

## Original Article

## A Study on the Satisfaction of Students for the Time Spent Watching Video-based Learning during their Basic Nursing Skills' Training

**Gulsah Gurol Arslan, PhD**

Dokuz Eylul University, Faculty of Nursing, Izmir, Turkey

**Dilek Ozden, PhD**

Dokuz Eylul University, Faculty of Nursing, Izmir, Turkey

**Gizem Goktuna, PhD Student**

Dokuz Eylul University, Faculty of Nursing, Izmir, Turkey

**Cahide Ayik, PhD Student**

Dokuz Eylul University, Faculty of Nursing, Izmir, Turkey

**Correspondence:** Gizem Goktuna, Ph.D. Student, Dokuz Eylul University, Faculty of Nursing, 35340, Izmir, Turkey. E mail: gizemgoktuna@gmail.com

### Abstract

**Aims:** The aim of this study was to determine how the satisfaction of students would be affected by watching the videos before or after the professional skills laboratory (PSL) implementation.

**Methodology:** The research was carried out experimentally on 213 students at the Faculty of Nursing. Students were selected by random sampling and were divided into control and experimental groups.

Skill lists, presentation of theoretical skills and videos were used for implementation of the skills training. The "Assessment of Satisfaction Questionnaire for the Interactive Video-Based Skills Learning," which was prepared by the instructors, was used for collection of data. This form consisted of a total of 23 items. Each item was evaluated between the scores of 1=I disagree, 2=I am undecided and 3=I agree. The mean scores for each item were calculated for the evaluations.

**Results:** The mean scores of both the control group and experimental group students were statistically insignificant ( $t=0.942$ ,  $p=.347$ ). The high scores indicated a high average satisfaction in both groups. Feedback of the instructors also showed satisfaction with the video-based learning.

**Conclusions:** It was concluded that the different methods used in laboratory studies facilitated the learning of students and provided interest and motivation.

**Keywords:** Nursing, Professional skills laboratory, Psychomotor skills training, Video-based learning, Wound care.

### Introduction

Nursing is a discipline based on implementation, which requires the integration of both theory and practice. In recent years, it has become important for nursing educators to include the technological developments within the curricula to provide the students with the required knowledge and skills (Skiba, Connors & Jeffries 2008; Ozturk & Dinc 2014). The innovations in the use of the Internet and the multimedia has increased especially in the learning of complicated clinical skills (Ozturk & Dinc 2014; Sowan & Idhail 2014). Intensive curricula and limited laboratory hours have prevented the sufficient repetition of

implementations by every student and this situation is also reflected to the critical thinking and problem solving skills of the students (Sowan, 2014; Sowan & Idhail, 2014).

When the studies made related to videos were taken into consideration, it was found that videos were rather effective in the learning of students, that they decreased their anxieties, that they increased their performances on exams and that they made it easier for them to recall what they had learned (Salina et al. 2012; Sowan & Idhail 2014; Ozturk and Dinc 2014; Mendoza, Caranto & David 2015). In the studies by Sowan and Idhail (2014), the students stated that they were

very pleased to watch videos prior to their laboratory training.

Auditory, visual and other skills could increase the permanency of learning experience skills. Therefore, watching the skills repeatedly before implementation in the actual environment is of great importance. In recent years, a popular teaching strategy has been provided by online teaching methods for the education of health providers and enables them to receive high quality care. Consequently, video-based education is thought to be the ideal form for the education of nursing students.

Especially, it was determined from the literature that video-based learning is a relatively new topic in the articles written on nursing (Mouneghi et al. 2003; Kaveevivitchai et al. 2009; Cardoso et al. 2012; Du et al. 2013; Sowan & Idhail 2014; Ozturk & Dinc 2014; Lee & Noh 2015; Mendoza, Caranto & David 2015; Bahar 2015; Lee et al. 2016; Pinar, Akalin & Abay 2016).

