UNIVERSITI PUTRA MALAYSIA

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THE PERCEPTION OF ONLINE LEARNING AMONG MEDICAL AND HEALTH SCIENCES STUDENTS IN UNIVERSITI PUTRA MALAYSIA

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Introduction: Along with the industrial revolution, the education sector also undergoes revolution started in decades ago known from Education 1.0 which learning only in the class and through teachers until Education 4.0 that give the more flexible option for education purpose involving online learning or also known as e-learning. As a developing country, the Ministry of Higher Education (MoHE) in Malaysia has established Malaysia Education Blueprint 2015-2025 (MEB). The purpose of this program is to make Malaysia educations parallel with global movement or trend. Thus, several universities in Malaysia already implement online learning or e-learning in their education systems. In 2016, Universiti Putra Malaysia has set a target to achieve in which 35% of operating courses through blended learning method now known it as PutraBlast. In conjunction with that, the students' perception of online learning must be evaluated to improve the education sector in the future. **Objectives:** This study generally aims to investigate the perceptions of online learning among medical and health sciences students in Universiti Putra Malaysia. **Hypothesis:** There is a significant association between the readiness of students for online learning, the effectiveness of online learning compared to face-to-face learning with the perception of online learning among FMHS students.

Methodology: The online questionnaire consists of readiness of online learning scale questions adapted from Alem et al.,(2016) and Hung et al.,(2010) and self-designed questions was blasted through an online platform such as WhatsApp group then the result will be analyzed by using SPPSS 26. Different statistical analyses were used for different specific objectives. **Result:** 84.0% of students have positives perception on online learning while remaining claimed it as negatives strategy. **Conclusion:** Thus, online learning has more positives perceptions as it bring many benefits to the students such as in term of flexibility.

Keywords: Online learning, Education, Perception of Online Learning, Universiti Putra Malaysia,

PERSEPSI PEMBELAJARAN DALAM TALIAN DI KALANGAN PELAJAR SAINS PERUBATAN DAN KESIHATAN DI UNIVERSITI PUTRA MALAYSIA

Nurul Izzati Kamarudin

ABSTRAK

Pengenalan: Seiring dengan revolusi industri, sektor pendidikan juga mengalami revolusi yang bermula sejak beberapa dekad dahulu yang dikenali dari Pendidikan 1.0 yang hanya belajar di kelas dan melalui guru sehingga Pendidikan 4.0 yang menawarkan pilihan yang lebih fleksibel untuk tujuan pendidikan yang melibatkan pembelajaran dalam talian atau juga dikenali sebagai e- belajar. Sebagai negara membangun, Kementerian Pengajian Tinggi (KPT) di Malaysia telah mewujudkan Pelan Pembangunan Pendidikan Malaysia 2015-2025 (MEB). Tujuan program ini adalah untuk menjadikan pendidikan Malaysia selari dengan pergerakan atau aliran global. Oleh itu, beberapa universiti di Malaysia sudah melaksanakan pembelajaran dalam talian atau e-pembelajaran dalam sistem pendidikan mereka. Pada tahun 2016, Universiti Putra Malaysia telah menetapkan sasaran untuk dicapai di mana 35% kursus operasi melalui kaedah pembelajaran campuran kini dikenali sebagai PutraBlast. Sehubungan dengan itu, persepsi pelajar terhadap pembelajaran dalam talian mesti dinilai untuk meningkatkan sektor pendidikan pada masa akan datang.**Objektif:** Kajian ini secara amnya bertujuan untuk mengkaji persepsi pembelajaran dalam talian di kalangan pelajar sains perubatan dan kesihatan di Universiti Putra Malaysia. **Hipotesis:** Terdapat perkaitan yang signifikan antara kesediaan pelajar untuk pembelajaran dalam talian, keberkesanan pembelajaran dalam talian berbanding dengan pembelajaran tatap muka dengan persepsi pembelajaran dalam talian di kalangan pelajar FMHS. **Metodologi:** Soal selidik dalam talian terdiri daripada kesediaan soalan skala pembelajaran dalam talian yang diadaptasi dari Alem et al., (2016) dan Hung et al., (2010) dan soalan yang diolah sendiri telah disebarkan melalui platform dalam talian seperti kumpulan WhatsApp. Justeru, hasil dapatan akan dianalisis dengan menggunakan SPPSS 26. Analisis

statistik yang berbeza digunakan untuk objektif khusus yang berbeza. **Hasil:** 84.0% pelajar mempunyai persepsi positif terhadap pembelajaran dalam talian sementara masih menyatakannya sebagai strategi negatif. **Kesimpulan:** Oleh itu, pembelajaran dalam talian mempunyai lebih banyak persepsi positif kerana membawa banyak faedah kepada pelajar seperti dari segi fleksibiliti.

