

Nursing Students' Perceptions of Flipped Classroom and Continuous Assessment in the Nursing-Management Classroom

**Percepción de los estudiantes de enfermería sobre el *flipped classroom* y la
evaluación continua en Administración y Gestión en Enfermería**

**Percepções dos alunos de Enfermagem sobre *flipped classroom* e avaliação
contínua na sala de aula de Gestão de Enfermagem**

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Abstract: Introduction: Although the training of nurses in administration and leadership has an important repercussion on the present and the future of the profession, teaching methods are still traditional in many cases. Flipped classroom is a widely used method in nursing education but studies about its application to Nursing Administration and Management are limited. Method: Qualitative study by means of anonymous survey (dichotomous and open questions). Results: 92 % of students were shown to be satisfied with the teaching methodology and 92.9 % with the assessment. Only 31.5 % had used it previously but 83 % would like to use it in more subjects. The students showed that the methodology used had improved their opinion about the content and had increased their perception its usefulness. Conclusion: The participating students have been shown to be satisfied with flipped method and continuous assessment. These teaching strategies can help motivate nursing students towards the subject of Nursing Administration and Management, which can encourage them to pursue postgraduate training and professional practice in this area.

Keywords: nursing education; educational measurement; flipped classroom; organization and administration; personal satisfaction.

Resumen: Introducción: Si bien la formación de enfermeros en Administración y Gestión tiene una importante repercusión en el presente y el futuro de la profesión, los métodos de enseñanza siguen siendo tradicionales en muchos casos. El aula invertida es un método ampliamente utilizado en la educación de enfermería, pero los estudios sobre su aplicación a la administración y gestión de enfermería son limitados. Método: Estudio cualitativo mediante cuestionario anónimo (preguntas dicotómicas y abiertas).

Resultados: El 92 % de los estudiantes se mostró satisfecho con la metodología de enseñanza y el 92,9 % con la evaluación. Solo el 31,5 % lo había usado anteriormente, pero al 83 % le gustaría usarlo en más sujetos. Los estudiantes demostraron que la metodología utilizada había mejorado su opinión sobre el contenido y había aumentado su percepción útil del mismo. Conclusión: Los estudiantes participantes han demostrado estar satisfechos con el método de aula invertida. Estas estrategias de enseñanza pueden ayudar a motivar a los estudiantes de enfermería hacia la asignatura de Administración y Gestión de los Servicios de Enfermería, lo que puede animarlos a realizar una formación de posgrado y una práctica profesional en esta área.

Palabras claves: educación en enfermería; evaluación educacional; aula invertida; organización y administración; satisfacción personal.

Resumo: Introdução: Embora a educação de Enfermagem em Administração e Gestão tenha um grande impacto no presente e futuro da profissão, os métodos de ensino continuam a ser tradicionais em muitos casos. A sala de aula invertida é um método amplamente utilizado na educação em Enfermagem, mas os estudos sobre a sua aplicação à Administração e Gestão de Enfermagem são limitados. Método: Estudo qualitativo utilizando um questionário anônimo (perguntas dicotômicas e abertas). Resultados: 92% dos estudantes ficaram satisfeitos com a metodologia de ensino e 92,9% com a avaliação. Apenas 31,5% já o tinha utilizado antes, mas 83% gostariam de utilizá-lo em mais assuntos. Os estudantes mostraram que a metodologia utilizada havia melhorado a sua opinião sobre o conteúdo e aumentado a sua percepção útil do conteúdo. Conclusão: Os estudantes participantes mostraram-se satisfeitos com o método invertido e com a avaliação contínua. Estas estratégias de ensino podem ajudar a motivar os estudantes de Enfermagem para a disciplina de Administração e Gestão de Enfermagem, o que pode encorajá-los a empreender uma educação de pós-graduação e prática profissional nesta área.

Palavras-chave: educação em Enfermagem; avaliação educacional; sala de aula invertida; organização e administração; satisfação pessoal.