However, there are many studies that directly compare the video-based education with traditional education in nursing for the determination of the opinions and satisfactions of students about their psychomotor skills training. On the other hand, no study was encountered in the literature about when the videos should be watched.

### **Aims**

The aim of the study is to determine how the satisfaction of students would be affected by watching the videos before or after the PSL implementation.

### **Methodology**

#### ***Study design and sample***

An experimental design was used in this study. The setting of the study was composed of the second-year students (n=257) attending a faculty of nursing at a university in the Aegean Region of Turkey.

The study was carried out on 213 students (113 students in the experimental group and 100 students in the control group). The rate of participation in the study was 82.8%. At the time of this study, students were enrolled in the Fundamentals of Nursing course during the spring semester of the 2014-2015 academic year.

### **Ethical considerations**

Written permission and approval were obtained from the Ethics Committee of the Dokuz Eylul University (2155-GOA, 11.06.2015) and the Deans of the Faculty of Nursing at the university. The students who participated in the study were informed about the aims and methods of the study and written informed consent was obtained from them.

### **Instruments**

The research data was collected from both groups at the conclusion of the laboratory activities. Two different questionnaire forms were used for the sociodemographic characteristics of the students and teaching staff. Two different forms prepared by the researchers and for which expert views were obtained were used for the collection of the data on the training methods in the study.

**The Form:** The "Questionnaire Form on the Evaluation of Satisfaction for the Video-based Interactive Education Method in the Professional Skills Training" was composed of a total of 23 items. This form was composed in a manner that would include every stage of the study (watching video and professional skills laboratory [PSL] implementation).

Every item was evaluated from the points of 1=I disagree, 2=I am undecided and 3=I agree. The total points on form were obtained by adding the points for all of the items (23 items). The lowest points that could be received from the forms were 23 for the Form. The highest points that could be received from the forms were 69 for the As the points received by the participants from the forms increased, it increased the satisfaction and usefulness from the video-based interactive learning method. As the points of the participants received on the forms increased, their satisfaction from the video-based interactive learning increased.

The Cronbach's alpha ( $\alpha$ ) value for the 23-item answered by the participants was found to be .901. This result showed that the form has a high reliability.

### **Implementation of the study**

The teaching curricula related to wound care were transformed into PowerPoint slides. The foundation of the training procedures of the research were composed together with the

previously recorded video. The students were appointed to the experimental or control groups according to their numbers (even numbers, odd numbers).

### **Implementation in the experimental group**

Prior to the laboratory activity, a presentation was made to the students in the experimental group related to skills. Subsequently, the video was watched. Later, the skills training was realized in the PSL. Whereas, after the skills training in the PSL, it was requested that they fill out a questionnaire form.

### **Implementation in the control group**

First of all, a presentation was made to the students in the control group. Subsequently, the skills training was realized in the PSL. After that, the video related to skills was watched. Whereas, after the skills training in the PSL, it was requested that they fill out a questionnaire form.

### **Implementation stage of the skills**

An implementation for a period of 4 hours was realized in the laboratory for the wound care skills of those included in the study. The students were separated into small groups in the laboratory and the activities were carried out within the prepared plan.

### **Evaluation of data**

Data analysis was made by using the Statistical Package for the Social Science (SPSS) 15.0. The interval of confidence was 95%. The level of statistical significance was set at  $p < .05$ . The internal consistency of the First Form items was assessed with Reliability Analysis. The Shapiro-Wilk test was used for the accordance of dependent variables and for their normal distribution. The chi-squared test was used for the similarity of age and gender distributions in the two groups. The point averages for satisfaction between the groups was assessed with the T-test.

## **Results**

### **Students' satisfaction**

The subjects were 213 second-year nursing students enrolled in a Fundamentals of Nursing

course. Most students (84%) were female, with a mean age of  $20.77 \pm 1.61$  years.

The students were randomly assigned into two groups: *experimental group* ( $n=113$ ) and *control group* ( $n=100$ ).

