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AIMST Dental Students' Attitude and Opinion towards E-learning and Face-to-Face Learning- A Cross Sectional Study

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Abstract

Introduction: The outbreak of the pandemic by the novel coronal corona virus, has brought in major change in the global education system [1] e-learning emerged, academicians and students changed their teaching and learning style for regular lectures.[2]The aim of the present study was to assess AIMST students' attitude and opinion towards E-learning and face-to-face learning. **Methods:** A prospective cross-sectional online questionnaire study was conducted from July 2023 to January 2024 on 342 AIMST University students of different faculties and years of study and had the experience of both e-learning and face to face lecture method. Bivariable comparison of proportion using Chi square test was done. Five-point Lickert scale scores was examined using t-test for bivariable comparison and analysis of variance (ANOVA) was implemented for multiple comparisons. **Results:** Based on the faculty, the attitude was statistically significant towards face-to-face with P-value <0.05, opinion was statistically significant, with a P-value < 0.05 for face-to-face and E-learning, year of study, attitude of students was statistically significant towards face-to-face and E-learning with P-value <0.05, opinion was found to be statistically significant only towards E-learning with P-value <0.05. **Conclusions:** Students participated from different faculties and years of study rated e-learning positively, but they insisted university to conduct face-to-face lectures because they can concentrate better in a less distracting classroom setting or lecture hall. The study's findings showed that AIMST University students prefer hybrid learning environment that blend face-to-face and e learning.

Keywords: E-Learning, face to face lectures, attitude, opinion.

Introduction

The most important challenge for the global education system in the last century was posed at the end of 2019 by the outbreak of the new coronavirus pandemic[1]. During the outbreak, the only possible way to conduct education is by technology which is e-learning. Both teachers and students have had to change their behaviours, their teaching/learning style, assessment methods, and so forth[2]. This reform has brought about several benefits, but has caused tensions and frustrations among both the beneficiaries of the teaching act and the educational actors.

The best thing about e-learning is you can learn it from anywhere and at any time. Another benefit is that students can save time and money commuting to a physical class. Students will have to follow a set schedule of learning as per the curriculum of the school if they are following traditional ways of learning. But e-learning allows learners to set their learning schedule at their convenience without following a regular schedule of learning[3].

As covid 19 pandemic is under control and the mode of teaching has switched back from e-learning to traditional teaching face-to-face the perception of the students toward e-learning and traditional teaching arises. An analysis of how they perceive these changes after the pandemic is necessary and useful to ensure the sustainability of the education act.

There might be a portion of students who prefer face-to-face lectures with the lectureras they feel that they understand better while attending class physically[4].while others still prefer e learning methodsthus aim of study is to assess AIMST students' attitude and opinion towards E-learning and face-to-face lectures.

Objectives of study:

1. To understand AIMST students' attitudes towards E-learning and face-to-face lectures.
2. To evaluate AIMST students' opinion towards E-learning and face-to-face lectures.

Materials and Methods

Study design: A prospective cross-sectional study involving the AIMST University students, who experienced E-learning study method during MCO period.

Methodology: An online questionnaire was obtained from previous studies was modified and validated. The questionnaire consists of 20 questions of which 10 questions were concerned about the attitude and 10 questions were related to opinion. The questionnaires were distributed in the form of google doc to all the participants. All the questions in the questionnaire were close-ended.

First, a brief introduction on the purpose and intent of the study was given to the subject followed by the questionnaire. Informed consent was obtained from all the subjects. Identity of the subjects were kept confidential. The total sample size for the study was 342 students within the AIMST University, acting as a source of study subjects. The data collected were analyzed by using SPSS software version 29 and statistical analysis were performed by Bonferroni post-hoc test

Inclusion criteria:

• AIMST students from faculties of General & Foundation studies, Faculty of Engineering & Computer Technology, Faculty of Business, Faculty of Allied Health Professions, Faculty of Medicine, Faculty of Dentistry, and Faculty of Pharmacy were included who had the exposure to both e-learning and face to face learning for minimum of six months.

