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| **IMPLICATION OF COVID-19 PANDEMIC ON TESL STUDENT’S ACADEMIC PERFORMANCE AT INSTITUTE OF TEACHER EDUCATION MALAYSIA** |
| Suriati Sulaiman, PhD  Institute of Teacher Education Malaysia, Kuala Lipis Pahang   |  |  |  | | --- | --- | --- | | ARTICLE INFO |  | ABSTRACT | | *Article history:*  Received 12 September 2024  Accepted 25 September 2024  Published 15 November 2024 |  | COVID-19 has dramatically changed the way higher education was delivered at Institute of Teacher Education Malaysia (ITEM). The institution closure due to the pandemic has resulted in a rapid shift from face-to-face to online learning. This study aimed to investigate students’ academic performance at ITEM before and after the COVID-19 lockdown. The study essentially employed a quantitative approach based on archival research (AR) method. The investigation involved Bachelor of Teaching (PISMP) students, majoring in Teaching English as a Second Language (TESL) at 27 campuses. Sample was selected based on cluster random sampling. The academic achievement of two groups (220 face-to-face students and 220 online students) were collected. Comparison of scores, grade distribution, GPAs, and genders were made between the groups, who completed the same courses. Data were analysed descriptively and using inferential statistics of T-test, Chi-square, and Two-way ANOVA. The findings suggested that there is a significant difference in scores, grade distribution and GPAs between face-to-face and online students. The learning mode and gender were found to have a positive effect on students’ academic performance. After all, there is improvement in students’ academic performance at ITEM in online learning mode. | | *Keywords:*  Academic performance  TESL  Implication of COVID-19  Teacher education  \* Corresponding author. *E-mail address*: suriati.sulaiman@ipgm.edu.my |  | | |

**INTRODUCTION**

*1.1 Research Background*

Early in 2020, schools and universities worldwide were shut down because of COVID-19, causing around 1.2 billion students to miss class (WEF, 2020). As a result, distance learning and digital platforms have become increasingly popular. With this sudden closure of the classrooms, higher education institutions including Institute of Teacher Education Malaysia must shift from face-to-face to distant online learning.

Respectively, the closure of education institutions and the sudden shift of learning mode will likely have major impacts on students’ academic performance. This is proven in a cross-sectional study by Mahdy (2020). The findings showed that the COVID-19 lockdown has affected the academic performance of 96.7% participants who were veterinary medical students and researchers in universities and colleges from 92 countries at varying degrees. However, that is not the case in Realyvásquez-Vargas et al. (2020)’s study. The authors revealed the positive impact of online learning on students’ academic performance during the pandemic. It was deduced that the learning environment that is different from university classrooms could be the factor that contributes to the improvement. The finding is consistent with a study by Gonzalez et al. (2020) that disclosed the significant positive effect of online learning on students’ academic performance as indicated by better scores in all kinds of tests that were administered during the lockdown.

In addition, there are other issues emerging from the rapid shift to online learning such as access to technology, teachers’ readiness, and student response. A study by Kuhfeld et al. (2020) demonstrated that differential access to technology and online learning during the COVID-19 school closure could widen school achievement gaps. The authors claimed that certain factors, such as students were familiar with their teachers and they were potentially doing review rather than being taught of new material, might improve the virtual learning. Yet, many teachers claimed that it is hard for them to achieve effective online learning due to lack of training on virtual instruction. Respectively, the teachers are not well-prepared (Garcia & Weiss, 2020) and thus, they are not ready to teach online. The authors claimed that only 32.5% teachers in the US regard themselves competent in software applications, and 19.3% teachers claim that they are competent in instructional technology. Besides, different groups of students might respond to virtual learning differently and thus, students’ academic performance depends on what and how the teachers deliver the lesson in their virtual classroom (Hart et al., 2019).

*1.2 Problem Statement*

Several studies which compared university students’ academic performance in face-to-face and online distance learning proved no significant difference between the two groups. Soesmanto and Bonner (2019) investigated the effectiveness of two learning modes that were offered to two cohorts of first-year students in a business school at the Griffith University in Australia. The students took the same statistics course in a face-to-face or an online mode. The comparative analysis revealed no significant differences in students’ learning satisfaction and academic performance between the two groups. The finding is confirmed by a similar study in California State University. Tan (2019) suggested that both face-to-face and online learning of a business technology course have the same effectiveness as measured by students’ grade points in condition the educators received proper training and technology support from the university. In another course, Lorenzo-Alvarez et al. (2019) found that a radiology course taught online at a university in Australia resulted in similar academic outcomes to face-to-face learning. Evidently, there is no significant difference in students’ academic performance between online and face-to-face learning in higher education institutions. In fact, online learning could be as effective as face-to-face learning.