The mean scores of the control group and study group students were as follows:  $66.82 \pm 8.94$ ,  $67.84 \pm 6.81$  for the satisfaction from the video-based wound care skills training. The difference between the average scores were statistically insignificant ( $t=0.942$ ,  $p=.347$ ) (Table 1). The high scores indicated a high average satisfaction in both groups.

Besides the total points obtained from the evaluation form, it was observed that the responses given by the students in both groups for each of the 23 items included on the form were important (Table 2). Furthermore, as it can be observed in Table 2, the views were in favor of the video-based learning and the only negative participation was for the item: "*I prefer the traditional laboratory course when I compare it with the videos*" (with 47.8% in the experimental group and 41% in the control group).

A majority of the students stated that the video-based learning provided a well-designed interactive training experience. Besides these, they agreed with the views that the video-based learning procedure steps increased the comprehensibility (experimental group 91.2%, control group 83%), that they continued the course with interest (experimental group 90.3%, control group 84%), that it constituted preliminary preparations for the laboratory activities (experimental group 97.3%, control group 72%), that it decreased stress (experimental group 85.8%, control group 78%) and that it entertained while learning (experimental group 77%, control group 69%) (Table 2).

The T-test was made to examine the variables that could have resulted in differences in the satisfaction scores between groups.

There were significant differences between groups for gender ( $t=102.787$ ,  $p=.000$ ) (Table 3) and age ( $t=102.96$ ,  $p=.000$ ) (Table 4).

**Table 1. Point averages for satisfaction from the video-based learning**

Group	n	Satisfaction points	Statistics
		X+SD	T-test
Experimental	113	67.84±6.81	t=0.942
Control	100	66.82±8.94	p=0.347

**Table 2. The views of the students on the video-based interactive learning method for the professional skills training**

	Experimental Group						Control Group					
	I disagree		I am undecided		I agree		I disagree		I am undecided		I agree	
	n	%	n	%	N	%	n	%	n	%	n	%
The video recordings are very important in understanding the procedure steps.	1	.9	9	8	103	91.2	4	4	13	13	83	83
The use of different learning materials (video) was important for continuing interest in the course.	1	.9	10	8.8	102	90.3	6	6	10	10	84	84
Showing the videos prior to the PSL session was very beneficial in my preparing for the laboratory session.	1	.9	2	1.8	110	97.3	11	11	17	17	72	72
The “important points” stated for skills in the videos are very valuable.	4	3.5	29	25.7	80	70.8	4	4	16	16	80	80
I would like there to be videos for all of the skills.	2	1.8	7	6.2	104	92	4	4	6	6	90	90
The videos decreased my stress during the laboratory.	0	0	16	14.2	97	85.8	5	5	17	17	78	78

The videos helped me to understand the differences between the ideal environment (laboratory environment) and the implementation environment (hospital environment).	6	5.3	40	35.4	67	59.3	18	18	28	28	54	54
The sounds of the videos were very clear.	19	16.8	41	36.3	53	46.9	8	8	23	23	69	69
The images of the videos were very clear.	26	23	44	38.9	43	38.1	16	16	24	24	60	60
The explanation of the skills steps in the videos by a professional narrator helped me to pronounce the terms correctly.	2	1.8	13	11.5	98	86.7	2	2	16	16	82	82
The order of procedure steps for skills in the videos was consistent and it provided ease in implementation.	1	.9	10	8.8	102	90.3	5	5	11	11	84	84
The procedure steps in the videos were very clear.	6	5.3	23	20.4	84	74.3	1	1	22	22	77	77
I can control easily the showing of the skill steps with video (to watch the steps again, to advance, to rewind).	6	5.3	25	22.1	82	72.6	3	3	15	15	82	82
The use of different learning materials (video) increased my learning.	4	3.5	16	14.2	93	82.3	4	4	5	5	91	91
I prefer the traditional laboratory course when compared with videos.	54	47.8	21	18.6	38	33.6	41	41	24	24	35	35
The use of theoretical presentations for skills served well my learning needs.	1	.9	10	8.8	102	90.3	2	2	14	14	84	84
I feel more responsibility in learning through video when compared to the traditional laboratory courses.	6	5.3	27	23.9	80	70.8	13	13	29	29	58	58

