International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

INTERNATIONAL JOURNAL OF MODERN EDUCATION (IJMOE)
www.ijmoe.com

GLOBAL ACADEMIC EXCELLENCE

ONLINE OR FACE-TO-FACE LEARNING: STUDENTS' PREFERENCES

Nurhafizah Ahmad[1], Chew Yee Ming[2*], Noor Aina Abdul Razak[3]

[1] Mathematical Sciences Studies, College of Computing, Universiti Teknologi MARA, Cawangan Pulau Pinang
Email: nurha9129@uitm.edu.my
[2] Mathematical Sciences Studies, College of Computing, Universiti Teknologi MARA, Cawangan Pulau Pinang
Email: chewyeeming@uitm.edu.my
[3] Mathematical Sciences Studies, College of Computing, Universiti Teknologi MARA, Cawangan Pulau Pinang
Email: nooraina@uitm.edu.my
[*] Corresponding Author

Article Info:

Article history:
Received date: 18.04.2024
Revised date: 13.05.2024
Accepted date: 15.06.2024
Published date: 30.06.2024

To cite this document:

Ahmad, N., Chew, Y. M., & Addul Razak, N. A. (2024). Online and Face-to-face Learning: Preferences. *International Journal of Modern Education, 6* (21), 339-351.

DOI: 10.35631/IJMOE.621024

Abstract:

Educators and students adapted to the new norm during the outbreak of the COVID-19 pandemic. It is imperative that the lecturers pay more attention to the preferences of the students to achieve optimum learning outcomes. This study is conducted to investigate students' perception on face-to-face learning and online learning and their preferences. Quantitative data were collected from 118 undergraduate students from different engineering faculties enrol mathematics and statistics subjects. Descriptive statistics and quantitative data are used to analyse the data. The results of the study indicated that 74.6% of students felt more enjoyable and lively in face-to-face learning environments compared to online learning. Additionally, the majority of students in both courses (mathematics and statistics) still prefer traditional face-to-face learning approach.

Keywords:

Online Learning; Face-To-Face Learning; Preference; Mathematics And Statistics

Introduction

At the end of the year 2019, the world was shaken by the emergence of a new outbreak known as Coronavirus Disease or Covid-19. Due to the infection and seriousness of the disease, all countries in the world including Malaysia must close all educational institutions so that students can follow the social distancing measures. Furthermore, Malaysia Prime Minister also advised

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

educators to make online teaching the way forward by utilizing online application like Google Classroom, cikgooTUBE and Zoom (Bernama, 2020).

Universiti Teknologi MARA (UiTM) is the largest university in Malaysia having 34 campuses in all the states. To ensure the continuation of education, the university provided space for teaching and learning to be conducted through two mediums: face-to-face and open and distance learning (ODL), following nearly three years of online learning by the end of 2022. Students must learn from home in the ODL setting, and classes are held virtually using Google Meet, Microsoft Teams, or other platforms. Students participating in online learning would also watch instructional videos and complete tasks or tests that are posted on websites like YouTube or Google Classroom (GC) and UFUTURE.

Educators encountered various challenges due to the abrupt transition from traditional face-to-face learning to online learning. Hafiza (2020) claimed that the e-learning growth has been slow in Malaysia due to various factors such as technical issues, unreliable internet connections, areas with limited access, unengaging learning content, limited teaching materials, as well as users' readiness and awareness of new technologies. Yet, emerging challenges arise as the adoption of new online learning habits potentially alters students' motivation to study. Muthuprasad et al. (2021) discovered that the majority students in India are inclined towards participating in online learning amid the pandemic, showing a preference for recorded lectures and quizzes.

The academic performances of students in Statistics and Mathematics, crucial components of engineering courses, may be impacted if they encounter difficulties in either online or face-to-face learning. To ensure students achieve the optimum learning outcomes, it’s a major concern for them to opt for face-to-face learning or online learning. Therefore, the purpose of this study is to investigate students’ perception on face-to-face learning and online learning and their preferences.

Literature Review

Online learning is defined as “the use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience.” (Ally, 2004). On the other hand, face-to-face learning is “an instructional method where course content and learning material are taught in person to a group of students” and is assumed that the most traditional type of learning instruction. (Face to face learning, 2024)

Undoubtedly, online learning has beneficial to educators and students in the aspects of convenience, ease of participation, affordability, availability of blended learning prospects, and technology-driven benefit (Gherheș et al., 2021; Alam et al., 2021; Anggrawan & Jihadil, 2018). According to Abd Razak and Rusli (2022), students' readiness for online learning is high. Moreover, Abdul Aziz and Aida Zuraina (2020) examined the level of readiness and motivational factors in online learning of Diploma in Logistics Management and Supply Chain (DLS) students from semester 1 to semester 5. The results indicated that students' readiness for online learning is at a moderate level, while the relationship between students' motivation and online learning is highly significant. Mustapah and Rosli (2021) pointed that most of their respondents had a high level of satisfaction with online learning for mathematics, with only a

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

small number having a low level of satisfaction. Meanwhile, several studies conducted by researchers have shown similar results, namely that students' perceptions of online learning are at a moderate level (Hussin, Wazir & Rahman, 2021; Amin & Nasri, 2021; Ahmad, Anuar & Salleh, 2022).