However, a well-planned online learning is totally different from shifting online in response to a crisis such as COVID-19 pandemic, as the sudden shift could be appalling to educators and students (Hodges et al., 2020) because the educators are not well-prepared to teach online (Garcia & Weiss, 2020), and thus, the impact on students’ academic performance might be different before and after the pandemic. Nyer (2019) investigated the effectiveness of online learning in a course that was previously taught using traditional face-to-face lectures at Chapman University in California. The study compared students‘ academic performance as measured by test scores across three modes of instruction: (1) using traditional face-to-face lecture, (2) using online lecture that is delivered using a video recording of the classroom lecture, and (3) using online lecture that is delivered using a static document created from an edited transcript of the classroom lecture embedded with charts and graphs. The finding showed that students who are exposed to online lectures scored lower in engagement compared to students attending traditional face-to-face lectures. Yet, the students who are exposed to an online lecture that is delivered using a static document and students attending the face-to-face lecture both are reported to have higher quality of notes compared to students who are exposed to online lecture using video recording. Apparently, online learning could affect students’ academic performance positively or negatively depending on instructional materials used in the classroom.

In another comparative study, Cavanaugh and Jacquemin (2015) examined the learning outcomes in online and face-to-face courses taught at Ohio University. The study involved 5,000 courses taught by over 100 faculty members over a period of ten academic terms. The result suggested that there is no difference in students’ academic performance as measured by course grade between faced-to-face and online courses. Yet, the regression analysis of the study disclosed that students with high GPAs performed better in online courses, and students with low GPAs performed worse in online courses compared to face-to-face courses. The finding is consistent with a recent study by El Said (2020). Such a result is expected since students with low GPA could not receive support and mentoring mechanisms provided by the university on-campus during the COVID-19 lockdown. In other words, online learning could either improve or deteriorate students’ academic performance depending on their GPAs in face-to-face courses. Besides, those who have high GPAs could benefit from online learning, but it is a disadvantage to students with low GPAs.

The author also claimed that only a few investigations have been reported on how higher education institutions all over the world have conducted online distance learning during the COVID-19 lockdown. Most of the studies which compared face-to-face, and online distance learning are conducted in developed countries. Very few similar comparative studies have been done in developing countries. Moreover, very few empirical academic studies have been published about this phenomenon. In fact, no empirical study has been conducted to investigate the phenomenon at Institute of Teacher Education Malaysia. Thus, it is imperative to investigate students’ academic performance in face-to-face and online distance learning at Institute of Teacher Education Malaysia before and after the lockdown.

As such, this study has been proposed to examine the impact of COVID-19 pandemic on academic performance of TESL students at ITEM. Furthermore, this is one of the first empirical studies investigating the effect of the sudden shift from face-to-face to online learning due to COVID-19 lockdown at 27 campuses in Institute of Teacher Education Malaysia. The test scores, course grades and GPAs are used in this study as the primary comparative factors in assessing students’ academic performance in face-to-face and online learning based on their coursework and final examination. Students’ genders and learning mode are considered as independent variables as these demographic and academic variables have been identified to affect students’ academic performance (Cavanaugh & Jacquemin, 2015; DiPerna et al., 2002). They are also considered in this study to decrease the possibility that any variation in students’ performance could be confounded by these demographic or academic variables, and not because the course is being taught in an online or face-to-face mode as mentioned by El Said (2020).

*1.3 Research Objectives*

The aim of this study is to investigate students’ academic performance at Institute of Teacher Education Malaysia (ITEM) after the sudden shift from face-to-face to online distance learning due to the COVID-19 lockdown. The study assessed differences in students’ academic performance from January 2019 to December 2020. The focus is on Teaching English as a Second Language (TESL) students at 27 campuses in ITEM. The objectives of the study, therefore, are:

1. to determine the difference in score between face-to-face and online students.

2. to determine the difference in grade distribution between face-to-face and online students.

3. to determine the difference in GPA between face-to-face and online students.

4. to determine the effect of learning mode and gender on academic performance.

*1.4 Research Questions*

The study planned to answer the following questions:

1. Is there a difference in score between face-to-face and online students.

2. Is there a difference in grade distribution between face-to-face and online students.

3. Is there a difference in GPA between face-to-face and online students.

4. Is there an effect of learning mode and gender on academic performance.

*1.5 Research Hypotheses*

H01 : There is no significant difference in score between face-to-face and online students.

H02 : There is no significant difference in grade distribution between face-to-face and online students.

H03 : There is no significant difference in GPA between face-to-face and online students.

H04 : There is no significant effect of learning mode and gender on academic performance.

