in the spring semester and second year nursing students take this course. The course take 250 students in average each year.

Data Collection Tool
Personal Information Form;Personal information form is composed of a total of 6 questions including socio-demographic data and internet use features of the students.

Online Information Searching Strategies Inventory; The inventory developed by Tsai in 2009 (6) was adapted to Turkish by Aşkar and Mazman in 2013 (5). The inventory consists of 25 items and 7 subscales. There are no negative items in the scale and each item is scored between 1-6. While the highest score to be taken from the scale is 150, the lowest one is 25. High score refers to a high level of online information searching strategy. The Cronbach's Alpha value of the Turkish version of the inventory is 0.91 (5). In this study, the Cronbach's Alpha value of the scale was found as 0.73.

Individual Innovativeness Scale; The Individual Innovativeness Scale was developed in 1977 by Hurt et al.,(19) and adapted to Turkish by Kılıçer and Odabaşı in 2010 (12). The scale consists of 20 items from five different categories from the innovator to the laggard. The scale is 5-point Likert type and the answers vary between "I strongly agree" and "I strongly disagree". According to the scores calculated on the scale, individuals can be categorized in terms of innovativeness context. Accordingly, individuals are defined as Innovators if the calculated score is>80 points,Early Adopter if the calculated score is between 80-69 points, Early majority if it is between 68-57 points,Late Majority if the score is between 56-46 points,and Laggards if the score is<46 points. The reliability coefficient of the scale is 0.82 (12). In the study, Cronbach's Alpha value of the scale was found as 0.80.

Data analysis
Descriptive statistics(arithmetic mean, standard deviation, frequency and percentage), independent samples t-test, One-way ANOVA, Correlation and Cronbach's Alpha reliability analysis were used to assess the data. The results were evaluated at confidence interval of 95% and significance level of $p < 0.05$.

Ethical principles
Before starting the study, written permission from the Dean of the Faculty of Nursing and ethical approval from the Scientific Research and Publication Ethics Committee of the Faculty of Health Sciences in Inonu University (Decision No:2018/5-17) were obtained. Verbal information was provided to all participants.

RESULTS

It was determined that the mean age of the students participating in the study was 22.12±2.01, 52.5% were male, 36% had an income less than their expenses, 53.4% were the second-year students, 29.4% used internet for 4-5 hours a day, 28% searched information on the internet once a month (Table 1).

It was determined that OISSImean scores of the students was 3.50±0.54 and their online information searching strategy levels were at moderate level. While the highest score was obtained from control subscale (3.54±0.84), the lowest score was obtained from "select main ideas"subscale (3.45±0.94). Also,IISmean score of the students was 59.76±11.38 and they were early majority according to the scale evaluation (Table 2)

No significant difference was found between the classes with IIS, OISSI and all subscales of the students participating in the study. A significant difference was determined between the gender and trial-error subscalemean score, between income level andIIS, OISSI and problem-solving subscalemean scores, between daily internet use and evaluation and control subscalemean scores, and between the frequency of online information searchingandIIS, OISSI, and all subscalemean scores (p<0.05) (Table 3).

In the study, a moderate positive correlation was found between the online information searching strategy levels and individual innovativeness levels of the students (p<0.05). Individual innovativeness of the students increased as their online information searching strategy levels increased (Table 4).

Table 1. Socio-demographic data of the participants

	Number (n)	%
Age (X±SD=22.12±2.01)	453	
Gender		
Female	215	47.5
Male	238	52.5
Income Level		
Income less than expenses	163	36
Income equal to expenses	146	32.2
Income higher than expenses	144	31.8
Class		
2nd-year	242	53.4
3rd-year	211	46.6
Daily internet use time		
0-1 hour	112	24.7
2-3 hours	101	22.3
4-5 hours	133	29.4
6 hours and more	107	23.6
Frequency of searching information on the internet		
Everyday	106	23.4
Several times a week	99	21.9
Once a week	121	26.7
Once a month	127	28

Table 2. OISSI and IIS mean scores of the participants

Scale	X±SD	Min.-Max. Scores obtained	Min.-Max. Scores to be obtained
Online Information Searching Strategies Inventory			
Disorientation	3.52±0.85	1.50-5.75	1-6
Evaluation	3.47±0.85	1.00-5.75	
Purposeful Thinking	3.51±0.82	1.00-5.50	
Trial-error	3.52±0.95	1.00-5.67	
Select Main Ideas	3.45±0.94	1.33-5.67	
Control	3.54±0.84	1.25-6.00	
Problem Solving	3.47±0.93	1.00-5.67	
OISSI Total	3.50±0.54	2.36-4.72	
Individual Innovativeness Scale	59.76±11.38	37-84	14-94

