

## Shared learning between health sciences university students. Teaching-learning process of hand hygiene

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### **Abstract**

*The main aim of the project has been the usage of active teaching methodologies to raise awareness of the importance of hand hygiene in healthcare.*

*Methodology: The teaching innovation project has put into practise shared learning of knowledge and skills between equals. 11 Nursery Degree students, with a previous cooperative and individual work, participate in a teaching-learning process about hand hygiene with 82 Physiotherapy Degree students, using Tics, workshops on hand disinfection with self-assessment, evaluation of pre and post knowledge and evaluation of the satisfaction with the activity.*

*Results: The assessment of pre and post questionnaires reveal an increase in the amount of correct answers. 98.8% of students considers they will be able to apply the acquired knowledge in their professional practice. The applied methodology is considered adequate in a 95.1%. Students have shown a great satisfaction with the activity.*

*Conclusions: The Physiotherapy students have considered the experience to be very satisfying and useful for the professional practice.*

*The use of teaching-learning methodology has shown to be a valid option for gaining knowledge and skills on hand hygiene.*

**Keywords:** *Educational innovation; learning between equals or shared learning; hand hygiene; satisfaction.*

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## **1. Introduction**

One of the aims of the World Health Organization (WHO) Security Program is “*To promote and develop the knowledge and patient’s safety culture between professionals and patients at any level of healthcare*” (WHO, 2019). *This aim in Spain, the Ministry of Health, Social Services and Equality implements and implies the development of actions to improve the information and training about professionals’, patients’ and citizens’ safety*” (Ministerio de Sanidad, Servicios Sociales e Igualdad, 2016).

Safety Strategy for 2015-2020 includes among its specific aims “To maintain and encourage the expansion of the Spanish National Health System’s Hand Hygiene Program to all healthcare centres” and recommends “To preserve and consolidate the developed actions for a better adherence to hand hygiene among professionals, patients and carers, in hospitals, primary care, residences and health assistance centres”.

According to actual data of health services, 1 out of 10 patients contract an infection while receiving healthcare (WHO, 2019), which leads to longer hospital stays, long term disability, increase in microorganisms resistance to antimicrobials, massive additional cost to the health system, high cost for the patients and their families and unnecessary deaths. In this context, it is appropriate to incorporate the promotion of patient’s safety culture in Health Sciences students before starting the practical period in sanitary institutions.

The infection prevention and control, including hand hygiene, is essential to achieve Universal Coverage in Health for three reasons:

- It is practice based on evidence.
- It has demonstrated an impact in the quality of care and Patient’s Safety.
- It reaches all levels of healthcare (Ministerio de Sanidad, Consumo y Bienestar Social, 2019).

The hands are the main mode of transmission of germs in healthcare. Hand hygiene is recognized by the WHO as the cheapest, simplest and most effective mean to prevent the infection associated to sanitary assistance and crossed transmission of multiresistant organisms.

In light of this scenario, the WHO has proposed, in the World’s Alliance for Patient’s Safety, the campaign “*Save lives: wash your hands*”. Thus, the Ministry of Health, Consumer Affairs and Social Welfare has started the Hand hygiene campaign: *Saving lives is in your hands*, given that the conclusions of the Prevalence Study of Nosocomial Infections in Spain (EPINE) 2017, evidenced that nosocomial infections affect 7,74% of patients in Spain.

In the teaching field, specifically in Health Sciences degrees, it is important to incorporate training, awareness and hand hygiene promotion campaigns.

### **1.1. Justification and adequacy of the convocation**

The European Higher Education Area (EHEA) proposes significant changes in the teaching-learning processes. On one hand in the learning approaches that university students use during their academic training, and on the other hand, in the methodological used and teaching strategies that have been implemented (Argos et al., 2013).

This innovation Project is adequate to the *Resolució de 10 de juny de 2019, del vicerektorat d'ocupació i programes formatius, per la qual es convoquen les ajudes per al desenvolupament de projectes d'innovació educativa per al curs 2019-2020* because it is centered in the improvement of university teaching quality, specifically, in the line of "Active methodologies in learning".