Nonetheless, online learning has several challenges and drawback such as lack of internet access, the high price of ICT devices and Internet cost, lack of social interaction, lack of IT skills, and ineffective assessments, etc. (Suryaman et al., 2020; Muthuprasad et al., 2021, Abd Rahman, Kechil & Ab Razak, 2021). Internet connectivity problems is the major issue in online learning. Furthermore, many campus activities cannot be conducted online because they require a physical presence, such as experiments, lab work, company visits, business projects or work practices. Therefore, face-to-face learning can overcome these hurdles.

A variety of physical health concerns have been associated with online learning, especially amid the COVID-19 crisis (Dangal, 2021). These encompass issues such as eye strain, discomfort in muscles and joints, and heightened stress levels. Shete and Rane (2024) reported more than half of the students aged from thirteen to eighteen years old experienced neck pain due to gadget use for online learning.

A study by Ali et al. (2022) on Islamic studies subjects showed that student motivation is low when undergoing online learning. Gutiérrez et al. (2022) reported that face-to-face learning continued to be reverted to a significant degree in favor of the quality of teaching Applied Statistic although online teaching for the subject was feasible under study. Additionally, Gherhes et al. (2021) discovered that the students showed more interest in face-to-face learning compared to online learning. These findings are also supported by another research where more than half of the study responders pronounced that they do not want to attend online learning in the future if they have options (Chung et al., 2020).

Methodology

The study involved 118 students from the Engineering College at UiTM Pulau Pinang who enrolled in the subjects of Advanced Differential Equations (MAT565) and Statistics for Science and Engineering (STA408) during the October 2022-February 2023 semester. In the MAT565 course, both lectures and tutorials were conducted face-to-face. Conversely, for STA408, two hours of lectures were delivered online, while one hour of lecture and tutorial sessions were held face-to-face. During the March-July 2022 semester, all these students experienced fully online teaching and learning processes. To assess their experiences and perceptions, descriptive analysis was conducted on the survey results distributed via Google Forms to each student involved.

For this study, the researchers used a self-administered questionnaire that they had adopted and modified. Some modifications have been made to align the instruments with the specific objectives of this study. Students received the questionnaire from their lecturers. The questionnaire was supposed to be finished by respondents in five to ten minutes. For statistical analysis, the gathered data were loaded into SPSS version 22, the Statistical Package for Social Sciences.

Expanding upon this, the students' responses were sought regarding various aspects of their learning experiences, including their satisfaction with the teaching methods employed, their

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

preferences for online versus face-to-face instruction, and their overall engagement and participation levels in both online and face-to-face learning environments. Furthermore, demographic information such as age, gender, academic background, and prior experience with online learning may have been collected to provide additional context and insights into the students' responses.

