

# Does the Use of Online Methods in Nursing Education Affect Job Readiness?

Nermin Ocaktan<sup>1</sup>, Elif Ateş<sup>2</sup>, Vesile Ünver<sup>1</sup>, Ükke Karabacak<sup>1</sup>

<sup>1</sup> Acıbadem Mehmet Ali Aydınlar University Faculty of Health Sciences Department of Nursing, Istanbul-Turkey

<sup>2</sup> Istanbul University Faculty of Nursing, Istanbul-Turkey

## ABSTRACT

**Aim:** The aim of this study is to examine how the online education method increasingly used in the nursing education affects work readiness of students.

**Background:** The literature reveals that newly graduated nurses are not adequately ready for working life, the transition from student to professional nursing is stressful and exhausting, and nearly half of them intend to quit their job.

**Method:** Quantitative data were collected using Work Readiness Scale for Graduated Nurses (WRSNG) and General Self-Efficacy Scale (GSE). Qualitative data were collected with semi-structured questions.

**Results:** In the study, a negative significant correlation was found between WRSNG and GSE subscales ( $p < 0.01$ ). There was a positive significant correlation between organizational awareness, work competence and social intelligence sub-dimensions of WRSNG and between work competence and social intelligence ( $p < 0.01$ ). GSE initiation subscale had a negative significant correlation with work competence, social intelligence and organizational awareness sub-dimensions ( $p < 0.01$ ) and a positive significant correlation with personal work characteristics sub-dimension ( $p < 0.05$ ). The qualitative results also supported the quantitative results.

**Conclusions:** It was concluded that the students felt adequate and ready for working life in terms of theoretical knowledge, but their self-efficacy in putting the theoretical knowledge into practice was adversely affected.

**Keywords:** Nursing education, graduation, nurse, working life, online education.

## ÖZET

**Amaç:** Bu çalışmanın amacı, hemşirelik eğitiminde giderek daha fazla kullanılan online eğitim yönteminin öğrencilerin işe hazır bulunuşluklarını nasıl etkilediğini incelemektir.

**Arka plan:** Literatür, yeni mezun hemşirelerin çalışma hayatına yeterince hazır olmadıklarını, öğrencilikten profesyonel hemşireliğe geçişin stresli ve yorucu olduğunu ve neredeyse yarısının işten ayrılma niyetinde olduğunu ortaya koymaktadır.

**Yöntem:** Nicel veriler Mezun Hemşireler İçin İşe Hazır Olma Ölçeği (WRSNG) ve Genel Öz Yeterlilik Ölçeği (GSE) kullanılarak toplanmıştır. Nitel veriler ise yarı yapılandırılmış sorularla toplanmıştır.

**Bulgular:** Çalışmada, WRSNG ve GSE alt ölçekleri arasında negatif yönde anlamlı bir korelasyon bulunmuştur ( $p < 0.01$ ). WRSNG'nin örgütsel farkındalık, iş yetkinliği ve sosyal zeka alt boyutları arasında ve iş yetkinliği ile sosyal zeka arasında pozitif yönde anlamlı bir ilişki bulunmuştur ( $p < 0.01$ ). GSE başlatma alt ölçeğinin iş yetkinliği, sosyal zeka ve örgütsel farkındalık alt boyutları ile negatif ( $p < 0.01$ ) ve kişisel iş özellikleri alt boyutu ile pozitif ( $p < 0.05$ ) anlamlı bir korelasyonu vardır. Nitel sonuçlar da nicel sonuçları desteklemiştir.

**Sonuçlar:** Öğrencilerin teorik bilgi açısından kendilerini yeterli ve çalışma hayatına hazır hissettikleri, ancak teorik bilgileri uygulamaya geçirme konusundaki öz yeterliliklerinin olumsuz etkilendiği sonucuna varılmıştır.