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Introduction

The acquisition of skills in administration and leadership is one of the most important needs in nursing education identified in recent studies ⁽¹⁾ and has a clear repercussion for the present and future of the profession. ⁽²⁾ Because of this, numerous educational institutions include this training in their pre- and postgraduate training programs in nursing and other healthcare professions. ⁽³⁾

Recently, various international organizations have asked for innovative reforms in the teaching methodology used in the education of the health professions and there are quality studies that indicate that these reforms can be very positive.⁽⁴⁾ However, teaching and assessment methodology is not always enough innovative in our institution and in other nursing education institutions around the world.⁽⁵⁾

Furthermore, since the implementation of the European Higher Education Area, assessment has become a challenge of great complexity for teachers at European universities, as it involves making assessment a “tool for improvement”⁽⁶⁾ and not only a system of control. Many and varied initiatives have been carried out in this regard, from the use of portfolios⁽⁷⁾ and/or rubrics⁽⁸⁾ to the holding of simulated congresses,⁽⁹⁾ debates,⁽¹⁰⁾ and even the design and use of blogs as a tool for teaching and evaluation.⁽¹¹⁾

In fact, evaluation is one of the aspects of education that most generates dissatisfaction among university students.⁽¹²⁾ In nursing, on top of this discomfort students have unpleasant experiences in clinical settings, such as the lack of connection with clinical mentors⁽¹³⁾ or the mismatch between the teaching received at university and the real examples,⁽¹⁴⁾ which can be particularly relevant in the case of leadership and management because many students don't understand very well how this content fits into the nursing educational program.

Implementing various technologies and allowing students to participate in experience-based learning and teamwork activities fulfils the needs of millennial students, who are adept at using scientific technology.⁽¹⁵⁾

It therefore seems important that university teachers of nursing make an additional effort to ensure that their students have a positive experience of their learning about management and leadership. This can imply personal work by teachers in increasing their credibility as leaders⁽¹⁶⁾ as well as a review of the teaching methods deployed, including assessment.

Flipped learning is a student-centered model in which professor becomes a facilitator of learning, as it requires them to study the material before the class take place. From this way, the class will not be oriented to an explanation of the theoretical contents; it focuses on student's participation, collaboration, and debate with classmates and resolution of doubts.⁽¹⁷⁾ The flipped learning encouraged the students to be motivated and led to self-directed learning. The findings from the survey provide the opportunity to elicit a holistic understanding of the students' views and experiences⁽¹⁸⁾ and encourages students to actively engage in learning on a deeper level than a more traditional lecture might.⁽¹⁹⁾

A recent change in the assessment regulations of the University of Huelva has provided an opportunity for researchers to carry out an initiative of teaching and assessment innovation in the subject Administration and Management of Nursing Services (AGSE, according to its initials in Spanish) in the third year of the degree in nursing at the University of Huelva. The innovation consisted of the use of a gradual introduction of the flipped method and the carrying out of partial exams. The gradual introduction of this teaching method, new in this context, allows teachers and students' adaptation to changes.⁽²⁰⁾

The objective of this study is to describe the students' perception of a teaching innovation based on the use of the flipped classroom and continuous assessment through partial exams. It also seeks to know the students' own evaluation of the teaching material used, and to evaluate how students have experienced the new system of assessment.

Methodology

Design

Qualitative study, by means of an anonymous survey, which analyses the perceptions and experiences of nursing students who had have taken the AGSE course during the 2019/20 academic year.

Study population

The population studied comprised all the students (140) enrolled in the AGSE course of the third year of the degree in nursing at the University of Huelva during the 2019/20 academic year.

Teaching intervention

Before class. Accordingly, with flipped method, students were able to access to lectures and videos online while at home before each class when the professor is available. A week before each face-to-face teaching session, various notes written *ad hoc* by the main teacher, as well as complementary materials (scientific articles, institutional documents, videos, etc.), were made available to the students (on the Moodle platform).

In class. The face-to-face sessions were oriented to active learning and dedicated to resolving students' questions about their out-of-class autonomous work (based on the notes and other materials provided). Also, were class sessions in small (learning) groups, dedicated to do practical sessions on several subjects (use of digital tools in management, communication skills, etc.).

After class. Digital ways of communication (email and Moodle forms) were always open to continue to work on the contents treated in class.

The assessment of the large groups was made through two partial exams (week 4 and week 9), comprised of test-type questions, which were carried out online through the Moodle platform, with students receiving their grades immediately after handing in their exams.

For a more detailed description of the module program see Annex 1.

Material and method

The research was conducted using qualitative research paradigm base on description of the perception as presented by participants. ⁽²¹⁾ This approach reveals several main themes that were codify and categorized in concepts and categories to reflect relevant components.

