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BRIEF COMMUNICATION

Virtual courses as spaces for the exchange of knowledge

Cursos virtuales como espacios para el intercambio de conocimiento

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ABSTRACT

Introduction: as technological development advances by leaps and bounds, virtual and interactive spaces occupy more and more time in man's daily life. The use of information and communication technologies are necessary tools to cope with the high flow of information that is handled.
Objective: to describe the impact of virtual pre-event courses belonging to CovidCien2021 on medical science students.
Methods: an observational, descriptive and cross-sectional study was carried out. The universe consisted of 53 students. We worked with the entire universe; no sampling technique was used. Variables: number of courses and participants per course, age, sex, academic year, career and polytomous variables. Descriptive and percentage statistics were used.
Results: 12 courses were given, with an average of 173 participants. The female sex stood out with 36 participants (67,92 %). The fourth academic year (19; 35,84 %) and the medical career (45; 84,90 %) stood out. The mean number of responses was 253,57; there was general satisfaction among the participants. The highest number of responses were in the category totally satisfied.
Conclusions: the development of courses through virtual spaces offers notable alternatives and benefits. It is presented as a renovating alternative in the face of complex situations that guarantees the continuity of teacher training. Its organization and implementation should not be schematized to a specific sector or subject of knowledge, but should be diversified, without losing sight of the presence as a key element.

Keywords: Covid-19; Courses; Long Distance Education; Information Technology.

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RESUMEN

Introducción: los espacios virtuales e interactivos ocupan, conforme el desarrollo tecnológico avanza a pasos agigantados, mayor tiempo en el quehacer diario del hombre. El uso de las tecnologías de la información y las comunicaciones constituyen herramientas necesarias para hacer frente al alto flujo de información que se maneja.
Objetivo: describir el impacto de los cursos pre-eventos virtuales pertenecientes a CovidCien2021 en estudiantes de las ciencias médicas.
Métodos: se realizó un estudio observacional, descriptivo y de corte trasversal. El universo se conformó por 53 estudiantes. Se trabajó con la totalidad del universo; no se empleó técnica de muestreo. Variables: cantidad de cursos y participantes por curso, edad, sexo, año académico, carrera y variables politómica. Se empeló la estadística descriptiva y porcentual.
Resultados: se impartieron 12 cursos; con una media de 173 participantes. Sobresalió el sexo femenino con 36 participantes (67,92 %). Destacó el cuarto año académico (19; 35,84 %) y la carrera de medicina (45; 84,90 %). La media de respuestas fue de 253,57; se evidenció satisfacción generalizada en los participantes. El mayor número de respuestas fueron en la categoría totalmente satisfecho.
Conclusiones: el desarrollo de cursos mediante espacios virtuales ofrece alternativas y beneficios notables. Se presenta como una alternativa renovadora ante situaciones complejas que garantiza la continuidad de la formación docente. Su organización y puesta en práctica no debe esquematizarse a un sector o temática específica del saber, sino que debe diversificarse; sin perder de vista la presencialidad como elemento primordial.

Palabras Clave: Covid-19; Cursos; Educación a Distancia; Tecnologías de la Información.

INTRODUCTION

Virtual and interactive spaces occupy, as technological development advances by leaps and bounds, more time in man's daily life. In this sense, the use of information and communication technologies (ICTs) are necessary tools to cope with the high flow of information that is handled.

The complex international health situation triggered by COVID-19 posed a challenge for teaching development in all areas of education. Pre-professional training in the field of medical sciences, with the transition to distance education (EaD), experienced a slowdown in the development of traditional scientific events. However, strategies were outlined to give continuity to the scientific-research development of students in the medical sciences.[1,2]

Interactive platforms such as Telegram and WhatsApp were powerful allies of the different Student Scientific Groups (GCE) of the Universities of Medical Sciences (UCM) for the development of virtual events. The National Student Scientific Conference on Internal Medicine 2021 Dr. Reinaldo Roca Goderich in Memorian, the First National Virtual Student Scientific Event on Surgery CIRUGRAM 2021, the First National Student Scientific Event on Emergencies, Emergencies and Acute Care PRIGRAV 2021 and the Medical Sciences Festivals of each university subscribed to the national health system stood out.[3] The number of participating students was higher than in the face-to-face editions.