**Anahtar Kelimeler:** Hemşirelik eğitimi, mezuniyet, hemşire, çalışma hayatı, online eğitim.

Nermin OCAKTAN  
0000-0001-9936-977X

Elif ATEŞ  
0000-0003-3805-7144

Vesile ÜNVER  
0000-0002-2892-9503

Ükke KARABACAK  
0000-0002-1696-2779

**Correspondence:** Nermin Ocaktan  
Acıbadem Mehmet Ali Aydınlar University  
Faculty of Health Sciences Department of  
Nursing  
**Phone:** +90 533 737 33 06  
**E-mail:** nermin.ocaktan@acibadem.edu.tr

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**W**ork readiness is a novel concept, which has emerged as a selection criterion in determining graduation potential, and generally refers to the characteristics newly graduated individuals need to have in order to succeed in work environment (1). Work readiness requires more than a set of clinical skills such as the abilities and characteristics ensuring that a person works successfully in an organisation. It is a concept that is measurable before graduation; therefore it has been widely recognized (2). When the related studies are analysed, one comes across the studies conducted with a variety of sample groups in different sectors. The results of these studies have usually reported that in transition to work life and fulfilling the duties required by the profession, the newly recruited individuals who have competence for work readiness are more successful than those without this competence (3-4-5). While academic qualities are important for employment, individual, personal and social characteristics and self-management skills stand out more from the perspective of the employer. Work readiness is examined in four sub-dimensions. These are “social intelligence, organizational awareness, work competence, and personal work characteristics” (6).

### *Social Intelligence*

Social intelligence refers to the skill of establishing communication with others, participating in teamwork and managing inter-personal conflicts. It is also defined as the interaction style and knowledge of strategy that are needed to reach the goal in managing human relations or others (6).

### *Organizational Awareness*

Organizational awareness covers the professional development of individuals, their professional maturity in their fields, and their command of organizational policy and procedure knowledge. Organizational awareness is defined as the ability of an individual to generate the knowledge for adaptation to the organizational environment and to use the knowledge produced in this respect. Thanks to this ability, organizations adapt to changing environmental conditions and learn by exhibiting behavioural change (6).

### *Work competence*

Work competence is defined as one’s specialized knowledge and technical skills as well as confidence to successfully complete the work, showing high work performance

and taking responsibility regarding the work. An individual with high work competence meets the expectations with respect to fulfilling the job properly and being experienced, prepared and self-confident for unexpected situations faced during the work.

### *Personal Work Characteristics*

Personal work characteristics refer to one’s flexibility, adaptation, and stress management skills in the face of unexpected situations. It is expected from an employee to be aware of what should be done in an unexpected or unfavourable situation, to be able to adapt to changing circumstances, to manage stress in both his or her business and personal lives and to establish a healthy business-personal life balance (6).

### *Work Readiness*

Graduates start working in a work environment where the number of nurses is insufficient and which is characterized by high technology, a high level of patient potential and insufficient resources. Graduates’ levels of work readiness have been recognized as an indicator of evaluating work potential in respect of work performance, promotion, career development, and success. In order to ensure a quality patient care in healthcare institutions, it is required for the newly graduated nurses to be ready for work life and to be embraced at the workplace (7). The concept of transition from being a student to a nurse was defined firstly by Kramer in 1974. Kramer calls the transition process as a reality shock. According to Kramer, reality shock includes “the differences between the nursing ideologies faced during the work life and acquired when one was a student”. Transition from being a nursing student to a nurse is accepted as a challenging and stressful period when new nurses go through a socialization process in the work environment. The studies have reported that nursing graduates prepare for work life insufficiently, the transition from being a student to a nurse is stressful and backbreaking and nearly half of the nurses exhibit an intention to quit the job (8).