Table 3. Comparison of OISSI and IIS mean scores of the participants in terms of their socio-demographic characteristics

Characteristics of the participants	Disorientation	Evaluation	Purposeful Thinking	Trial-Error	Select Main ideas	Control	Problem Solving	OISSI	IIS
Gender									
Female	3.59±0.88	3.41±0.88	3.47±0.83	3.43±0.92	3.47±0.92	3.52±0.83	3.46±0.93	3.48±0.54	59.47±11.67
Male	3.47±0.83	3.52±0.83	3.53±0.81	3.61±0.98	3.42±0.96	3.55±0.85	3.47±0.94	3.51±0.55	60.03±11.14
Statistical test and significance	t=1.49 p=0.13	t=-1.35 p=0.17	t=-0.78 p=0.43	t=-1.96 p=0.5	t=0.58 p=0.56	t=-0.42 p=0.67	t=-0.17 p=0.86	t=-0.58 p=0.56	t=-0.52 p=0.6
Income level									
Income less than expenses	3.59±0.87	3.52±0.82	3.52±0.77	3.61±0.96	3.54±0.94	3.57±0.82	3.56±0.95	3.56±0.54	60±67±11.59
Income equal to expenses	3.42±0.81	3.37±0.86	3.41±0.85	3.43±0.99	3.31±0.86	3.44±0.89	3.23±0.95	3.38±0.54	57.80±11.53
Income higher than expenses	3.55±0.87	3.50±0.88	3.59±0.82	3.52±0.90	3.48±1.00	3.61±0.80	3.59±0.87	3.55±0.54	60.73±11.45
Statistical test and significance	F=1.57 p=0.20	F=1.37 p=0.25	F=1.85 p=0.15	F=1.41 p=0.24	F=2.47 p=0.08	F=1.60 p=0.20	F=6.67 p=0.01	F=5.12 p=0.01	F=3.24 p=0.04
Class									
2nd Year	3.51±0.86	3.45±0.86	3.55±0.82	3.55±0.96	3.44±0.91	3.55±0.82	3.47±0.95	3.50±0.56	59.75±11.33
3rd Year	3.54±0.84	3.48±0.85	3.45±0.80	3.50±0.94	3.45±0.97	3.52±0.87	3.46±0.92	3.49±0.53	59.78±11.46
Statistical test and significance	t=-0.37 p=0.70	t=-0.41 p=0.67	t=1.27 p=0.20	t=0.57 p=0.56	t=-0.16 p=0.86	t=0.34 p=0.73	t=0.02 p=0.98	t=0.28 p=0.78	t=-0.02 p=0.98
Daily internet use time									
0-1 hour	3.55±0.86	3.39±0.85	3.46±0.90	3.66±0.92	3.52±0.94	3.62±0.85	3.49±0.92	3.52±0.54	60.56±11.17
2-3 hours	3.42±0.87	3.44±0.88	3.45±0.77	3.43±1.01	3.29±0.99	3.36±0.83	3.41±0.92	3.40±0.57	58.97±10.82
4-5 hours	3.61±0.90	3.55±0.86	3.50±0.83	3.55±0.96	3.44±0.93	3.59±0.87	3.52±0.98	3.54±0.56	59.91±11.38
6 hours and more	3.51±0.76	3.49±0.83	3.62±0.76	3.45±0.91	3.54±0.89	3.59±0.79	3.44±0.93	3.52±0.49	59.63±12.25
Statistical test and significance	F=1.02 p=0.38	F=0.70 p=0.04	F=0.93 p=0.42	F=1.31 p=0.26	F=1.72 p=0.16	F=2.24 p=0.05	F=0.27 p=0.84	F=1.54 p=0.20	F=0.38 p=0.76
Frequency of searching information on the internet									
Everyday	4.12±0.71	4.03±0.67	3.93±0.62	4.05±0.78	3.92±0.79	4.04±0.75	3.97±0.80	4.01±0.29	69.92±5.20
Several times a week	3.93±0.64	3.96±0.74	4.00±0.72	4.01±0.83	3.91±0.80	4.00±0.68	3.91±0.79	3.96±0.26	70.53±4.66
Once a week	3.08±0.68	2.97±0.65	3.06±0.70	3.05±0.84	3.07±0.89	3.11±0.57	3.05±0.83	3.06±0.24	49.55±5.12
Once a month	3.01±0.74	2.96±0.68	3.08±0.69	3.04±0.82	2.93±0.80	3.05±0.77	2.98±0.84	3.01±0.27	50.01±5.00
Statistical test and significance	F=5.43 p=0.01	F=3.21 p=0.03	F=3.92 p=0.01	F=4.18 p=0.01	F=7.01 p=0.01	F=3.11 p=0.05	F=8.35 p=0.01	F=6.77 p=0.01	F=1.29 p=0.01