The video showing provided for me to access knowledge more rapidly and better.	3	2.7	11	9.7	99	87.6	6	6	11	11	83	83
The video showing advanced my learning.	4	3.5	6	5.3	103	91.2	5	5	6	6	89	89
I was entertained while learning with the video showing.	13	11.5	13	11.5	87	77	12	12	19	19	69	69
To watch the procedure steps during the video showing provided for me to solve the problems.	6	5.3	11	9.7	96	85	6	6	17	17	77	77
Narrating the justification for the skills steps during the video showing helped me to understand the procedure steps.	8	7.1	13	11.5	92	81.4	8	8	16	16	76	76
The PSL session after the video showing facilitated the interactions between teaching personnel and students when compared with the traditional laboratory activities.	6	5.3	12	10.6	95	84.1	7	7	11	11	82	82

**Table 3. A comparison between groups of the satisfaction point averages from the video-based interactive learning for the professional skills training according to gender**

Group	Gender	n	Satisfaction points X+SD	Statistics T-test
<b>Experimental</b>	Female	94	68.37±5.80	t=102.787 p=.000
	Male	19	65.21±10.30	
<b>Control</b>	Female	85	67.14±8.44	
	Male	15	65.00±11.57	

**Table 4. A comparison between groups of the satisfaction point averages from the video-based interactive learning for the professional skills training according to age**

Group	Age	N	Satisfaction points X±SD	Statistics T-test
Experimental	18-20 years of age	51	68.70±6.13	t=-102.196 p=.000
	21 years of age and older	62	67.12±7.30	
Control	18-20 years of age	49	67.00±8.34	
	21 years of age and older	51	66.64±9.57	

### Discussion

In this study, the satisfaction levels between the experimental and control groups did not display a significant difference. The gradually increasing number of students and in parallel to this, insufficiencies in the number of teaching personnel, besides the problems in the areas of implementation, compel different searches for skills learning (Kaveevivitchai et al. 2009; Cardoso et al. 2012; Pinar, Akalin & Abay 2016). The reflection of technological developments to the health and education fields contributes to and accelerates the development of teaching methods for which a need is felt (Mouneghi et al. 2003; Lee & Noh 2015; Pinar, Akalin & Abay 2016). Although there are some differences in instructional techniques, it has been observed that in many studies basically videos are used (Mouneghi et al. 2003; Kaveevivitchai et al. 2009; Cardoso et al. 2012; Du et al. 2013; Sowan & Idhail 2014; Ozturk & Dinc 2014; Lee & Noh 2015; Mendoza, Caranto & David 2015; Bahar 2015; Lee et al. 2016; Pinar, Akalin & Abay 2016).

Training nurses and student nurses by using different contents was the objective of the intervention programs (Lahti, Hatonen & Valimaki 2014). In our study, in addition to videos, course narration, written texts, PowerPoint™ and the PSL demonstration techniques were used.

In this study, the conclusions showed that there was no significant difference between the satisfaction point averages of the students in the experimental group and the students in the control group ( $p > 0.05$ ). When the conclusions for both groups were evaluated separately, it was observed that the point averages obtained were high. If it is considered that the highest points that could be obtained from the First Form was 69, then it showed that the satisfaction of both groups of students was high. The only difference was that the experimental group watched the video prior to the PSL activity and the control group watched the video after the PSL activity. The video was the cause of an increase in satisfaction in both groups. All of these were the cause of their acquiring knowledge and skills on the subject. The only difference was the time at which they watched the video. Consequently, it could be because of this that the difference between them was insignificant. In these two studies (Lee et al. 2016; Pinar, Akalin & Abay 2016), students expressed satisfaction related to the use of video-based learning. In another study in which the effectiveness of video-supported web-based learning for fundamental nursing skills training was examined, it was reported that the satisfaction of the students in the experimental group was 96.7% (Bahar 2015).