**LITERATURE REVIEW**

*2.1 Academic Performance*

Academic performance has always been associated with the measurement of students’ achievement based on scores or grades across various academic courses. In many higher education institutions including Institute of Teacher Education Malaysia (ITEM), educators measure students’ academic performance using score and grade from coursework and standardized tests. The students’ academic performance is usually measured using grade point average (GPA) for a semester and using cumulative grade point average (CGPA) for the final grade earned in the course. A student's GPA is typically measured on a scale of zero to four. The higher GPAs represent higher grades in the classroom. The grade point average or GPA is commonly used by ITEM as a convenient measurement of students’ academic performance. The GPA is a better measurement because it provides a greater insight into the relative level of performance of individuals and different groups of students.

*2.2 Learning Mode and Academic Performance*

Quite a few studies have been carried out to investigate and compare students’ academic performance between face-to-face and online students. Since COVID-19 pandemic was announced on March 12, 2020, by the World Health Organization (WHO), many higher education institutions have been locked down. Consequently, the institutions have to dramatically change the way higher education is delivered. The rapid shift of learning mode from face-to-face to online learning is expected by many to have a negative impact on student learning and academic performance. Yet, in many studies, many differences exist. At one of the universities in Egypt, El Said (2020) investigated the effect of the sudden shift of learning mode due to COVID-19 lockdown on students’ academic performance. The study compared grades of 376 business students who completed a face-to-face course in spring 2019 and 372 students who completed the same course online in spring 2020. Grades of quizzes, course work, and final exam for the two groups were compared using T-test. Grade distribution for both groups were compared using Chi-square test. The finding revealed no significant difference in students’ grades between the two groups. Evidently, the sudden shift to online distance learning during the pandemic does not result in poor learning experience to students as expected. In other words, there is no significant effect of online learning on students’ academic performance during the lockdown.

In another study, online learning has proven to have a positive effect on students’ academic performance. At Universidad Auto´noma de Madrid in Spain, Gonzalez et al. (2020) analysed the effects of online learning on the autonomous learning performance of their students. The authors studied the differences in assessment score using a field experiment with 458 students from three different courses by dividing the students into two groups. The first group (control) corresponds to academic years 2017/2018 and 2018/2019. The second group (experimental) corresponds to students from 2019/2020. The finding showed that there is a significant positive effect of online learning on students’ academic performance. Based on this finding, it was deduced that online learning mode has changed students’ learning strategies to a more continuous habit, improving their efficiency in learning and eventually having better scores in assessment.

In a cross-sectional study, Mahdy (2020) analysed the impact of COVID-19 lockdown on academic performance of veterinary medical students and researchers. A total of 1,392 participants from 92 countries answered the online google form questionnaire. The finding showed that COVID-19 pandemic lockdown has affected the academic performance of 96.7% participants with varying degrees. Although students can self-study, it is not easy for practical lessons. Students think that it is hard for them to acquire veterinary competencies in online learning mode. Evidently, online learning might not be as effective as face-to-face learning when it involves practical courses. In other words, online learning could have a negative effect on students’ academic performance with practical lessons.

*2.3 Gender and Academic Performance*

Undeniably, there are many factors that could contribute to students’ academic performance. Among others, these factors include the role of the students, teachers, family, society, the school environment, and the educational system (Wang, Haertel, & Walberg, 1993). Another factor that could affect students’ academic performance is gender. Indeed, the gender gap in academic performance is evident in many education institutions but lacks empirical confirmation. The gender gap in academic performance has been extensively examined in the US and many other western countries in the past, yet no rigorous studies of the gender achievement gap have been conducted recently (Hdii & Fagroud, 2018).

One of the recent studies by Hdii and Fagroud (2018) compared the number of female and male students enrolled in the National School of Agriculture in Meknes from 2008 to 2015. The study also explored the gender gap in academic achievement based on exam scores, subjects, and graduating classes. There are three main categories of subjects, namely scientific subjects (mathematics and statistics), technical subjects (agronomy and animal care), and language subjects (English and French). The finding showed female students not only outnumber male students but also perform better than male students in different subjects. In fact, female students get better grades in all categories of subjects. However, the authors suggested that other studies should be done to seek explanations behind this gender achievement gap. For this reason, research with larger classes and by other institutions is recommended to confirm the findings.Based on the recommendations and guidelines from previous researchers, the researcher believed that it is timely to administer a study to investigate the implication of COVID-19 pandemic on students’ academic performance at Institute of Teacher Education Malaysia in terms of test score, grade distribution, GPA, and gender.

