

Level of satisfaction in online teaching programs among medical teachers/supervisors during COVID-19 pandemic

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Abstract

Background The Covid-19 pandemic has triggered a worldwide health catastrophe that has had a significant effect on all of us. During this time, we had to go into quarantine. When all the educational institutions got closed, the students and teachers adopted the online way of learning and teaching.

Objective The goal of our study was to find out the level of satisfaction in online teaching programs among medical teachers/supervisors during Covid-19 pandemic.

Methods This was descriptive cross-sectional study based on online questionnaire. This study was conducted for duration of six months from July 2020 to December 2020 by including 175 faculty members from different medical and dental colleges in Pakistan. A self-administered questionnaire was circulated via Email, Whatsapp groups and other social media platforms. The variables were represented in frequencies and percentages.

Results There were 80 (45.71%) male and 95 (54.29%) female faculty members. According to the designation majority of the respondent 47 (26.86%) were assistant professors. According to the teaching experience more faculty members 44 (25.14%) had teaching experience of 6-10 years while only 5 (2.86%) faculty members had more than 30 years of teaching experience. Majority of the respondents 69 (39.43%) used Webinars for online teaching followed by Zoom 50 (28.57%). Majority of the faculty members were confident, satisfied and felt comfortable with the online education.

Conclusion The majorities of medical teachers think that e-learning is a great complement to prevent academic loss and satisfied with the system but it cannot replace in-person education. Studies with greater sample size would further give insight into the teacher's satisfaction regarding online teaching programs.

Key words

Satisfaction, Online teaching programs, Medical teachers, Covid-19 pandemic.

Introduction

The current credible challenge to the globe is in form of Corona virus disease-2019 which is simply called as Covid-19.¹ The Covid-19 epidemic was considered as pneumonia with

new causative agent that occurred in the Chinese

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city of Wuhan, in late December 2019.² Respiratory system of the human is the main target of the virus.³ In Pakistan, first case of Covid-19 was confirmed by the Ministry of Health on 26 February, 2020 in Karachi while second case in Islamabad on the same day.⁴ The Covid-19 pandemic has triggered a worldwide health catastrophe that has had a significant effect on all of us.⁵ During this time, we had to go into lockdown.⁶ When all the educational institutions were closed, the students and teachers adopted the online way of learning and teaching. Use of the Internet for teaching; however arises new concerns which are not present in face to face learning. The most important is the level of the satisfaction of the teachers involved in online teaching.⁷ Not much research has been done to evaluate the satisfaction level of teachers in online learning environments. Jered Borupand Mark Stevens from George Mason University, USA, examined online school instructors and said that teachers enjoyed having flexibility in when, where, and how they taught and they were most satisfied when provided with time to interact individually with students.⁸ Educational landscape has rapidly changed as online course enrollments grew and there was demand for experienced online teachers.⁹ A study conducted by Kozma *et. al.* in 1998 found that 26 of 28 online teachers at a virtual high school were either very satisfied or somewhat satisfied with teaching online.¹⁰ However, another study in 2012 also analyzed virtual high school teachers and found they were generally unsatisfied with online teaching.¹¹ In 2009, a study conducted by Archambault and Crippen found that teacher satisfaction was somewhere in between these two extremes.¹² So there is need to further research in involvement of teachers in online teaching programs and their satisfaction level. In comparison to wealthy nations, developing countries have a number of difficulties when it comes to implementing online education,

including inadequate internet connectivity, lack of understanding about how to utilize information and communication technology, and poor content creation.¹³ Many educators, especially at the higher education level in developing nations, are still unfamiliar with the supply of material such as video and sophisticated applications.¹⁴⁻¹⁶

This study was therefore conducted to observe medical teacher's satisfaction/dissatisfaction in online teaching experience in Pakistan. This study will help in the observations about the way; the corona pandemic is impacting medical teaching and the use of information technology (IT). This research will be insightful to those who will be involved in online teaching programs in future.

