



## The Impact of Frequent Technological Adoption on the performance of students in the UAE

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### ABSTRACT

This research investigates the relationship between frequent technological adoption and the academic performance of students in the UAE. The data is collected from primary and secondary data sources. The data collection method used is mixed approach which includes qualitative and quantitative methods. The sample size of the survey is 50 respondents who are students from different institutions. This study looks at several aspects of the relationship between frequent technology adoption and academic performance. Most respondents don't think that frequent adoption of new technologies is impacted by the quality of sleep. Additionally, respondents think that student competitiveness has no bearing on how frequently technology is adopted. Another factor that has no effect on the regular use of technology is family pressure. It is clear that regular technology uptake is unaffected by the teacher-student dynamic. As to the study, there is no evidence suggesting that the frequency of technological adoption is influenced by the teacher-student interaction. Ultimately, the data indicates that a majority of respondents, specifically 98%, hold the belief that pupils' academic performance is impacted by their frequent use of technology.

### 1. INTRODUCTION

In the education world, there are various factors that affect a student's academic performance. Most commonly, frequent technological adoption has been termed as a concerning factor, especially among students [1], [2]-[4]. The main challenge of this research is to identify the factors that cause frequent technological adoption in a student and if frequent technological adoption, then eventually leads to have any impact on the academic performance. Therefore, this research study has a clear purpose of understanding if any connection exists between frequent technological adoption and academic performance [5]-[8]. To help complete the research, a descriptive study has been conducted with a sample size of 50 respondents who will be targeted only on students. The importance of this research is not only beneficial

academically; but will also help educators and parents to create strategies that can create a healthy academic environment which will improve the well-being of the students [9]-[12].

### 2. LITERATURE REVIEW

The authors used achievement pressure, lack of motivation, risk of school dropout, lack of sustainable employment mental Health, sleep Patterns and substance use as independent variables. The outcome states that stress has a negative impact on students' learning capacity, academic performance, educational and employment achievements [13]-[16]. [17]-[20] In these studies, the authors used sleep quality, sleep duration and daytime sleeping as independent variables. The study revealed that

excessive daytime drowsiness and poor sleep quality were linked to decreased academic performance in medical students. This highlighted the importance of improving sleep quality to raise academic performance and healthcare quality [21]. [22]–[25] conducted the research and the authors used burnout as an independent variable. The study conducted had a conclusion that burnout has a significant negative impact on academic achievement in school, college, and university contexts.

[26]–[29] used social media addiction as an independent variable. The study found that social media addiction has an indirect impact on academic performance by increasing students' frequent technological adoption and anxiety levels. However, the location of the study is unknown [30]. The authors used sleep patterns, eating habits, family attention and student-teacher relationship as independent variables [31]–[33]. The outcome of the research states that students experienced frequent technological adoption due to the variables which had an impact on academic.

[34]–[36] conducted the research in Italy. They used sleep patterns, sleep quality and sleep timing as independent variables. The findings of the study underline that insufficient sleep among adolescents is a major health problem, resulting in negative consequences such as health risks, poor cognitive function, and increased behavioral errors [37].

[1], [38], [39] conducted the study in the United Kingdom. The authors used future pressure, family pressure, competition, and expectations as independent variables. The research reveals that academic achievement pressures, along with future pressure, family pressures, competition and academic expectations have affected the mental health of schoolgirls [18]–[20].

[2], [40], [41] authors used gender, anxiety prone, personality factors, social connections and lifestyle factors as independent variables. The study shows that academic frequent technological adoption is a widespread problem that affects a large number of students across many countries [42]. The independent variables tested have an influence on frequent technological adoption levels.

[3], [6], [43], [44] used academic workload, competition, subject difficulty, teach relationship, sleep quality and time management as independent variables [45]. The results show that

frequent technological adoption is a main issue for students in Zambia, with academic pressures and other factors having a negative impact on academic performance.

[7]–[9], [46] used teacher- student relationship and parental influence as independent variables. The study outcome states that there is a negative impact of frequent technological adoption on the academic performance with teachers and parents identified as major frequent technological adoption factors [10], [13], [47], [48].