The data collection instrument was an anonymous self-completing survey that the students completed on-line. Students' satisfaction with traditional and flipped classroom formats was measured at the end of the course, measured as El-Banna et al. ⁽²²⁾ using 8 questions (related to the previous education of the students, the methodology employed, and the system of evaluation), and 10 open questions (on content covered, organization of teaching, and available resources) adopted from the standard university course evaluation. Demographic data were collected with 3 questions: sex, age and previous training in health.

Data analysis

The sociodemographic data and the responses to the dichotomous questions were put into an *Excel* sheet of the Microsoft Office software and analysed with the SPSS statistical software, version 23. For the descriptive analysis, the categorical variables have been shown in frequencies and percentages, and the quantitative ones in averages and standard deviations.

The answers to the open-ended questions were entered into an Excel spreadsheet. After a detailed reading by the research team, based on the manifest content of the questions, the existing relationships between the units of meaning were identified and grouped according to subcategories, categories, and themes, with their respective codes. This allowed the synthesis of the information through reduction and grouping of the data and facilitated the triangulation of the data, to obtain the maximum yield of the information.⁽²³⁾ Three main categories emerged: evaluation of the content covered, evaluation of the organization of the teaching, and evaluation of the available resources.

Ethical aspects

This study (code AGSE/SM 2020) had ethical approval from the Andalusian Coordinating Committee for Biomedical Research Ethics (April 28, 2020, Act 05/20).

Results

Sociodemographic data

A total of 112 students (80 % of the total of 140) answered the survey, of which 77.7 % (87) were women and 22.3 % (25) men. The average age was 22.47 ± 5.65 , with the youngest participant 19 years old and the oldest 57. Out of all of them, 37.5 % (42) had received previous training in health sciences.

Assessment of the teaching methodology and the evaluation system used

Some 87.5 % of the students said that studying the material before attending the classroom helped them acquire knowledge, 88.4 % indicated that they thought that this methodology would give them greater security in applying knowledge safely in practice, and 87.5 % considered that it had helped them to cope with the exam. In terms of satisfaction, 92 % showed themselves to be satisfied with the teaching methodology and 92.9 % with the assessment. Only 31.5 % had used it before, however 83 % would like to use it in more courses (Table 1).

Table 1. Descriptive results of the answers from the students

		<i>n</i>	%
Studying beforehand helps to acquire knowledge	NO	14	12.5
	YES	98	87.5
Security in applying knowledge	NO	13	11.6
	YES	99	88.4
Help in coping with exams	NO	14	12.5
	YES	98	87.5
Satisfied	NO	9	8
	YES	103	92
Would like in another course	NO	19	17
	YES	93	83
Previous use	NO	77	68.8
	YES	35	31.5
Content with assessment	NO	8	7.1
	YES	104	92.9

Source: Own elaboration (2022)

The comparison of these answers grouping students by sex did not show any statistically significant differences (Table 2) and nor were statistically significant differences found when comparing the replies of students with or without previous education in health sciences (Table 3). There were also no significant differences when comparing the average ages of the students with favourable and unfavourable responses to the methodology used (Table 4).

Table 2. Comparison of answers between men and women students

		Sex		<i>p</i>
		Men <i>n</i> (%)	Women <i>n</i> (%)	
Studying beforehand helps to acquire knowledge	NO	4 (28.6 %)	10 (71.4 %)	.548
	YES	21 (21.4 %)	77 (78.6 %)	
Security in applying knowledge	NO	1 (7.7 %)	12 (92.3 %)	.178
	YES	24 (24.2 %)	75 (75.8 %)	
Help in coping with exams	NO	3 (21.3 %)	11 (78.6 %)	.932
	YES	22 (22.4 %)	76 (77.6 %)	
Satisfied	NO	2 (22.2 %)	7 (77.8 %)	.994
	YES	23 (22.3 %)	80 (77.7 %)	
Would like in another course	NO	3 (15.8 %)	16 (84.2 %)	.453
	YES	22 (23.7 %)	71 (76.3 %)	
Previous use	NO	15 (19.5 %)	62 (80.5 %)	.284
	YES	10 (28.6 %)	25 (71.4 %)	
Content with assessment	NO	2 (25 %)	6 (75 %)	.850
	YES	23 (22.1 %)	81 (72.3 %)	

Source: Own elaboration (2022)

Table 3. Comparison of answers between students with and without previous education in health sciences