Materials and methods

This was descriptive cross-sectional study based on online survey/questionnaire. This study was conducted for duration of six months from July 2020 to December 2020. Approval was taken from the ethical review board of the institution. Non probability convenient sampling (snow ball technique) was used. The study population was the faculty members of medical and dental colleges in Pakistan. The inclusion criteria in our study was the teaching faculty members of the medical and dental colleges in Pakistan of both the genders who were involved in online teaching and were willing to take part in the online survey. The faculty members of the medical and dental colleges in Pakistan who were not involved in online teaching and those who refused to take part in online survey were excluded. A self-administered questionnaire was used to gather data for the study. The questionnaire was divided into two sections: quantitative and qualitative. In the first portion, gender, age, academic rank, years of teaching experience, frequency of online teaching, the

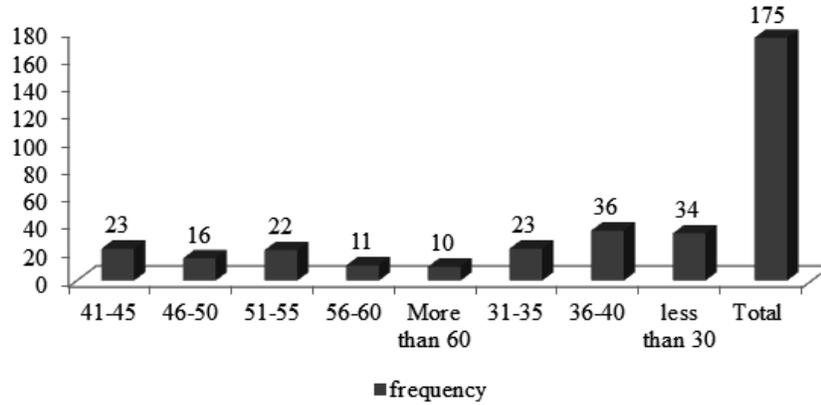


Figure 1 Age wise distribution of respondents.

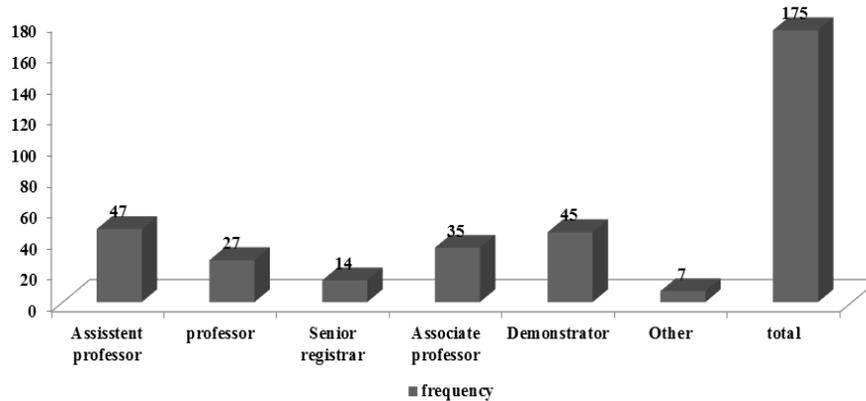


Figure 2 Distribution of respondent based on designation.

level of students to which they were teaching and application used were asked. The second portion was qualitative portion that includes Likert-type questions about faculty members' perceptions of online teaching, as well as associated statements that allow faculty members to indicate their degrees of agreement or disagreement. For each answer, the tool utilizes a five-point Likert response scale. Strongly agree, Agree, Neutral, Disagree, and Strongly Disagree are the numbers utilized. A pilot study was performed to determine the validity of the questioner and if it would be able to answer the research questions. All the corrections were made in the questionnaire. The study proforma was circulated via Email, Whatsapp groups and other social media platforms. It was shared with the teaching faculty of our institution and of other institutions by snow ball technique. The questions were

simple and close ended. All the respondents were voluntarily and free to participate in the study and it was his/her choice to fill it or leave it incomplete and do not submit. The participation consent was considered when the participant fills out the survey form and submits. The Google form was transformed into excel sheet and data was analyzed by SPSS version 20. Variables of the study were gender, age, teaching experience and the parameters asked in the proforma. The variables were represented in frequencies and percentages.

Results

In this study, a total of 175 responses were obtained from the medical faculty members. There were 80 (45.71%) male and 95 (54.29%) female faculty members. Age wise distribution and designations of the respondents are shown in **Figure 1** and **Figure 2** respectively.