*2.4 Model of Academic Achievement*

Model of academic achievement proposed by Wang, Haertel and Walberg (1993) is an extension to Walberg's (1981) theory of educational productivity (McGrew, 2008). The theory is one of the few empirically tested theories of school learning based on an extensive review and integration of over 3,000 studies (DiPerna, Volpe & Stephen, 2002). The theory suggested four essential elements to determine students’ academic performance, namely (1) quality of instruction, (2) quantity of instruction, (3) home environment, and (4) exposure to mass media. Later, Walberg, Fraser, and Welch (1986) have reviewed the theory and identified nine key variables that affect students’ academic performance. The variables are (1) student ability/prior achievement, (2) motivation, (3) age/developmental level, (4) quantity of instruction, (5) quality of instruction, (6) classroom climate, (7) home environment, (8) peer group, and (9) exposure to mass media outside of school. In the current context, DiPerna et al. (2002) explained that the first three variables (ability, motivation, and age) reflect student characteristics. The fourth and fifth variables (quantity and quality) reflect instruction. The final four variables (classroom climate, home environment, peer group, and exposure to media) represent the psychological environment. Clearly, student characteristics, instruction, and psychological environment are imperative in students’ learning as it could determine students’ academic performance.

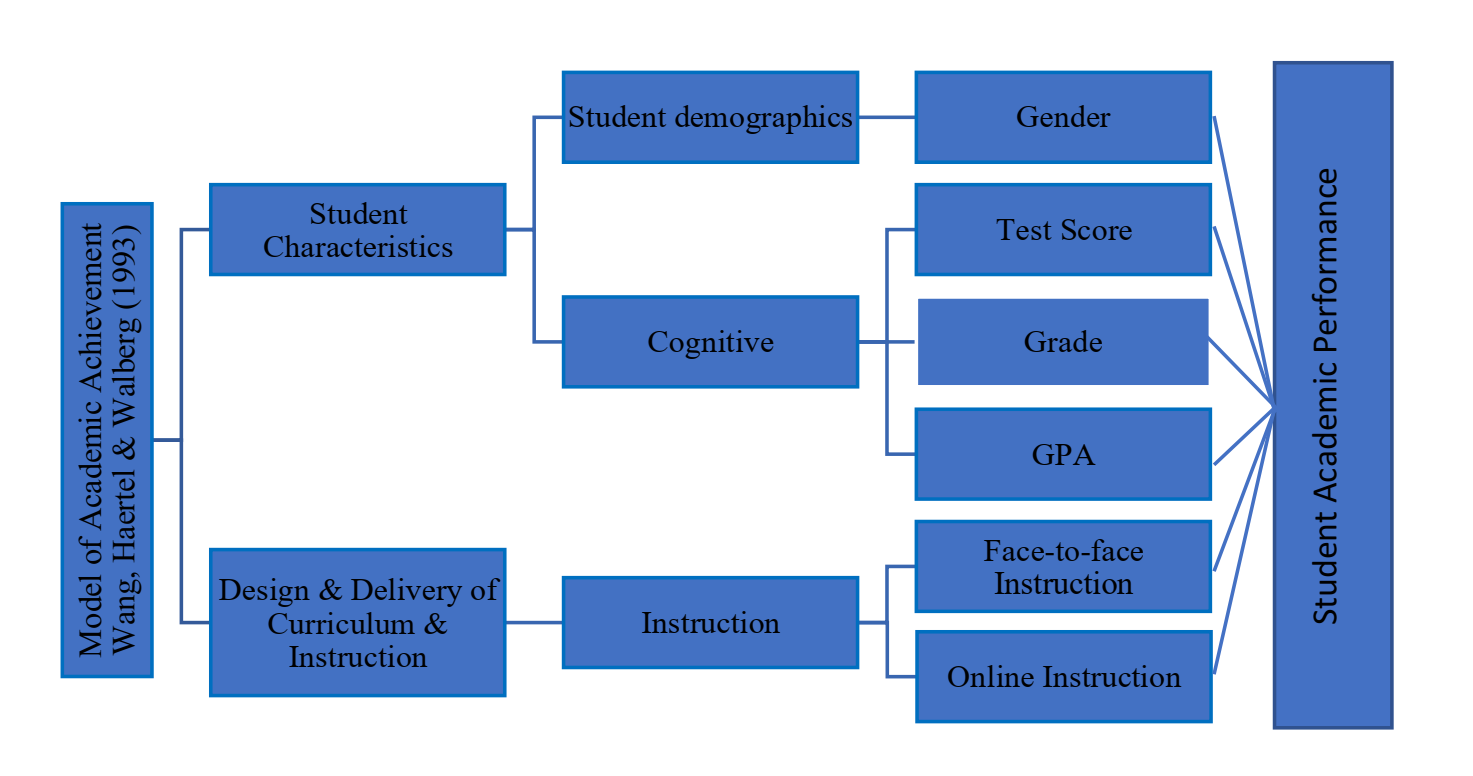
In a more recent study, Wang, Haertel and Walberg (1993) examined six major domains in predicting student learning outcomes. Such domains are (1) state & district governance & organization, (2) home & community contexts, (3) school demographics, culture, climate, policies & practices, (4) design & delivery of curriculum & instruction, (5) classroom practices, and (6) student characteristics. According to DiPerna et al., 2002, psychological, instructional, and home environment variables have a more significant impact on student achievement than other variables such as state-, district-, or school-level policy and demographics. The authors also claimed that student characteristics including student demographics, history of educational placement, social and behavioural, motivation and affective, cognitive, metacognitive, and psychomotor are the set of proximal variables with the most significant impact on students’ academic achievement.