		Previous education in health sciences		<i>p</i>
		NO <i>n</i> (%)	SI <i>n</i> (%)	
Studying beforehand helps to acquire knowledge	NO	9 (64.3 %)	5 (35.7 %)	.883
	YES	61 (62.2 %)	37 (37.8 %)	
Security in applying knowledge	NO	9 (64.3 %)	5 (35.7 %)	.883
	YES	61 (62.2 %)	37 (37.8 %)	
Help in coping with exams	NO	9 (69.2 %)	4 (30.8 %)	.594
	YES	61 (61.6 %)	38 (38.4 %)	
Satisfied	NO	8 (57.1 %)	6 (42.9 %)	.658
	YES	62 (63.3 %)	36 (36.7 %)	
Would like in another course	NO	5 (55.6 %)	4 (44.4 %)	.654
	YES	65 (63.1 %)	38 (36.9 %)	
Previous use	NO	12 (63.2 %)	7 (36.8 %)	.948
	YES	58 (62.4 %)	35 (37.6 %)	
Content with assessment	NO	44 (57.1 %)	33 (42.9 %)	.82
	YES	26 (74.3 %)	9 (25.7 %)	

Source: Own elaboration (2022)

Table 4. Comparison of average age of those with favourable and unfavourable answers regarding the methodology used

		Average age±SD
Studying beforehand helps to acquire knowledge	NO	21.43±2.24
	YES	22.62±5.97
Security in applying knowledge	NO	21.23±1.79
	YES	22.63±5.96
Help in coping with exams	NO	21.50±1.62
	YES	22.61±6.00
Satisfied	NO	21.78±1.92
	YES	22.53±5.86
Would like in another course	NO	24.53±9.39
	YES	22.05±4.49
Previous use	NO	22.40±5.14
	YES	22.63±6.70
Content with assessment	NO	20.88±1.64
	YES	22.60±5.83

Source: Own elaboration (2022)

Assessment of the content covered, the organizing of teaching, and the available resources

Responses to the open questions were very homogenous, which expresses a consensus among the students about the fundamental aspects of the teaching.

Content covered

Being a subject that at first sight struck them as “*dense*”, “*boring*”, or “*complex*”, for being – in the opinion of the students – “*a long way from a nurse’s typical work*”, many students comment that thanks to the methodology used it has become more practical: “*The way of teaching the material has improved the subject.*”

Regarding the sequence of the topics, the students indicate that the second part of the curriculum (dedicated to the administrative process) is generally harder to understand, while the first part (the health system) was more accessible in general.

Asked if they would include or eliminate any of the topics, the students found no need to change the program, add or remove topics, although some did advise revising specific topics where the extent and complexity of the content could be slightly reduced.

Organization of the teaching

Regarding this question the answer was generally positive, with assessments including terms such as “*scheduled*”, “*organized*”, “*fulfilled the timetable*”, “*use of partial exams*”. The only thing they considered to be lacking, on the part of the University, was greater agility in contracting teachers to cover the leave of absence of one of the tenured teachers, a topic that was unconnected to the course itself.

In terms of the theoretical classes given in large groups, there was unanimity in assessing them positively, highlighting “*the dynamism*”, “*good organization of time and subject matter*”, “*practicality*”. “*Having to read the topics to ask questions rather obliges you to study, which helps you understand the class better.*” We found “*enjoyable*” and “*entertaining*” to be the most repeated adjectives, from which it seems that the approach of the theoretical courses has been successful and well received by the students.

Regarding the interview with the nurse manager, we found the most unanimous and positive opinions among all the questions asked: “*for me it has been like seeing the reality of everything we have talked about during the course, so I believe it was of great interest.*” The students consider that it has been “*very useful*”, “*necessary*”, “*has clarified abstract concepts*”, and give a very high evaluation of the ability of the interview to get bring the professional reality of nursing management closer to university classrooms.

Available resources

The technological media used (the Moodle platform and the computers and mobile telephones of the students) were evaluated as necessary, as they “*bring the social reality of the use of technologies in daily and work situations into the university context.*” The immediacy provided by the technology was particularly well rated: “*The use of computers for the exam and to be able to see the grade immediately has been good.*”

There were different opinions about the notes available in Moodle, more centered on the type of topic than the notes themselves: “*The pre-written notes were complete and understandable. The ones we had to do ourselves were more complex because we did not know what was important.*”

Other comments

The final question in the survey asked students to make any other comment they considered relevant for the assessment of the teaching and organization of this course. Of the responses, we would emphasize that the students focused on highlighting the good teaching practices and the assessment methodology used: *“I have particularly liked the method of assessment, as it is a simpler way to pass the course and I also think that one learns a lot more studying little by little than in one single exam at the end of the course”*; *“in terms of teaching, I have found the classes enjoyable and interesting, as in my opinion it is very useful to bring the read material to class and resolve questions about it.”*

