



Original Contribution

AN ANALYSIS OF STUDENT SATISFACTION WITH THE ORGANIZATION OF HYBRID TEACHING IN THE DEPARTMENT OF HEALTH ECONOMICS

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ABSTRACT

The PURPOSE of this research is for a survey to be conducted among the students of the Faculty of Public Health “Prof. Tzekomir Vodenicharov, MD, DSc” at Medical University – Sofia to study whether they are satisfied with how hybrid teaching has been organized in the Department of Health Economics. MATERIALS AND METHODS: An anonymous questionnaire survey was conducted. Out of all students who were invited to participate, 309 joined. The questionnaire was distributed through the Google Forms platform from June to October 2022. Chi-Quadrant analysis was used in order to find relationships between categorical variables.

RESULTS: the result shows a statistically significant connection between the students who are studying different specialties in the FPH and their satisfaction with the organization of the hybrid classes carried out by the Department ($p < 0.001$). From the participants’ responses, it is clear that the implementation of hybrid form of teaching (in-person classes for practical training and online classes for theoretical study) carried out through open educational resources and implementing innovative teaching methodology is preferred by the students.

CONCLUSION: The scientific evidence arising from our empirical research can aid in the development of guidelines for practical improvement of the hybrid teaching organization in disciplines taught in the Department. The conclusions drawn presuppose continuous research with proper methodologies applied.

Key words: teaching methods, theoretical knowledge, practical skills, innovations.

INTRODUCTION

Nowadays, education is the primary engine of social and economic growth, and science is the foundation of change of all actions crucial to social development (1). We’re currently living through a period of great economic and social changes. The educational needs of the people are also undergoing dynamic growth. The implementation of the necessary and reasonable educational reforms in Bulgaria is directly connected to the social transformation in the country and the world.

Currently, the problems connected to improving the quality and effectiveness of education, and reconstructing and modernizing the education system in such a way that it meets European standards and criteria are very topical. (3) In the last 2 years the spread of COVID-19 grew

drastically and studies prove that physical distancing has a significant impact on limiting its spread. Overall, traditional education was substituted with different forms on digital teaching and the associated teaching methodology. (4, 5)

The educational innovations aim to change the teaching culture and to cultivate an attractive learning environment, as well as to improve the effectiveness of the educational process. They can stimulate creative thinking and ideas in the teaching process. Digital skills and knowledge have become a priority for the every aspect of education. Educating on sustainable development is closely connected with the international discussions regarding sustainable development and with the UN’s Sustainable Development Goals (SDGs) program for 2030. Implementing the hybrid teaching method (in-person and online) by using open educational resources and applying innovative teaching methods is one of the goals listed in the Strategic Framework for the

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Development of Education, Training and Learning in the Republic of Bulgaria (2021 – 2030) (6).

As a result of this, there are students who have increased their participation in online classes and have reported that the quality of teaching has also improved (7).

Grading the quality of teaching from the perspective of the student is a difficult and subjective method. Teaching staff tend to expect receiving the acknowledgment and high evaluation from their students as fair critics (7). The students' opinions on a variety of questions regarding education are crucial to its improvement. They are also important for the development of the students themselves both as persons and as future professionals (8)

This project is tailored for the particular needs of the Faculty of Public Health “Prof. Tzekomir Vodenicharov, MD, DSc” at Medical University – Sofia as it aims to create qualified workers with a high level of professionalism, who would allow for a better access to appropriate, sustainable and high-quality healthcare.

The purpose of this research is to study the satisfaction of the students from the Faculty of Public Health “Prof. Tzekomir Vodenicharov, MD, DSc” at Medical University – Sofia with the way hybrid teaching has been organized in the Department of Health Economics.

MATERIAL AND METHODS

An anonymous questionnaire survey containing 31 questions was conducted. Out of the ones invited to fill out questionnaires, 309 students participated. They were from different specialties and have been taught disciplines from the Department. The sample is made up of the willing respondents but it is large enough in size (60.35% of all students who were sent questionnaires) to guarantee that the results are reliable. The questionnaire was distributed through the Google Forms platform from June to October 2022. Both descriptive and analytical statistical methods were used. The quantitative variables were presented as a median with an interquartile range (IQR, 25th and 75th percentile), meanwhile for fullness the normal range (minimum and maximum) was added as well; the qualitative variables were presented as absolute and relative frequencies. The shape of the distribution was checked with the Kolmogorov–Smirnov test. Chi-Quadrant analysis was used to find connections between categorical variables.