*2.5 Conceptual Framework*

This study aimed to investigate the variation in TESL student gender-based academic performance as measured by score, grade distribution, and GPA after the sudden shift from face-to-face to online distance learning due to COVID-19 lockdown at Institute of Teacher Education Malaysia. For the study, the researcher employed a model of academic achievement proposed by Wang, Haertel and Walberg (1993) as a framework to guide the study. The model summarized six key variables that have significant impact on student achievement. However, in the context of this study, the researcher focused on two variables, namely student characteristics and instruction which have the most significant impact on student academic performance as revealed by DiPerna et al. (2002). The conceptual framework is visualized in Figure 1.

Figure 1

*Conceptual Framework*



**METHODOLOGY**

*3.1 Research Design*

This study essentially employed a quantitative approach based on archival research (AR) method. This method has been quietly undergoing a wholly remarkable change over the last decade (Kurtz, 2009). In general, archival research as defined by Pearce-Moses, (2005) is research that involves primary sources held in an archive, a special library collection, or other repository. The author explained that archival sources can be manuscripts, documents, records (including electronic records), objects, sound and audio-visual materials, or other materials. Likewise, Ventresca and Mohr (2017) contended that the archival research method includes a broad range of activities applied to facilitate the investigation of documents and textual materials produced by and about an organization. The authors clarified that in its most classic sense, archival method involves the study of historical documents; that is, documents created at some point in the relatively distant past, providing us access that we might not otherwise have to the organizations, individuals, and events of that earlier time. However, the authors emphasized that researchers can also employ archival methods to engage in non‐historical investigations of documents and texts produced by and about contemporary organizations to supplement other research strategies such as field method, and survey method. Yet, according to the authors, the archival method can also be applied to the analysis of digital texts including electronic databases, emails, and web pages. Apparently, archival research is a method that involves searching for and extracting information known as archival data from existing archival sources and such method can be employed to examine historical as well as non-historical documents and records either in the form of digital or non-digital texts or audio-visual materials.

In fact, archival research is increasingly addressing not only the professional and managerial aspects of archival practice, but also disciplinary aspects such as studying and theorizing the record, and the archives within their organizational, social, historical, cultural and information management contexts (Gilliland & Mckemmish, 2004). Considering the issues concerned (academic performance), the researcher employed archival research method to examine students’ academic database managed by the Centre of Examination and Graduation to investigate students’ academic performance in terms of test score, grade distribution, GPA, and gender awarded to TESL students at Institute of Teacher Education Malaysia in May 2019 and May 2020 academic years.

This research has obtained ethical approval by the Ministry of Education Malaysia (Reference: KPM.600-3/2/3-eras(10215) and permission has been granted by the Institute of Teacher Education Malaysia (Reference: KPM.600-2/1/4 Jld.4(32), where this study was conducted.

*3.2 Research Sample/Participant*

This descriptive and relational study was conducted on first-year students of Bachelor of Teaching (PISMP), majoring in Teaching English as a Second Language (TESL) at 27 campuses in Institute of Teacher Education Malaysia. The population of the study consisted of 1716 students in 2019 and 1765 students in 2020. The sample size of 220 was determined using G power, a software used to calculate statistical power for a wide variety of statistical tests including t-tests, F-tests, and chi-square-tests (Faul et al., 2007; Faul et al., 2009). Then, the sample was selected based on cluster random sampling. Cluster random sampling was employed in this study because it is time-efficient and cost-efficient for a large population, which requires fewer resources for the sampling process (Creswell, 2012). Furthermore, it is more feasible, in which each cluster represents the entire population, and more subjects can be included in the study.