### 3. METHODOLOGY

In this research study, the data is collected through primary and secondary data sources. The primary data is collected through customer surveys and secondary data through relevant articles from Google Scholar and EBSCO. The primary data is gathered with quantitative method of a survey with a sample size of 50 participants comprising of students [22]–[25].

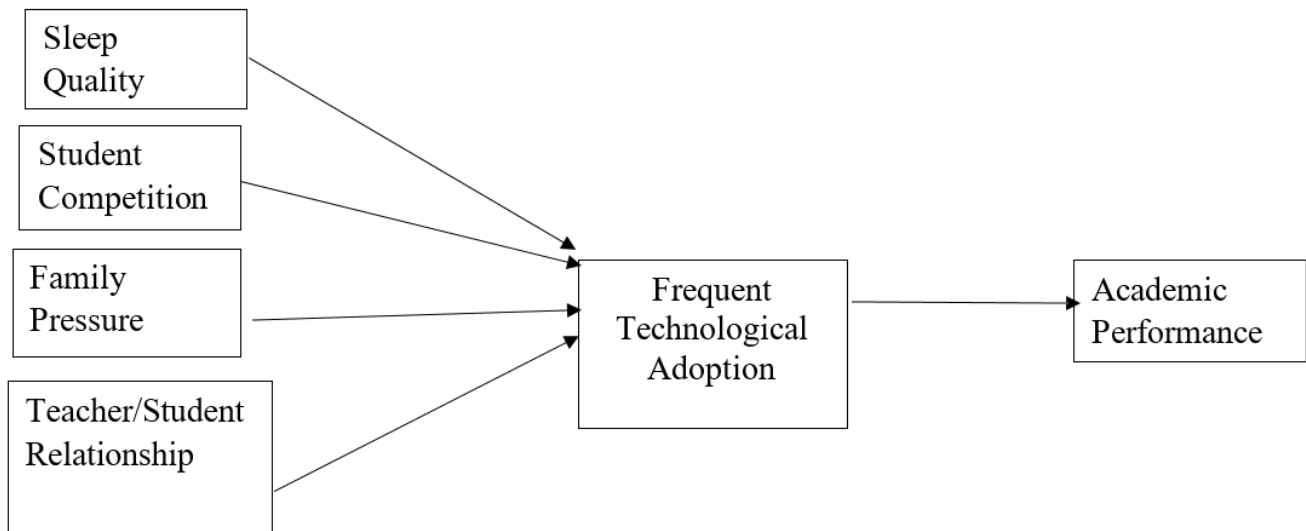
The research gap that has been identified through the literature review is based on the geographical differences. The research articles on this topic have been carried out in different countries which does not include the UAE. The students in every country have their own set of problems which can vary the research conclusion of this particular study. Therefore, this research is based only on the students in the UAE [49]–[52]. Eventually, the findings of this study will show how frequent technological adoption and its independent factors have impacted the academic performance [15], [16], [53], [54].

The main goal of the research is to understand the relationship between frequent technological adoption and academic performance of the students in UAE. The data sources used are survey respondents and literature review. These data sources will help to analyze factors such as sleep quality, student competition, family pressure and teacher-student relationship [18], [20], [55], [56]. By focusing on UAE students, the research fills the gap and provides valuable insights that can develop effective strategies to overcome this dilemma in the academic environment [23]–[25], [54], [57]. Research Design presents the variables, types and categories as shown in Table 1. The conceptual framework model of the study is in Figure 1.

Table 1: Table for variables, types and categories

Variables	Type	Category
<b>Sleep Quality</b>	Independent variable	Demographic
<b>Student Competition</b>	Independent variable	Demographic
<b>Family Pressure</b>	Independent variable	Demographic
<b>Teacher/student relationship</b>	Independent variable	Demographic
<b>Frequent technological adoption</b>	Mediating variable	Dichotomous
<b>Academic Performance</b>	Dependent variable	Dichotomous

Figure 2: Conceptual Framework



Research Questions are to be investigated as the following:

1. Do you think sleep quality has an impact on frequent technological adoption
2. According to you, does student competition has an effect on frequent technological adoption
3. From the range of very low to very high, how does family pressure impact frequent technological adoption?
4. Does teacher/student relationship affect frequent technological adoption?
5. Is there any effect of frequent technological adoption on the academic performance of

students?