- A sample size of 342 subjects from AIMST University was included.

Exclusion criteria:

1. Incompletely filled questionnaire.
2. Students who failed to sign the informed consent.
3. Students who were not exposed to e-learning.

Data Collection, Analysis of Results

Table 1: display the descriptive data for the research population.

The data collection was done from July 2023 to January 2024. The questionnaire obtained

Year of Study	**Frequency (%)**
Foundation	50 (14.6%)
Year 1	61 (17.8%)
Year 2	58 (17%)
Year3	39 (11.4%)
Year 4	76 (22.2%)
Year 5	58 (17%)
Total	**342 (100%)**

were thoroughly examined and reviewed accordingly. Bivariable comparison of proportion using Chi square test was done. Five-point scale scores was examined using t-test for bivariable comparison and analysis of variance (ANOVA) was implemented for multiple comparisons will be done.

Results

A total of 342 students of AIMST University participated in this study. Out of 342 participants, 50(14.6%), 61(17.8%), 58(17%), 39(11.4%), 76(22.2%) and 58(17%) participants were from AIMST University foundation, year 1, year 2, year 3, year 4, and year 5 students, respectively.

Figure 1: Pie chart showing descriptive statistics based on Year of Study (n=342)

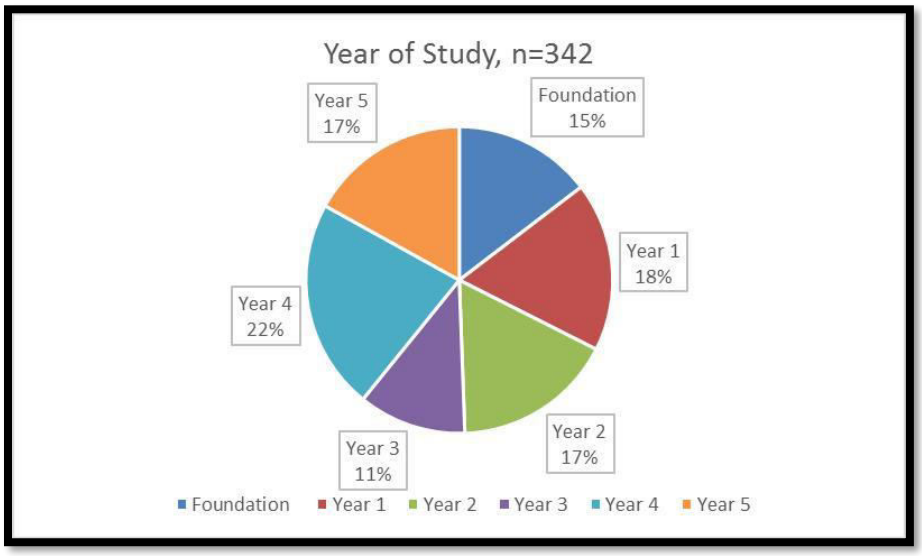

Table 2: Descriptive Statistics based on Faculty (n=342)

Faculty	**Frequency (%)**
General & Foundation Studies	49 (14.3%)
Faculty of Engineering & Computer Technology	23 (6.7%)
Faculty of Business	40 (11.7%)
Faculty of Allied Health Professions	52 (15.2%)
Faculty of Medicine	49 (14.3%)
Faculty of Dentistry	97 (28.4%)
Faculty of Pharmacy	32 (9.4%)
Total	**342 (100%)**

Table 3: Attitude towards face-to-face and e-Learning based on faculty

Attitude towards / Faculty	**General & Foundation Studies** Mean (SD)	**Faculty of Engineering & Computer Technology** Mean (SD)	**Faculty of Business** Mean (SD)	**Faculty of Allied health professions** Mean (SD)	**Faculty of Medicine** Mean (SD)	**Faculty of Dentistry** Mean (SD)	**Faculty of Pharmacy** Mean (SD)	**P-value**
Face-to-Face	12.4 (5.18)	17.9 (3.86)	15.9 (3.44)	14.9 (5.84)	12.6 (5.01)	13.0 (4.83)	11.6 (4.15)	**<0.001[a]**
E-learning	7.3 (2.94)	7.1 (1.86)	6.6 (1.56)	7.2 (2.19)	7.3 (2.89)	7.7 (2.57)	8.4 (3.06)	0.099