Kata kunci: *Pembelajaran dalam talian, Pendidikan, Persepsi Pembelajaran Dalam Talian, Universiti Putra Malaysia*

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"In the name of Allah S.W.T., the Most Benevolent and Most merciful"

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ABBREVIATIONS

FMHS	Faculty of Medicine and Health Sciences
MEB	Malaysia Education Blueprint 2015-2025
IR	Industry Revolution
UPM	Universiti Putra Malaysia
MCO	Movement Control Order
CIL	Computer Internet Literacy
SDL	Self-Dependent Learning
ML	Motivation Of Learning
CADe	Centre for Academic Development

CHAPTER 1
INTRODUCTION

1.1 Study Background

The development of industrial 4.0 has been debated quite extensively a few years back, and the first phrase of Industry 4.0 was formulated by Germany in 2011. This industrial revolution will give powerful impacts to several sectors such as manufacturing, business and also education.

Along with the industrial revolution, the education sector also undergoes revolution started in decades ago known from Education 1.0 which learning only in the class and through teachers until Education 4.0 that give the more flexible option for education purpose involving online learning or also known as e-learning. The present of World Wide Web (WWW) influence high demand on the implement of online learning or e-learning in education sectors involving many higher education institutions where many of students have been done discover both its pro and cons (Wang, 2010).

As a developing country, the Ministry of Higher Education (MoHE) in Malaysia has established Malaysia Education Blueprint 2015-2025 (MEB). MEB consist of 10 Shifts that will bring improvement and success in the education system, which one of the shifts is related to online learning which is Shift number 9 that focuses on Globalized Online Learning. The purpose of the MEB is to make Malaysia educations parallel with global movement or trend. Thus, several universities in Malaysia already implement online learning or e-learning in their education systems.

In 2000, according to the Centre for Academic Development (CADe) UPM, this alma mater began to develop a Learning Management System (LMS) through e-SPRINT platform v1.0 followed by e-SPRINT v2.0. In 2016, UPM has set a target to achieve in which 35% of operating courses through blended learning method now known it as PutraBlast. In conjunction with that, the students' perception of online learning must be evaluated to improve the education sector in the future.

1.2 Problem Statement

‘‘Never before have we testified educational disruption on such a huge scale’’ said UNESCO Director-General Audrey Azoulay (2020). The novel COVID-19 pandemic that happened early 2020 gives a large impact on the world including in the education sector. In Malaysia, one way to break the chain of this disease has been declared by the Prime Minister, Tan Sri Muhyiddin Yassin in which Movement Control Order (MCO) must be done in all area starting from 18 March 2020. Due to this situation, many groups of people were affected because only essential sectors can be operated at that moment.

Unfortunately, the affected sectors also including higher learning education where has been pushed into experimenting online learning within an uncommon scale and scope. Some of the universities may already apply online learning or e-learning in their systems but due to this, the students need to cope with the new environment as they need to attend fully online class during this situation.

Nevertheless, for students who already using online learning or e-learning, they may bear with many challenges to make sure the class is effective enough to attend. Contradictory with face-to-face learning, the challenges in online learning settings needed a powerful amount of motivation and discipline especially when it is done as independent or self-study to make sure the class is successful (Golladay et al., 2000; Serwatka 2003).

Furthermore, early development of online learning in UPM until now, mostly many researchers only focuses on the management of online learning system in UPM such as e-SPRINT rather than students' perception towards the learning. Therefore, this study aims to see the perception of online learning or e-learning among students in the Faculty of Medical and Health Sciences (FMHS) in Universiti Putra Malaysia (UPM).

1.3 Objectives

1.3.1 General Objective

To investigate the perceptions of online learning among medical and health sciences students in Universiti Putra Malaysia.

1.3.2 Specific Objectives

i. To study the effect of Covid-19 towards online learning.

ii. To measure the readiness of students for online learning based on computer internet literacy, self-dependent learning and motivation of learning aspects.

iii. To determine the rank of effectiveness between online learning and face-to-face learning.

iv. To determine the perception of online learning associated with the readiness of online learning and the effectiveness of online learning and face-to-face learning.