In the present study, the researcher initially identified the population who was directly involved in the issues concerned. Next, the population was divided into five clusters according to five zones: North, East, Central, Sarawak, and Sabah. Then, the researcher chose the IPGKs which are in Tier 1 and Tier 2 for TESL programme since they have consistent intake every year and randomly selected the sample before collecting the data from ITEM academic database. Generally, the number of samples was calculated by dividing the number of samples (N = 220) by the number of IPGKs (refer to Table 1).

Table 1

*Sample Distribution*

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*3.3 Data Collection/Instrumentation*

The academic results of the two groups of students (220 face-to-face students and 220 online students) over the past two years (January 2019 – December 2020) were collected by the researcher, who participated in the teaching of the TESL programme in 2019 and 2020. Permission was granted by the Institute of Teacher Education Malaysia (ITEM) to anonymously analyse the examination data from academic databases and publish the results for academic purposes. Comparison of scores, grade distribution, GPAs, and genders were made between 220 TESL students who completed nine face-to-face courses (EDUP3033i, TSLB3033, TSLB3043, TSLB3052, TSLB3213, TSLB3223, MPU3031, MPU3041, MPU3052) in May 2019 and 220 students who completed the same courses but fully online via distance learning mode in May 2020 during the lockdown.

*3.4 Data Analysis*

The quantitative data were analysed descriptively in terms of mean, standard deviation, frequency, and percentage. T-tests for independent groups, chi-square, and two-way ANOVA of inferential statistics were also employed for analysing differences and effects using SPSS (Statistical Package for the Social Science) version 26.0. T-test was conducted with the calculation of mean, standard deviation, and mean difference to determine significant difference in score between the two groups: face-to-face and online students (RQ1) and to determine significant difference in GPA between face-to-face and online students (RQ3). Researchers computed Chi-square to determine significant difference in grade distribution between the two groups (RQ2). Meanwhile, Two-way ANOVA was used to determine the significant effect of learning mode and gender on academic performance (RQ4). The results were assessed at 95% confidence interval and significance level of p < .05.

**FINDING AND DISCUSSION**

The findings of the study are presented using tables and figures.

Research Question 1

Is there a significant difference in score between face-to-face and online students?

Table 2

*Comparison of Face-to-Face and Online Students on Score*

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To investigate the difference between two unrelated or independent groups (in this case face-to-face and online students) on an approximately normal dependent variable (in this case score), it is appropriate to choose an independent sample t-test in condition the assumptions are not markedly violated. To ensure that the data meet these assumptions, the researcher makes sure that groups or samples are of similar size, as the assumptions of homogeneity of variance is most important and more likely to be violated if samples differ markedly in size. Table 2 shows descriptive statistics for the two groups (face-to-face and online students) separately. The test results reveal that the appropriate t = -6.31, degrees of freedom (df) = 422.47, and p = .000. This t is statistically significant; thus, the null hypothesis was rejected. Based on the findings, we can say that face-to-face students are significantly different from online students on score. The 95% confidence interval of the difference is shown in the two right-hand columns of the table. The confidence interval tells us that if we repeat the study 100 times, 95 of the times the true (population) difference would fall within the confidence interval, which is between -2.82 points and -1.48 points. Furthermore, the same sign (- and -) in the lower and upper bounds indicates that the difference is statistically significant because the null finding of zero difference lies outside of the confidence interval. The lower limit of the confidence interval on score tells us that the difference between face-to-face and online students could be as small as -2.82 points out of 25, which is the maximum possible score. Inspection of the two group means indicates that the mean test score for face-to-face students (M = 76.64) is significantly lower than the score (M = 78.79) for online students. The difference between the means is -2.15. The difference between the groups is likely to be between -1.48 and -2.82 points. This range excludes the value of zero, indicating that there is difference, thus, the difference is statistically significant. The effect size measure is not provided in the t test but can be estimated relatively easily. For score, the difference between the means (-2.15) is divided by about 3.6, an estimate of the pooled (weight average) standard deviation.

Thus, the effect size d would be approximately .60, which is according to Cohen (1988), a medium to large effect size. It was found that the online students did score higher as compared to face-to-face students. With these findings, we can say that there is a significant difference in score between face-to-face and online students.

The findings seem congruent to a study by Gonzalez et al. (2020), in which students obtained better scores in online mode. Yet, the findings contradict with Nyer’s (2019) study, which suggested that the sudden shift of instruction mode has resulted in the students scoring lower in their test compared to the traditional face-to-face instruction. The improvement in score during online learning could be due to improvement in learning performance, in which students changed their learning strategies to a more continuous and autonomous habit, improving their efficiency. Moreover, the results of the present study support the idea that students’ behavioural, motivation and affective are the set of proximal variables with the most significant impact on their academic outcomes (DiPerna et al., 2002).

Research Question 2

Is there a significant difference in grade distribution between face-to-face and online students?