We thus find that most of the suggestions made by the students are aimed at implementing the methodology of this course in others in the nursing degree, and to not cease from applying this method to AGSE in future academic years: *“It has been a very positive experience and I think that it should be taken into account in other courses, as the use of a methodology that obliges you to study the course every day has been very appropriate”*; *“I would invite the teacher to continue with continuous assessment and propose it for the other courses. This is the first time we have done it in my career, and it seems to me to be a good method”*; *“all the courses of nursing should follow this methodology. Better results would be achieved, and more learning would be obtained, which is what is most important. My congratulations to the teachers for carrying out this type of methodology.”*

Discussion and conclusion

This study aims to improve our knowledge about the students' perception of a teaching innovation based on the use of the flipped classroom and continuous assessment through partial exams.

Its main limitation is that it has only been possible to study the methodology-teacher-student interaction in a group of students of the same subject, so it would be convenient to carry out this same innovative experience with other groups of students and teachers in the same context—and in different contexts—and evaluate the differences.

Our findings are consistent with other studies (using quantitative, qualitative, and mixed methods) showing the satisfaction of the students with the flipped method and with the innovations introduced in the method of assessment. These evaluations by the students seems to be independent of sex, age, and previous education in health sciences.

It is necessary to highlight the high level of response to the survey by the students (80 %), which is in line with that registered in other studies of perceptions and satisfaction of students with various teaching and assessment methods in Spain ⁽²⁴⁾ and very much higher than those carried out in other contexts. ⁽²⁵⁻²⁶⁾

Different studies have investigated the satisfaction of university students with flipped method. The results are mixed, but in general a certain resistance to change among students is detected. Thus, Betihavas et al. ⁽²⁷⁾ conducted a systematic review that indicated favourable or neutral results in terms of the repercussion of this methodology in academic performance and more variable results in relation to satisfaction (this review did not include any study carried out in Spain). Bingen et al. ⁽²⁰⁾ also identified resistance from nursing students to the implementation of the practice of the flipped classroom.

However, as in other studies, ⁽²⁸⁾ a large percentage of our participants (92 %) showed themselves to be satisfied with the new methodology that was applied. This is consistent with recent wide literature review. ⁽²⁹⁾ Similarly, as in the study by Green & Schlairet ⁽³⁰⁾ with students of the same age, our students associated the flipped classroom with positive experiences. We think that these differences with the studies that indicate

unfavourable results in satisfaction can be attributed to the fact that 31.5 % of our students had already used it previously and to cultural factors (none of the studies mentioned above was carried out in Spain).

On the other hand, the most relevant outcome was that students expressed consistently that the flipped method used makes useful their learning increasing their security in applying knowledge (88.4 %), something that is very important in a non-usual subject as nursing management, first time treated by these students during the course evaluated. Other recent studies with nursing students⁽³¹⁾ and business computing students⁽³²⁾ also shows findings in this way, correlating students' satisfaction and perceived learning outcomes.

Joyce et al.⁽³³⁾ identified an improvement in the process of teaching in nursing using continuous assessment. In terms of the few studies of this matter carried out in our own area, our results confirm those of Fernández Ponce et al.,⁽³⁴⁾ in that continuous assessment encourages the involvement of students and increases their satisfaction. We also coincide with Rozas et al.⁽²⁴⁾ in the positive assessment made by students of the speed of the response of correction in relation to their online work. This same study, and that of Craft et al.,⁽³⁵⁾ as well as the meta-analysis of Liu et al.,⁽³⁶⁾ also concluded that active work by the students on the content before the exam makes them feel better prepared for it.

Most of the student participants in this study showed themselves to be satisfied with the teaching and assessment methodology used. The results obtained favour and encouraged the use of the methodology employed in future academic years and in other courses of the degree in nursing, especially within a framework of virtual teaching. Furthermore, they provide a motive to continue investigating not only the perceptions of the students but also, through intervention studies, the impact of this teaching and assessment methodology on the results of the teaching-learning process in university education in nursing.