Newly graduated nurses bear the burden of not knowing how to cope with the discrepancies between what they have learned during their education and what they face during work life and how to manage the behaviours emerged in this respect. As they have difficulty in implementing what they have learned during their education period and come across challenges in meeting the expectations brought about by the work life, they think that they

have not been trained enough to be prepared for work environment. The perception of newly graduated nurses that they have insufficient knowledge in clinical skills might cause negative effects such as lack of self-confidence, low self-esteem and dissatisfaction. If newly graduated nurses understand the characteristics of work readiness, this will increase the quality and efficiency in healthcare services, prevent employees from being worn out and facilitate adaptation to work life (9). Another important criterion in elevating nursing to a professional status is the willingness of nurses to serve and their perception of their jobs as a significant part of their lives. The studies have demonstrated the stress of transition from the role of a student to a working nurse and it is mostly related to the discrepancies between the new nurses' expectations and the reality of the role (10). Current studies have showed that work adaptation programmes fill in the gaps between education and practice and alleviate stress of newly graduated nurses by supporting them through transition (11).

The literature on work readiness of the nurses after formal education emphasize the interaction between the teacher and the student, readiness and availability of a guiding, supportive role model (a guiding clinic nurse), sufficient clinical practice, and importance of clinical competence (9).

The undeniable effect of technological developments on educational methods also affects nursing education. At the same time, social or global events may make the use of these methods mandatory. The effects of these changes in nursing education on the educational outcomes and the work compliance and professional success of newly graduated nurses are not yet known. Moreover, the latest reports suggest that these effects on nursing labour might be at a dramatic level (12-13).

As a result of the obligation created by a pandemic, online education methods in nursing education have been used extensively and for a long time in clinical practice education as well as teaching theoretical knowledge. The results of this obligation should be considered as an important data source in order to investigate the effects of the use of the online education method on the readiness of the nurse students who are on the verge of graduation, for working life.

### *Purpose of the Study*

The fact that the concept of work readiness has been addressed with specific emphasis on the side of employer in the current literature, and the insufficiency of evidence on

how the content and quality of the professional education as well as educational methods used affect has demonstrated the importance of this subject.

The purpose of this study is to examine how the use of online education method in the nursing education affects the work readiness of nursing students. The results obtained would contribute to updating the nursing curriculum in order to support reaching curriculum outputs.

### *Ethical Considerations*

Ethical approval for the study was obtained from Acibadem University and Acibadem Healthcare Organizations Medical Research Ethics Committee (ATADEK). (Number: 2021-08/13).

### **Methods**

In the study, a mixed method where both qualitative and quantitative data are collected was used. In the quantitative dimension of the study, "Work Readiness Scale for Graduated Nurses (WRSGN)" and "General Self-efficacy Scale" (GSE) were used. The qualitative dimension of the study was designed as a descriptive phenomenological study.

### *Sampling and Recruitment*

#### *Characteristics of the Participants*

The population of the study consisted of senior students enrolled in a nursing undergraduate program accredited by the National Association for Evaluation and Accreditation of Nursing Education Programs (N=77). No sample selection was made, the entire population was informed and the students who volunteered to participate in the study constituted the sample group. The students who participated in the quantitative dimension of the study were invited to participate in the qualitative dimension, and qualitative interviews were conducted with the students who volunteered. The sample of the quantitative dimension of the study consisted of 42 volunteer students, while the sample of the qualitative dimension consisted of 22 students. Data were collected between May and June 2021.

The students who constituted the population of the study were enrolled in online education in the spring semester of 2019-2020, clinical and laboratory practices were not conducted in a physical environment, but online through virtual applications. In the fall semester of 2020-2021,

theoretical courses and laboratory applications were conducted online, and for clinical applications, a four-week face-to-face application was made at the end of the theoretical courses. In the 2020-2021 Spring semester, students completed their theoretical and practical courses face-to-face.