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Values of $p < 0,05$ were accepted as significant. The products of Microsoft Office and SPSS v.25 were used for the table and graphic processing.

RESULTS AND DISCUSSION

309 students participated in the questionnaire and the majority of them (89.3%) were made up of women. This can be explained by the fact that most of the students who are studying in the faculty are women. The median age of the respondents is 38 years (IQR 27–45), where the youngest is 18 and the oldest is 56.

Four out of every five respondents (79.6%) are working towards a Bachelor's Degree, while the other 20.4% are working towards a Master's. Half of the students (50.2%) are first-years, one third (31.4%) are second-years, and the rest (18.4%) are third-years. Most of the participants are students in the Nursing specialty (45.3%), followed by those in the Public Health and Health Management specialty (34%) and the Healthcare Management specialty. The participation of students in the Midwifery (1.9%), Strategic Management in the Pharmaceutical Industry (1.9%), Occupational Health (1%) and Medical Rehabilitation and Balneology (0.3%) programs is insubstantial. No students in the Physician Assistant and Kinesiotherapy specialties participated. The disciplines listed by respondents also correspond to the specialties of the students. Healthcare Economics is the one most frequently studied by them (42.4%), followed by Introduction to Economics (35.3%), Information Technology (27.8%), Primary medical care (26.5%), Accounting and Control (25.2%) and Financial Management in Healthcare (22.7%). The disciplines with a smaller portion of students are Emergency Medical Care Organization (18.4%), “Information Technology in Healthcare” (14.9%), Medical Statistics and Information Technology (13.9%), Financial Management, Financial Planning and Control in Healthcare (11%), Information Technology in the Management of Health Organizations (10.7%) and Digital Healthcare – Digital Monitoring in Real Time (10%). The portion of students studying First Aid (9.1%), Microeconomics of health organization (4.9%), as well as Finance and investment – Financial Analysis and Control of Management and Health service management – health tourism and marketing, which are both at 3.6%. The sum of the percentages is over 100 due to the fact that most of the students have taken more than one of the disciplines.

Table 1. Overview of the respondents

		n	%
Your gender:	Man	33	10,7%
	Woman	276	89,3%
Your age:	median (IQR); min-max	38 (27-45)	18-56
You're working towards the following academic degree:	Bachelor's	246	79,6%
	Master's	63	20,4%
In which year of your education are you?	First	155	50,2%
	Second	97	31,4%
	Third	57	18,4%
Your specialty:	Public Health and Health Management	105	34,0%
	Health Care Management	48	15,5%
	Nursery	140	45,3%
	Midwifery	6	1,9%
	Physician Assistant	0	0,0%
	Strategical Management in the Pharmaceutical Industry	6	1,9%
	Occupational Health	3	1,0%
	Medical Rehabilitation and Balneology	1	0,3%
	Kinesiotherapy	0	0,0%
Discipline (please check all disciplines you've been taught)	Healthcare Economics	131	42,4%
	Introduction to Economics	109	35,3%
	Information Technology	86	27,8%
	Primary medical care	82	26,5%
	Accounting and control	78	25,2%
	Financial Management in Healthcare	70	22,7%
	Emergency medical care organization	57	18,4%
	Information Technology in Healthcare	46	14,9%
	Medical Statistics and Information Technology	43	13,9%
	Financial management, financial planning and control in healthcare	34	11,0%
	Information Technology in the Management of Health Organizations.	33	10,7%
	Digital healthcare – digital monitoring in real time	31	10,0%
	First Aid	28	9,1%
	Microeconomics of health organization	15	4,9%
	Finance and investment –financial analysis and control of management	11	3,6%
	Health service management – health tourism and marketing	11	3,6%

The satisfaction of the students by the organisation and quality of hybrid teaching in the Department of Health Economics.