In a study carried out for evaluating the effect of web-based learning on medication application skills, the satisfaction of the nursing students was

reported (Sowan & Idhail 2014). It was determined in a systematic review by Du et al. (2013) in which they examined 9 studies, that generally the participants stated their high satisfaction.

In the study, a significant difference was determined when the satisfaction point averages were compared according to the gender of the experimental and control groups ( $p < 0.05$ ). It was observed that in both groups, the satisfaction of the females was higher compared to males. In the studies by Sowan and Idhail (2014), they stated that gender was a predictor that affected to a significant degree the satisfaction from the interactive web-based nursing course with video streaming.

It was determined that there was a significant difference ( $p < 0.05$ ) when the satisfaction point averages of the experimental and control groups were compared according to age. It was observed that the satisfaction of the students in both groups between 18-20 years of age was higher compared to the other ages. Among the factors that affect the usability of the method selected are included the suitability to skills, the aptitude of the students, capacity, accumulation of knowledge as well as age (Mouneghi et al. 2003). In the study of Lee et al. (2016), the results of video use by young people were not surprising. When the aptitude of this age group in recent years for using interactive equipment is taken into consideration, video-based learning is a technique that addresses them well (Lee et al. 2016).

The students' satisfaction from the video-based skills learning was evaluated with questions, such as the quality of the videos, the contribution to skills learning and what the students felt about this training. The agreement with the view "*I would like there to be videos for all of the skills*" was at a high ratio in both groups. It was observed that the use of videos in the development of skills was observed to be a supportive tool by the students and that they found to be beneficial (Cardoso et al. 2012; Du et al. 2013; Lahti, Hatonen & Valimaki 2014; Bahar 2015; Mendoza, Caranto & David 2015; Pinar, Akalin & Abay 2016).

Agreement with the statement, "*The explanation of the skills steps in the videos by a professional narrator helped me to pronounce the terms correctly*" showed that the requirement for

correcting the knowledge that was stated by Du et al. (2013) and Pinar, Akalin & Abay (2016) was right.

There were two striking negativities in both groups: "*The sounds of the videos were very clear*" and "*The images of the videos were very clear*". The ratio of agreement with these two items was rather low. One of the difficulties was the watching of the video in large groups. The use of a large classroom caused the students to be distant from the image and for them not to hear the sound clearly. The fact that they were well-designed was one of the factors that increased the effectiveness of the interactive educational tools as stated by Kaveevivitchai et al. (2009). It would provide significant contributions to prepare suitable contents for the skills by using innovative technologies and to provide for being reachable by the students technologies (Bahar 2015). Lee et al. (2016) also stated that videos could be developed with technical support.

The students in both groups in our study agreed with the view: "*The 'important points' stated for skills in the videos are very valuable*". The fact that the videos were taken with sound and that the checklists of the procedure steps in the subject presentation and during the demonstration were one-to-one compatible affected the ratio of agreement with this expression. These details, which are important in the formation of the design of the study, increased the agreements of the students for the item: "*The order of procedure steps for skills in the videos was consistent and it provided ease in implementation*". In the same manner, there was agreement at a high ratio from both groups for the items: "*The procedure steps in the videos were very clear*" and "*Narrating the justification for the skills steps during the video showing helped me to understand the procedure steps*". In the study design by Pinar, Akalin & Abay (2016) the effect of the video use was increased by implementing similar initiatives, by informing the students and by providing for bringing clarity to their mistakes.

The agreement was high in the study for both groups of students for the following expressions: "*The use of different learning materials (video) increased my learning*" and "*The use of different learning materials (video) was important for continuing interest in the course*". In a study made by Weeks and Horan (2013) on physiotherapy students, 95% of the participants

were of the opinion that the use of video would be a helpful tool in preparing for their courses.