Table 4. Examination of the correlation between OISSI and IIS mean scores of the participants

	Disorientation	Evaluation	Purposeful Thinking	Trial-Error	Select Main Ideas	Control	Problem Solving	OISSI
IIS	r=0.51 p=0.01	r=0.54 p=0.01	r=0.48 p=0.01	r=0.46 p=0.01	r=0.43 p=0.01	r=0.49 p=0.01	r=0.47 p=0.01	r=0.78 p=0.01

DISCUSSION

Online information searchingstrategies, one of the benefits of the internet that is an essential part of our life, have become an indispensable part of nursing informatics.

The mean scores of the OISSI and its subscales of the nursing students were found to be moderate. It was found in the study conducted by Sirakaya and Cakir with teacher candidates that OISSI and subscalemean scores of the teacher candidates wereat moderate level and above moderate level (1). The fact that OISSI and subscalemean scores of the nurse candidates in the study were moderate suggested that their levels of selecting and comparing the information they found on the internet, evaluating and reviewing this information, finding new ways according to the results and producing solutions were higher than the low level but needed to be developed.

In the study, no significant difference was determined between the gender and OISSI mean scores of the students. In the study conducted by Askar and Mazman, it was found that there was no significant difference between the gender and the online information searching strategies (5). Turan et al.,found in their study that there was no significant difference between online information searching strategies and gender (18). In the literature, there are also studies showing that gender cannot affect online information searching strategies alone (6,20). It wasthought that lack of a significant difference was caused by the characteristics specific to the sample.

It was determined that the difference between the income level and OISSImean scores of the students included in the study was statistically significant. No similar study was found in the literature. It can be asserted that since people have better internet access opportunitieswith increasing income levels, they also have higher online information searching levels.

In the study, it was determined that there was no significant difference between the class levels and OISSImean scores of the students. According to the study conducted by Tatar with teacher candidates, no significant difference was found between the class levels and online information searching strategies of the students (21). When the literature was examined, no study was found comparing the class level with online information searching strategies. In the study it was thought that online information searching strategies did not change by class level since the weight of the field-specific content in the education process was high.

No significant difference was found between the daily internet usage times andOISSImean scores of the students. Turan et al., stated that daily internet usage time had no effect on online information searching strategies (18). A similar result was found in the study conducted by Tatar (21). It can be asserted that the students did not use internet only for information search, therefore, no significant difference was found.

It was found that there was a significant difference between the frequency of online information searching and OISSI and all subscales of the students. According to the study conducted by Sirakaya and Cakir, there was no significant difference between the frequency of online information searching and trial-error, problem solving and control subscales of OISSI (1). In the study conducted by Ay with graduate and undergraduate students, it was observed that online information searching strategies of the individuals with higher frequencies of information searching on the internet were generally better (22). It was thought that the higher frequency of information search provided experience to the students.

It was observed in the study that the students wereearly majority individual innovators. It was found in the study conducted by Basoglu and Edeer with nurses and nurse candidates that the nurses were early majority individual innovators (23). Similarly, nurses were found to be early majority individual innovators in the study conducted by Clement-O'Brien et al., with 106 nurse managers and in the study conducted by Yiğit and Aksay with healthcare professionals (24,25). It can be asserted that nurses and nursing students question the innovations as the field they provide service is human life.

In the study, it was determined that there was no significant difference between gender and IISmean scores of the students. In a study conducted by Cuhadar et al., it was determined that there was no significant difference between the individual innovativeness characteristics and gender (26). In another study conducted by Ozgur, it was determined that gender had no significant effect on individual innovativeness (27). It was also found in the study by Wu et al., that gender did not affect the individual innovativeness characteristics (28). The reason for lack of no significant difference in the study was associated with the characteristics of the sample.

It was determined in the study that there was a significant difference between the income levels and IISmean scores of the students. According to the study by Bitkin, individual innovativeness level differed statistically significantly according to the income level (29). Wejnert expresses that higher socioeconomic situation will help to use innovations before and adopt them more quickly (30).