With consideration to the conceptual framework, the following hypothesis are proposed:

- H0 (RQ2) There is no effect of student competition on frequent technological adoption. H1 (RQ2) There is an effect of student competition on frequent technological adoption. H0 (RQ3) There is no impact of family pressure on frequent technological adoption. H1 (RQ3) There is an impact of family pressure on frequent technological adoption. H0 (RQ4) There is no effect of teacher/student

relationship on frequent technological adoption. H1 (RQ4) There is an effect of teacher/student relationship on frequent technological adoption. H0 (RQ5) There is no effect of frequent technological adoption on academic performance. H1 (RQ5) There is an effect of frequent technological adoption on academic performance [6]–[9]. While conducting the research study, the ethical principles are taken into consideration. All the data sources are rightfully cited in the references. The survey is conducted with complete permission of the students. The respondents were not required to provide any personal or sensitive information as part of the research. The responses are treated with utmost privacy [2]–[5].

#### 4. DATA COLLECTION

This research adopts two types of data collection methods which are qualitative and quantitative techniques. This research studies utilizes both the types of data collection methods to understand the impact of frequent technological adoption on the academic performance of students in the UAE. Qualitative data collection is expressed through words and texts [10]–[13]. This method is used if a researcher wants to confirm or test a variable. The main examples of this method are interviews, focus groups, literature review and ethnography. In this assignment, literature review of articles has been used as a qualitative data collection method. Quantitative data collection is expressed through numbers and scales. This method is used if a researcher wants to understand a variable [14]–[17]. The types of quantitative methods are surveys, experiments and observations. In this assignment, the survey method is used to collection quantitative data. As both types of data collection are used in this research, it is known as a mixed methods approach.

Types of Surveys used are:

1. Based on deployment method: method of how the survey is distributed. The types of deployment methods are: online surveys, paper surveys, telephonic surveys and one to one interview. This research study uses the online survey method using Google Forms.

2. Based on frequency of deployment: there are three types of frequency methods that are: cross sectional studies, longitudinal surveys and retrospective surveys. As my survey was conducted only once, the frequency of deployment

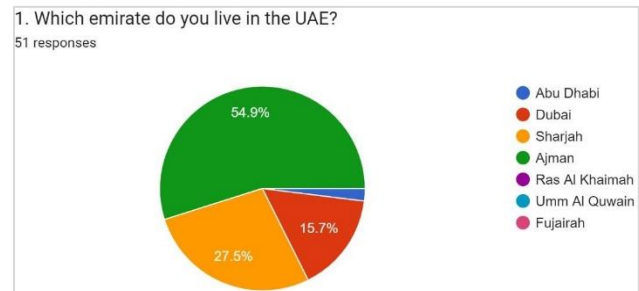
is one. This survey had a total response of 51 students.

Table 2. Levels of Measurement Assessment Tool

Research question	Measurement style	Measurement scale
Do you think sleep quality has an impact on frequent technological adoption?	Ordinal Interval	Semantic Differential scale
According to you, does student competition has an effect on frequent technological adoption?	OrdinalInterval	Semantic Differentialscale
From the range of very low to veryhigh, how does family pressure impact frequent technological adoption?	OrdinalInterval	Semantic Differentialscale
Does teacher/student relationship affect frequent technological adoption?	Ordinal Interval	Semantic Differential scale
Is there any effect of frequent technological adoption on the academic performance of students?	Nominal Ratio	Simple Category Scale

**Probability:** In a probability sample, items in the sample are chosen on the basis of known probabilities. The different types of probability sampling are:

- **Simple random:** The topics chosen are simple with no specification and all the data collected is used in data analysis.
- **Systematic:** All the data is not used for data analysis. The individual responses are selected at random.
- **Stratified:** The survey only begins when certain conditions or criteria are met.



- **Cluster:** The sample is divided into many clusters based on range.

