Faculty Need Assessment for online Teaching Skill in Local Medical and Dental Institutes

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Abstract

Objective: To evaluate the expertise of educators at Rashid Latif Medical and Dental College in an effort to maximize the potential of online learning and aimed to identify the gaps, highlighting areas that needed improvement and open the door for specialized training and support with an emphasis on teaching, learning, and evaluation apps.

Materials and Methods: The study was conducted at the Rashid Latif Medical and Dental College faculty members were gathered using a cross-sectional quantitative approach and circulating e-questionnaire to collect information on demographics, proficiency with educational apps, and satisfaction with IT department services. The gathered data was examined using descriptive statistics such as frequency, percentages, means, and standard deviation.

Results: The response rate from faculty members was 63%, with a total of 79 participants included in the study. The results indicated variations in tech-savviness among participants, with some apps being less familiar to faculty members. Google Forms emerged as the most widely app. Gender and age-related differences were observed in tech-savviness levels, with women generally exhibiting better levels of tech expertise. Faculty felt the need to improve IT related services and organizing tech workshops relevant to teaching.

Conclusion: This study unlocks valuable insights into faculty members' proficiency in using online teaching, learning, and assessment apps in education. The results emphasize the need for targeted training to enhance faculty members' online teaching skills. Institutions can utilize these findings to allocate resources for faculty development to improve medical education

Key words: Faculty, Need Assessment, Online teaching, online teaching skills

Introduction

The COVID-19 pandemic has had a tremendous impact on how education is delivered, resulting in a significant growth in the use of online instructional methods. This shift has put new expectations on faculty members in medical and dental schools, who must now be proficient in creating, developing, and executing online courses. If these faculty members are not properly trained and engaged, they may be unable to effectively achieve the targeted learning results for their students. Incorporating technology into professional development has a number of advantages, including improved access to educational content via various devices and the ability to interact with content instantaneously via feedback choices. While learning management systems and e-learning teaching and learning tools are specifically created for educational

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environments, faculty members can also integrate regularly used technologies into their work. However, using numerous technologies without sufficient planning and leadership can result in a lack of intended faculty learning outcomes, or even dissuade faculty members from adopting them.[1-4]

The development of distance learning courses and programs is based on sound pedagogical principles. The design and creation of distance education courses and programs are based on established instructional principles. The primary objective of developing these courses and programs is to establish favorable learning conditions and enhance communication in a virtual classroom setting [5,6] In particular, it is proposed address to the educational technology learning needs of faculty, as their capacity will influence perceptions, acceptance, and adoption of these innovations.[7] The shift towards online education has become more prevalent in recent years, particularly in light of the COVID-19 pandemic. This has placed a significant demand on educators to adapt their teaching skills to an online environment. The objective of study was to assess the current level of proficiency among the faculty members of Rashid Latif medical and dental college in using online teaching, learning and assessment apps. The findings of this research will provide valuable insights into the areas where faculty members need further training and support to effectively deliver online medical and dental education. This research will also serve as a valuable resource for academic administrators, who can use the information to allocate resources for the development of online teaching skills among their faculty members.

Material and Method

This research is based on cross sectional quantitative approach used to assess the current level of proficiency among the faculty members of Rashid Latif medical and dental college in using online teaching, learning and assessment apps. Convenient sampling was employed and faculty of this institute was study population. Faculty members with designation of assistant professors or above were included. Faculty who had never been engaged in online teaching and learning activities were excluded from study. After seeking ethical approval from institutional review board of institute and E-Questionnaire for data collection was circulated among the participants who consented to be included in this research. E-Questionnaire is a survey comprised of demographic domain, proficiency about teaching, learning and assessment apps and service provision by IT department. A 5 point Likert scale is used to assess the proficiency level of the faculty members (tech-savviness). Different levels of proficiency include, master (I frequently use it and don't need help), expert, (I use, but need new ideas), proficient (I sometime use and am comfortable; I need help), advance beginner(I know about it but don't want to use), and novice (I don't know what this is). This scale inquired about different teaching learning and assessment apps including E-mails, Presentations (PowerPoint), Microsoft word, Google Form, Google classroom, Google meet, Google slides, Zoom, Skype, WebEx meet, Google workplace, Kahoot, Socrative, Mentimeter and poll everywhere and revealed not only which teaching apps faculty is already using, but also what the instructors want to use and what they need help with. Satisfaction level with Services provision of IT department of institute was assessed on Likert scale of agreement. Link of survey was shared with all faculty members of RLMC and RLDC. All formalities to collect the response of collecting data from e questionnaire were fulfilled and throughout the data gathering process, participant confidentiality and data protection were protected. The collected data was analyzed with descriptive statistics using the Statistical Package for the Social Sciences (SPSS, version 25.0 for Microsoft Windows 10). The p value less than 0.05 will be considered significant. The values were expressed as percentages of each response over the designed scale. Frequency distributions were calculated to examine the distribution of responses for each variable like gender, experience and status of CMT. Mean and standard deviation were calculated for age. Cross-tabulations were performed to explore the relationships between variables like certificate in medical education and tech-savviness enabling the identification of any notable associations.