It was determined that the difference between the class levels andIISmean scores of the students wasinsignificant. Ertugand Kaya determined that there was no significant difference between the class levels andindividual innovativeness of the nursing students (31). In the study by Genc et al., individual innovativeness did not differ significantly according to the class level (32). Differently from the result of the present study, there are studies reporting that there is a significant difference between the class level andindividual innovativeness (33). These differences may be caused by the different characteristics of the students.

In the study, it was determined that the difference between

the daily internet use times andIISmean scores of the students was not significant. In the study conducted by Gurbuz, no significant difference was found between the internet usage time andindividual innovativeness(34). Korucu and Olpak also found similar results in their studies investigating the individual innovativeness of teacher candidates (33). Since the purpose of internet use did not cover only individual innovativeness, the difference between themcan be said to be insignificant.

A significant difference was found between the frequency of information search on the internet and IISmean scoresin the students included in the study. It was seen that the individual innovativeness levels of those searching information on the internet every day were higher. No similar studies were found in the literature. It was thought that students who weresearching for information on the internet every day were faced with innovations more frequently and thus their awareness increased.

It was determined in the study that the individual innovativeness levels of the students taking the course of information techniques in nursing increased as their levels of online information searching strategies increased. No study conducted in the same context was found in the literature. It wasthought that this correlationwas caused by the developed online information searching strategies of the students whose skills of correctly using web environment and awareness increased with the course of information techniques which also formed an innovative perspective in individuals. In addition, it can be asserted that information search strategies used together with easy accessibility on the internet increased awareness and sensitivity of individuals against innovation.

Limitations of the study
The limitation of this study is done with the nursing students at the only one university.

CONCLUSION

It was found as a result of the study that the online information searching strategies and subscale levels of the students who took the information techniques in nursing class were at moderate level. The individual innovativeness levels of the students were moderate and they were individual innovators in the early majority style. In the study, a positive strong correlation was found between the online information searching strategies and individual innovativeness levels of the nursing students.

In accordance with these results, it can be recommended that the course of information techniques in nursing should be permanent in the curriculum, online information searching strategies and individual innovativeness levels of students should be questioned, students should be guided especially by the educators in reaching the correct information, attention should be drawn to the innovations in the field and an innovative perspective should be created in students and also studies with larger and different groups should be conducted.

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REFERENCES

1. Sirakaya M, Cakir H. Öğretmen adaylarının çevrimiçi bilgi arama stratejilerinin belirlenmesi. Ahi Evran Üniversitesi Kırşehir Eğitim Fakültesi Dergisi 2014;15:191-206.
2. Bass SB, Ruzek SB, Gordon TF, et al. Relationship of Internet health information use with patient behavior and self-efficacy: experiences of newly diagnosed cancer patients who contact the NationalCancer Institute's Cancer Information Service. J Health Commun 2006;11:219-36.
3. Mutluay E, Özdemir L. Sağlık bilişim sistemleri kapsamında hemşirelik bilişiminin kullanımı. Florence Nightingale Hemşirelik Dergisi 2014;22:180-6.
4. Smedley A. The importance of informatics competencies in nursing: an Australian perspective. Comput Inform Nurs 2005;23:106-10.
5. Askar P, Mazman SG. Çevrimiçi bilgi arama stratejileri envanteri'nin türkçeye uyarlama çalışması. Eğitim ve Bilim 2013;38:167-82.
6. Tsai MJ. Online information searching strategy inventory (OISSI): A quick version and a complete version. Computers & Education 2009;53:473-83.
7. Walraven A, Brand-Gruwel S, Boshuizen HP. How students evaluate information and sources when searching the world wide web for information. Computers & education 2009;52:234-46.
8. Walraven A, Brand-Gruwel S, Boshuizen HP. Information-problem solving: A review of problems students encounter and instructional solutions. Computers in Human Behavior 2008;24:623-48.
9. Tsai MJ, Liang JC, Hou HT, et al. Tsai CC. University students' online information searching strategies in different search contexts. Australasian J Educational Technology 2012;28:881-95.
10. Elci S. İnovasyon kalkınmanın ve rekabetin anahtarı, Genişletilmiş 2. Baskı, Ankara, Technopolis Group 2007;1-18.
11. Goldsmith RE, Foxall GR. 2003. The measurement of innovativeness, eds: Shavinina LV, The international handbook on innovation, Amsterdam, Elsevier 2003;321-30.
12. Kilicer K, Odabasi HF. Bireysel Yenilikçilik Ölçeği (BYÖ): Türkçeye uyarlama, geçerlik ve güvenirlik çalışması. Hacettepe Üniversitesi Eğitim Fakültesi Dergisi 2010;38:150-64.
13. Rogers, E. Diffusion of innovations fourth edition, New York, A Division of Simon and Schuster Inc., 2003,1-36.
14. KoutaC. Delivering quality, serving communities: nurses leading care innovations. Cyprus Nursing Chronicles 2009;10:7-11.
15. Dil S, Uzun M, Aykanat B. Hemşirelik eğitiminde inovasyon. Int J Human Sci 2012;9:1217-28.
16. Omachonu VK, Einspruch NG. Innovation in healthcare delivery systems: A conceptual framework. Innovation J 2010;15:1-20.
17. The future of nursing: Leading change, advancing health. Institute of Medicine (US) Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine, Washington (DC), National Academies Press (US), 2011,1-28.