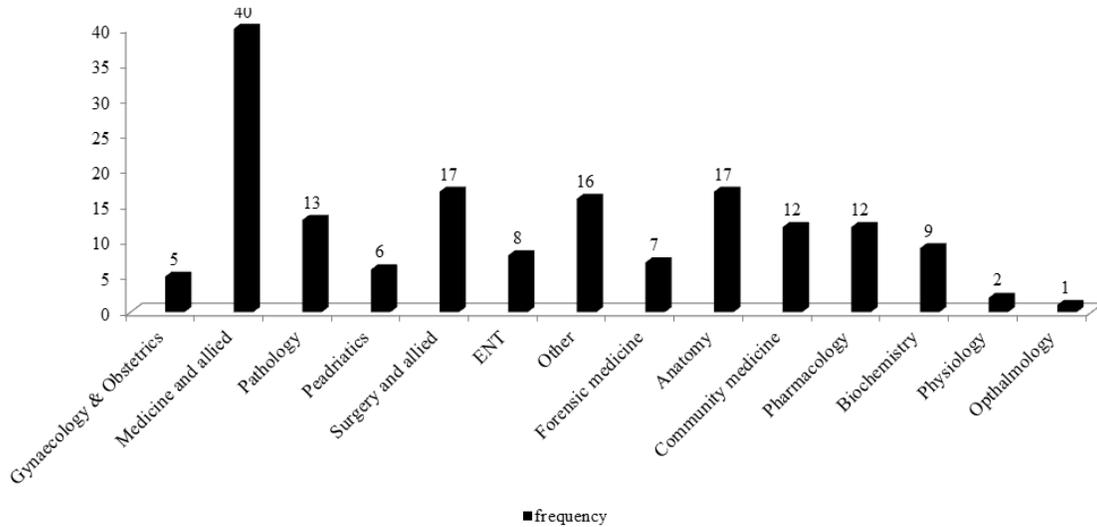


Figure 3 Respondent distribution based on subject specialty

Table 1 Distribution of responses based on application used for online classes.

Application used	Frequency	Percentage
Google	14	8
Whatsapp	8	4.57
Zoom	50	28.57
Webinar	69	39.43
Moodle	25	14.29
Microsoft	7	4
Skype	1	0.57
other	1	0.57

Table 2 Responses distribution on the basis of frequency of online classes

Frequency of online classes	Frequency	Percentage
More frequently than once in a week	79	45.14
Once in a week	63	36
Once in two weeks	17	9.71
Once in three weeks	3	1.71
Once in a month	6	3.42
Less than once in a month	7	4

Table 3 Distribution of response to student taking online classes.

Student taking online classes	Frequency	Percentage
less than 25%	5	2.86
25-50%	52	29.71
50-75%	22	12.57
More than 75%	96	54.86

On the basis of subject of specialty, majority 40

(22.86%) were from Medicine and allied (**Figure 3**).

According to the teaching experience of the faculty members 61 (34.8%) have teaching experience of less than 5 years, 44 (25.14%) have teaching experience of 6-10 years followed by 11-15 years 31 (17.71%), 21-25 years 14 (8%), 16-20 years 13 (7.43%), 26-30 years 7 (4%) while only 5 (2.86%) faculty members have more than 30 years teaching experience. Most of the respondents 158 (90.3%) were from Punjab. Talking about the working sector of the respondents, 129 (73.7%) out of 175 respondents were from the private sector and 41 (23%) from the government sector. Most respondents 102 (58.29%) were teaching to undergraduate level, followed by 65 (37.14%) to both undergraduate and post graduate levels and only 8 (4.57%) to postgraduate level only.

Majority of the respondents 69 (39.43%) used Webinars for online teaching followed by Zoom 50 (28.57%) and Moodle 25 (14.29%) and rest are shown in **Table 1**. Frequency of the faculty members' online classes is shown in **Table 2**. Frequency of number of students attending online classes is shown in **Table 3**

Table 4 Responses of faculty members to Likert-type question.