Table 3[a] Bonferroni post-hoc test analysis showed that the attitude towards face-to-face and E-learning based on faculty, was found to be statistically significant towards face-to-face with P-value <0.05It was no significant effect towards E-learning based on Faculty.

Table 4: Opinion towards face-to-face and e-Learning based on faculty

Opinion towards / Faculty	**General & Foundation Studies** Mean (SD)	**Faculty of Engineering & Computer Technology** Mean (SD)	**Faculty of Business** Mean (SD)	**Faculty of allied health professions** Mean (SD)	**Faculty of Medicine** Mean (SD)	**Faculty of Dentistry** Mean (SD)	**Faculty of Pharmacy** Mean (SD)	**P-value**
Face-to-Face	13.1 (4.61)	12.4 (2.95)	14.9 (2.56)	12.8 (4.78)	12.4 (4.88)	12.1 (3.27)	10.2 (3.95)	**<0.001[a]**
E-learning	10.8 (4.82)	10.7 (3.30)	9.4 (1.81)	11.4 (4.74)	12.1 (5.24)	11.9 (3.73)	12.1 (4.25)	**0.026[b]**

Based on Table 4 analysis, it was determined that students from different faculty opinions about face-to-face and E-learning were statistically significant, with a P-value of less than 0.05.

[a]Bonferroni post-hoc test: significant difference between: i. General & Foundation Studies and Faculty of Dentistry ii. General & Foundation Studies and Faculty of Pharmacy iii. Faculty of Business and Faculty of Dentistry iv. Faculty of Business and Faculty of Pharmacy

[b]Bonferroni post-hoc test: significant difference between: i. Faculty of Business and Faculty of Dentistry

Table 5: Attitude towards face-to-face and e-Learning based on Year of Study

Attitude towards / year	**Foundation** Mean (SD)	**Year 1** Mean (SD)	**Year 2** Mean (SD)	**Year 3** Mean (SD)	**Year 4** Mean (SD)	**Year 5** Mean (SD)	**P-value**
Face-to-Face	12.4 (5.13)	14.4 (5.00)	15.4 (4.30)	14.4 (5.30)	13.0 (5.27)	12.8 (5.00)	**0.010[a]**
E-learning	7.3 (2.92)	6.9 (2.56)	6.7 (1.89)	7.6 (2.07)	7.9 (2.63)	8.0 (2.80)	**0.020[b]**

Table 5 evidenced that the attitude towards face-to-face and E-learning based on year of study, was found to be statistically significant towards face-to-face and E-learning with P-value <0.05 .

Table 6: Opinion towards face-to-face and e-Learning based on Year of Study

Opinion towards / year	**Foundation** Mean (SD)	**Year 1** Mean (SD)	**Year 2** Mean (SD)	**Year 3** Mean (SD)	**Year 4** Mean (SD)	**Year 5** Mean (SD)	**P-value**
Face-to-Face	13.1 (4.56)	13.3 (4.27)	13.4 (3.89)	12.1 (4.49)	11.7 (3.86)	11.9 (3.50)	0.063
E-learning	10.8 (4.77)	10.6 (4.53)	10.4 (3.54)	10.7 (3.85)	12.6 (4.31)	12.2 (3.70)	**0.006**

Based on table 6, the opinion towards face-to-face and E-learning based on year of study, was found to be statistically significant towards E-learning with P-value <0.05 (Table 6) and no significant effect towards face-to-face based on year of study.
Bonferroni post-hoc test: significant difference between: i. Year 2 and Year 4

Discussion

The fast growth of online resources has led to the attribution of a significant role to e-learning. because e-learning is adaptable, it can handle the growing quantity of material taught in many fields. However, prior research has shown that tertiary e-learning is less popular and is not regarded as being as beneficial as traditional face-to-face instruction. In the current survey as well, students evaluated online learning favourably but still saw face-to-face lectures as the cornerstone of higher education.