Results And Discussion

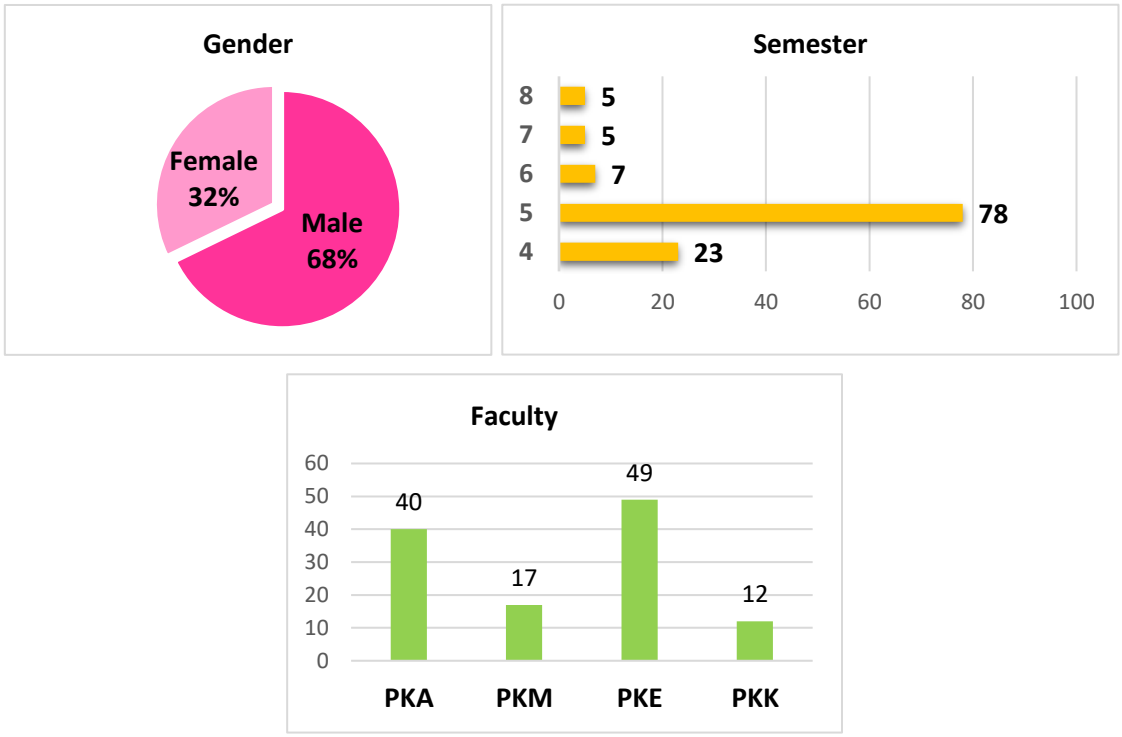


Figure 1: Respondents' Profile

Figure 1 shows a pie chart and bar chart illustrating the gender, semester, and faculty distribution of respondents. The majority of respondents are male, accounting for 68% of the total participants, while females make up 32% of the respondents. The highest number of respondents are from Semester 5, totalling 78 students, indicating that the survey predominantly includes students in their fifth semester of study. Semester 4 follows with 23 students, while Semesters 6, 7, and 8 have smaller representations in the survey, with 7, 5, and 5 students, respectively. Furthermore, the bar chart reveals that respondents are distributed across four faculties, with the largest number from Faculty of Electrical Engineering (PKE), consisting of 49 students. Faculty of Civil Engineering (PKA) follows with 40 students, while Faculty of Mechanical Engineering (PKM) has 17 students, and Faculty of Chemical Engineering (PKK) has the smallest representation with 12 students. These figures indicate that PKE has the highest response rate, constituting a significant portion of the respondents.

International Journal of Modern Education
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

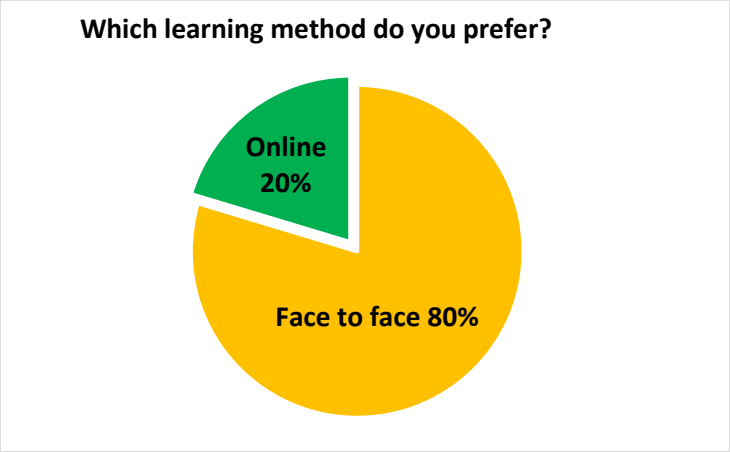


Figure 2: Respondents' Preference

Figure 2 shows the preferences of students between online and face-to-face learning. The results of the question 'Which learning method do you prefer?' indicate that 80% of the students favor face-to-face learning, while 20% opt for online learning. The majority's preference for face-to-face learning could be attributed to its interactive nature, where face-to-face learning allows for direct interactions with instructors and peers, enabling real-time discussions, debates, and group activities. This interactive nature can enhance the learning experience and foster a deeper understanding of the subject matter (Gao & Shi, 2023). Additionally, face-to-face learning provides opportunities for students to socialize, collaborate, and build strong relationships with their classmates, contributing to a sense of community and belonging.

On the other hand, those who prefer online learning appreciate its flexibility, personalized learning opportunities, and the convenience it offers, especially for students facing geographical constraints (Bali & Liu, 2018). Online platforms often provide a wide range of resources, such as multimedia content, online libraries, and interactive simulations, which can enrich the learning experience. As educators plan their programs, it is crucial to recognize and cater to these varied preferences, aiming for a balanced approach that harnesses the strengths of both learning methods to create a comprehensive and fulfilling educational experience for all students.