### Data Collection

The data were collected in line with the prepared hybrid education plan, after the students completed their theoretical and hands-on courses. Through "Work Readiness Scale for Graduated Nurses" and "General Self-efficacy Scale", which were used in the quantitative dimension of the study, the data were collected in electronic environment over "Google Survey" application and by being attentive to anonym nature of the participants. The call for study was sent to students via e-mail. In the invitation e-mail, the students were informed about the purpose and data collection methods of the study, as well as expectations from participants. Moreover, they were notified that they would be free to participate in or withdraw from the study, the study would not be conducted for measurement and assessment purposes and it would not have any effect on their academic success. A link for participation in the survey was included in the e-mail sent and consent of the participant was obtained by a button placed on the opening page of the link.

Qualitative data of the study were collected in line with the semi-structured qualitative interview questions prepared by the researchers and over the software "Zoom", an online meeting application. Semi-structured interview form had 6 questions on the experiences of nursing students with online education applications and how they were affected by these experiences. These questions are presented below:

1. What were your experiences about theoretical and hands-on courses during online education period?
2. How did this period affect you? (What were the positive and negative dimensions of it?)
3. Do you think that you have enough theoretical knowledge to start work life after graduation?
4. Do you think that you have enough technical application skills to start work life after graduation?
5. Do you feel yourself ready to cope with the responsibilities and liabilities to be brought about by work life?

6. Do you think that you will have any problem in adapting to work life after graduation?

For their participation approval in the qualitative dimension of the study, the students were asked to reply to the invitation e-mail by including the sentence of "I Would Like to Participate in the Qualitative Interview". The link for participation in online meeting was sent to only the volunteers who had responded to the e-mail. Moreover, at the beginning of the interview, consents were confirmed verbally, and consent of all the participants was obtained for voice and video recording. Number of participants was taken into consideration for qualitative interview. It was ensured that the number of the participants was 6 to 8 persons for each interview and thus 3 sessions were held. The sessions were completed between 60 to 90 minutes.

### Data Analysis

SPSS 22.0 (Statistical Package for Social Sciences) packaged software was used for statistical analyses of quantitative data. The correlation between continuous variables was assessed by using pearson's correlation analysis. In the study, the level of statistical significance was accepted as  $p < 0.05$ . In data analysis, Malterud's (14) content analysis method was used. In the analysis of qualitative data, the video records of the interviews made with the students who participated in the study over the Zoom platform, were transcribed word by word into word file afterwards. This text was coded by the researchers in accordance with the study's purposes. The codes generated were classified by the researchers and the appropriate theme and subtheme headings were determined. The analyses and evaluations were made within the framework of these headings.

### General Self-Efficacy Scale (GSE)

This scale was developed by Sherer et al., (15) and it consists of 23 items. The version of the scale whose validity and reliability study was conducted by Yıldırım and İlhan (16) was used. In this study, the scale's internal consistency reliability coefficient (Cronbach's alpha) was found as 0.89. The scale has three subscales; "Initiation", "Effort", and "Persistence". The total score of the scale may vary between 17 and 85 points. Higher scores signify an increase in self-efficacy belief.

### Work Readiness Scale for Graduate Nurses (WRSGN)

The scale was developed by Walker et al., (11) The version of the scale whose validity and reliability study was

conducted by Yıldız Keskin and Arslan (17) was used. The lowest score of the scale is 46 and the highest score is 460. The scale consists of four sub-dimensions; “Work competence”, “social intelligence”, “organizational awareness”, and “personal work characteristics”. Higher scores signify that the nurses’ work readiness levels increase. The Cronbach’s alpha reliability coefficient of the scale was found to be 0.94.

## Results

### Quantitative Data

In the study, it was found that the nursing students’ “General Self-efficacy Scale (GSE) mean score was 42.80±4.95 and “Work Readiness Scale For Graduate Nurses (WRSNG)” mean score was 345.76±56.58. Table 1 shows the distribution of mean scores of the scales’ subscales.

