

ORIGINAL ARTICLE

The Effectiveness of Online Learning for the Cognitive Domain of Course Learning Outcomes from the Students' Point of View

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ABSTRACT

Aim: To explore the students' opinion about the learning of the cognitive domain of the course learning outcomes studied through online learning methodology.

Methods: A structured questionnaire containing eleven questions regarding the cognitive domain of course learning outcomes has been distributed among the willing participants who are studying in the college of medicine. The completely filled questionnaires were evaluated.

Results: Two hundreds and one (201) completely filled questionnaire were received from the medical students which included one hundred and fifteen (115) female students (57.2%) and 86 male students (42.8%). The main benefits of the online learning in the opinion of the students are that the Online teaching enhanced their capability to search for the other available teaching material on the internet, helped them in learning independently and reduced their preparation time along with travelling fatigue. The opinion expressed by the students regarding the understanding of difficult concepts is that it is better in face to face classes as compared to online lecture.

Conclusion: The Online learning is an effective teaching technique in the current digital era but with some limitations as students feel difficulty in understanding the difficult concepts in medicine through online learning.

Keywords: Online Learning, Cognitive Domain. Learning Outcome

INTRODUCTION

The effective learning of professional skills has got paramount importance in the development of an individual as well as in the entire community. There are three main domains which comprised the process of learning. These domains are cognitive, psychomotor and affective. The cognitive domain involves the process of learning associated with skill of thinking. The cognitive learning process is comprised six levels. These levels include knowledge, comprehension, application, analysis, synthesis and evaluation.

The first level of learning is knowledge in which the learner learns the definition of the terms. The comprehension is the second level of learning. In this level, the learner is able to work on the assigned task and example it. The student recognizes and applies the methods to find the solutions of the problem in the third level which is designated as Application. The fourth level of the cognitive domain is analysis, in which the learner is able to explain that why would the process of the solution worked. The synthesis is the fifth level of the cognitive domain, in which the learner is capable of combing the part of the process in a novel and effective way. The evaluation is the sixth level of the cognitive domain. At this stage, the learner is able to synthesize variety of ways for the solution of the problems and can select the appropriate method to resolve the issue¹.

To achieve the excellence in the learning process, the application of effective strategies for the effective teaching and learning process may also play a vital role. One of the

important factor in the learning process is the teachers' qualities². But multiple other factors also play an important role in the learning. The continuous assessment and evaluation of the different techniques and tool applied in the process of learning would lead to find out the additional ways and means for the improvement in this regards. In the evaluation of teaching strategies, a feedback from the learners may also provide very valuable information as the students are a very vital component of the teaching and learning process. The good feedback practices help in the improvement of teaching strategies³⁻⁴.

After the declaration of COVID- 19 as pandemic by the WHO in 2020, many activities related to human to human interaction were ceased which included the shutdown of institutions⁵. Due to this emergency situation, many institutions shifted to the online learning⁶. In medical institution, online teaching was started in order to reduce the exposure of undergraduate students of medicine to the coronavirus.

In the present scenario of COVID-19 pandemic, online learning tool is being practiced quite commonly all over the world. It would be appropriate to listen to the students' opinion regarding the online learning with respect to the cognitive domain of the course learning outcomes.

The main aim and objective of the present study is to find out the perception of students regarding the online learning particularly about the cognitive domain of the course learning outcomes.

MATERIALS AND METHODS

The research project has been submitted to the institutional research ethical committee and after the approval, the questionnaire has been distributed among the willing

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students who are studying in 1st & 2nd year in the Central Park Medical College, Lahore – Pakistan. The structured pro-forma contained eleven questions. The survey was conducted during the month of August 2021. The pro-forma did not include any questions related to the personal identification such as name, phone number and Email address. No identification of the any participant can be traced from the collected data. The completely filled questionnaires were included for the data analysis.

RESULTS

A total of Two hundreds and one (201) willing participants who are students of academic phase (1st year & 2nd year) in the Central Park Medical College, Lahore - Pakistan had participated in the study. There were one hundred and

fifteen (105) female students (57.2%) and 86 male students (42.8%). Majority of the students have the opinion that the online teaching enhanced their capability to search for the other available teaching material on the internet and helped them in learning independently. Most of the students think that the online teaching reduced their preparation time (changing clothes / shoes etc.) and travelling fatigue which helped them in increasing their study time. A significant number of students disagree the notion that the understanding of difficult concepts is better in online lecture as compared to actual classroom teaching. Similarly the majority of students do not think that the online teaching enhanced their thinking ability and improved their examination scores. The results have been shown in the table