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Annex 1.**Module schedule 2018/19 course (not flipped)**

	2018/19 course (not flipped)	Before class	In class	After class
Week 1	Seminar group: Topic 1. Introduction	Subject academic guide	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: Communication Skills 1	None	Educator lecture Role play, digital presentations design	Email/Moodle/Presential tutorial time
Week 2	Seminar group: Topic 2. What is a Health System?	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: Communication Skills 2	None	Educator lecture/Case studies	Email/Moodle/Presential tutorial time
Week 3	Seminar group: Topic 3. The Spanish National Health System	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: Communication Skills 3	None	Educator lecture/Students presentation	Email/Moodle/Presential tutorial time
Week 4	Seminar group: Topic 4. The Andalusian Public Health System	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: Understanding other Health Systems	None	Educator lecture Group problem-solving, video watching, discussion on the video content	Email/Moodle/Presential tutorial time
Week 5	Seminar group: Topic 5. Administrative process: Planification	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: Basic use of Excel	None	Educator lecture Case scenarios, practice problems	Email/Moodle/Presential tutorial time
Week 6	Seminar group: Topic 6. Administrative process: Organization	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: Advanced use of Excel	None	Educator lecture Case scenarios, practice problems	Email/Moodle/Presential tutorial time
Week 7	Seminar group: Topic 7. Administrative process: Leadership	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: FODA technic	None	Educator lecture Management situation simulation, Role play	Email/Moodle/Presential tutorial time
Week 8	Seminar group: Topic 8. Administrative process: Evaluation	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: Brainstorming	None	Educator lecture Youtube videos, case scenarios, peer discussion	Email/Moodle/Presential tutorial time
Week 9	Seminar group: Topic 9. Administrative process: Quality	None	Educator lecture	Stand-alone lectures Email/Moodle/ On-site tutorial time
	Learning group: How to make a evaluation form	None	Educator lecture/Case studies	Email/Moodle/Presential tutorial time
Week 16	Mandatory final write exam (in class) on topics 1-9: 45 multiple choice questions + 1 open paragraph question/2 hours			
Seminar group (70 students/2 hours) Learning group (15-18 students/3 hours)				

Module schedule 2019/20 course (flipped)

	2019/20 course (flipped)	Before class	In class	Partial exams	After class	
Week 1	Seminar group: Topic 1. Introduction	Subject academic guide	Educator lecture	Additional lectures and videos Post-class optional homework Email/Moodle/P resential tutorial time		
	Learning group: Communication Skills 1	Pre-recorded presentations Videos	Educator lecture Role play, digital presentations design			
Week 2	Seminar group: Topic 2. What is a Health System?	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture			
	Learning group: Communication Skills 2	Pre-recorded presentations Videos	Educator lecture/Case studies			
Week 3	Seminar group: Topic 3. The Spanish National Health System	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture			
	Learning group: Communication Skills 3	Self-assessment by rubrics	Educator lecture/Students presentation			
Week 4	Seminar group: Topic 4. The Andalusian Public Health System	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture			
	Learning group: Understanding other Health Systems	Online discussion	Educator lecture Group problem-solving, video watching, discussion on the video			
Week 5	Seminar group: Topic 5. Administrative process: Planification	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture			Partial exam 1 Online (by Moodle survey): 20 multiple choice questions on topics 1-4/18 minutes
	Learning group: Basic use of Excel	Short readings and videos	Educator lecture Case scenarios, practice problems			
Week 6	Seminar group: Topic 6. Administrative process: Organization	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture			
	Learning group: Advanced use of Excel	Short readings, pre-recorded presentations and videos	Educator lecture Case scenarios, practice problems			
Week 7	Seminar group: Topic 7. Administrative process: Leadership	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture			
	Learning group: FODA technic	Short videos	Educator lecture Management situation simulation, Role play			
Week 8	Seminar group: Topic 8. Administrative process: Evaluation	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture			
	Learning group: Brainstorming	Short videos	Educator lecture Youtube videos, case scenarios, peer discussion			
Week 9	Seminar group: Topic 9. Administrative process: Quality	Notes by teacher (Moodle-book) Peer-reviewed articles reading	Educator lecture	Partial exam 2 Online (by Moodle survey): 20 multiple choice questions on topics 5-9/18 minutes		
	Learning group: How to make a evaluation form	Online quizzes	Educator lecture/Case studies			
Week 16	Optional (if the student did not opted by partial exams) final exam: Online (by Moodle survey) 40 multiple choice questions on topics 1-9/36 minutes					
	Seminar group (70 students/2 hours) Learning group (15-18 students/3 hours)					