Table 1: The Distribution of Nursing Students’ Mean Scores of General Self-efficacy Scale (GSE) and Work Readiness Scale for Graduate Nurses (WRSNG) and Their Sub-dimensions				
Scales	Number of Items	$\bar{x} \pm SD$	Min. Score	Max. Score
WRSNG Work competence	14	107.88±20.79	14	140
WRSNG Social intelligence	8	65.47±13.54	8	80
WRSNG Organizational awareness	16	139.54±24.41	16	160
WRSNG Personal work characteristics	8	32.85±16.26	8	72
WRSNG Total	46	345.76±56.58	46	410
GSE Initiation	9	15.26±6.01	9	41
GSE Effort	5	15.71±1.92	12	19
GSE Persistence	3	11.83±2.40	3	15
GSE Total	17	42.80±4.95	34	61

When the correlations between the subscales of the Work Readiness Scale For Graduate Nurses and the General Self-efficacy Scale were examined, a significant negative correlation was found ( $p < 0.01$ ). There was a high significant positive correlation between WRSNG’s organizational awareness, work competence and social intelligence sub-dimensions ( $p < 0.01$ ). Moreover, there was a high positive significant correlation between work competence and social intelligence in the same scale ( $p < 0.01$ ).

While there was a negative significant correlation between the General Self-efficacy Scale’s initiation subscale and work competence ( $p < 0.01$ ), social intelligence ( $p < 0.01$ ) and organizational awareness sub-dimensions ( $p < 0.01$ ), it had a positive significant correlation with personal work characteristics sub-dimension ( $p < 0.05$ ). A negative significant correlation was found between the General Self-efficacy Scale’s effort subscale and personal work characteristics ( $p < 0.05$ ). While there was a positive significant correlation between the General Self-efficacy Scale’s persistence subscale and work competence ( $p < 0.01$ ), social intelligence ( $p < 0.01$ ) organizational awareness ( $p < 0.01$ ) and effort ( $p < 0.05$ ), it had a negative significant correlation with initiation subscale.

### Qualitative Data

In the interviews made with senior students about their work readiness, the qualitative data were analysed. Eight sub-themes were determined under three main themes. (Table 3).

Table 3: Main Themes and Subthemes of Qualitative Data	
Main Themes	Subthemes
Academic Challenges	The effect of online education on theoretical knowledge
	The effect of online education on practice
	Comparison with face-to-face education
Individual Effects	Positive effects of online education
	Negative effects of online education
Responsibilities and Liabilities	Work Readiness
	Team Harmony
	Completion of deficient knowledge and practices



### Main Theme 1: Academic Challenges

Under this theme, the effect of the online education period on theoretical and hands-on courses as well as the comparison of online education and face-to-face education were examined.

**The effect of the online education on theoretical knowledge:** Senior students mentioned the technical problems they faced in theoretical courses and online exams depending on computer and internet connection, but they also stated that they got accustomed to online education in time. They stated that they preferred face-to-face education during the period when it comes to content of theoretical courses, but there was no difference between the contents of online education and theoretical courses. Most of the students stated that they regarded themselves sufficient in terms of theoretical knowledge. They stated that theoretical courses were efficient with active learning methods (role-plays, group tasks, concept maps, etc.). However, they also mentioned that group tasks were harder in online education in terms of time management and due to communication problems.

*“Distant from each other and some people have work to do, they are not available. Some others may not be as active before the computer as they are in normal life” P10 (Participant).*

**The effect of the online education on hands-on courses:** They mentioned that the online education had negative effects on the area of practice to a considerable extent. When students do not practice face-to-face at the bedside or in the laboratory, this leads them to forget their acquired skills. It was determined that when the students went out for clinical practice, though this was limited, they experienced shyness. Moreover, it was mentioned that distant provision of laboratory applications was not much effective, skill and simulation applications in the laboratory environment as well as working with a standard patient strengthened the communication of students with patients, and therefore, conducting role-plays distantly contributed to learning to a limited extent.