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A common feature of these events was the development of pre-event courses. They comprise spaces for the generation and exchange of knowledge where students can assume the role of speaker with the advice of a professional. UCM Cienfuegos is considered a pioneer in the development of courses through virtual platforms. It is worth mentioning the COVIDSUR workshop that integrated more than 700 students from different universities in the country.[3]

Two recent proposals of the UCM of Cienfuegos were: the First Virtual Scientific Conference of COVID-19 in Cienfuegos, CovidCien2021 (https://covidcien2022.sld.cu/index.php/covidcien/2022) and the Virtual Symposium of attention to the serious and critical patient with COVID-19 (https://simpocovid2021.sld.cu/index.php/simpocovid/2021) developed through the Virtual Center of Health Conventions (CENCOMED).[4] Result of coordinated work between students with high research development, the General University Provincial Hospital Dr. Gustavo Aldereguía Lima and the Provincial Information Center of Cienfuegos. In both, pre-event courses and virtual conferences were given with interaction through the use of ICTs by speakers and participants. In this sense, CovidCien2021 stands out with the development of 12 pre-event courses.

The close link between man and technology has allowed for an increasing volume of information; medical training has benefited from this because there are more spaces available for the exchange of knowledge and results. However, it is necessary to analyze their impact and usefulness in the preparation of health professionals and students. For this reason, the authors of this paper set out to describe the impact of the virtual pre-event courses belonging to CovidCien2021 on students of the medical sciences.

METHODS

Type of study: an observational, descriptive and cross-sectional study was carried out on the impact of the virtual pre-event courses given as part of the First Virtual Scientific Conference on COVID-19 in Cienfuegos, CovidCien2021.

Universe and sample: the universe consisted of 53 students. We worked with the entire universe; no sampling technique was used. Inclusion criteria were defined as: being a student of medical sciences, having participated in at least one of the courses given and answering the questionnaire correctly. Students who partially answered the form were excluded.

Variables: related to the courses given (quantitative variables: number of courses and participants per course). Related to the survey participants (quantitative variables): age, sex (male or female), academic year (first year, second year, third year, fourth year or fifth year), career (Medicine, Stomatology and Bachelors and Technologies) and polytomous qualitative variables: organization of the pre-event courses, form of evaluation, writing, style and/or design of the lectures and scientific rigor, topics of the lectures given, dynamics used in each course, acquisition of the knowledge given and satisfaction with respect to the courses.

Data collection and statistical processing: data was collected through a questionnaire using the Google Forms platform at the end of the pre-event course cycle. The information was emptied in Microsoft Excel 2010. Descriptive and percentage statistics were used.

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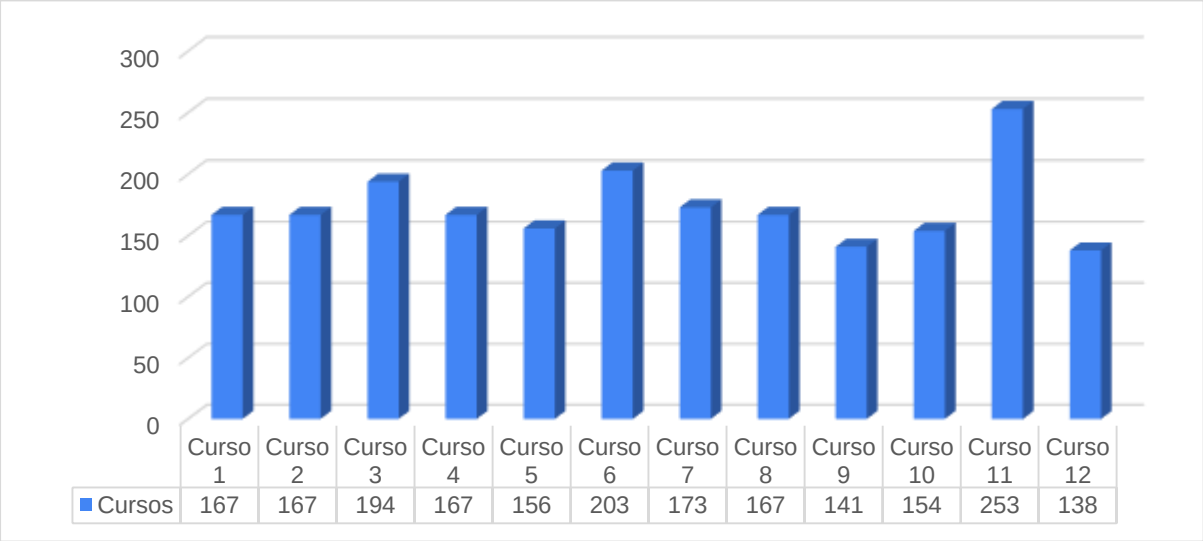
The Likert Scale (ordinal scale) was used for the analysis of the polytomous variables.[5] Seven items were used (equivalent to the polytomous variables studied); each with five possible answers to which a score was assigned: totally satisfied (5 points), satisfied (4 points), neutral (3 points), not very satisfied (2 points) and totally dissatisfied (1 point). The maximum number of points on the scale is 265; equivalent to 100 % (with a maximum of totally satisfied responses from all participants). If 100 % = 265, then the mean number of responses is between 0-25 % (0 - 66) overall dissatisfaction, 26-50 % (67 - 133) dissatisfaction in certain aspects, 51 - 70 % (134 - 199) neutral and 71 - 100 % (200 - 265) overall satisfaction.

