Original Article

Assessing Faculty Perception of E-educational Environment using Modified E-Learning Educational Atmosphere Measure (M-EEAM)

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Abstract

Objective: To evaluate E-learning educational atmosphere through perceptions of the dental faculty by using the Modified E-learning Educational Atmosphere Measure (M-EEAM).

Methodology: A quantitative study employing the Modified E-Learning Educational Atmosphere Measure (M-EEAM) instrument was carried out with 40 faculty members at Foundation University College of Dentistry in 2020. The EEAM instrument was modified according to our culture and context. Validation of the modified instrument was done by a pilot study amongst 12 faculty members. The final instrument (M-EEAM) consisted of 20 questions covering six factors in a 6-point Likert scale. The content and construct validity of the instrument were evaluated. Cronbach's alpha and test-retest were also employed to investigate the instrument's internal consistency and reliability. SPSS software was used to analyse the data.

Results: The six areas covered by the final instrument (M-EEAM) included Program efficacy; education quality, Professionalism and ethics; student support, Safety and accessibility and awareness of guidelines. A pilot study of the 28 item questions was distributed amongst 12 faculty members, excluding 8 items with low construct validity in our context in culture. The content validity ratio was greater than 0.52 and all questions' content validity index score of was above 0.82. Test-retest reliability calculated to be 0.82 (p=0.001) and Cronbach's alpha was 0.842 calculated after pilot study and expert validation.

Conclusion: M-EEAM gives objectivity for evaluating dental faculty perception of the E-educational environment. M-EEAM is a recommended and reliable tool to measure the e-learning educational environment in our cultural context.

Keywords: E-*learning,* education *atmosphere, faculty* perception

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Introduction

E learning has been actively practiced in today's era but is still in infancy stages. The teachers' perspectives of the educational environment in E-learning have as yet only been sparsely considered.[1]

The virtual educational environment is a web-based system that allows for the teaching and learning process to be conducted utilising software tools and applications. Moreover, considering factors influencing and impeding self-directed, students-centered and self-paced learning in online education.[2]

Medical universities understand the importance of the

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educational learning environment because it is directly proportional to successful student learning outcomes. [3] In times of COVID-19 there has been an unprecedented shift to virtual working and teaching methodologies.[4]

Perception of students regarding e-learning atmosphere varies from physical learning environment. [5] A wide array of factors contribute to the establishment of educational atmosphere, including the university, students, faculty, admission, registration, and environmental or physical elements. [2]

Another noticeable area of consideration in universities measuring educational environment is their strategy of competing with peers on basis of quality standards6. Appraising previous studies and literature revealed that focus was on factors like theoretical front and technological innovation. Constituents of blended and remote learning were elaborated upon as oppose to e-learning settings.[7]

As related studies were evaluated, that described elements influencing specific features of the educational environment in e learning in order to construct the research framework. We conducted an advanced search in the SCOPUS and Web of Science databases between 2000 and 2020 using the following survey keywords: questionnaire, factors influencing e learning educational environment, faculty perception of e-learning, remote learning, virtual learning and learning environment, or educational atmosphere. Although there were fewer studies that were relevant to our research, we chose a handful that were and read them thoroughly. The following were the articles:

Taylor and Maor (2000) devised a 'Constructivist Online Learning Environment Survey (COLLES)' to determine learners' preferences for learning environments. Professional relevance, introspective thinking, and cognitive demand are all factors that students and tutors consider.[8]

Chang and Fischer investigated the 'Web Based Learning Environment Instrument' (WEBLEI) in 2001, which assessed a blended learning framework that included emancipatory, co-participatory, information structuring, and design activities.[9] Following that, Aldridge, Dorman, and Fraser (2004) confirmed the findings (TROFLEI). There are 80 items and 10 dimensions in the 'technology-rich outcome focused learning environment inventory. ‘Also, in (2007) "Online learning Environment Survey" (OLLES) and in year (2005) "Distant Education Learning Environment Survey" (DELES). Suggesting a blended online teaching method with no precise description for targets on distant learning programs.[10]

This was followed by A Mousavi's development of a relatively new validated instrument, the 'E-learning educational atmosphere measure,' in (2020). (EEAM).[11] DREEM, the educational atmosphere measure, comes to mind. A 40-item instrument encompassing six factors was created. As a result, in this study, a unique, valid and reliable instrument was modified to assess faculty perceptions in an e-learning educational environment. Under the current COVID-19 era with E-teaching by E-tutors and E-learning by E-students.