*“When scenarios were designed through simulations, our instructors could give us instant feedback, like you are missing this point. We did not have the opportunity to do these in distant education. As there was no standard patient, I think we remained insufficient in communicating with the real patient. So, when we go to clinics, we stay behind a little bit” P3*

*“When we went to our internship, we realized that we forgot even our old knowledge and we had deficiencies. So, it was too bad. Online education inflicted a heavy damage on laboratory and practice section. We faced disruptions as we could not make practice. Laboratory and practice courses were nowhere near those of face-to-face education” P12*

*“In face-to-face education, we were making implementation in the laboratory right after the theoretical course, and we could make the practices that we hardly understand many times under the supervision of our instructors. Afterwards, we had free time and space. One could do whatever he or she wanted to do or repeat whatever he or she did not understand; and as per the nature of our profession, we would like to be, and do something, in touch with the patient.” P13*

**Comparison of the online education with the face-to-face education;** nearly all of the students stated that they preferred face-to-face education instead of online education. However, they also added to their opinions that the online education process was managed well, and theoretical courses were sufficient, and adaptation was swift. They stated that communication was stronger in face-to-face education in both classroom and laboratory environments. They explained that the questions one would like to ask could be directed to a faculty member or peers via an easier communication and this contributed learning very much. It was stated that laboratory environment caused a slight stress on students and learning was realised in its natural atmosphere. Moreover, it was stated that learning process became permanent with a successive process starting with theoretical education and being followed by skills training in laboratory and then clinical practice. Communication, planning, and learning were easier in the group tasks fulfilled face-to-face. In online education, course periods and being before the screen continuously led to attention deficit and focusing problems and this process had a negative effect on learning.

*“Honestly, I think face-to-face education is more effective. Because, when we want to ask something to the instructor during the theoretical courses, a chaos breaks out. Who asked, where is he or she? The instructor tries to find the person. Other than that, there were simultaneous questions. However, when it was face-to-face, you were raising your finger or asking for the floor and were being given it. There was no chaos. Moreover, when it was face-to-face, there was much more interaction. Computer screen makes us tired. In other words, being in front of the computer for one or one and a half hours and continuously looking at the screen*

*negatively affected us in physical and moral terms. So, in my view, face-to-face education was more efficient” P21*

### *Main Theme 2: Individual Effects*

**Positive effects of the online education:** The situations such as the increase of the time spent with family, having more time for personal development (reading books, distant participation in seminars, attending an English course, watching movies, etc.), learning how to do research, easy access to databases and rest were stated as the positive effects of the online education.

*“If I compare my life in online and face-to-face education, my life was always in a hurry to reach somewhere before it. To home, school, bus... My home is too far away from my school. So, it was good for me. I had a rest, I had time for myself. I joined different professional seminars and courses. I followed them from my home” P22*

**Negative effects of the online education:** The students reported its negative effects especially in terms of socialization. They mentioned that they faced physical problems (sight problems, headache, low back pain and backache, posture disorders, etc.) arising from staying before screen/computer continuously, as well as psychological pressure and stress depending on continuously staying at home and social isolation.

*“Working from home caused posture disorders, eye pain, and headaches. I suffered from so many back pain, low back pain and headaches” P12*

*“We could not socialise; we could not participate in activities at school.. P19*

### *Main Theme 3: Responsibilities and Liabilities*

**Work readiness:** Most of the students stated that they felt themselves ready for work life in terms of theoretical knowledge and practice. Work readiness varied depending on the areas of clinical experience gained from internship fields and on the area of interest. The final year students mentioned that working at a clinic for four days, working at a hospital part-time, having the responsibility of patients and feeling as a part of the team, were the factors increasing self-confidence. Moreover, feedback was received that the rules required to be observed during internships, discipline and achieving the habits such as timely arrival at the clinic, were preparing all students to professional life.