Ethical standards: no interventional techniques were used during the research. No distinctive data were requested from the participants; their confidentiality was respected. The statutes of the Cuban ethical norms for research in health sciences and the II Declaration of Helsinki were complied with. The Ethics Committee approval was obtained. The information was used to broaden knowledge on the subject.

RESULTS

A total of 12 pre-event courses were delivered as part of the CovidCien2021 Day activities developed through the official **Telegram** channel(https://t.me/cursoscovidcien). Course 1: Post-COVID-19 Syndrome. Course 2: Pandemic Fatigue caused by COVID-19: How to face it? Course 3: Hematological alterations in patients with COVID-19. Course 4: Happy hypoxia, silent killer. Course 5: Association between periodontal disease and covid-19. Course 6: COVID-19 genetic variants. Course 7: Sexuality and COVID-19. Course 8: Use of acupuncture in dealing with Covid-19. Course 9: The use of convalescent plasma as a potential treatment in patients with COVID-19. Course 10: Pancreatic implications of Covid-19. Course 11: Use of ozone therapy in the treatment of COVID-19. Course 12: Covid-19 semiology: What do we know about it?

Course 11 stood out with 253 participants (12,16 %). The average number of participants was 173 (Graph 1).



Source: Google Forms form

Graph 1. Number of participants by course. CovidCien2021

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Age was in the range 21.7 + 2,8 (male sex) and 21,6 + 2.7 (female sex). The female sex stood out with 36 participants (67,92%). The fourth academic year (19; 35.84 %) and the medical career (45; 84.90 %) stood out (Table 1).

Table 1. General data of the participants

General data of participants		
Sex	**No**	**Percentage (%)**
Female	36	67,92
Male	17	32,07
Total	53	100
Academic year	**No**	**Percentage (%)**
First year	6	11,32
Second año	14	26,41
Thirdr año	6	11,32
Fourth año	19	35,84
Fifth año	8	15,09
Total	53	100
Career	**No**	**Percentage (%)**
Medicine	45	84,90
Stomatology	3	5,66
Bachelor's degree and technologies	5	9,43
Total	53	100

Source: Google Forms form

The highest number of responses were in the totally satisfied category; the items form of evaluation (49; 92,45 %) and topics of the lectures given (46; 86,79 %) stood out. The mean number of responses was 253,57; there was generalized satisfaction among the participants (Table 2).

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Table 2. Distribution according to state of satisfaction.

Ítem	Totally satisfied		Satisfied		Neutral		not very satisfied		totally dissatisfied		Score	
	No	%*	No	%*	No	%*	No	%*	No	%*	No	%**
organization of the pre-event courses	43	81,13	8	15,09	2	3,77	0	0	0	0	253	95,47
form of evaluation	49	92,45	2	3,77	2	3,77	0	0	0	0	259	97,73
writing, style and/or design of lectures and scientific rigor	42	79,24	6	11,32	5	9,43	0	0	0	0	249	93,96
wording, style and/or design of the lectures and scientific rigor	46	86,79	6	11,32	1	1,88	0	0	0	0	257	96,98
topics of the lectures given	43	81,13	6	11,32	3	5,66	1	1,88	0	0	250	94,33
dynamics employed in each course	44	83,01	6	11,32	0	0	2	3,77	1	1,88	251	94,71
acquisition of the knowledge imparted	44	83,01	9	16,98	0	0	0	0	0	0	256	96.60
satisfaction with respect to the courses	44	83.01	9	16.98	0	0	0	0	0	0	256	96.60