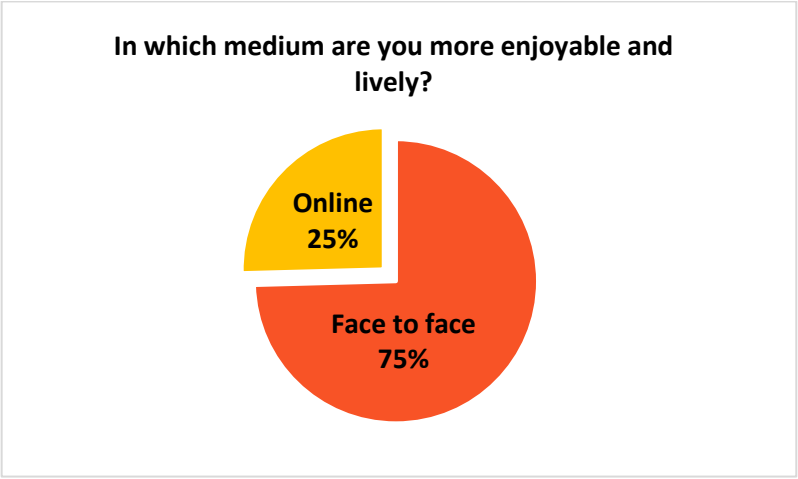


Figure 3: Respondents' Favorable

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

The result on the pie chart in Figure 3 shows that 75% of the students prefer face-to-face learning, while 25% favor online learning for a more enjoyable and lively educational experience. These results indicate a significant majority preference for face-to-face learning over online learning, suggesting that students find traditional, in-person interactions more engaging and enjoyable for their learning experiences. According to Gao and Shi (2023), possible reasons for this preference towards face-to-face learning could include valuing the opportunity to interact with peers and instructors in a physical classroom setting, as it allows for real-time discussions, collaboration, and immediate feedback. Additionally, the physical classroom environment may create a more focused and structured atmosphere for learning, minimizing distractions and enhancing concentration.

Furthermore, students may feel a stronger sense of connection and belonging in a face-to-face setting, leading to a more positive learning experience (Tang et al., 2023). Additionally, some subjects or learning activities may be better suited for face-to-face instruction, especially those that involve hands-on experiments, demonstrations, or practical training.

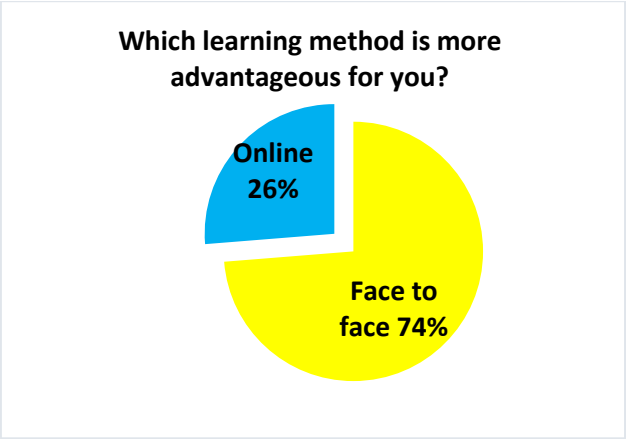


Figure 4: Preference For Learning Method

The pie chart above illustrates that 74% of students prefer face-to-face learning, indicating a strong preference for regular in-person interactions. This underscores the perceived benefits of interactive learning, real-time feedback, social engagement, and a structured classroom setting. In physical classrooms, students engage directly with their instructors and peers, fostering immediate discussions, debates, and group activities, resulting in a more engaging and dynamic learning environment (Amerstorfer & Freiin, 2021). Additionally, face-to-face learning facilitates prompt instructor feedback, assisting students in clarifying misconceptions and gaining a deeper understanding of complex concepts. Some students benefit from the structured environment of traditional classrooms, which enhances their ability to focus and concentrate.
However, it is important to note that a significant minority, 26%, favors online learning due to its perceived benefits of flexibility, access to resources, personalized learning options, and geographic convenience. Online education enables students to study at their own pace and schedule, accommodating those with a variety of commitments and allowing them to balance their education with other obligations (Kumi-Yebaoh, Dogbey, & Yuan, 2017).

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

Table 1: Mean and Standard Deviation for Item Online Class

Item	Scale					Mean	Standard Deviation
	1	2	3	4	5		
I enjoy having online class.	4 (3.4%)	18 (15.3%)	37 (31.4%)	39 (33.1%)	20 (16.9%)	3.45	1.051
I have greater ability to concentrate.	6 (5.1%)	27 (22.9%)	38 (32.2%)	37 (31.4%)	10 (8.5%)	3.15	1.035
I am more self-discipline and responsible.	5 (4.2%)	22 (18.6%)	47 (39.8%)	32 (27.1%)	12 (10.2%)	3.20	1.001
It is easier for me to communicate with my lecturer.	8 (6.8%)	27 (22.9%)	38 (32.2%)	29 (24.6%)	16 (13.6%)	3.15	1.129
It helps me to comprehend the course materials.	3 (2.5%)	18 (15.3%)	42 (35.6%)	41 (34.7%)	14 (11.9%)	3.38	0.969

Table 1 presents the mean and standard deviation for items related to online classes. The survey results suggest that, on average, students hold a positive perception of online classes, finding them enjoyable with a mean rating of 3.45 (SD=1.051). The mean ratings of 3.15 (SD=1.035) for "having greater ability to concentrate" and "easier communication with the lecturer" (SD=1.129) indicate that students generally experience a moderate level of improvement in these aspects during online classes. Similarly, with a mean rating of 3.20 (SD=1.001), students reported a moderate increase in self-discipline and responsibility while engaging in online learning. Additionally, online classes were found to be helpful in comprehending course materials, with a mean rating of 3.38.