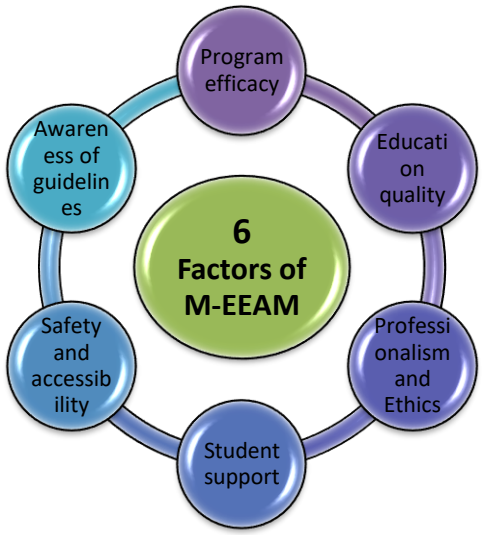


Figure 1. The Six Factors of Modified E-Learning Educational Atmosphere Measure.

Methodology

Taking the above-mentioned study, in which the components that create an educational environment in an e-learning situation were identified as theoretical basis for our research in our private medical university settings. [11] The reason for selecting this study:

- The study's time sensitivity is in line with the current online learning method and technique.
- The survey’s participants were academicians who were currently working in virtual classes rather than hybrid classrooms.
- Faculty members' perspectives were used to determine the influencing aspects of the online e-learning environment.

In 2020, Foundation University College of Dentistry & Hospital conducted a quantitative study with 40 faculty members using the Modified E-Learning Educational Atmosphere Measure (M-EEAM) tool. The M-EEAM

Questionnaire was used to collect data. To begin, the modified EEAM instrument was chosen in comparison to the original EEAM instrument. The content and construct validity of the instrument were evaluated. Cronbach's alpha and test-retest were also employed to investigate the instrument's internal consistency and reliability.

The project was piloted in compliance with ethical research standards, and it received ethical approval from the university's ethics review board as well as EEAM instrument researchers through email. SPSS was used to evaluate all quantitative data.

Results

The expert group created 28 instrument questions that they considered would be useful in evaluating settings in an e-learning educational environment. All of the questions used a six-point likert scale, with strong agree, agree, somewhat disagree, disagree, and strongly disagree as the options (rated 6 to 1).

The facial validity was approved by a ten-person expert group. The content validity CVR was more than 0.54, and the overall question score was greater than 0.82. The scale's content validity was numerically demonstrated.[11] The 28-item question was distributed to 12 faculty members as part of a pilot research. The test-retest inter-rater reliability of the individual instrument was 0.82 (p = 0.001) after meticulous review, and the Cronbach's alpha for the entire instrument was 0.842. Figure 3

Eight items were excluded because they had no effect on total explained variance and were not loaded in any of the six primary factors with a value less than 0.7. The final measure, known as the 'Modified E-learning Educational Atmosphere Measure (M-EEAM),' consisted of 20 questions covering six factors: programme efficacy, professionalism and ethics, teaching quality, student support, rule awareness, and safety and convenience. The mean and median of each instrument item are shown in Figure 2, and the items with M-EEAM factors are included in table I.

Table I: Factors and respective items of modified E-learning educational atmosphere measure

Factors	Items
Program efficacy	"Courses' resources and contents are intriguing and motivational for learning"
	"The possibility of learning academic meta-skills (such as writing a proposal, working with academic software etc.) is provided for faculty."
	"Courses' contents and activities are understandable and tangible"
	"During this programme, my ability to interact with others in virtual space has increased."
	"I have taught what I needed to teach in this programme."
	"This programme will be effective for my future job/experience."
Education quality	"Teachers of this programme have e-teaching skills."
	"Teachers of this programme give timely feedback on assignments, activities and messages."
	"Teachers of this programme give complete and proper feedback on assignments, activities and messages."
Professionalism and Ethics	"Teachers of this programme help raise motivation for learning."
	'Copyright and intellectual property of scientific resources and contents are respected."
	"Teachers of this programme are responsive and available."
	"Cultural issues and social etiquette are observed in the educational environment."
Students' support	"Administrative educational staff, Technical support staff and authorities are well responsive to faculty.
	"I have access to a decent digital library."
	"Good support system for weak students is available."
	"Students' views on the programme delivery and educational services are considered important."
Safety and accessibility	"I can easily work with LMS."
Awareness of guidelines	"There is a good place for e-learning in my society."
	"I have become aware of educational regulations and administrative processes."