Agreement with the expression by the students: *"The video showing advanced my learning"* supported the conclusions of many studies (Kelly et al. 2009; Weeks & Horan 2013; Mendoza, Caranto & David 2015; Lee et al. 2016). When the ratios of agreement for the expression: *"I prefer the traditional laboratory course when compared with videos"* were examined, it was observed that students in both groups responded negatively. Nikopoulou-Smyrni and Nikopoulos (2008) determined in their study that there was a slight rise in the performances of the students with video-based learning and that the student views were that the video-supported learning provided an equal effect with the standard learning. Also, in the study by Sung, Kwon and Ryu (2008), even if e-learning relatively increased the medication implementation skills of the students, a difference was not observed in their skills. In contrast to these two studies, studies were also encountered that stated that a significant difference was set forth compared to traditional learning (Kelly et al. 2009; Weeks & Horan 2013; Bahar 2015; Lee et al. 2016).

Many studies were encountered in the literature about the video-supported implementations decreasing stress and anxiety in skills training (Cardoso et al. 2012; Du et al. 2013; Weeks & Horan 2013; Lahti, Hatonen & Valimaki 2014; Lee & Noh 2015). In our study, the students in both groups showed a high agreement with the expressions: *"The videos decreased my stress during the laboratory"* and *"I was entertained while learning with the video showing"*. The students stating that with videos they had the opportunity to watch repeatedly and it decreased the probabilities of making mistakes and could be thought to be the reason why they became distant from stress (Lee et al. 2016).

Lee et al. (2016) stated that the experimental group students expressed that they felt themselves to be more motivated with the video support and that when making implementations, they felt surer of themselves. A similar finding was also included in the study by Pinar, Akalin & Abay (2016). At the same time, this situation would also develop the awareness of taking responsibility. The expression: *"I feel more responsibility in learning through video when compared to the traditional laboratory courses,"*

showed that the awareness of responsibility of the students was also developed in our study.

The students in our study only had the opportunity to watch the video once and for a period of 38 minutes. Whereas, it was thought that in other studies (Cardoso et al. 2012; Bahar 2015; Lee et al. 2016), which were supported by different technological tools, the fact that the students had the opportunity to reach the videos when they wanted, repetitively and outside of school, could be the cause of the clear differences between the experimental and control groups. The fact that there was high agreement of the students in our study for the expression: *"I can control easily the showing of the skill steps with video (to watch the steps again, to advance, to rewind)"*, set forth the necessity of providing ease of access by developing the technological opportunities in our other processes as well. In the study by Kaveevivitchai et al. (2009) the point, which showed similarity to our study model, was the fact that the periods of watching the video were limited to 90 minutes. This situation was determined to be a factor, which affected the satisfaction of the students (Kaveevivitchai et al. 2009). The expression: *"The PSL session after the video showing facilitated the interactions between teaching personnel and students when compared with the traditional laboratory activities"* showed similarities to the study findings of Du et al. (2013). This situation can be associated with the knowledge load obtained by the students, the inducing of critical thought processes and acquiring the facility of being able to express oneself together with a feeling of trust.

#### **Limitations of the study**

The sample was limited to the baccalaureate nursing students at this university. This study evaluated only one nursing care skill. The students had the opportunity to watch the video once. The period of watching was limited to 38 minutes.

#### **Conclusion**

This study reported a significant effect of watching a video on nursing students' satisfaction in skills training. It was observed in the study that there were many reasons why the students preferred the video-based education compared to the traditional method. It was proven that the integration of the video-supported education models to the traditional

education was extremely effective on the satisfaction of students. This strategy is essential for technological development in nursing and is appropriate for learning the technical competencies in health through the required procedures in the teaching-learning process. The real objective of this randomized, controlled study, even if the findings about the time when the video was watched did not produce significant differences statistically, was that the conclusion was reached that watching the video before the PSL activity increased the satisfaction of students.

### Acknowledgements

We would like to thank the nursing students who consented to take part in this study.