Overall, the results show that students have a moderately positive perception of online classes, finding them enjoyable (3.45) and helpful for comprehending course materials (3.38). While the ability to concentrate (3.15) and communication with lecturers (3.15) receive slightly lower mean ratings, they still indicate a moderate level of effectiveness. Similarly, students reported experiencing a moderate increase in self-discipline and responsibility (3.20) during online learning (Keelson, Twenefour & Techie Quaicoe, 2023). These findings suggest that online classes have several benefits, including enjoyable learning experiences and support in understanding course materials. However, there may be room for improvement in areas such as concentration and communication, which educators can consider when designing online learning environments to enhance student engagement and satisfaction (Gray & Diloreto, 2016).

International Journal of Modern Education
EISSN: 2637-0905
IJMOE
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

Table 2: Mean and Standard Deviation for Item Face-to-Face Class

Item	Scale					Mean	Standard Deviation
	1	2	3	4	5		
I enjoy having face to face class.	1 (0.8%)	3 (2.5%)	15 (12.7%)	41 (34.7%)	58 (49.2%)	4.29	0.848
I have greater ability to concentrate.	2 (1.7%)	1 (0.8%)	16 (13.6%)	42 (35.6%)	57 (48.3%)	4.28	0.856
I am more self-discipline and responsible.	1 (0.8%)	2 (1.7%)	14 (11.9%)	50 (42.4%)	51 (43.2%)	4.25	0.797
It is easier for me to communicate with my lecturer.	1 (0.8%)	2 (1.7%)	14 (11.9%)	42 (35.6%)	59 (50%)	4.32	0.815
It helps me to comprehend the course materials.	1 (0.8%)	4 (3.4%)	20 (16.9%)	44 (37.3%)	49 (41.5%)	4.15	0.883

Table 2 displays the mean and standard deviation for items related to face-to-face classes. The results indicate that students highly enjoy face-to-face classes, as reflected by the mean rating of 4.29 (SD=0.848), underscoring a strong preference for traditional in-person learning interactions. Additionally, the survey reveals that face-to-face classes have a positive impact on various aspects of students' learning experiences. Students reported experiencing a significant improvement in their ability to concentrate, with a mean rating of 4.28 (SD=0.856). This suggests that the physical classroom environment fosters better focus and attention, contributing to a more engaged learning experience (Hanaysha, Shriedeh, & In'airat, 2023). Furthermore, face-to-face classes were associated with increased self-discipline and responsibility, as reflected in the mean rating of 4.25 (SD=0.797). This finding suggests that the structure and interpersonal dynamics of in-person learning promote a sense of accountability and motivation among students.

The finding also highlights the ease of communication with lecturers during face-to-face classes, as evidenced by the mean rating of 4.32 (SD=0.815). The direct interaction with instructors in the physical classroom allows for immediate feedback, clarifications, and personalized support, leading to more effective communication channels (Alawamleh, Al-Twait, & Al-Saht, 2020). Although the mean rating for "comprehending course materials" is slightly lower at 4.15 (SD=0.883), it still indicates that students find face-to-face classes beneficial for understanding the course content effectively. The in-person learning experience likely facilitates interactive discussions, real-time explanations, and hands-on demonstrations, contributing to a deeper grasp of the course materials (Gray & Diloreto, 2016).

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

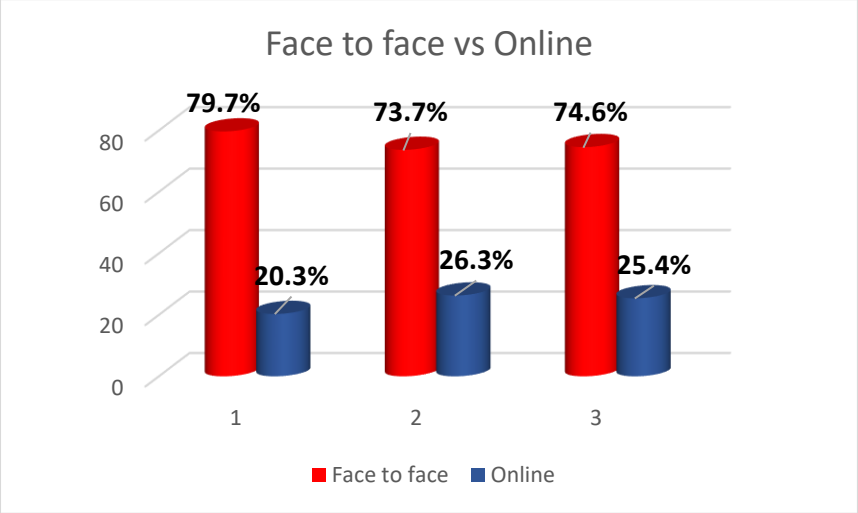
Table 3: Learning Method Preference by Course