Results

The Response rate from faculty was 63% (n=79 out of 125). Demographic statistics included age, experience, gender and status of certification in medical education or health professions education.

This research includes 79 participants, with the majority being female at 54(68.4%) and the remaining being male at 25(31.6%). Highest representation from Rashid Latif Medical College Lahore at 42(53.2%). A large portion of the participants, 35.4%, fall within the age range of 36 to 45 years. Out of 46 participants with more than a decade of experience, highest no. of participants (32%) fall within age group 55-66 years. Out of 79, 49.4 %(n=39) certified in health professions education and 13.9%(n=11) were enrolled in certification in health professions education. Rest were not certified. The teaching experience of the 79 participants in the study varied widely. Results indicated that 1.3% had less than 1 year of experience, 6.3% had more than 1 year of experience, 32.9% had more than 5 years of experience, and the majority (59.5%) had over 10 years of teaching experience. These findings emphasize the wealth of expertise and diverse backgrounds among the participants. The dataset reflected a diverse age range from 26 to 69 years. The average age of the participants was calculated to be 47.49, with a standard deviation of 11.316, suggesting considerable variability in age among the sample. These findings indicate a heterogeneous participant composition, reflecting a wide range of experiences and perspectives. To assess participants' comprehension of popular tools such as Kahoot, Manti Meters, Socrative, Polls Everywhere, and Google Forms, a Likert scale was employed. Participants were queried about their expertise in employing software and tools for delivering online curriculum content thereby obtaining valuable insights. Among the various apps evaluated, Manti Meters and Polls Everywhere emerged as areas where the majority of participants displayed limited familiarity, 60% were not well versed with these apps. Conversely, a substantial portion, accounting for 75% of participants, showcased a robust understanding of Socrative, Kahoot, and Google Forms. Notably, Google Forms emerged as the most widely utilized app, preferred by educators across the study's cohort. Impressively, a staggering 93% of participants demonstrated a commendable understanding of Google Forms, attesting to its prominence in the educational landscape. These findings highlight the importance of targeted training in less familiar apps and the popularity of Google Forms as an effective assessment tool in teaching. Some intriguing results are found when the tech-savviness levels of males and females are compared. It is clear from the dataset of 79 people that women are more prevalent at the "Master" skill level, with 16.67% of them falling into this category. Males made up only 12% of the same category, in contrast. However, when it came to the "Expert" competency level, men made up 28% of the population while women made up 27.78%. These findings imply that women generally exhibit better levels of tech expertise than men, with women performing especially well in the "Master" category. The dataset analysis demonstrates significant gender variations in the "Novice" performance level. In the sample, women make up about 14.81 % of the total population, while men make up about 12%. These results show people of both genders. Enrolling in certification in medical education showcases an individual's commitment to personal growth and professional development. Moreover, the level of tech-savviness reflects a dedication to refining one's skills and staying up-to-date in an ever-evolving technological landscape. (Table no 2). Among 79 participants, total enrolled and certified in medical education were 50/ 79 (63.3%) and not certified were 29/79 (36.7%). Within the group of certified faculty members, 18% (9 out of 50) were classified at the "Master" level, and 34% (17 out of 50) were classified at the "Expert" level. This indicates that a significant proportion of certified faculty members achieved higher levels of proficiency, with a larger representation at the "Expert" level compared to the "Master" level. Among the faculty members who were not certified, 10.3% (3 out of 29) were classified at the "Master" level, and 17% (5 out of 29) were classified at the "Expert" level. In summary, the results demonstrate that certified faculty members had a higher percentage of individuals at both the "Master" and "Expert" levels compared to those who were not certified. This suggests that certification in the field is associated with a greater likelihood of achieving higher levels of proficiency in teaching.