Table 3

*Comparison of Face-to-Face and Online Students on Grade Distribution*

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Chi-square statistic was used to investigate whether face-to-face and online students differ on whether they have most A in their grades or less. Assumptions were checked and were met. The skewness is less than minus one (-.352). As we can see at Table 3, there are no participants with missing data. It was determined that there are 100 students who had the most A (A+, A, A-); this is 45.5% of the 220 face-to-face students. On the other hand, 158 of 220 online students had most A; that is 71.8% of the students. The chi-square tests indicate that face-to-face and online students are significantly different on whether they have most A or less (2 = 31.52, df = 1, N = 440, p < .001), thus the null hypothesis was rejected. Apparently, the difference is not due to chance. It can be observed that online students are more likely than expected to have a higher percentage of A as compared to face-to-face students. In contrast, face-to-face students had a slightly higher percentage of B and C. Phi, which indicates the strength of the relationship between the two variables, is .268, and like the chi-square, it is statistically significant. Thus, the relationship between variables or effect size is small to medium according to Cohen (1988).

The results from the present study are comparable to the findings in the prior study (El Said, 2020), in which the online students had a slightly higher percentage of A and B as compared to the face-to-face students. On the other hand, face-to-face students had a slightly higher percentage of C and D than online students.

Research Question 3

Is there a significant difference in GPA between face-to-face and online students?

Table 4

*Comparison of Face-to-Face and Online Students on GPA*

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T-test was also administered to investigate the difference in GPA between face-to-face and online students. As can be observed in Table 4, the appropriate t = -6.68, and df = 387.65. It was found that the GPA of face-to-face students is significantly different from online students, (p = 000), thus the null hypothesis was rejected. The two group means indicate that the mean GPA for online students (M = 3.63) is significantly higher than the GPA (M = 3.50) for face-to-face students. The mean difference is -.13 points on a 25-point test. The difference between the groups is between -.09 and -.16, excluding the value of zero, thus the difference is statistically significant. The effect size was calculated by dividing the difference between means (-.13) by average standard deviation (.20), Thus, the effect size d is approximately .65, which is a medium to large sized effect. All things considered, there is a statistically significant difference in GPA between face-to-face and online students. The results indicate that online students did score higher GPA than face-to-face students. In other words, we can say that online students performed better in their academics than face-to-face students.

The findings are at odds with other studies by El Said (2020), Lorenzo-Alvarez et al. (2019), Soesmanto and Bonner (2019) and Tan (2019), in which there is no significant difference in academic performance between face-to-face and online students. Yet, all studies except by El Said were done before the pandemic and were well-planned, thus there is no significant effect on students’ academic performance. The improvement in students’ GPA might be due to the change of the learning environment. The learning environment conditions that are different from classroom at ITEM seem to have an impact on the students’ overall academic performance during the COVID-19 pandemic. Furthermore, the students received continuous moral support from family when they studied at home. These psychological and home environment factors do have a significant impact on students’ academic achievement as accentuated by DiPerna et al. (2002).

Research Question 4

Is there a significant effect of learning mode and gender on academic performance?

Table 5

*Descriptive Statistic for GPA as A Function of Learning Mode and Gender*

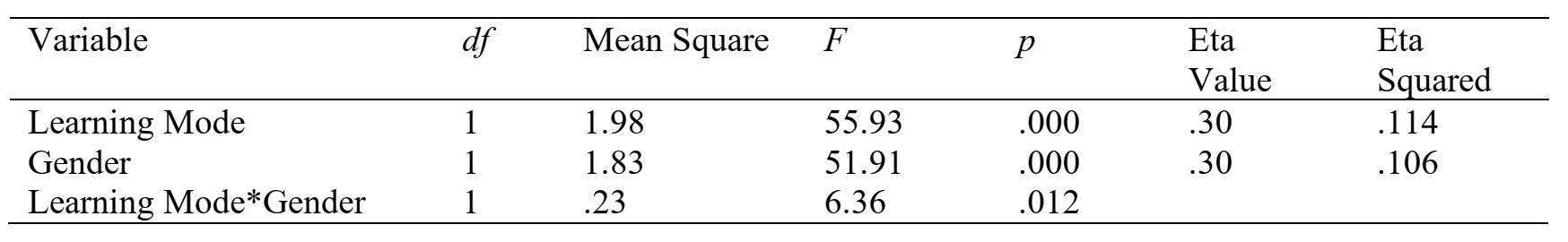
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To investigate whether there is an effect of learning mode and gender on academic performance, a two-way or factorial ANOVA was computed. This statistic was used as there are two different independent variables with a between groups design. When we look at Table 5, 440 participants (220 face-to-face students and 220 online students) are males (N = 101) and females (N = 339). The low standard deviations (SD = .26, SD = .16, SD = .20, SD = .15) indicate that the values of GPA tend to be close to the means.