When assessing attitude of students towards face-to-face based on faculty of study, the finding was significant, which is similar to the study conducted by Abbasi and his colleagues in 2021[5] Students' attitude favour face-to-face learning as some of them might face Wi-Fi problem when attending online lectures, maybe due to spontaneous Wi-Fi disconnection, unstable Wi-Fi signal or slow Wi-Fi speed. Besides, they might feel lack of social and physical connection due to human absence, in which they could not interact or communicate and share their doubts with each other, leading them to some emotional disturbances. Furthermore, students found that they were more easily distracted by mobile phones, as notifications jumping out from the screen during zoom or google meeting, can actually distracting them from the online lectures and they might miss out any important points. Also, distraction from the environment that are not suitable for learning and study such as background noise from television, and family gossip[6].

Upon the opinions of students on face-to-face depending on their faculty of study, the results were remarkable and consistent with the study conducted by Costado Dios Mt and his group in 2021[6]. The reason behind this is face-to-face had been the best traditional learning method to gain knowledge for many years. Students think that face-to-face is a must for practical learning, since students can adapt more easily to the practical session, and via face-to-face, hands on can enhance the tactility and experiences of any clinical practices and hands on practices. Also, student can learn from the mistakes and problems encountered during hands on practices. Majority of the students obtain a better examination results through face-to-face learning as it is easier to remain concentrate during face-to-face lectures, with less distraction sources, compared to E-learning. Students also favour group discussion through face-to-face when they can have social and physical communication, body language and eye-contact with teammates, thus the teamwork or team assignment can be done in an efficient and effective way.

When looking into opinion of students towards E-learning based on faculty of study, the finding was significant and have the same effect with the findings of studies carried out by Mohammad Ali and his team in 2018, Jamlan and his colleagues in 2004[7,8]. They preferred asking question through E-learning rather than face-to-face. This is because some students who are shy will face some difficulties in asking questions in the public and thus e-learning enables them to clear their doubts using private chat box with their lecturers. This will enable students to save their time to approach their lecturers in person after class or during their free time. Instead, e-learning enables them to save their time by approaching their lecturers using WhatsApp, Telegram and Zoom chat box. Besides, it was found that when an E-learning course and a face-to-face course are given on the same content, students will no longer join the face-to-face lectures. This is because students could not see the purpose of attending lectures of the same contents or if they attend the same lecture, they might not focus or concentrate to the lecturer's teaching. Hence, there is a significant in opinion towards e-learning.

Assessing attitude of students towards face-to-face based on year of study, the finding shows significance and similar to the study conducted by Atwa Hani and his team in 2022[9]. The reason for this is due to students noticed that it is easier to conduct communication and discussion during group projects, discussion or works, due to presence of human being, eye contact and body language. Some of them might not be able to afford a new electronic device such as iPad or computer to support their online learning. Eye fatigue is noticed after using electronic devices for a long time since student has to sit in front of the screen for hours, and watching the screen for long times can actually bring deleterious effects to our eyes.

Regarding the students' attitude towards E-learning according to their Year of Study, the finding was significant and in line with the studies conducted by Niroumand S and his group in 2022, Puljak and his members in 2020, Albelrahim M. Zabadi and his colleagues in 2016[9,10,11]. This might due to students frequently feel homesick when they are away from home for a long period of time. As the saying goes, home sweet home, it was obvious that students prefer online learning because this method of learning enables them to stay at home to study and gain knowledge. They feel that their home will provide them a more comfortable environment for study and this may increase their effectiveness in their studies and as a result they may achieve higher grades or better results via online learning. Students find it convenience to clear their doubts through private chat box with the lecturers during E-learning. This may be due to the personality of a student who is more introvert or shy and does not willing to raise a question in the public. Thus, online technologies provide them a platform to clear their doubts with their lecturers privately. Last but not least, online learning allows students to save time and cost for

transportation. This is because to pursue tertiary education, students usually need to travel to these institutions which are far from their hometown, this might require time and transportation fees to reach their destinations. Therefore, online learning helps in saving time and money for transportation.