The sampling method used in this research study is

the probability sampling method, specifically the stratified sampling technique. The stratified sampling is used because the sample used in this study has two criteria that need to be met. The two conditions are that the respondents should be students who are studying in UAE. The sample size of this research study is 51 respondents which are 100% students and living in UAE.

There are 4 types of data analysis

1. Reporting Study: The data is collected by someone else and the researchers is only required to check the data.
2. Descriptive Study: The researchers frame their own questions and based on the answers they describe the problem.
3. Explanatory Study: The researchers ask questions and receive respondents but they also explain the reasons or factors of why something happened and provide recommendations to solve it.
4. Predictive Study: The researchers predict the future based on recommendations or feedback from the respondents.

This research study is a descriptive and explanatory analysis both because the questions were asked as a survey to the respondents which were further analyzed and explained. Also, recommendations are also provided at the end which describe ways to solve the dilemma.

Statistical terms used in data analysis:

- Mean is the average number value of the total data set. It is calculated by adding all the values and dividing it by the total count of numbers.
- Standard deviation is the measurement of spreading of data from the mean of the data set.
- Skewness is a measure of the asymmetry of data distribution

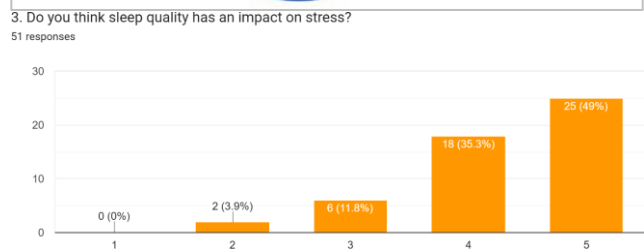
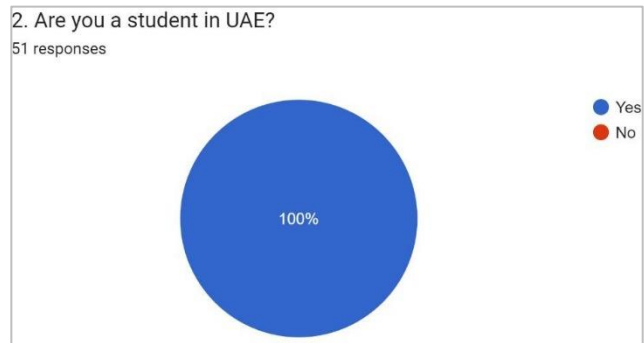
### 5. DATA ANALYSIS

The study outcomes have the following outcomes. The respondents are located in different emirates of the UAE. The majority students are living in Ajman with 54.9% of the total, followed by Sharjah at 27.5%, Dubai at 15.7% and Abu Dhabi at 2 %.

All the respondents of this survey are students in UAE which is clearly denoted by 100% of answers

as 'Yes'.

We can see that 49% of respondents have said that the impact of sleep quality on frequent technological adoption is 'Very Likely'. 35.3% have said it is 'Likely', 11.8% have said its 'Neutral' and 3.9% have said its 'Unlikely' and no respondent has chosen 'Very Unlikely'. Overall, almost half of the respondents believe that sleep quality has a very likely impact on frequent technological adoption.



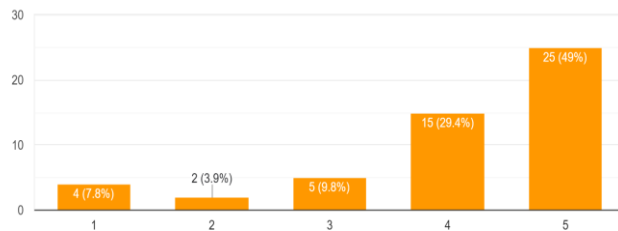
35.3% students believe that student competition has a neural effect on frequent technological adoption. 29.4% said it is 'Likely' while 25.5% students said it has a 'Very Likely' impact on frequent technological adoption. 5.9% said it is 'Unlikely' while 3.9% called it 'Very Unlikely'. On the whole, the majority responses were Neutral followed by Likely impact.