The project implements shared learning between equals, collaborative and cooperative work, techniques such as "focus group" and the use of TICs in the classroom, specific about the learning-teaching process, object of the project "hand hygiene".

### **1.2. Background of the activity**

During the 2018-2019 academic year, a educational innovation project was developed in *La Fe* Nursery School, which, using active teaching methodologies, promoted leaning from the conception, design, planning, development and evaluation of the project "Active learning on hand hygiene". This project has achieved a high academic performance on the matter, due to the distribution of roles and individual, as well as collective, responsibilities, to critic thinking and to the rigorous transmission of knowledge and skills.

The results of the project were, among others:

- The student body acquired an active role in the learning process through a stimulating interaction, individual and group responsibility, as well as positive interdependence.
- The teacher's role was of orientation and coordination in the teaching-learning process and of providing the teaching means.
- The knowledge questionnaire showed an 84% of correct answers, against a 16% of incorrect answers.
- The result of the competence test was: 100% of students passed, 71% with top qualification.

As a conclusion, we can affirm that the project achieved a great participation, a very satisfactory acceptance of the teaching-learning process on hand hygiene for the correct

usage of new technologies in the classroom by Nursery Degree students, and that the academic performance achieved was high.

Therefore, the shared learning project was proposed to the students of the Nursery Degree that had participated in the previous project and students from the Physiotherapy Degree.

## **2. Aims**

The aims of this educational innovation project have been:

- To achieve the acquisition of knowledge and skills on hand hygiene, through shared learning between Nursery and Physiotherapy students.
- To raise awareness of the importance of hand hygiene in healthcare.
- To achieve the satisfaction of the student body for the usage of active teaching methodologies.
- To incorporate new technologies in the classroom.

## **3. Methodology**

A teaching-learning process has been put into practice with 11 3<sup>rd</sup> year university students from the Nursery Degree of the *La Fe* Nursery School, that had, in the previous year, developed an active and participating teaching-learning process on hand hygiene. They shared knowledge and skills on hand hygiene with 82 2<sup>nd</sup> year students from the Physiotherapy Degree of the Universidad de Valencia.

4 sessions were done with four different groups of students. Each session consisted of a theoretical part, a practical workshop, evaluation of pre and post knowledge, individual self-assessment of the procedure of hand disinfection and evaluation of the satisfaction with the activity.

In the theoretical part, *power point* presentation tools were used with the projection of audio-visual content, one of which, elaborated by a group that acted as teachers. The practical workshops were done with the individual participation of the students and the usage of an hydroalcoholic solution with fluorescein, a metal box and ultraviolet light torches.

For the evaluation of knowledge and satisfaction, the *on-line* “*Kahoot*” resource was used.

The acquired knowledge was assessed with a pre-test and a post-test questionnaire with 20 true-false questions.

The satisfaction of the student body was assessed with a 14-question questionnaire divided in 3 blocks: four, of general evaluation of the activity, six, of methodology and organisation

of the used resources and four, of the evaluation of the teaching team (the Nursery Degree students).

A practical individual self-assessment of the hand disinfection procedure was also done, using the ultraviolet light lamp.

The activity was done at the end of November of 2019.

#### 4. Results

Four sessions were done. 11 3rd year student from the Nursery Degree and 82 2nd year students from the Physiotherapy Degree formed the teaching team. The distribution by sex is shown in figure 1.

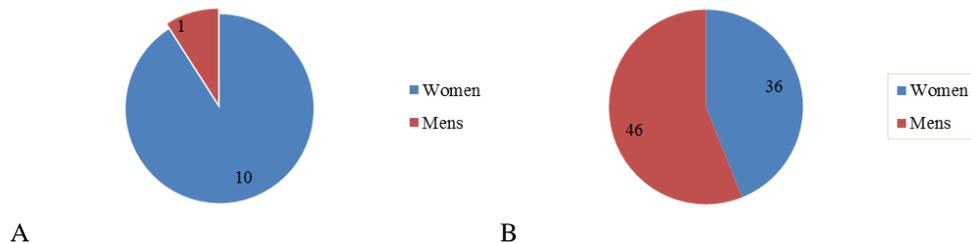


Figure 1. Distribution by sex. A. Teaching team. B. Physiotherapy participating students.