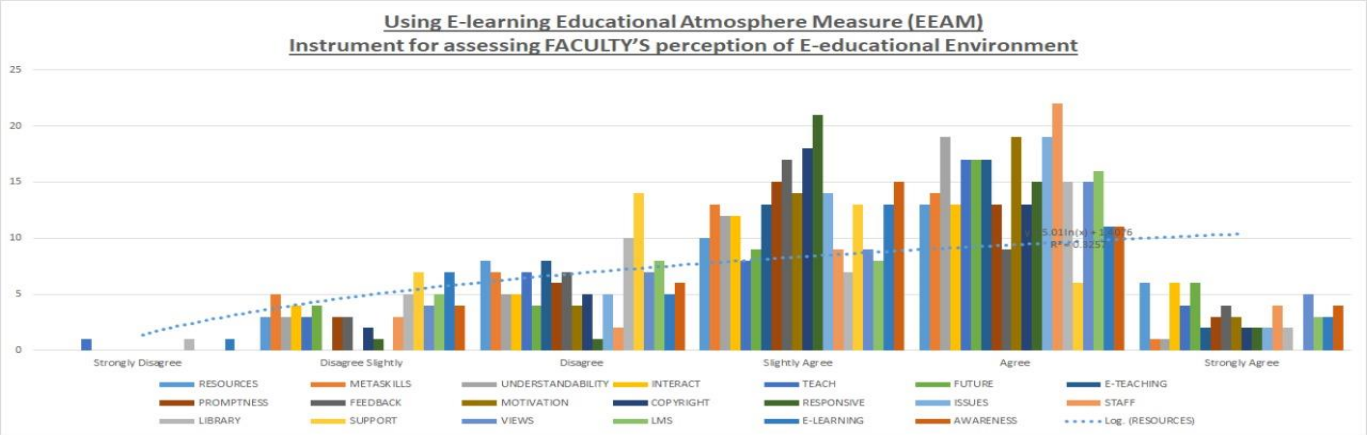
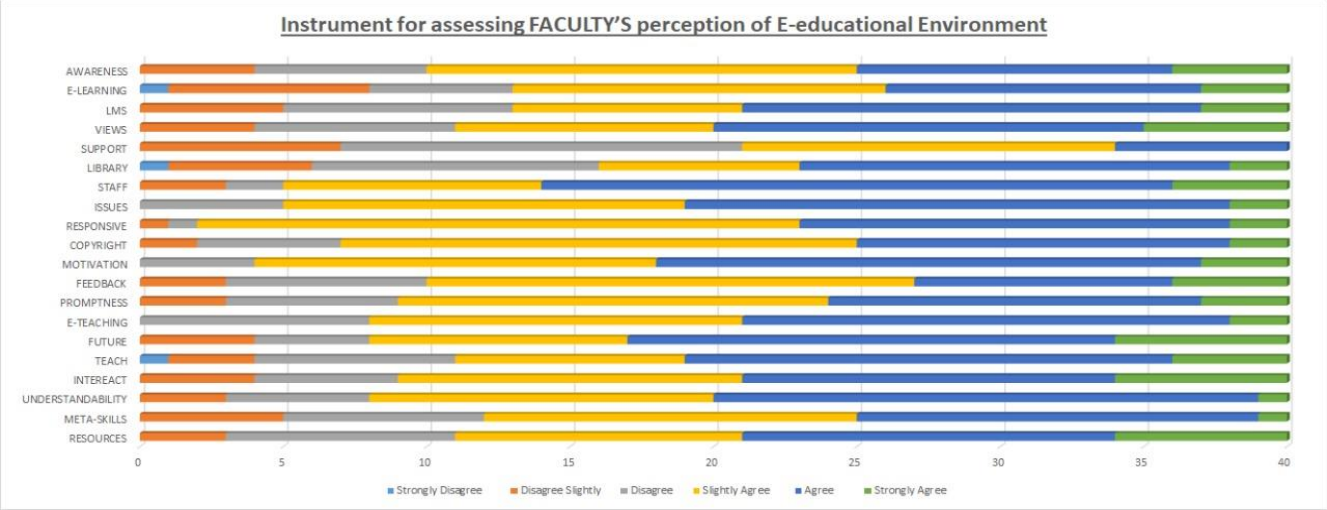