7. Is there any effect of stress on the academic performance of students?  
51 responses



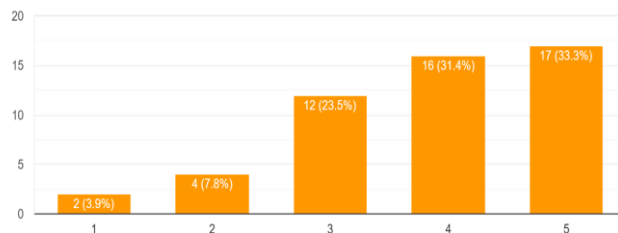
Based on the above scale it is evident that almost half of the students (49%) believe that family pressure has a 'Very Likely' impact on frequent technological adoption. 29.4% respondents have said it is 'Likely' while 7.8% have said it is 'Very Unlikely'. Only 3.9% of students have chosen 'Unlikely'. Therefore, this data clearly shows that the majority strongly believe that family pressure does have an impact on frequent technological adoption.

5. From the given range, how does family pressure impact stress?  
51 responses



In this set of data, the responses clearly denote that majority students of 33.3% have said it has a 'Very Likely' impact and 31.4% have called it 'Likely'. The neutral responses were 23.5%, while 'Likely' and 'Unlikely' were 7.8% and 3.9% respectively. All in all, most students do believe that the teacher/student relationship has an impact on frequent technological adoption.

6. Does teacher/student relationship affect stress?  
51 responses



The last set of responses conclude the independent variables by stating that 98% of students which are 50 students out of the sample size believe that 'Yes' there is an impact of frequent technological adoption on academic performance of students while only 2% believe otherwise.

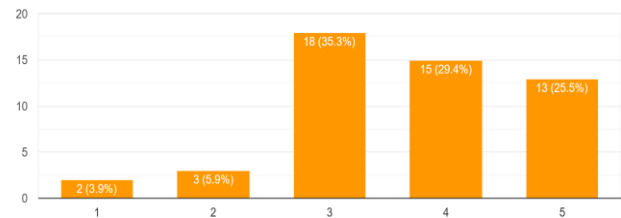
This section will analyze the mean, standard deviation, and skewness of each research question and test the hypothesis statements.

RQ1: Do you think sleep quality has an impact on frequent technological adoption?

Sleep Quality	
Mean	4.29
Standard Deviation	0.83
Skewness	-1.04

- The mean is 4.29 which indicates that the average responses were between 'Likely' and 'Very Likely', inclining more towards 'Very Likely'.
- The standard deviation is 0.83 which states that

4. According to you, does student competition has an effect on stress?  
51 responses



the maximum value given by respondents is  $4.29 + 0.83 = 5.12$  and the minimum value is  $4.29 - 0.83 = 3.46$ . Therefore, the range of response is between 3.46 and 5.12.

- The skewness is -1.04 which means that the distribution curve is left skewed. This indicates that the majority responses were less that the higher end scale which means 'Very Likely' received 49% responses whereas the rest of the responses were collectively equal to 51%.
- This mean that the majority of the respondents believe that sleep quality does not affect frequent technological adoption.
- H0 (RQ1) There is no impact of sleep quality on frequent technological adoption. H1 (RQ1) There is an impact of sleep quality on frequent technological adoption. In this research question H0 (RQ1) is accepted.

RQ2: According to you, does student competition has an effect on frequent technological adoption?

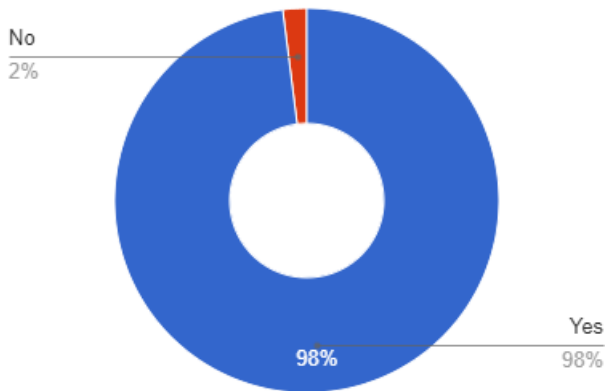
Student Competition	
Mean	3.67
Standard Deviation	1.05
Skewness	-0.46

- The mean is 3.67 which indicates that the average responses are between 'Neutral' and 'Likely', with majority choosing 'Neutral' at 35.3%.
- The standard deviation is 1.05 which states that

the maximum value given by respondents is  $3.67 + 1.05 = 4.72$  and minimum value is  $3.67 - 1.05 = 2.62$ . Therefore, the range of responses is between 2.62 and 4.72.