		Which learning method do you prefer?		
		Face to face	**Online**	Total
course	**Mathematics**	26	3	29
	Statistics	68	21	89
	Total	94	24	118

The majority of respondents, totalling 26, expressed a preference for taking the mathematics course in a face-to-face setting. This result suggests that a significant number of students in this study find traditional, in-person interactions more advantageous for learning mathematics. For the statistics course, an even larger number of respondents, totalling 68, indicated a preference for face-to-face learning. This indicates a stronger preference for in-person interactions when it comes to learning statistics (Gherheș et al., 2021).

The results also indicate that a small number of respondents, only three in total, preferred taking the mathematics course online. This suggests that only a few students in this study find online learning suitable for studying mathematics (Almarashdi & Jarrah, 2021). In contrast, a larger number of respondents, totalling 21, expressed a preference for taking the statistics course online. This indicates a relatively higher acceptance of online learning for the statistics course within this group of students.

The results reveal that students' preferences for the learning method differ based on the specific course they are taking. While both mathematics and statistics courses have a higher preference for face-to-face learning, the statistics course shows a more substantial preference for in-person interactions, with 68 respondents favouring face-to-face learning compared to 26 respondents in the mathematics course. On the other hand, the online learning option is relatively less favoured by the students in both courses, with only 3 respondents choosing online learning for the mathematics course and 21 respondents for the statistics course. This indicates that a significant majority of students in both courses still prefer the traditional face-to-face learning approach.



1. Which learning method do you prefer?
2. Which learning method is more advantageous for you?
3. In which medium are you more enjoyable and lively?

Figure 5: Students' Preferable Method of Learning

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

The majority of students (79.7%) expressed a preference for face-to-face learning, indicating a strong inclination towards traditional, in-person interactions for their educational experiences. On the other hand, a smaller percentage of students (20.3%) preferred online learning, suggesting that a notable minority finds virtual learning more suitable for their needs. The preference for face-to-face learning may be influenced by several factors, such as the value of immediate social interactions, real-time feedback from instructors, and the sense of community and engagement fostered in physical classrooms (Hollister et al., 2022). Conversely, those who prefer online learning might appreciate the flexibility, convenience, and access to digital resources that online platforms can offer. The preference for one learning method over the other can vary based on individual learning styles, subject matter, and personal preferences (Giday & Perumal, 2024).

Similarly, a majority of students (73.7%) perceived face-to-face learning as more advantageous for their educational needs, suggesting that they believe in-person interactions provide greater benefits compared to online learning. Conversely, a significant minority of students (26.3%) found online learning to be more advantageous, appreciating the specific benefits it offers. The perception of face-to-face learning being more advantageous might be linked to the sense of connection with instructors and peers, the ability to receive immediate feedback, and the interactive nature of physical classrooms (Wut & Xu, 2021). However, those who find online learning advantageous may highlight the flexibility to study at their own pace, access to a wide range of digital resources, and the ability to customize their learning experience according to their preferences and schedules.

A significant proportion of students (74.6%) reported feeling more enjoyable and lively in face-to-face learning environments, suggesting that in-person interactions contribute to a more engaging and vibrant learning experience. Conversely, 25.4% of students felt more enjoyable and lively in online learning settings, indicating that some students thrive in virtual learning environments. The enjoyment and liveliness experienced in face-to-face learning might be attributed to the social dynamics, active participation in discussions, and the physical presence of instructors and peers (Gray & Diloreto, 2016). However, the appeal of online learning for some students might be due to the flexibility, self-paced learning, and the use of multimedia resources that online platforms offer.

Conclusion

Online learning has revolutionized education by providing unprecedented flexibility, accessibility, and convenience. On the other hand, face-to-face learning offers unique benefits that cannot be replicated in a virtual environment. The physical presence of educators and peers facilitates immediate feedback, meaningful interactions, and collaborative learning opportunities. According to the study's findings, 74.6% of students felt more enjoyable and lively in face-to-face learning environments compared to online learning. Although online learning offers versatility and flexibility, students are keen on having social interaction with peers and lecturers in classroom. Moreover, the majority of students still prefer traditional face-to-face learning approach in both mathematics and statistics courses although online learning is the feasible learning method during the post pandemic era.