1.4 Hypothesis

There is significant association between the readiness of students for online learning, the effectiveness of online learning compared to face-to-face learning with the perception of online learning or among FMHS students.

1.5 Research Questions

In order to examine the perception of online learning among FMHS students, several questions were asked to them to complete the research objectives. The questions are as below:

1. How do online learning systems affect students throughout the global pandemic outbreak?
2. How ready the students for online learning based on computer internet literacy, self-dependent learning and motivation of learning aspects?
3. Which learning is more effective to be done in the education sector, either online learning or face-to-face learning?
4. Which type of learning and platform the students will choose in the future?

CHAPTER 2
LITERATURE REVIEW

2.1 Revolution 4.0

Industry is the part of the sectors to generate income by produces good material in markets which are highly motorized and automated. The revolutions of industry always become a hot issue to be discussed as it will give a massive impact to other sectors. Started from the end of the 18th century for Industry 1.0(IR 1.0) where at that time water and steam were introduced into mechanical work until now the development of Industry 4.0 (IR 4.0) where cyber-physical systems and internet of things were used in varieties of sectors(Baygin et.al,2016). The term of Industry 4.0(IR 4.0) was formulated by Germany in 2011. IR 4.0 significantly caused the conventional paradigm to shift to a new perspective due to the combination of internet technologies and future-oriented technologies. Each IR has changed the way we connect, work and live.

The sector that also evolves along this industry is education. As a developing country, the Ministry of Higher Education (MoHE) in Malaysia has established Malaysia Education Blueprint 2015-2025 (MEB). The purpose of this program is to make Malaysia educations parallel with global movement or trend. Thus, several universities in Malaysia already implement online learning or e-learning in their education systems.

2.2 Effect of COVID-19

None of us as predict 2020 will be terrible like this. The presence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) late 2019 have effects about 213 countries with more than 10 million positives cases and 519,390 death cases around the world (WHO,2020). According to the Ministry of Health Malaysia on 26 August 2020, the number of positives cases in Malaysia is 9,291 and around 125 death cases. Fortunately, Malaysia is among the best country in handling this crisis as the cases reduce daily.

One initial strategy applies in Malaysia to prevent the case become worst is by implementing the Movement Control Order (MCO) were has been announced by Prime Minster started on 18 March 2020 until certain date where the condition can be controlled. During the MCO, only essential sectors such as food, water, banking and finance, healthcare and medical can be opened, other sectors have to be closed or work from home. Besides, the mass gathering and crossing the states borders also have been prohibited by the government. These rules are compulsory to apply to all Malaysia or other citizen that stayed in Malaysia during this crisis.

In conjunction with MCO, the education sector also has affected as all schools, universities and kindergarten cannot be open. The students, especially in higher education, need to adapt to the new environment as the class will fully be conducted using an online platform.

2.3 Online Learning

Generally, many researchers have a different definition of online learning. According to Means et.al, (2009) online learning is defines based on the take place of the internet either entirely or moderately in learning. This definition excludes broadcast television or radio, purely print-based correspondence education, stand-alone educational software programs that not contained internet-based instructional element. Both Benson (2002) and Conrad (2002) classified online learning as a new form of distance learning which enhance access to educational freedom for learners characterized as both non-traditional and helpless. Other authors consider not only in the accessibility of online learning but also its flexibility, connectivity, and capability to endorse varied communication or interactions (Ally, 2004; Hiltz & Turoff, 2005; Oblinger & Oblinger, 2005).

Online learning in higher education has been classified as teaching and learning through two types of communication which is asynchronous and synchronous via the internet and with multimedia (Chew, 2015). For asynchronous, this type of learning offers the students to learn according to their schedule, where it has greater flexibility than synchronous learning. It occurs in delayed time and does not depend on concurrent access for academic results (Johnson, 2006). By asynchronous learning, the user can easily and readily search the available information and materials that they need to have a fast and smooth learning experience.

Synchronous learning is a type of schooling that occurs in real-time through a specific online medium between the instructor and the students in which the instructors will lead the live discussion. According to Kalpana (2010), the colleague will log in at set day as well as the date and connect directly with the lecturer and the other classmates. The student that present in the virtual class can be situated anywhere in the world.

These two types of learning have its limitation, thus there is another option which supports both synchronous and asynchronous learning opportunities known as blended learning. According to Singh (2003), blended learning is a combination of various delivery media invents to integrate each other and benefit education purpose and application learned behavior.