The students reported a relatively high level of satisfaction with the teaching methods which are used to present the material for different disciplines in online classes. When asked about whether they were satisfied with the methods in the disciplines, 74.4% answered with “yes, in all disciplines” answer, 22.3% with “yes, in some of the disciplines” and as little as 1.3% with “no, in no disciplines”. Similar responses can be observed for the “Are you satisfied with the

quality of material taught in online lectures?” question. 74.4% answered with “yes, in all disciplines” answer, 23.6% with “yes, in some of the disciplines” and as little as 1.9% with “no, in no disciplines”. A large portion of the respondents, 80.3%, reported they received information and help from their lecturers in the classrooms in all disciplines, while 18.1% - in some of the subjects and only 1.6% in none. 71.5% reported that in all disciplines the lecture material is published in the classroom and can be accessed by students at any time, 27.8% claim that's true

in some of the disciplines, while 0.6% report the material is available in none of the disciplines.

In all disciplines studied, the lecturers highlighted the key elements of the lecture during distance learning according to 78.3% of the students. In 20.4% that was the case only in some of the disciplines, and 1.3% report it didn't happen in any of the disciplines. In 80.3% of the participants, the material taught in class corresponded to the syllabus/the list of exam topics in all disciplines. In another 18.4%, this was the case only in some of the disciplines, and in 1.3 in none of the disciplines. 76.7% of the students reported that they were provided with enough appropriate resources (textbooks, workbooks, manuals, online resources) needed for acquiring the material taught in all of the disciplines they study. This happened only in some subjects according to 21.7% and in none according to 1.6%. When asked whether online quizzes were held to check whether the material taught was learned 47.9% reported it happening in all disciplines, another 35.6% claimed it happened only in some subject, and in 16.5% of the cases – in none of the disciplines. 65.4% of the students report that the criteria for grading were announced in advance in all disciplines, another 24.9% of the students' report that only happened in some disciplines, while 9.1% claim that this was done in none of the disciplines. 61.5% of the respondents report that in all disciplines students were made aware of the results of graded tests and assignments in due time, in 29.5% this happened only in some subjects and in 9.1% in none. During their

seminars, students were given individual tasks to complete in all disciplines in 40.8% of the cases, only in some disciplines in 49.2% of the cases, and in none of the disciplines in 10% of the cases.

Discussion of the assigned individual tasks occurred during the seminars for all disciplines in all studied disciplines for 53.1% of respondents, only in some subjects for 36.6%, and in none of the disciplines for 10.4%. Asking questions and expressing one's personal opinion was encouraged in all studied disciplines for 68.3% of the students, only in some of the subjects for 29.4%, while it didn't occur in any of the classes for 2.3%. The lecture material was taught so as to result in sustainable knowledge in all disciplines studied according to 71.2% of the students. Another 26.2% believe this happened only on some of their classes, while 2.6% believed that it didn't happen in any.

We studied the connections between the different attributes and the "Satisfaction with the organization and quality of hybrid teaching in the Department" with a method for studying the connections of two categorical variables χ^2 . The statistically significant results have the value of the level of significance of "Asymp. Sig." no less than the accepted error risk of 5% ($P < 0,05$). After the analysis conducted with the χ^2 method it turns out that there is an objective connection between the factor and the attribute of the students' specialties. The survey is carried out with the three specialties with the largest numbers of respondents - Public Health and Health Management, Health Care Management, and Nursing (Figure 1).