The analysis of tech-savviness across different age groups provided insightful observations. Among individuals **aged 26 to 35,** the highest frequency was observed in the "**Novice" level**, with 3 individuals (27.27%), followed by the same number of individuals (27.27%) in the "Advance Beginner" level. In the age group **of 36 to 45,** the highest frequency of tech-savviness level is observed in the **"Expert" level**, with 11 individuals, or 39.29% of the total. Moving to age group of **46 to 55,** the highest

frequency of proficiency is observed in the **"Advance Beginner"** level, with 6 individuals, or 33.33% of the total in this age group. Among those aged **56 to 65**, the highest frequency of tech-savviness is observed in the "**Proficient**" level, with 4 individuals, or 23.53% of the total in this age group. Lastly, in **the 66** and above age group, the highest frequency was observed in the "**Advance Beginner**"

Table 1: *Frequency of level of proficiency among male and female faculty members.*

		Techsavviness					Total
		No-vice	Advance beginner	Profi-cient	Expert	Master	
Gender	female	8	12	10	15	9	54
	male	3	5	7	7	3	25
Total		11	17	17	22	12	79

Table 2: *Frequency of techsavviness among certified faculty members.*

		Techsavviness					Total
		Novice	Advance Beginner	Proficient	Expert	Master	
Medical Education Certification	enrolled	3	2	2	3	1	11
	No	4	8	9	5	3	29
	yes	4	7	6	14	8	39
Total		11	17	17	22	12	79

Table 3: *Frequency to techsavviness among different age group.*

		Techsavviness					Total
		Novice	Advance beginner	Proficient	Expert	Master	
Age	26 - 35	3	3	2	2	1	11
	36 - 45	4	4	3	11	6	28
	46 - 55	1	6	6	3	2	18
	56 - 65	3	4	4	5	1	17
	66 and above	0	0	2	1	2	5
Total		11	17	17	22	12	79

level, with 2 individuals (40%).. Age group 36 to 45, highest no. of people in master level among all age group that is 6 individuals, representing 7.59% of the total. (Table no.3) (fig. no 1) In our study only 16.5% participant are satisfied with internet speed provided by IT department. 59.5% are not satisfied with internet provided by IT department and other 24%

participant are not confirmed maybe they use personal internet. Only 38% are satisfied with service provision of IT department, 27.8% are not satisfied and 34.2% are not confirmed. According to study, 43% participants reported that IT department doesn't hold any it related training workshop. 36% are unaware if such activity is happening. 86% of participants stated that the IT department of the institute should organize workshops to enhance the relevant expertise of faculty members.
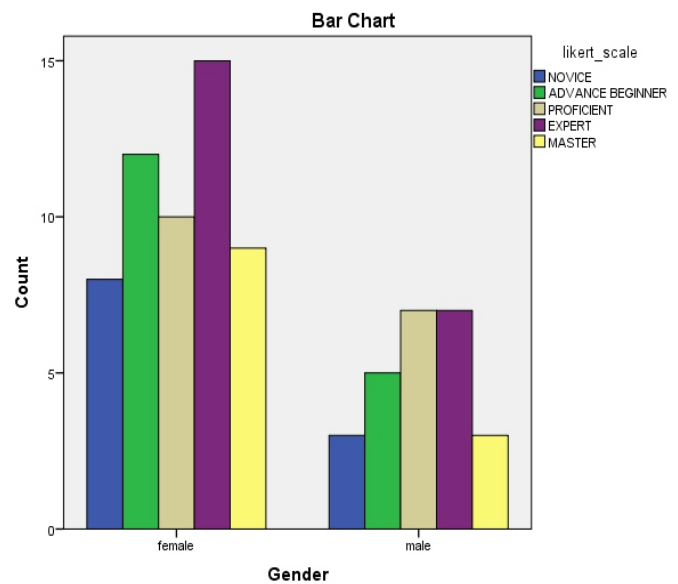