2.4 Online Learning in Universiti Putra Malaysia

According to the Centre for Academic Development (CADe) UPM, this alma mater began to develop a Learning Management System (LMS) through e-SPRINT platform v1.0 followed by e-SPRINT v2.0 in 2000. One of the famous and popular types of education application in e-learning is the Learning Management System (LMS). It enables students to access the learning materials without limitation of time and at any place (Dalsgaard, 2006). Five fundamental modules of e-SPRINT have developed by UPM which are News, Tutorial, Lecture Notes, Forums and Students (Aziz et al., 2006).

Then, the system undergoes development where the changes of e-SPRINT v2.0 via LMS platform to Putra Learning Management System (PutraLMS) using the e-Front platform in 2009. In 2015, UPM's LMS is given a new breath which is called Putra Blended Learning System and Assistive Technology or PutraBLAST. Black et al., (2007) stated that to make sure LMS is successfully implemented, the students' perception towards the use of LMS must be examined.

CHAPTER 3
RESEARCH DESIGNN & METHODOLOGY

3.1 Research Design

3.1.1 Research location & population

This study was conducted at Faculty of Medicines and Health Sciences in Universiti Putra Malaysia which involved six undergraduate programs such as Dietetic, Doctor of Medicine, Nursing, Environmental and Occupational Health, Nutrition and Community Health as well as Biomedical Science. The population of active undergraduate students in FMHS is 1375, which 200 of the students have volunteered to become the respondents for this study to determine the perception of online learning. Among the 200 respondent of various courses, 88 from Biomedical, 36 from Doctor of Medicine, 33 from Nutrition and Community Health course, 23 from Environmental and Occupational Health, 15 from Dietetic and nine from Nursing.

3.1.2 Sample size

$$n = \frac{z^2 \cdot N \cdot p \cdot q}{N \cdot E^2 + z^2 \cdot p \cdot q}$$

Figure 1.0 show the formula used in determined sample size estimation.

The above formula has been used to determine the sample size needed for this study. According to the formula the sample size (n) is 598 from 1375 population of active undergraduate students in FMHS.

3.2 Research tools & Instrument

The questionnaire consists of four sections used as the instrument for this study in which Section A contains general demographic information such as gender, level of education, the field of study, residential location and internet connection status. Section B contains 7 multiple choice questions adapted according to the effect of COVID-19 questionnaire from Survey Monkey Software.

Section C consists adapted question of an e-learning readiness scale from Alem et al., (2016) and Hung et al. (2010). This section has 16 scale questions that measured using a 5-level interval scale which is 1 = strongly disagree until 5= strongly agree. The readiness for online learning scale question will be evaluated by computer internet literacy, self-dependent learning and motivation of learning.

Section D is a set of self-design questionnaire based on 5-point Likert scale adapted from Kaur et al. (2020). For this section students need to rank the effectiveness of online learning compare to face-to face learning by using scale 1 =much less effective until 5= much more effective.

Section E consists of 5 self-design multiple choice questions for the overall evaluation of online learning and the tendency for the students to choose online learning in the future including the type of platform used for online learning.

3.3 Data Collection & Analysis

The questionnaire was used for data collection have blasted via an online platform such as various Whatsapp groups as it was the best approached during this MCO. By using an online platform, respondents can answer with no pressure as there is no limitation of time. The data collection took about two weeks to distribute and two weeks to analyze the results. Overall, this study took almost one month to get the results for the perception of online learning.

Results from this study were analysed by using SPSS version 26. The statistical analysis used in SPSS to analyse each of the results was different, which depends on the specific objectives for the study. Descriptive statistics (frequencies) was used to analyse the effect of Covid-19 on student's education. Next, the mean scale of the questions was used to measure the readiness of students for online learning based on computer internet literacy, self-dependent learning and motivation of learning aspects as well as to determine the rank of effectiveness between online learning and face-to-face learning. Lastly, binomial logistics regression was used to determine the perception of online learning associated with the readiness of online learning and the effectiveness of online learning and face-to-face learning. Binomial logistics regression was used as it has one dependent variable which is the perception of online learning and more than one independent variable which is in this study the readiness for online learning as well as the effectiveness of online learning with face-to-face learning.

CHAPTER 4
RESULTS

4.1 Effect Of COVID-19 On Student's Education

Table 1: The result obtained from the questionnaire regarding the effect of COVID-19 on student's education.