Figure 2. Depicts the Mean and Median of each item of instrument

The findings revealed that there is a distinction between levels of e-learning based on several aspects



of identity. The first sign of differences was gender perceptions, with females' perceptions being more favourable than males'. Then there were age disparities, with individuals under 30 having a more positive impression of e-learning than those over 31.

Figure 3. Illustrates the repose ratio against the 6-point Likert scale.

The educational level was also mentioned as a factor, with individuals with a Bachelor's degree having a stronger opinion of e-learning. Faculty members with fewer than ten years of teaching experience had a stronger perception than those with more than ten years of teaching experience, according to the findings.

Discussion

To address the research objectives, the study used quantitative research. The goal of this study was to find out how faculty members in a primate medical college felt about e-learning in health professions education.

The elements that influence their opinions. This study looked at how attitudes differed among faculty members depending on their age, gender, education level, nationality, and teaching experience. This study was limited to two universities in separate parts of Saudi Arabia.[12]

Faculty members had a generally positive attitude toward e-learning, believing it to be a tool that improves learning. Participants showed that a lack of tools and expertise created a hindrance when responding to the problems and obstacles of e-learning.[13]

The University of Tabuk has made e-learning a priority in its academic programme. As a result, the goal of the study was to find out how faculty members at the University of Tabuk felt about e-learning. Furthermore, the study looked into the relationship between faculty members' perceptions of e-learning and their major and experience. A perception survey was created and sent to 63 faculty members via email. There were 40 people who responded. According to the data, 62.9 percent of faculty members' responses to an e-learning perception survey ranged from negative to 'uncertain'.[14] There was a considerable variance in perceptions of e-learning among faculty members based on their major and experience. In terms of e-learning preparedness, novice faculty members had a more positive e-learning perspective than experienced faculty members.

In another study, the goal of the exploratory study was to compile a socially transformative emergent learning (TEL) technology combination framework for day scholars and distance learning at North-West University's School of Continuing Teacher Education, based upon the perceptions of faculty member's novice to technology enhanced learning. A longitudinal observations of the online learning by educational managers throughout dedicated professional development of faculty. The clusters served as the foundation for a faculty development model aimed at integrating socially transformative learning technologies into open distance learning. The model's five elements are (i) the atmosphere in which faculty members should gain institutional support; (ii) the situation in which faculty members must address the realities of TEL adoption; (iii) human influences relating to TEL acceptance; (iv) apprehensions and reservations about its use; and (v) continuing professional development requirements, prospects, and motivators. The long-term integration of ICT into higher education institutions is still a major barrier to TEL adoption.[15]

While reviewing the literature, it was observed that there was meagre amount of research done in terms of introducing an instrument for the assessment of educational atmosphere in current e-learning environments from e-teachers perspective. So, this study targets at validating a reliable tool for assessing educational atmosphere in e-learning setting based on factors creating such an environment

Conclusion

The M-EEAM (Modified E-Learning Educational Atmosphere Measure) provides impartiality in assessing faculty perceptions of the E-learning environment. The evidence-based findings highlight and demonstrate E-learning zones that can be enhanced and improved. It also provides insight into the amount to which the faculty development programmers are matching the institute's view of how to improve the virtual learning environment. M-EEAM could give managers and investors with important information to build an effective education system by prioritising the essential modifications by assessing the educational atmosphere in e-learning situations.

Limitation: Some potential limitations affecting the results are as follows. The study was limited to one university with a limited sample size. It was unlikely that the result of statistical analysis were attributed to chance, but this did not necessarily imply that they were valid outside this university.

Another limitation of this study was the M-EEAM questionnaire did not account for other stake holder such as students, administrations only faculty members were selected to respond to the questionnaire.

Recommendation and Impact of Study: M-EEAM can be recommended for assessing the educational environment in e-learning settings and providing managers and investors with important information to create a successful education system by prioritising the required modifications.

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