Fig-1: *Frequency to techsavviness among different age group.*

Discussion

The results of this study provide valuable insights into the faculty's readiness for online education and highlight areas where additional training and support are needed.[8] Demographic analysis revealed that a majority of the participants were female (68.4%), aligning with the gender composition of the faculty of institute. Notably, Rashid Latif Medical College Lahore had the highest representation, indicating a significant engagement in the study from this institution. The age distribution among participants showed that a considerable proportion (35.4%) fell within the 36-45-year age range. This suggests that faculty members in this age group may have had more exposure to technology during their education and professional development. On the other hand, participants with over a decade of experience were predominantly in the 55-66-year age group (32%),

indicating a potential need for additional support in adapting to the demands of online teaching and learning. This might be due to a reason that new technologies are evolving each day.[9]

Regarding certification in health professions education, approximately half of the participants (49.4%) were already certified, while 13.9% were enrolled in certification programs. This reflects a positive trend towards professional development in online teaching skills among the faculty. The certification ensures that the faculty is interested in learning about the latest teaching methods and techniques and want to get equipped with new knowledge.[10] Analysis of proficiency levels in using teaching apps provided valuable insights into the faculty's technological skills. While email, presentations (PowerPoint), and Microsoft Word were widely used and familiar among the faculty, there were variations in the familiarity and usage of more advanced apps like Google Classroom, Zoom, and other interactive platforms. A lot of new apps are being developed and launched each day and to keep up with most is next to impossible.[10]

The assessment of faculty satisfaction with IT department services serves as valuable feedback for improvement and addressing any concerns raised. This feedback enables the IT department to enhance their services and better support faculty members. Overall finding highlight that Tailored training initiatives should consider the diverse needs of faculty members based on age, experience, and certification status. Addressing these specific areas of improvement will ensure the quality and effectiveness of online education, benefiting both faculty and students alike.

Conclusion

In conclusion, this study evaluated the faculty's ability and identified areas in which local dentistry and medical schools needed to improve their online teaching capabilities. The participants' age, experience, gender, and level of certification were all varied. Although there was a wide spectrum of skill in using instructional apps, there were several areas that need further training and assistance. The outcomes highlighted the value of specialized faculty development programs to improve online teaching abilities. Additionally, it was determined that training workshops to increase competency in less well-known apps and improving IT department's services were crucial for faculty development.

Conflict of interest   None

Self-funded study   None

References

1. Moore AH, Moore JF, Fowler SB. Faculty development for the net generation. Educating the net generation. 2005;48.

2. Border S. Assessing the role of screencasting and video use in anatomy education. Biomedical Visualisation: Springer; 2019. p. 1-13.

3. Finn GM, Matthan J. Pedagogical perspectives on the use of technology within medical curricula: moving away from norm driven implementation. Biomedical visualisation. 2019:55-65.

4. Pickering JD, Swinnerton BJ. Exploring the dimensions of medical student engagement with technology- enhanced learning resources and assessing the impact on assessment outcomes. Anatomical sciences education. 2019;12(2):117-28.

5. Schutt MA, Hightower B. Enhancing RN-to-BSN students' information literacy skills through the use of instructional technology. Journal of Nursing Education. 2009;48(2):101-5.

6. Yilmaz Y, Lal S, Tong XC, Howard M, Bal S, Bayer I, et al. Technology-enhanced faculty development: future trends and possibilities for health sciences education. Medical science educator. 2020;30(4):1787-96.

7. Davis FD, Bagozzi RP, Warshaw PR. User acceptance of computer technology: A comparison of two theoretical models. Management science. 1989;35(8):982-1003.

8. Jun Xin L, Ahmad Hathim A, Jing Yi N, Reiko A, Noor Akmal Shareela I. Digital learning in medical education: Comparing experiences of Malaysian and Japanese students. BMC medical education. 2021;21(1):418.

9. Kim HJ, Hong AJ, Song H-D. The roles of academic engagement and digital readiness in students' achievements in university e-learning environments. International Journal of Educational Technology in Higher Education. 2019;16(1):1-18.

10. Kruszyńska-Fischbach A, Sysko-Romańczuk S, Napiórkowski TM, Napiórkowska A, Kozakiewicz D. Organizational e-health readiness: How to prepare the primary healthcare providers' services for digital transformation. International Journal of Environmental Research and Public Health. 2022;19(7):3973.