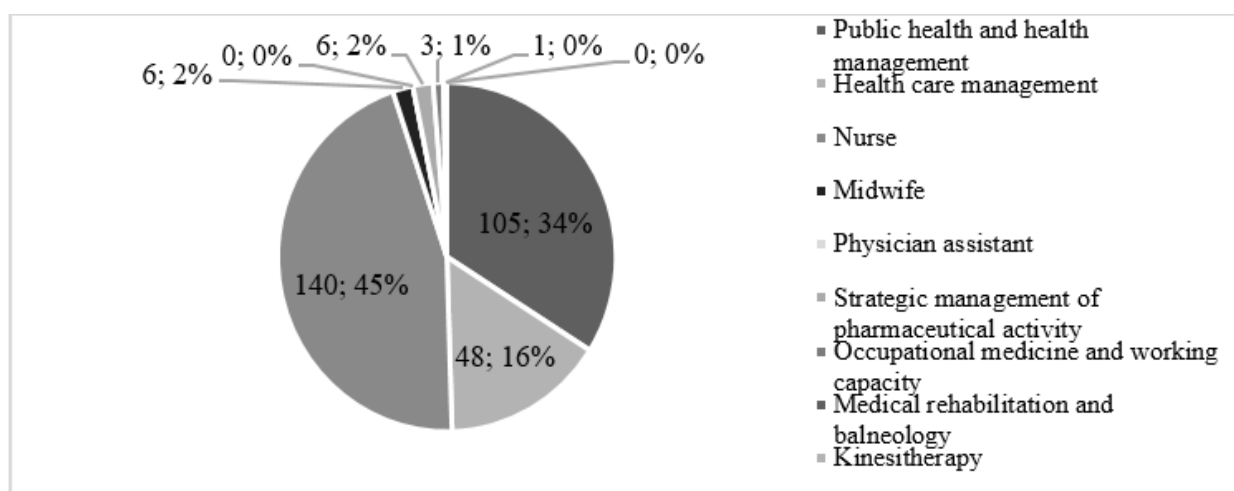


Figure 1. Distribution of the respondents based on their specialties

The first two specialties are from the Public Health field, while the Nursing specialty is from the Health Care field.

Table 2. Satisfaction with the organization and quality of hybrid teaching in the Department of health economics according to the specialty of the students.

		Your Specialty						P
		Public Health and Health Management		Health Care Management		Nursing		
		n	%	n	%	n	%	
Are you satisfied with the teaching methods used in online lectures for different disciplines	Yes, in all disciplines	94	89.5%	40	83.3%	88	62.9%	<0.001
	Yes, in some of the disciplines	10	9.5%	8	16.7%	49	35.0%	
	No, in no disciplines	1	1.0%	0	0.0%	3	2.1%	
Are you satisfied with the quality of material taught in online lectures?	Yes, in all disciplines	94	89.5%	35	72.9%	87	62.1%	<0.001
	Yes, in some of the disciplines	9	8.6%	13	27.1%	49	35.0%	
	No, in no disciplines	2	1.9%	0	0.0%	4	2.9%	
Are there online quizzes held to check whether the material taught has been learned?	Yes, in all disciplines	70	66.7%	29	60.4%	46	32.9%	<0.001
	Yes, in some of the disciplines	28	26.7%	13	27.1%	56	40.0%	
	No, in no disciplines	7	6.7%	6	12.5%	38	27.1%	
Are the grading criteria for the discipline announced in advance?	Yes, in all disciplines	79	75.2%	42	87.5%	75	53.6%	<0,001
	Yes, in some of the disciplines	22	21.0%	6	12.5%	45	32.1%	
	No, in no disciplines	4	3.8%	0	0.0%	20	14.3%	
Are you made aware of the results of graded tests and assignments in due time?	Yes, in all disciplines	83	79.0%	29	60.4%	69	49.3%	<0.001
	Yes, in some of the disciplines	16	15.2%	18	37.5%	51	36.4%	
	No, in no disciplines	6	5.7%	1	2.1%	20	14.3%	

On **Table 2** we can observe there is a tendency for the relative portion of the respondents 'satisfaction with the organization and quality of hybrid classes to shrink depending on their professional field. The most challenging and concerning issue in online education as a whole is providing a good standard of practical experience for the student with medical specialties. It is necessary to point out that in its core medical education is a model for acquiring practical experience. It is important that medical

specialists acquire not only scientific knowledge and learn of new technology, but also the skills and attitudes which are essential to developing proper practical work, being aware of social and health politics, and maintaining the quality standards of patient care (9). The majority of the respondents who reported being satisfied with the teaching methods in the online lectures for all disciplines were those from the Public Health and Health Management specialty at 89.5%. They were followed by the students from the Health