Questions	Responses from faculty members				
	Agree	Strongly agree	Neutral	Disagree	Strongly disagree
You feel comfortable interacting online with the students	71 (40.57%)	10 (5.71%)	50 (28.57%)	30 (17.14%)	14 (8%)
You feel confident with gadgets while running these online teaching programs	93 (53.14%)	21 (12%)	34 (19.43%)	23 (13.14%)	4 (2.29%)
You are satisfied with audiovisual quality	88 (50.29%)	10(5.71%)	45 (25.71%)	26 (14.86%)	6 (3.43%)
Your online classrooms are distraction free	78 (44.57%)	12 (86%6)	33 (18.86%)	43 (24.57%)	9 (5.14%)
You feel confident that class will be carried out timely without any technical errors	60 (34.29%)	3 (1.71%)	53 (30.29%)	50(28.57%)	9(5.14%)
You face technical problems related to internet or system compatibility during online teaching	90 (51.43%)	21(12%)	31 (17.71%)	30 (17.14%)	3 (1.71%)
You have timely and appropriate institutional administrative support while conducting these online classes	94 (53.71%)	25 (14.29%)	27 (15.43%)	19 (10.86%)	10 (5.71%)
Online teaching program has altered your previously laid down teaching calendar/assignments	103 (58.86%)	25 (14.29%)	26 (14.86%)	19(10.86%)	2 (1.14%)
Computer mediated communication is an excellent medium for distant learning	89 (50.86%)	16 (9.14%)	39 (22.29%)	26(14.86%)	5 (2.86%)
Assignments were clearly communicated to the students	115 (65.71%)	17 (9.71%)	33 (18.86%)	9 (5.14%)	1 (0.57%)
You promptly respond to the queries of the students in the response system	108 (61.71%)	26 (14.86%)	30 (17.14%)	8 (4.57%)	3 (1.71%)
Online teaching was a great learning opportunity for you	96 (54.86%)	31 (17.71%)	28 (16%)	16 (9.14%)	4 (2.29%)
You will engage in online teaching in future	90 (51.43%)	25 (14.29%)	32 (18.29%)	25(14.29%)	3(1.71%)
Do you have previous online teaching experience before Pandemic	Yes 34 (19.43)		No 141 (80.57%)		
Do you have any form of formal training ever in conducting online classes	Yes 59 (33.71%)		No 116 (66.29%)		

with 96 (54.86%) faculty members responded that more than 75% of their students attend the online classes during the pandemic.

The answers of the faculty members to Likert type questions, addressing the perceptions of online courses by faculty members and associated statements through which a faculty member may indicate their agreement or disagreement are provided in **Table 4**.

Discussion

Both instructors and students choose online

education to continue their academic career, especially in these times when communication, education, entertainment, and information are heavily reliant on web-based platforms.¹⁷ More than two billion students worldwide are suffering as a result of educational institution closures; nevertheless, shutting them was a successful approach for reducing Covid-19 transmission among children and adolescents.¹⁸ As Covid-19 became a pandemic and lockdowns were implemented throughout the globe this year, most academic institutions switched to using online learning as an alternative during

this time to protect the safety of students and staff.¹⁹ This survey was carried out to find out the level of satisfaction in online teaching programs among medical teachers/ supervisors during Covid-19 pandemic. In our study faculty members are pleased with the institutional amenities, although they stressed that relevant training is needed for efficient use of the e-system. Ferrara *et al.* recently published a research that emphasized the effect of online learning on ophthalmology training during Covid-19 and they claimed that Covid-19 related limitations had a catastrophic effect on graduate medical students.²⁰ In our study majority of the participants responded that computer mediated communication is an excellent medium for distant learning. According to a research performed in China by Chang and colleagues, educators are not yet ready to accept the online education system. In the study, they revealed that some academic staff had little computer technology expertise and preferred face-to-face interactions with students.²¹ There was no gender difference in teacher response, according to this research. The dominance of male instructors over female teachers is not supported by this study. Our results refute the notion that technology is a male-dominated field.^{22,23} One of the factors that are thought to influence faculty members' attitudes toward e-learning is their age and teaching experience. In our study majority of the respondents were demonstrators followed by assistant professors; most of them might have less than 10 years of teaching experience. Our findings support prior research, showing that faculty members' age is related to their overall impression of e-learning during COVID-19.²⁴ Several researchers have found similar results. According to a research conducted in Kuwait University, instructors aged 45 years and above are less likely to acquire new sophisticated technological tools and do not favor e-teaching.²⁴ Additionally, this finding agrees with Fischer *et al.*, who found that elderly people face