*“When I started my internship at the neonatal intensive care, I told myself that perhaps this is where I belong. I can adapt faster. Because, as it is my area of interest, it becomes easier for me to learn. I ask more questions. More, I learn some things there faster than the other departments. But concerning general intensive care, for example, I have not yet seen general intensive care exactly, as well. I can certainly work there, but I think I am rather deficient. For instance, I may be deficient on such issues as crash-cart usage, emergency management or simply, simultaneous medicine effects and side effects.” P4*

**Team Harmony:** The students mentioned that they did not have any problem of communication with the team, and when they had problems, they reconciled and agreed.

*“I got along with everyone in all areas where I made practice. I did not have any conflict/discussion with anyone. This shows how I can get along with people, but of course, one cannot know what will happen in the end. As I said, I feel myself comfortable in terms of harmony” P10*

**Completion of deficient knowledge and practices:** It was mentioned that the learning process continues throughout one's whole life. Hence, when one starts working in a different clinic or encounters with a different case, there might be deficient knowledge and practice skills. It was mentioned that in such cases, they firstly asked nurses working in the field of clinic, then made research on the topic and read articles, watched practice videos and looked at old course notes and books.

*“I would be performing a practice to one of my relatives for the first time (from deltoid muscle). I opened YouTube and watched. Yes, I know but if I don't feel self-confident, I certainly open and watch training videos. I have various learning methods; I try every means” P15*

*“On the topics that I have been deficient, I consult nurses (such as floor manager, education nurse). How can I learn this in the best manner, where can I do it? P8*

## **Discussion**

One of the most important findings attracting attention in this study is that there was a negative significant correlation between the newly graduated nurses' work readiness and general self-efficacy (See Table 2). This result was interpreted as the fact that the students did not regard themselves sufficient although they feel themselves ready for work life.

**Table 2:** The correlations between the sub-dimensions of Work Readiness Scale For Graduate Nurses (WRSNG) and General Self-efficacy Scale (GSE)

Correlation Test Results	WRSNG Work competence	WRSNG Social intelligence	WRSNG Organizational awareness	WRSNG Personal work characteristics	WRSNG Total	GSE Initiation	GSE Effort	GSE Persistence	GSE Total
<b>WRSNG Work competence</b>	1								
<b>WRSNG Social intelligence</b>	r=0.772 p=0.000	1							
<b>WRSNG Organizational awareness</b>	r=0.854 p=0.000	r=0.819 p=0.000	1						
<b>WRSNG Personal work characteristics</b>	r=0.089 p=0.574	r=-0.238 p=0.128	r=0.060 p=0.707	1					
<b>WRSNG Total</b>	r=0.895 p=0.000	r=0.808 p=0.000	r=0.959 p=0.000	r=0.223 p=0.1555	1				
<b>GSE Initiation</b>	r=-0.725 p=0.000	r=-0.734 p=0.000	r=-0.646 p=0.000	r=0.312 p=0.044	r=-0.631 p=0.000	1			
<b>GSE Effort</b>	r=0.187 p=0.236	r=0.025 p=0.875	r=-0.009 p=0.955	r=-0.383 p=0.012	r=-0.039 p=0.805	r=-0.237 p=0.130	1		
<b>GSE Persistence</b>	r=0.707 p=0.000	r=0.618 p=0.000	r=0.643 p=0.000	r=-0.111 p=0.482	r=0.653 p=0.000	r=-0.658 p=0.000	r=0.367 p=0.017	1	
<b>GSE Total</b>	r=-0.464 p=0.002	r=-0.581 p=0.000	r=-0.475 p=0.001	r=0.175 p=0.267	r=-0.464 p=0.002	r=0.802 p=0.000	r=0.280 p=0.073	r=-0.170 p=0.281	1

\* $P < 0.05$  \*\* $p < 0.01$

When the qualitative data were analysed in line with this result, it was observed that the students supported this conclusion. Stating that they did not face so many challenges in online education's theoretical dimension other than technical problems, the students gave negative feedback on laboratory and clinical practices. The students stated that theoretical courses were sufficient, but they had deficiencies regarding practice.