Care Management specialty with 83.3%, while those studying Nursing reported the lowest percentage. The respondents who chose “yes, in some of the disciplines” were 35.0% of those studying Nursing, followed by 16.7% of Health Care Management students, and 9.5% of Public Health and Health Management student. Nursing (NS) students reported they weren’t satisfied with any of their disciplines (2,1%). Only 1.0% of Public Health and Health Management (PHHM) answered with “no, in no disciplines”, while nobody from Health Care Management (HCM) gave this answer. When asked “Are you satisfied with the quality of material taught in online lectures?” 89.5% of the students in PHHM gave the “yes, in all disciplines”. This answer was also given by 72.9% of HCM students and 61.2% of NS students. NS students have the largest relative share of “yes in all the disciplines” responses (35.0%), followed by the student from the HCM specialty (27.1%) and PHHM at 8.6%. The answer “no, in no disciplines” was given by 2.9% of respondents from the NS specialty, while 1.9% of PHHM students and 0.0% of HCM students gave this answer.

There is a statistically significant connection when it comes to the question “Are there online quizzes held to check whether the material taught has been learned?” Here, as well in the two following questions, the tendency continues to stay the same when it comes to the professional field of the respondents. For this question, the answer “yes, in all disciplines” was given most frequently – 66.7% - by the students from the PHHM specialty, followed by those from the HCM specialty at 60.4% and the ones from the NS specialty at 32.9%. However, the NS respondents have the biggest portion of “yes in some of the disciplines” – 40%, followed with almost equal result by the HCM and PHHM specialties (24.1% and 26.7% respectively.) It can be noted that in this and the following two questions the participants from the Health Care professional field, who are studying Nursing have the largest percentage of the categorical “no in no disciplines” answered – 27.1%. They are followed by the students from the Public Health professional field – the HCM specialty at 27.1% and the PHHM specialty at 6.7%. The highest relative portion of the respondents who gave the “yes, in all disciplines” answer to the “Are the grading criteria for the discipline announced in advance?” question is 87.5% in the HCM students, followed by the students from the PHHM specialty at 75.2% and the students from NS at 53.6%. Yet again the students from this

specialty give the largest percentage of “yes, in some disciplines” and “no in no disciplines” answered at 32.1% and 14.3% respectively. 21.0% and 3.8% of the students from the PHHM specialty answered the question with “yes in some of the disciplines” and “no, in no disciplines” respectively, while 12.5% and 0.0% of the HCM students answered with “yes in some of the disciplines” and “no, in no disciplines” respectively. Grading is an integral part of medical education. Despite the widespread use of varied grading instruments, little is known when it comes to the student’s perceptions of the goals and desired consequences of grading. Knowing this is crucial to our interpreting its results. When asked “Are you made aware of the results of graded tests and assignments in due time?” 79.0% of students in the PHHM specialty answer with “yes, in all disciplines”. This answer was given by 60.4% of the respondents from the HCM specialty, and 49.3% of the NS students. “Yes, in some disciplines” was the answer given by 37.5% of students from the HCM specialty. The percentage of NS students who gave this answer is approximately the same, while it was given by 15.2% of PHHM specialty respondents. 14.3 of NS students have answered with “no, in no disciplines”. They are followed by 5.7% of the students from the PHHM specialty, who gave the same response and 2.1% of the respondents from the HCM specialty.

The questionnaire ended with an open question “What are your suggestions for optimizing the quality of our organization of hybrid education in the disciplines in the Department of Health Economics?” The responses make it clear that the participants prefer when the hybrid teaching form (in-person classes for acquiring practical skills and distance classes for acquiring theoretical knowledge) is implemented through the use of open resources and the application of innovative teaching methods. According to them, technology eases the teaching and learning processes by offering a large array of choices when it comes to the times, place, and pace of learning, as well as offering alternative educational methods: distance learning, learning at the workplace, at home, partially or fully attending classes. Providing more opportunities for use of information technology in the educational process assumes the presence of the skills needed for working with them.

CONCLUSION

Combining the positives of distance learning with traditional teaching and training methods in order

to improve the instruction of disciplines in the Department of Health Economics and of the quality of the students' experience is the best way and most practical way to maintain and even improve the quality of education. The scientific evidence arising from our empirical research can aid in the development of guidelines for practical improvement of the hybrid organization in disciplines taught in the Department. The conclusions drawn presuppose continuous research with proper methodologies applied.

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