Table 6

*Analysis of Variance for GPA as A Function of Learning Mode and Gender*



As indicated in Table 6, there is a significant interaction between learning mode and gender on GPA, F = 6.36,   
p = .012, thus, the null hypothesis was rejected. Because the interaction is significant, it was deduced that the effect of learning mode depends on female students as visualized in the profile plot. In addition to that, both independent variables are statistically significant. It was found that there is a significant main effect of learning mode on GPA, F = 55.93, p < .001. The significant F for learning mode means that face-to-face students scored slightly lower GPA (M = 3.50) than online students (M = 3.63); and this difference is statistically significant (p < .001). Besides, there is a significant main effect of gender on GPA, F = 51.91, p < .001. The significant F for gender means that male students scored lower GPA (M = 3.34, M = 3.55) than female students (M = 3.55, M = 3.65) in both face-to-face and online learning modes. Eta value indicates the strength of the relationship between learning mode, gender, and GPA. The value ranges from zero to about +1.0. High values of eta indicate a strong relationship between two nominal and normal or scale variables. In this case, the eta value for learning mode is about .30, which according to Cohen (1988), is medium to large effect size. With an eta squared of .114, the analysis indicates that about 11% of the variance in GPA can be predicted by learning mode. Examining the strength of the relationship between gender and GPA, it was determined that eta = .30, a medium to large effect size. Eta squared is .106, indicating that about 11% of the variance in GPA could also be predicted by gender.

Figure 2

*Profile Plot for GPA as A Function of Learning Mode and Gender*

A graph with lines and dots

Description automatically generated with medium confidence

As can be seen at Figure 2, the lines on the profile plot are not parallel, indicating there is a significant interaction between learning mode and gender. By looking at the total means and the profile plot, we can say that online students achieved better GPA than face-to-face students. The results also indicate that the female students did obtain higher GPA than male students regardless of whether they learned via face-to-face or online mode. To conclude, there is a statistically significant effect of learning mode and gender on academic performance. In fact, learning mode and gender seem to have a positive effect on TESL students’ academic performance at Institute of Teacher Education Malaysia.

The findings are consistent with a study by Mahdy (2020), in which online learning had a relationship with students’ academic performance and a study by Gonzalez et al. (2020), in which online learning had positive effect on students’ academic performance; though the effect was medium size as disclosed by Nyer (2019). Based on the analysis, it was deduced that female students performed better than male students in their academics, which is similar to a study by Hdii and Fagroud (2018). Considering all the findings, however, there is no concrete evidence that all TESL students benefited from the online learning, and thus, eventually improved their academic performance. Likewise, no evidence from the study could imply that face-to-face students with higher GPAs perform better in online learning and students with poor GPAs perform worse.

**CONCLUSION AND RECOMMENDATION**

The sudden shift of curriculum delivery from face-to-face to online instruction due to COVID-19 pandemic and the closure of higher education institutions has led to a distinctive rise of online instruction and learning. The rapid shift of instruction and learning mode could be a shock to many, particularly educators and students. It was expected that the immediate changes in instructional and learning mode may somehow have a negative effect on both parties involved since it is not well-planned. To investigate the implication of the pandemic on academic performance of TESL students at Institute of Teacher Education Malaysia, this comparative study has been designed. However, the unplanned and rapid move to online distance learning at the time of pandemic did not result in a poor learning experience as expected. In fact, the findings indicate that there is improvement in academic performance, in which the students performed better in terms of score, grade and GPA in online courses.

With regards to the limitations of this study due to sample selection, research focus and research approach, several studies have been proposed for future research. Further studies which investigate the issues and challenges of online learning from qualitative perspective based on students’ voices could be implemented. Examining the issues and challenges encountered by students could help the educational leaders and educators at Institute of Teacher Education Malaysia rectify the existing problem in integrating online learning in curriculum delivery, especially in developing contexts, where lack of IT infrastructure and skills among educators and students represents big challenges. Studies on factors that contribute to the improvement of student academic performance could be administered to investigate the internal and external factors that help the students in their remote learning, so that better options could be provided to students with poor academic performance and immediate actions could be taken by educational leaders and educators in administering the online instruction and assessment in future. The study could also be extended to seek explanations behind improvement in academic performance in online learning and good females’ achievement in assessment regardless of the learning mode. It is also recommended that educational leaders and educators at ITEM would consider integrating online distance learning in future education plans. Yet, another study on factors affecting TESL student continuous intention to use Google Classroom as a learning platform could be employed to support such recommendation.

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