The study only looked at students from UiTM Pulau Pinang, which might make it hard to use the findings for other groups of people. To fix this, future research could include students from

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

different college or university to enrich the findings. Also, comparing different campuses or types of education could help us understand the topic better.

Acknowledegment

Special appreciation and gratitude to the College of Computing, Universiti Teknologi MARA Pulau Pinang Branch, who provided facilities and moral support. Also, thanks to all respondents that involved in the success of this study.

References

Abd Rahman, N. H., Kechil, R., & Abd Razak, N. A. (2021). Quality Assurance: Perspectives on Readiness, Trust, Cheating and Plagiarism in e-assessment. *International Journal of Practices in Teaching and Learning (IJPTL)*, 1(2), 1-5.

Abd Razak, R. H., & Rusli, N. F. M. (2022). Pembelajaran secara dalam Talian: Tahap Kesediaan dan Keberkesanan Pelaksanaannya kepada Pelajar. *LSP International Journal*, 9(1), 31-43.

Ahmad, A. B., Anuar, A. F., & Salleh, M. (2022). Keberkesanan Pengajaran dan Pembelajaran atas Talian Pelajar di UniKL MICET semasa Perintah Kawalan Pergerakan. *Jurnal Kesidang*, 7(1), 91-102.

Alam, M. M., Ahmad, N., Naveed, Q. N., Patel, A., Abohashrh, M., & Khaleel, M. A, et al. (2021). E-learning Services to Achieve Sustainable Learning and Academic Performance: An Empirical Study. *Sustainability*, 13(5), 2653. https://doi.org/10.3390/su13052653

Alawamleh, M., Al-Twait, L., & Al-Saht, G. (2020). The Effect of Online Learning on Communication between Instructors and Students during the Covid-19 Pandemic. Asian Education and Development Studies. Advance online publication. https://doi.org/10.1108/AEDS-06-2020-0131

Ali, A. N. M., Tawil, S. S. M., Supani, S., & Ariffin, A. Z. A. A. (2022). Motivation in Online and Face-To-Face Learning and Teaching: An Observation Towards IKMAS Student. *Sains Insani*, 72-83.

Ally, M. (2004). Foundations of Educational Theory for Online Learning. In T. Anderson & F. Ellouimi (Eds.), Theory and practice of online learning. Athabasca, AB, Canada: Athabasca University.

Almarashdi, H., & Jarrah, A. M. (2021). Mathematics Distance Learning Amid the COVID-19 Pandemic in the UAE: High School Students' Perspectives. *International Journal of Learning, Teaching and Educational Research*, 20(1).

Amerstorfer, C. M., & Freiin von Münster-Kistner, C. (2021). Student Perceptions of Academic Engagement and Student-teacher Relationships in Problem-based Learning. *Frontiers in Psychology*, 12, 713057. https://doi.org/10.3389/fpsyg.2021.713057

Anggrawan, A. & Jihadil Q. S. Q. S. (2018). Comparative Analysis of Online E-Learning and Face To Face Learning: An Experimental Study. *Third International Conference on Informatics and Computing (ICIC)*, Palembang, Indonesia, pp. 1-4, doi: 10.1109/IAC.2018.8780495.

Bali, S., & Liu, M. (2018). Students' Perceptions Toward Online Learning and Face-to-face Learning Courses. *Journal of Physics: Conference Series*, 1108, 012094. https://doi.org/10.1088/1742-6596/1108/1/012094

Bernama. (2020). Make Online Teaching the Way Forward. The Edge. Retrieved from https://www.theedgemarkets.com/article/make-online-teaching-way-forward-pmadvises-teachers

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

Dangal, M., & Maharjan, R. (2021). Health problems experienced in online learning during COVID-19 in Nepali Universities. *International Journal of Online Graduate Education*, 4(1), 1-14.

Chung, E., Subramaniam, G., & Dass, L. C, et al. (2020). Online Learning Readiness among University Students in Malaysia Amidst COVID-19. *Asian Journal of University Education*, 16(2), 46–58. https://doi.org/10. 24191/ajue.v16i2.10294

Face to Face Learning. Available online: https://tophat.com/glossary/f/face-to-face-learning/?fbclid=IwAR2qkc6UWW3AZW7MeYmBRIVOV4zcO5sfB5XSizz4Y1yASi86xTyCctQNot0 (accessed on 20 February 2024).

García-Camacha Gutiérrez, I., Pozuelo-Campos, S., García-Camacha Gutiérrez, A., & Jiménez-Alcázar, A. (2022). Face-to-Face or Online Learning in Applied Statistics in Health Sciences? Failed Experiment or Opportunity after COVID-19?. *Education Sciences*, 12(12), 922.