The evaluation of students' opinions towards e-learning yielded significant findings that were in line with the researches carried out by Milan Klement and his team in 2014, Mad and his colleagues in 2020, Verma C and his group in 2020[11],[12,13]. Students feel that E-learning provide more flexibility in terms of transport, time, and cost due to the reduced amount of frequencies needed to travel back to school or university. Students can also attend the online lectures anytime and anywhere without having geographical constriction, and even when students are not feeling well. They believe that improving knowledge through E-learning is much better when they are motivated to attend the class instead of being forced to stay in the campus. They also find it acceptable to gain knowledge on their own by working through an E-learning course and searching the E-book online. This enables the students to experience different ways of teaching from different lecturers all around the world.

Conclusion

Based on the study findings, students at AIMST University, both foundation and undergraduate students from various faculties, have various attitudes and opinions about online learning and face-to-face learning. Students who participated in this study from different faculties and years of study rated e-learning positively, but they insisted that face-to-face lectures were still the essential component of a university education.

As a result, the survey's findings indicate that for AIMST University foundation and undergraduate students, the hybrid technique is the most preferred course of study. While some students prefer face-to-face learning because they can concentrate better in a lecture hall or in a less distracting classroom setting, others favoured online learning because they find it more convenient and flexible to study on their own.

It is undeniable that technology is advancing very quickly in this era. Through the internet, a variety of resources and information could be easily accessed. For this reason, we should take advantage of the easiness that the internet offers in order to enhance the efficacy and efficiency of our studies by acquiring information and resources on our own. In addition, online learning is a novel approach to education that is new to both lecturers and students. Consequently, in order for instructors and students to become accustomed to a new style of instruction and learning, some modification and adaptation may be required. As a result, even though the majority of the students responded favourably to e-learning, they still believed that face-to-face learning was more useful. Several of the

study's participants maintained that face-to-face lecture is essential for postsecondary education because it allows students to ask questions of their lecturers directly, which makes it more successful for practical and hands-on projects. The study's findings therefore showed that AIMST University students prefer hybrid learning environments that blend face-to-face and online learning.

Limitation

The study encountered some challenges considering the survey was completed online using a Google Form. It was possible that a number of respondents lack the internet connectivity needed to complete the questionnaire. It was observed that there were frequent connection disruptions when filling up the survey. Furthermore, it was possible that respondents will not be motivated to give truthful and precise responses. Moreover, respondents could not remember all they answered or might have just been bored, which might have compromised their motivations for providing a precise response. In addition, surveys that include just closed-ended questions may have a lower validity rate. The study conducted was a pre-liminary study about AIMST students' assessment towards E-learning and Face-to-Face learning after COVID-19. A further study is needed for more in-depth investigation.

Recommendations

It is recommended that any educational institution shall combines face-to-face learning with E-learning, with the hybrid method of teaching and learning. Rather than using only e-learning or face-to-face learning, hybrid learning should be used into academic programmes. In certain cases, students may benefit from a hybrid learning environment in which they attend theory lectures by Zoom or Google Meeting and at the same time engage in in-person clinical practice. Students who learn from E-learning can save money on transportation, cut down on travelling time, and experience less homesickness. In addition, in order to ensure they do not miss any essential lecture materials, students who are ill enough to be unable to attend in-person lectures can watch the recorded lectures online. Students may also attend face-to-face sessions in order to participate in clinical training or other hands-on learning opportunities. Students may adjust more readily and learn more quickly in an effective and efficient manner in this approach. Also, during in-person hands-on sessions, students can ask professors any questions immediately if they are confused or having issues during face-to-face learning.

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