18. Turan Z, Reisoglu I, Ozcelik E, et al. Öğretmenlerin çevrimiçi bilgi arama stratejileri. Kastamonu Edu J 2015;23:1-16.

19. Hurt HY, Joseph K, Cook CD. Scales for the measurement of innovativeness. Human Communication Res 1977;4:58-6.

20. Munusamy K, Ismail M. Influence of gender role on internet usage pattern at home among academicians. J Int Social Res 2009;2:308-18.

21. Tatar I. Öğretmen adaylarının medya okuryazarlığı ile çevrimiçi bilgi arama stratejileri arasındaki ilişkinin incelenmesi. Yüksek Lisans Tezi, Anadolu Üniversitesi, Eskişehir, 2016.

22. Ay K. Çevrimiçi bilgi arama stratejileri ve bazı eğitimsel değişkenlerleilişkilerinin incelenmesi. Yüksek Lisans Tezi, Hacettepe Üniversitesi, Ankara, 2016.

23. Basoglu M, Edeer AD. X ve Y kuşağındaki hemşirelerin ve hemşirelik öğrencilerinin bireysel yenilikçilik farkındalıklarının karşılaştırılması. Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi 2017;6:77-84.

24. Clement-O'brien K, Polit DF, Fitzpatrick JJ. Innovativeness of nurse leaders. J Nurs Manag 2011;19:431-8.

25. Yigit S, Aksay K. A comparison between generation X and generation Y in terms of individual innovativeness behavior: the case of Turkish health professionals. Int J Business Administration 2015;6:106-17.

26. Cuhadar C, Bulbul T, Ilgaz G. Öğretmen adaylarının bireysel yenilikçilik özellikleri ile teknopedagojik eğitim yeterlikleri arasındaki ilişkinin incelenmesi. İlköğretim Online 2013;12:797-807.

27. Ozgur H. Bilişim teknolojileri öğretmen adaylarının eleştirel düşünme eğilimleri ile bireysel yenilikçilik özellikleri arasındaki ilişkinin çeşitli değişkenler açısından incelenmesi. Mersin Üniversitesi Eğitim Fakültesi Dergisi 2013;9:409-20.

28. Wu CH, Parker SK, De Jong JP. Need for cognition as an antecedent of individual innovation behavior. J Management 2014; 40:1511-34.

29. Bitkin A. Öğretmen adaylarının bireysel yenilikçilik düzeyleri ile bilgi edinme becerileri arasındaki ilişki. Yüksek Lisans Tezi, Harran Üniversitesi, Şanlıurfa, 2012.

30. Wejnert B. Integrating models of diffusion of innovations: A conceptual framework. Annual review soc 2002;28:297-326.

31. Ertug N, Kaya H. Hemşirelik öğrencilerinin bireysel yenilikçilik profilleri ve yenilikçiliğin önündeki engellerin incelenmesi. Koç Üniversitesi Hemşirelikte Eğitim ve Araştırma Dergisi (HEAD) 2017;14:192-7.

32. Genc E, Yavuz K, Aydemir S. Üniversite öğrencilerinin bireysel yenilikçilik düzeylerinin değerlendirilmesi. ASOS Journal 2017;5:321-33.

33. Korucu AT, Olpak YZ. Öğretmen adaylarının bireysel yenilikçilik özelliklerinin farklı değişkenler açısından incelenmesi. Eğitim Teknolojisi Kuram ve Uygulama 2015;5:109-27.

34. Gurbuz O. Öğretmen adaylarının yenilikçilikleri ve problem çözme becerileri arasındakiilişkinin incelenmesi: ÇOMÜ eğitim fakültesi örneği. Yüksek Lisans Tezi, Çanakkale Onsekiz Mart Üniversitesi, Çanakkale, 2015.