### References

- Bahar A. (2015). Effects of web based instructional video supported education on basic skills training. *New Journal of Medicine*, 32(3):141-147.
- Cardoso AF., Moreli L., Braga FT., Vasques CI., Santos CB., & Carvalho EC. (2012). Effect of a video on developing skills in undergraduate nursing students for the management of totally implantable central venous access ports. *Nurse Education Today*, 32(6):709-713.
- Du S., Liu Z., Liu S., Yin H., Xu G., Zhang H., & Wang A. (2013). Web-based distance learning for nurse education: a systematic review. *International Nursing Review*, 60(2):167-77.
- Kaveevitchai C., Chuengkriankrai B., Luecha Y., Thanoruk R., Panijpan B., & Ruenwongsa P. (2009). Enhancing nursing students' skills in vital signs assessment by using multimedia computer-assisted learning with integrated content of anatomy and physiology. *Nurse Education Today*, 29(1):65-72.
- Kelly M., Lyng C., McGrath M., & Cannon G. (2009). A multi-method study to determine the effectiveness of, and student attitudes to, online instructional videos for teaching clinical nursing skills. *Nurse Education Today*, 29(3):292-300.
- Lahti M., Hatonen H., & Valimaki M. (2014). Impact of e-learning on nurses' and student nurses knowledge, skills, and satisfaction: a systematic review and meta-analysis. *International Journal of Nursing Studies*, 51(1):136-149.
- Lee NJ., Chae SM., Kim H., Lee JH., Min HJ., & Park DE. (2016). Mobile-based video learning outcomes in clinical nursing skill education: a randomized controlled trial. *Computers Informatics Nursing*, 34(1):8-16.
- Lee E., & Noh HK. (2015). The effects of a web-based nursing process documentation program on stress and anxiety of nursing students in South Korea. *International Journal of Nursing Knowledge*, 27(1):35-42.
- Mendoza GLL., Caranto LC., & David JJT. (2015). Effectiveness of video presentation to students' learning. *International Journal of Nursing Science*, 5(2):81-86.
- Mouneghi HK., Derakhshan A., Valai N., & Mortazavi F. (2003). The effectiveness of video-based education on gaining practical learning skills in comparison with demonstrating method's effectiveness among university students. *Journal of Medical Education*, 4(1):27-30.
- Nikopoulou-Smyrni P., & Nikopoulos C. (2008). Evaluating the impact of video-based versus traditional lectures on student learning. *7th European Conference on E-Learning. Vol 2* 1:214-221.
- Ozturk D., & Dinc L. (2014). Effect of web-based education on nursing students' urinary catheterization knowledge and skills. *Nurse Education Today*, 34(5):802-808.
- Pinar G., Akalin A., & Abay H. (2016). The effect of video based simulation training on neonatal examination competency among Turkish nursing students. *European Scientific Journal*, 12(15):394-405.
- Salina L., Ruffinengo C., Garrino L., Massariello P., Charrier L., Martin B., Favale MS., & Dimonte V. (2012). Effectiveness of an educational video as an instrument to refresh and reinforce the learning of a nursing technique: a randomized controlled trial. *Perspectives on Medical Education*, 1(2):67-75.
- Skiba DJ., Connors HR., & Jeffries PR. (2008). Information technologies and the transformation of nursing education. *Nursing Outlook*, 56(5):225-230. DOI:10.1016/j.outlook.2008.06.012.
- Sowan AK. (2014). Multimedia applications in nursing curriculum: the process of producing streaming videos for medication administration skills. *International Journal of Medical Informatics*, 83(7):529-535.
- Sowan AK., & Idhail JA. (2014). Evaluation of an interactive web-based nursing course with streaming videos for medication administration skills. *International Journal of Medical Informatics*, 83(8):592-600.
- Sung YH., Kwon IG., & Ryu E. (2008). Blended learning on medication administration for new nurses: integration of e-learning and face-to-face instruction in the classroom. *Nurse Education Today*, 28(8):943-952.
- Weeks BK., & Horan SA. (2013). A video-based learning activity is effective for preparing physiotherapy students for practical examinations. *Physiotherapy*. 99(4):292-297