many problems in using the technology; like unfamiliarity with it, unwillingness to ask and problems of trust in technology and privacy issues. This make difficult for them to develop the required abilities.²⁵ In our study, majority of the members agreed that online teaching was a great learning opportunity for faculty members. The findings of earlier studies are consistent with our findings.^{26,27} Our study shows that the majority of the respondent faced technical problems during online teaching. When we looked into the barriers to e-learning as reported by our study, we revealed that insufficient/unstable internet access and technical issues were the biggest obstacles to overcome when it came to adapting to e-learning. Similar findings were reported by Poon *et al.* in a previous study that their participants at several local universities were uneasy with e-learning as a teaching tool, and they ascribed this to a variety of factors including technical issues, complicated conversations and discussions with students, a lack of adequate internet access, and personal learning preferences.²⁸ In line with these results, Nguyen *et al.* in his recent study found that the major barriers to e-learning are centered on many stakeholder views on infrastructures, technological development, administration, assistance, implementation, and pedagogical elements.²⁹ The application used for online teaching was webinars followed by Zoom and Moodle in our research. According to a previous research,³⁰ Zoom was the most popular tool for online education, followed by Moodle. The choice of application used differs from the previous studies because the choice of selection of specific tool might lie with the institution rather than the faculty member. Zoom was originally designed as a corporate meeting platform, but it has grown in popularity as a tool for academics. Moodle, on the other hand, is a widely used platform that is said to provide the innovation of evaluating a specific audience, the benefit of teaching clinical skills, a large number

of interactions, and improved tools.^{31,32}

This survey research does have certain limitations like small sample size that may not reflect the whole medical faculty. This was a cross-sectional survey; however, to properly detect real-time problems with the e-learning system, a longitudinal survey is needed.

Conclusion

During this pandemic, the online education system is a crucial tool for continuing medical education. The majorities of the medical faculty members think that e-learning is a great complement to prevent academic loss and satisfied with the system but it cannot replace in-person education. The favorable impression of the e-learning system is largely influenced by strong skills in utilizing technologies. To enhance the quality of online education, adequate planning, high-quality audiovisuals and Internet, and student involvement activities are suggested.

The results of this research are important and need the authorities' attention in order to guarantee an efficient e-learning system in Pakistan's medical colleges.

References

1. Sahin A-R, Erdogan A, Agaoglu PM, Dineri Y, Cakirci A-Y, Senel M-E, et al. 2019 novel coronavirus (COVID-19) outbreak: a review of the current literature. *EJMO*. 2020; 4(1): 1-7.
2. Wang L, Wang Y, Ye D, Liu Q. Review of the 2019 novel coronavirus (SARS-CoV-2) based on current evidence. *Int J Antimicrob Agents*. 2020; 55(6): 105948.
3. Hoehl S, Rabenau H, Berger A, Kortenbusch M, Cinatl J, Bojkova D, et al. Evidence of SARS-CoV-2 Infection in Returning Travelers from Wuhan, China. *New England J Med*. 2020; 382(13): 1278-80.
4. Waris A, Atta UK, Ali M, Asmat A, Baset A. COVID-19 outbreak: current scenario of Pakistan. *New Microbes New Infec*. 2020; 35: 100681.
5. Arriaga P, Stevens F, Pavlova M, Gurreiro N. Coronavirus disease (COVID-19): the impact and role of mass media during the pandemic. *Front Psychol*. 2021; 12: 729238.
6. Panati K, Narala VR. COVID-19 outbreak: an update on therapeutic options. *SN Compr Clin Med*. 2020; 2(4): 379-80.
7. Reeves TD, Pedulla JJ. Predictors of teacher satisfaction with online professional development: evidence from the USA's e-Learning for Educators initiative. *Prof Dev Educ*. 2011; 37(4): 591-611.
8. Borup J, Stevens MA. Factors influencing teacher satisfaction at an online charter school. *Online learn J*. 2016; 2(1): 3-22.
9. Watson J, Pape L, Murin A, Gemin B, Vashaw L. Keeping pace with K-12 digital learning: An annual review of policy and practice. Evergreen Education Group. 11th Edn. California: Creative commons; 2014.p. 40
10. Kozma R, Zucker A, Espinoza C, Young V, Valdés K, Schools HP. An evaluation of the Virtual High School after one year in operation. Arlington, VA: SRI International Retrieved July. 1998;31:2005.
11. Hawkins A, Barbour MK, Graham CR. "Everybody is their own island": Teacher disconnection in a virtual school. *Int Rev Res Open Dis*. 2012; 13(2): 123-44.
12. Archambault L, Crippen K. K-12 distance educators at work: Who's teaching online across the United States. *J Res Technol Educ*. 2009; 41(4): 363-91.
13. Aung, T. N., & Khaing, S. S. Challenges of Implementing E-Learning in Developing Countries: A Review. In *Genetic and Evolutionary Computing, Advances in Intelligent Systems and Computing*. Switzerland: Springer International Publishing. 2016. p. 405-411
14. Aljawarneh SA. Reviewing and exploring innovative ubiquitous learning tools in higher education. *J Comput High Educ* 2020; 32(1): 57-73.
15. Lara JA, Aljawarneh S, Pamplona S. Special issue on the current trends in E-