The evaluation of the pre and post questionnaires of the sessions shows an increase in the percentage of the amount of correct answers. In table 1, the results of each of the sessions are shown.

**Table 1. Percentage of correct and incorrect answers per each of the sessions.**

Answers	First session Pretest	First session Posttest	Second session Pretest	Second session Posttest	Third session Pretest	Third session Posttest	Fourth Session Pretest	Fourth Session Posttest
Correct	69,26%	69,26%	75,71%	86,79%	71,09%	90,00%	75,88%	89,71%
Incorrect	30,74%	30,74%	24,29%	13,21%	28,91%	10,00%	24,12%	10,29%

Figure 2 shows the satisfaction of the Physiotherapy students with the activity. All the items have been valued, by over 60% of the students, with the category of strongly agree or very satisfied, between 11-37.5%, with the category of agree or satisfied, and only some items were answered with the category of strongly disagree or not satisfied by 0-10% of the students.

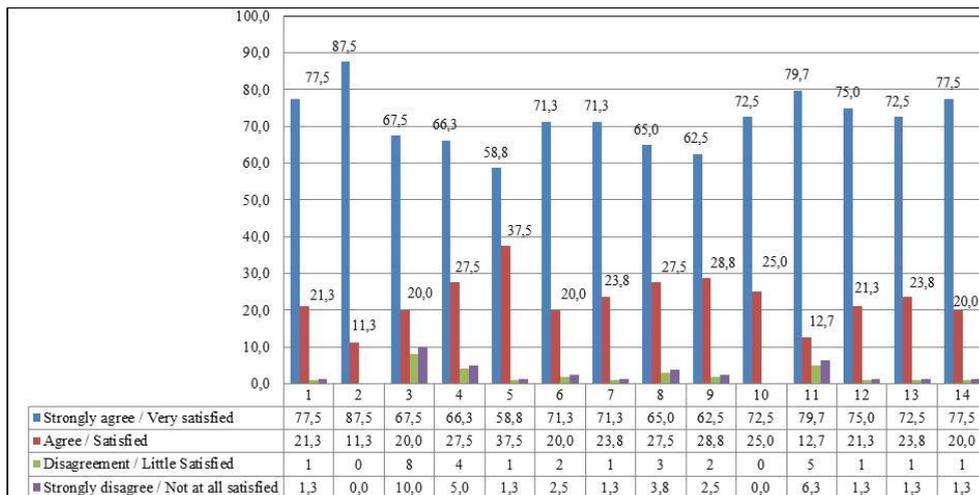


Figure 2. Global satisfaction levels of Physiotherapy students.

The general evaluation shows a satisfaction percentage in the category of strongly agree, between 66.3- 87.5% and agree, between 11.3-27.5%. The item with higher punctuation was Will I be able to apply the acquired knowledge in the professional practice? 87.5% strongly agreed, whilst 11.3% agreed (figure 3).

With the question *¿In general, has the logistic organization contributed to the development of the activity?* 72.5% strongly agreed, whilst 25% agreed. Regarding the question *Have the contents developed during the training session found to be useful?* 58.8% answered strongly agree and, 37% agree. In relation to the methodology, *The used teaching methods have been adequate for the optimal development of the activity?* 71.3% answered strongly agree and, 23.8%, agree (figure 4). The satisfaction with the teaching team has been very high (figure 5).

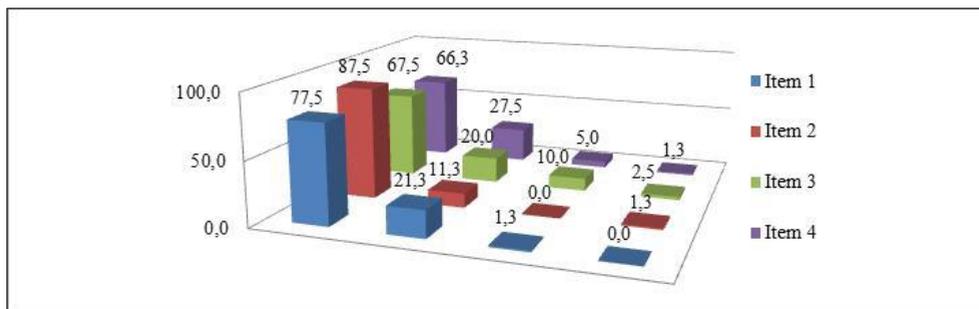


Figure 3. Percentage of satisfaction level of the general evaluation of the activity block.