- The skewness is -0.46 which means that the distribution curve is skewed towards the left. This indicates that majority of responses were less than 5 at  $29.4 + 35.3 + 5.9 + 3.9 = 74.5\%$  which more than half of the responses.
- This mean that the majority of the respondents believe that student competition does not affect frequent technological adoption.
- H0 (RQ2) There is no effect of student competition on frequent technological adoption. H1 (RQ2) There is an effect of student competition on frequent technological adoption. In this research question H0 (RQ2) is accepted.

Academic Performance



RQ3: From the range of very low to very high, how does family pressure impact frequent technological adoption?

- The mean is 4.08 which means that the average responses are between 'Likely' and 'Very Likely' with majority responses at number 5 (49%).
- The standard deviation is 1.21 which states that the maximum value given by responses is  $4.08 + 1.21 = 5.29$  and the minimum value is  $4.08 - 1.21 = 2.87$ .
- The skewness is -1.41 which indicates a left skewed distribution curve. The skewness is heavier on the left side because the collective responses from Number 1 to 4 is higher than number 5.
- Therefore, the majority of respondents believe that family pressure does not impact frequent technological adoption.

- H0 (RQ3) There is no impact of family pressure on frequent technological adoption. H1 (RQ3) There is an impact of family pressure on frequent technological adoption. In this research question, H0 (RQ3) is accepted.

RQ4: Does teacher/student relationship affect frequent technological adoption?

- The skewness is -0.74 which shows a left skewed distribution. This indicates that the responses were more towards the low end of the scale between 'Neutral' and 'Likely'.
- Due to a negative skewness, it is evident that the teacher/student relationship does not affect frequent technological adoption. The distribution is concentrated between 3 to 4 which do not indicate a strong belief of the statement.

Teacher/Student Relationship	
Mean	3.82
Standard Deviation	1.11
Skewness	-0.74

- H0 (RQ4) There is no effect of teacher/student relationship on frequent technological adoption. H1 (RQ4) There is an effect of teacher/student relationship on frequent technological adoption. In this research question, H0 (RQ4) is accepted.

RQ5: Is there any effect of frequent technological adoption on the academic performance of students? (Dichotomous Question)

The statistical measures like mean, standard deviation a skewness will not apply to dichotomous variable for Yes and No responses. However, the interpretation is clear that the majority of respondents of 98% believe that frequent technological adoption does have an impact on academic performance of students.

### 6. RECOMMENDATION

In order to improve this research, there are several recommendations that should be considered. Along with quantitative data, some qualitative methods like interviews and focus groups should

be used to provide deeper understanding of students. Secondly, if the study is extended beyond the geographical location of UAE and involves students from worldwide, it would provide diverse responses which would have accurately represented the student population as a whole. Third of all, a large sample size above 100 would provide different types of responses and make the statistical analysis accurate. Lastly, the research study should also involve other stakeholders such as education institutions, family members and the teachers. Lastly, keeping these recommendations in mind there is always room for improvement and conducting better quality research each time.

## 6. CONCLUSION

This study investigates the effect of frequent technological adoption on the academic performance from the angles of different dimensions. The majority of the respondents believe that sleep quality does not affect frequent technological adoption. Respondents also believe that student competition does not affect frequent technological adoption. Family pressure is another dimension that does not impact frequent technological adoption. It is evident that the teacher/student relationship does not affect frequent technological adoption. The study reveals that there is no indication that teacher/student relationship affect frequent technological adoption [1]. Finally, it is clear that the majority of respondents of 98% believe that frequent technological adoption does have an impact on academic performance of students.

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