Table: The perception of medical students regarding online learning

Question	Gender	Score	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Total		Total score
			N	%	N	%	N	%	N	%	N	%	N	%	
Understanding of difficult concepts is better in online lecture as compared actual classroom	F	2.1	41	35.65	39	33.91	22	19.13	8	6.96	5	4.35	115	100	2
	M	2.0	41	47.67	18	20.93	14	16.28	8	9.30	5	5.81	86	100	
Sitting alone on computer and listening to the Lecture improves my concentration in the lecture	F	3.0	15	13.04	30	26.09	28	24.35	26	22.61	17	14.78	116	101	3.2
	M	2.8	18	20.93	18	20.93	21	24.42	19	22.09	10	11.63	86	100	
Sitting alone on computer and listening to the Lecture decreases my nervousness as compared to the physical presence in the classroom	F	3.2	17	14.78	19	16.52	24	20.87	35	30.43	20	17.39	115	100	3.3
	M	3.5	9	10.47	12	13.95	13	15.12	34	39.53	18	20.93	86	100	
Online teaching reduces my preparation time (changing clothes / shoes etc.)	F	3.7	6	5.22	13	11.30	18	15.65	55	47.83	23	20.00	115	100	3.6
	M	3.7	6	6.98	8	9.30	13	15.12	36	41.86	23	26.74	86	100	
Online lectures reduces my travelling fatigue which helps in increasing my study time	F	3.6	7	6.09	14	12.17	27	23.48	42	36.52	25	21.74	115	100	3.6
	M	3.7	8	9.30	10	11.63	9	10.47	33	38.37	26	30.23	86	100	
Online class reduces my fear in asking the questions as compared to the physical presence in the classroom.	F	3.0	14	12.17	27	23.48	31	26.96	26	22.61	17	14.78	115	100	3.1
	M	3.0	12	13.95	15	17.44	30	34.88	16	18.60	13	15.12	86	100	
Online teaching has improved my computer skills	F	3.2	11	9.57	13	11.30	43	37.39	34	29.57	14	12.17	115	100	3.2
	M	3	12	13.95	18	20.93	23	26.74	24	27.91	9	10.47	86	100	
Online teaching enhanced my capability to search for the other available teaching material on the internet	F	3.9	2	1.74	9	7.83	18	15.65	57	49.57	29	25.22	115	100	3.9
	M	3.6	7	8.14	9	10.47	17	19.77	35	40.70	18	20.93	86	100	
Online teaching improved my exam. scores	F	2.5	16	13.91	42	36.52	40	34.78	13	11.30	4	3.48	115	100	2.6
	M	2.9	18	20.93	17	19.77	20	23.26	20	23.26	11	12.79	86	100	
Online lectures enhanced my thinking ability.	F	2.7	16	13.91	32	27.83	41	35.65	20	17.39	6	5.22	115	100	2.7
	M	2.6	16	18.60	27	31.40	22	25.58	14	16.28	7	8.14	86	100	
Online lectures helped me in learning independently	F	3.4	9	7.83	20	17.39	27	23.48	38	33.04	21	18.26	115	100	3.5
	M	3.5	9	10.47	12	13.95	12	13.95	35	40.70	18	20.93	86	100	

DISCUSSION

In the present study, according to the students' point of view, the online learning has improved their capability to explore for the availability of teaching material on the internet. The majority of students also expressed the impression that the online teaching has helped them in learning independently. A significant number of students think that online teaching reduced their preparation time and travelling fatigue.

The saving of the travelling time and provision of the flexibility has been reported as main advantage of the

online teaching in a large study in which students from 39 UK medical school participated⁷.

The study conducted in Poland regarding the perception of medical students about online learning revealed that the majority of the students think the key advantage of the online learning is staying at home with continuous availability of online course material. While absence of patient interaction and technical issues of the information technology were the limiting factors of the online learning in this study⁸.

In the present study, most of the students think that the understanding of difficult concepts is better in actual classroom (face to face) as compared to online lecturing which is contrary to the finding of the study conducted by Bączek M et al, in which they do not find any statistical difference in the students opinion regarding the gaining of knowledge in face to face verses online teaching⁸.

In another study, most of the students expressed their positive opinion about the use of online teaching as an alternative to the classical teaching method in the period of COVID -19 pandemic and students found electronic learning more interactive⁹.

A study published by Uma G et al revealed that majority of the students (55.7%) prefer online learning over face to face teaching¹⁰.

With the advancement in the digital communication, the distant learning has become quite possible. The e learning or electronic coaching may yield healthy impact on the process of medical education¹¹. A study published by Waseem T et al revealed that a significant number of students think that the use of social networking sites has facilitated them in the conceptual understanding¹².

The continuous evaluation of the teaching methods and techniques in the light of the learners' feedback has got vital importance for the further improvement of current methods as well as for the development of new strategies. Further studies regarding the students' and teachers' perception about the psychomotor and effector domains of learning by online teaching method are suggested along with the challenges faced by them during the process of online learning and teaching.

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