*with respect to the total number of respondents (n=53)
**with respect to the maximum score (265)
Source: Google Forms form

DISCUSSION

The use of virtual spaces for the development of pre-event courses, conferences and/or scientific events is projected as a multifaceted alternative in the research development of future professionals in the medical sciences. The broad spectrum of benefits ranges from the continuity of scientific cycles, greater participation of students to the direct involvement of editorial committees in the spaces where science emerges, develops and improves.

CovidCien2021 developed a total of 12 courses, with a weekly frequency (every Tuesday) from 7/9/2021 to 30/11/2021. The lectures and complementary materials were accessible to the participants whenever they wished to consult them. Each participant had 48 hours to fill out the final questionnaire (a prerequisite for obtaining the certificate of participation and a score of over 60 %); the questionnaire could only be completed once.

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The use of ICTs has revolutionized the traditional form of presentation and development ofscientific-research spaces; it is presented as a necessity rather than an alternative to be followed.[6] In this sense, the UCM of Cienfuegos promoted its use in all knowledge scenarios (teaching and research) according to San-Juan-Bosch et al.[7] A study conducted at the UCM of Matanzas by Díaz Cuéllar et al.[8] shows the usefulness and positive opinion of the use of ICTs among students of medical sciences.

The authors consider that the use of ICTs guarantees greater ease in the development of extracurricular activities. In this sense, it offers greater flexibility in the timetable for carrying out the proposals, so it does not interrupt the teaching process of the centers of higher studies, they can be directed by a reduced number of students and/or professionals, it does not impose limits on the participation of students and guarantees that the content taught is accessible to all the public when required. According to the authors' criteria, these aspects together with those expressed in the previous paragraph support the high number of participants in pre-event courses.

Hernandez-Garcia et al.[9] agrees with the present study regarding sex and outstanding career. It is valid to point out that the predominance of students belonging to the medical career corresponds to the fact that it is the professional training model that has the largest number of students in the centers of higher studies. Likewise, according to the authors' criteria, the predominance of fourth year students justifies the mean age values shown in this study.

Alvarado Chávez et al.[10] conducted a study on the development of courses or other teaching activities through the use of ICTs. It was found that most of the participants agreed with the use of ICTs. This result disagrees with the present study. The divergence between the studies may be due to the differences between the populations used and the methodologies used by the authors.

In their similar study, Barragan-Saldaña et al.[11] found that 39 % of the participants were satisfied with the acquisition and motivation for learning through the use of the virtual modality. This result is consistent with those presented by the authors of the present study.

Based on the results, the authors consider the use of virtual spaces for the development of future professionals to be very useful. In this sense, the GCE of each university, particularly in the UCM of Cienfuegos, should direct its research projects to the inclusion of these spaces; without abandoning the face-to-face character and the rigorousness that this implies.

This opens the way to a new work scenario in which face-to-face and virtuality must work in a coordinated and harmonious manner; in this sense, the former constitutes the guiding principle and the latter the necessary renovating and driving element that allows greater participation and involvement of students, especially in the initial years, in the research and high social impact tasks developed by each university.

The small number of participants is stated as a limitation of the study. This aspect will be resolved in future research.

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CONCLUSIONS

The development of courses through virtual spaces offered remarkable alternatives and benefits. It was presented as a renovating alternative in the face of complex situations that guarantees the continuity of teacher training. Its organization and implementation should not be schematized to a specific sector or subject of knowledge, but should be diversified, without losing sight of the presentiality as an essential element.

Declaration of Conflict of Interest
The authors declare that they have no conflict of interest

Declaration of Authorship
LEJF: Conceptualization, Data curation, Formal data analysis, Research, Methodology, Project management, Visualization, Writing - proofreading and editing.
CD de la R, RSCR: Data curation, Formal data analysis, Project management, Visualization, Writing - proofreading and editing

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Additional material
Additional material to this article can be consulted in its electronic version available at: www.revcmpinar.sld.cu/index.php/publicaciones/rt/suppFiles/5582

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