Gao, X., & Shi, L. (2023). Interactions in Online versus Face-to-face Classes: Students' and Teachers' Perceptions. *International Journal of Chinese Language Teaching*, 4, 76-93. https://doi.org/10.46451/ijclt.20230305

Gherheș, V., Stoian, C. E., Fărcașiu, M. A., & Stanici, M. (2021). E-learning vs. Face-to-face Learning: Analyzing Students' Preferences and Behaviors. *Sustainability*, 13(8), 4381. https://doi.org/10.3390/su13084381

Giday, D. G., & Perumal, E. (2024). Students' Perception of Attending Online Learning Sessions Post-pandemic. *Social Sciences & Humanities Open*, 9, 100755. https://doi.org/10.1016/j.ssaho.2023.100755

Gray, J. A., & Diloreto, M. (2016). The Effects of Student Engagement, Student Satisfaction, and Perceived Learning in Online Learning Environments. *International Journal of Educational Leadership Preparation*, 11. Retrieved from https://eric.ed.gov/?id=EJ1103654

Hafiza, A. (2020). Memanfaatkan e-pembelajaran ketika Pandemik Covid-19: Nota Kampus. Bernama: Kuala Lumpur.

Hanaysha, J. R., Shriedeh, F. B., & In'airat, M. (2023). Impact of Classroom Environment, Teacher Competency, Information and Communication Technology Resources, and University Facilities on Student Engagement and Academic Performance. *International Journal of Information Management Data Insights*, 3(2), 100188. https://doi.org/10.1016/j.jjimei.2023.100188

Hollister, B., et al. (2022). Engagement in Online Learning: Student Attitudes and Behavior during COVID-19. *Frontiers in Education*, 7, 851019. https://doi.org/10.3389/feduc.2022.851019

Hussin, M. N., Wazir, R., & Rahman, K. A. A. (2021). Kajian Awal tentang Perlaksanaan Pembelajaran atas Talian dalam Kalangan Mahasiswa Pengajian Islam di Kolej Universiti Islam Antarabangsa Selangor (KUIS). *Jurnal Pengajian Islam*, 14(1), 148-159.

Ishak, A. A., & Talaat, A. Z. M. A. (2020). Pembelajaran Atas Talian: Tinjauan terhadap Kesediaan dan Motivasi dalam Kalangan Pelajar Diploma Logistik dan Pengurusan Rantaian Bekalan, Politeknik Seberang Perai, Pulau Pinang. *Jurnal Dunia Pendidikan*, 2(4), 68-82.

Keelson, S., Twenefour, F., & Techie Quaicoe, M. (2023). Students' Perception of Online Learning Quality and Preference for the Online Learning Model. *Journal of Education Society and Behavioural Science*, 36, 46-57. https://doi.org/10.9734/JESBS/2023/v36i91257

International Journal of Modern Education
IJMOE
EISSN: 2637-0905
Volume 6 Issue 21 (June 2024) PP. 339-351
DOI: 10.35631/IJMOE.621024

Kumi-Yebaoh, A., Dogbey, J., & Yuan, G. (2017). Exploring Factors that Promote Online Learning Experiences and Academic Self-concept of Minority High School Students. *Journal of Research on Technology in Education*, 50(1), 1-17. https://doi.org/10.1080/15391523.2017.1365669

Mustapah, J., & Rosli, R. (2021). Tahap Kepuasan Pembelajaran Matematik atas Talian semasa Pandemik Covid-19. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 6(4), 1-20.

Muthuprasad, T., Aiswarya, S., Aditya, K. S., & Jha, G. K. (2021). Students' Perception and Preference for Online Education in India during COVID-19 Pandemic. *Social Sciences & Humanities Open*, 3(1), 100101.

Shete, R., & Rane, S. (2024). Prevalence of neck pain in higher secondary students (8th to 12th standard) due to e-learning during the COVID-19 pandemic period: An online survey. *Journal of Bodywork and Movement Therapies*, 40, 16-22.

Suryaman, M., Cahyono, Y., Muliansyah, D., Bustani, O., Suryani, P., Fahlevi, M., & Munthe, A. P. (2020). COVID-19 Pandemic and Home Online Learning System: Does It Affect the Quality of Pharmacy School Learning? *Systematic Reviews in Pharmacy*, 11, 524–530.

Tang, C., Thyer, L., Bye, R., et al. (2023). Impact of Online Learning on Sense of Belonging among First Year Clinical Health Students during COVID-19: Student and Academic Perspectives. *BMC Medical Education*, 23(1), 100. https://doi.org/10.1186/s12909-023-04061-2

Wut, T. M., & Xu, J. (2021). Person-to-person Interactions in Online Classroom Settings under the Impact of COVID-19: A Social Presence Theory Perspective. *Asia Pacific Education Review*, 22(3), 371–383. https://doi.org/10.1007/s12564-021-09673-1