- learning Assessment. *J Comput High Educ*. 2020; 32(1): 1-8.
16. Lizcano D, Lara JA, White B, Aljawarneh S. Blockchain-based approach to create a model of trust in open and ubiquitous higher education. *J Comput High Educ*. 2020; 32(1): 109-34.
 17. Vululleh PJIJoE, ICT Du. Determinants of students' e-learning acceptance in developing countries: An approach based on Structural Equation Modeling (SEM). *Int J Educ Dev using ICT*. 2018;14(1).
 18. Brief P. Education during COVID-19 and Beyond. United Nations. 2020.
 19. Ali W. Online and remote learning in higher education institutes: A necessity in light of COVID-19 pandemic. *High educ stud*. 2020; 10(3): 16-25.
 20. Ferrara M, Romano V, Steel DH, Gupta R, Iovino C, van Dijk EHC, et al. Reshaping ophthalmology training after COVID-19 pandemic. *Eye (Lond)*. 2020;34(11):2089-97.
 21. Chang C-L, Fang M, editors. E-Learning and online instructions of higher education during the 2019 novel coronavirus diseases (COVID-19) epidemic. *J Phys Conf Ser*. 2020: 1574 012166. IOP Publishing.
 22. Mailizar M, Almanthari A, Maulina S, Bruce S. Secondary school mathematics teachers' views on e-learning implementation barriers during the COVID-19 pandemic: The case of Indonesia. *Eurasia J Math Sci Technol Educ*. 2020; 16(7): 1-9.
 23. Vitanova V, Atanasova-Pachemska T, Iliev D, Pachemska S. Factors affecting the development of ICT competencies of teachers in primary schools. *Procedia Soc Behav Sci*. 2015; 191: 1087-94.
 24. Al-Fadhli S. Instructor Perceptions of E-learning in an Arab Country: Kuwait University as a case study. *E-Learning Digital Media*. 2009; 6(2): 221-9.
 25. Fischer SH, David D, Crotty BH, Dierks M, Safran C. Acceptance and use of health information technology by community-dwelling elders. *Int J Med Inform*. 2014; 83(9): 624-35.
 26. Jamlan M. Faculty opinions towards introducing e-learning at the University of Bahrain. *Int Rev Res Open Dis*. 2004; 5(2): 1-14.
 27. Bhardwaj A, Nagandla K, Swe KM, Abas AB. Academic Staff Perspectives Towards Adoption of E-learning at Melaka Manipal Medical College: Has E-learning Redefined our Teaching Model? *Kathmandu Uni Med J*. 2015; 13(49): 12-8.
 28. Poon WC, Low KLT, Yong DGF. A study of Web-based learning (WBL) environment in Malaysia. *Int J Educ Manag*. 2004; 18(6): 374-85.
 29. Nguyen Q, Nguyen PT, Huynh VDB, Nguyen LT. Application Chang's extent analysis method for ranking barriers in the e-learning model based on multi-stakeholder decision making. *Univers J Educ Res*. 2020; 8(5): 1759-66.
 30. Abbasi MS, Ahmed N, Sajjad B, Alshahrani A, Saeed S, Sarfaraz S, et al. E-Learning perception and satisfaction among health sciences students amid the COVID-19 pandemic. *Work*. 2020; 67(3): 549-56.
 31. Umek L, Keržič D, Aristovnik A, Tomažević N. Analysis of selected aspects of students' performance and satisfaction in a Moodle-based e-learning system environment. *Eurasia J Math Sci Technol Educ*. 2015; 11(6): 1495-505.
 32. Luo L, Cheng X, Wang S, Zhang J, Zhu W, Yang J, et al. Blended learning with Moodle in medical statistics: an assessment of knowledge, attitudes and practices relating to e-learning. *BMC Med Educ*. 2017; 17(1): 1-8.