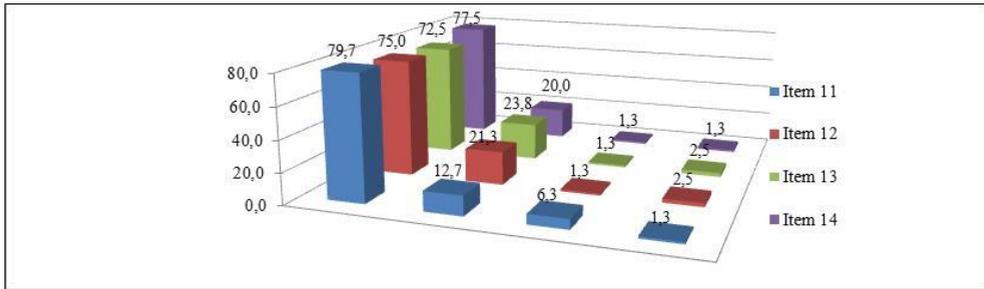


Figure 4. Percentage of satisfaction level of the methodology/organization and resources block.

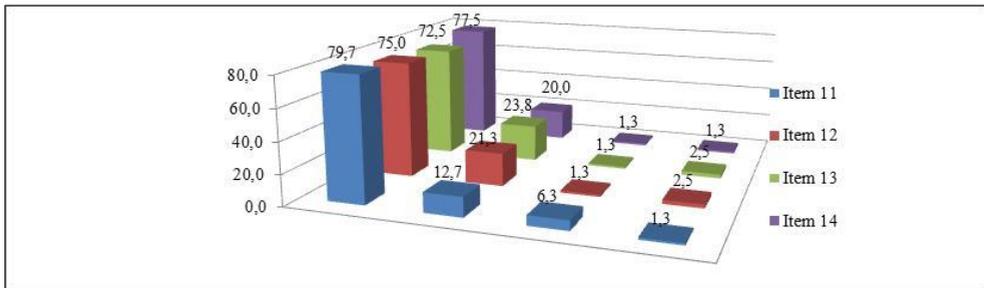


Figure 5. Percentage of satisfaction level with the teaching team.

## 5. Conclusions

The incorporation of active methodologies, like shared learning between equals has shown to be a positive option in the teaching-learning process to acquire knowledge and skills on hand hygiene.

The Physiotherapy students have considered the experience to be very satisfactory and useful for their professional practice.

## References

- Argos, J. et al. (2013). La evaluación de los aprendizajes de los estudiantes en el marco del Espacio Europeo de Educación Superior (EEES): sus prácticas , preferencias y evolución. *European Journal of investigation in health, psychology and education*. 3(3), pp.181–194.
- Ministerio de Sanidad, Consumo y Bienestar Social. (2019). *Seguridad del paciente. Programa higiene de manos*. Available: <https://www.seguridaddelpaciente.es/es/practicas-seguras/programa-higiene-manos/>

Ministerio de Sanidad, Servicios Sociales e Igualdad. (2016). *Estrategia de Seguridad del Paciente 2015-2020*.  
<https://www.seguridaddelpaciente.es/resources/documentos/2015/Estrategia%20Seguridad%20del%20Paciente%202015-2020.pdf>

WHO. (2019). *10 facts on patient safety*.  
[http://www.who.int/features/factfiles/patient\\_safety/en/](http://www.who.int/features/factfiles/patient_safety/en/)

WHO. (2019). *WHO, 2019. Patient safety. Global action on patient safety. Report by the Director-General. A72/26. Available WHO.*  
[https://apps.who.int/gb/ebwha/pdf\\_files/WHA72/A72\\_26-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_26-en.pdf). WHO.  
[https://apps.who.int/gb/ebwha/pdf\\_files/WHA72/A72\\_26-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/WHA72/A72_26-en.pdf). WHO.