This opinion was supported by the fact that students clearly mentioned their preference of face-to-face education while evaluating the process they have experienced. The students stated that they felt more self-confident about their theoretical knowledge, but also felt uneasiness, anxiety and insufficiency when they went to clinical practice.

According to the study by Sharpnack et al., (18) it is important for the students to have their instructors with sufficient practice competence together with them in performing applications and this is effective in increasing the competence of the students. In the online education, hands-on courses were performed insufficiently and distantly, and this decreased teacher-student interaction. Hence, it may be considered that the decrease in

interaction negatively affected students' self-efficacy. This opinion is supported by the students' expressions, as well.

The study by Tarhan, Doğan and Kürklü (19) revealed that when preparing for practice, nursing graduates face hardships and have various deficiencies such as deficiency of clinical skills, communication problems and challenges of transition process. Laboratory and clinical practices constitute an important step in overcoming these challenges and for the students to gain self-confidence. The results of this study support the view that online education application could not help overcoming these challenges faced by students in education of nursing which is in fact a profession based on practice.

The studies of Missen et al., (20) Schwartz., (21) and Masso et al., (22) inquired whether or not nursing students were prepared during the period right before their recruitment. Most of the students participating in these studies, believed that they had enough knowledge to start their professional lives. However, they also stated that they were not sure about the clinical skills and abilities required for practice. Deficiency in self-confidence about skills and abilities shall have a negative effect on the student's work life.



Usher et al. (23) investigated nursing students' perceptions of their work readiness in two groups. A planned clinical practice training, prepared by the authors, was applied to one of the groups. As a result of the study, the students who received the planned clinical practice training had a higher level of self-confidence. Similarly, in a study conducted on nursing students' readiness for their prospective work life, Morrell and Ridgway (24) emphasised the importance of having effective advisors for students during their preparation for practice. In their study, pointed out the importance of mentoring role in preparation of students for the nursing role and suggested that peer support is ensured during the education process. It was seen during the analysis of the study's qualitative data that the opinions of the students were in this direction as well. In the online process, students attached importance to, and felt the deficiency of, peer support and the support of the nurses working in the field (25).

In the analysis of the study's qualitative interview data, it was observed that the undergraduate students who worked at a hospital as assistant nurse mentioned that they felt themselves adequate in terms of self-confidence and self-efficacy. Hence, it is seen that the study results are compatible with the literature.

In their study on the effect of COVID-19 pandemic on nurses' experiences and perceptions, Crismon et al. (9) stated that newly graduated nurses had disruptions in their clinical orientation rotations, and this might further widen the gap between the education and practice and might increase the reality shock experience of nurses. The data of this study also supports this opinion and put forward that nursing students who were about to graduate felt themselves ready for work life after the online education thanks to the adequacy of their theoretical knowledge, and however, their self-efficacy was negatively affected due to the disruptions they experienced during the application of theoretical knowledge.

### *Strengths and Limitations*

As the study was conducted on the first nursing students who used the online education method for a long time in both theoretical and hands-on courses and graduated after this education, it is significant for the evaluation of the effect of use of online methods in nursing education on students. Moreover, the fact that the results obtained from the quantitative data of the study were supported by the findings of the qualitative research is significant in terms of the reliability of the study. The limitations of

the study are that the number of participants was low in the sample, from which the study's quantitative data were collected, and data were collected from the students of only one single school.

### *Implications for Nursing Education*

The results of the use of online education methods in nursing education should be examined in the short and long term in line with the programme outcomes. The effects of the education methods used during the education of newly recruited nurses on their work readiness is an important factor in the structuring of work compliance programmes. The use and effectiveness of the online education methods in education of nursing, which is a hands-on profession, as well as the sufficiency of online education methods in terms of reaching professional competencies after graduation should be inquired and assessed. Newly recruited nurses' work readiness affects individual job satisfaction and individual success and also has an important share in organizational efficiency and the success of care, so it should be taken into consideration by nurse managers.

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### *Conflict of Interest*

The authors declare that they have no competing interests.

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