SectionB_3

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very disruptive	36	18.0	18.0	18.0
	Somewhat disruptive	119	59.5	59.5	77.5
	Not so disruptive	42	21.0	21.0	98.5
	Not disruptive at all	3	1.5	1.5	100.0
	Total	200	100.0	100.0	

The results in Table 1 shown 77.5 % of respondents claimed that COVID-19 affected their studies while only 1.5 % of respondents not affected at all by the COVID-19.

4.2 Readiness Of Students For Online Learning

Table 2: The result obtained from the questionnaire regarding the readiness of online learning.

Readiness of Online Learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High	97	48.5	48.5	48.5
	Low	6	3.0	3.0	51.5
	Moderate	97	48.5	48.5	100.0
	Total	200	100.0	100.0	

Table 2 shown the results for Section C that consist of 16 level interval scale questions to analyses the readiness for online learning. Means score for each questions were calculated and were divided into 3 groups according to the score of means which is the low mean levels are 1.00 to 2.33, the moderate mean levels are between 2.34 and 3.67 while the high mean levels are 3.68 to 5.00. The findings revealed that high and moderate readiness for online learning. is same which is 48.5% form the respondents.

4.3 Effectiveness Between Online Learning And Face-To-Face Learning

Table 3: The result obtained from the questionnaire regarding the rank effectiveness of online learning with face-to-face learning

Rank Effectiveness of Online Learning and Face-to-Face Learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Equal	124	62.0	62.0	62.0
	Face-to-face learning	29	14.5	14.5	76.5
	Online learning	47	23.5	23.5	100.0
	Total	200	100.0	100.0	

Table 3 shown the findings for rank of effectiveness between online learning and face-to-face learning which 62.0 % of respondents claimed that online learning and face-to-face learning is equally effective based on several parameters.

4.4 Perception Of Online Learning Associated With The Readiness For Online Learning And The Effectiveness Of Online Learning And Face-To-Face Learning

Table 4: The result for null model not includes the predictive variable.

Classification Table[a,b]

Observed			Predicted: Recode: Negatives strategy in education	Predicted: Recode: Positives strategy in education	Percentage Correct
Step 0	Recode	Negatives strategy in education	0	32	.0
		Positives strategy in education	0	168	100.0
	Overall Percentage				84.0

a. Constant is included in the model.

b. The cut value is .500

Table 5: The result for predictive model which include the predictive variables.

Classification Table[a]

Observed			Predicted: Recode: Negatives strategy in education	Predicted: Recode: Positives strategy in education	Percentage Correct
Step 1	Recode	Negatives strategy in education	8	24	25.0
		Positives strategy in education	5	163	97.0
	Overall Percentage				85.5

a. The cut value is .500

Table 6: The result for Hosmer and Lemeshow test of binomial logistics regression.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	6.295	8	.614

Table 7: The result for whole model of binomial logistics regressions.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Step 1[a]	Means_SectionC	.871	.393	4.911	1	.027	2.390	1.106	5.167
	Means_SectionD	1.894	.405	21.900	1	.000	6.645	3.006	14.688
	Constant	-6.581	1.657	15.764	1	.000	.001		

a. Variable(s) entered on step 1: Means_SectionC, Means_SectionD.

CHAPTER 5
DISCUSSION

Examining perceptions among the target population is extensively being used due to the assumption that perception matter and often give consequence to the behaviours (Jurczyk, Benson, & Savery, 2004). In this study, there are several factors that were measured to examine the perception towards online learning among FMHS students which are readiness of students for online learning as well as effectiveness of online learning with face-to-face learning. Success in Online Distance Learning (ODL) can be obtained by understanding student online learning readiness settings such as competency of using a computer and to reach Internet access (Thammathirat & Tuntirojanawong, 2013). Besides, current issues that hit globally including Malaysia which is COVID-19 also a part of this study where to know the effect of COVID-19 on student's education.

The finding from this study shown 77.5% of respondents claimed that COVID-19 had given the impact on their studies. Due to the implementation of MCO that started on 18 March 2020 where only essential sectors can be operated excluded educations sector as in university, many students can be affected by this pandemic disease. The government tried to implement prevention to the country by avoiding mass gathering to reduce spreading of the disease. Not only education sectors were affected by the crisis but most of the sectors also being affected and unfortunately according to a survey done by

JobStreet Company revealed that more than 2 million people lost their jobs. Reported from Bernama News on 1st April 2020, even though the education sector can survive by conducting online learning, but there are still many challenges to this action especially for those that live in a rural area and does not have a good internet connection. Besides, the most affected due to COVID-19 are final year students as they have FYP that need to be done especially which involving the lab work. In another perspective, COVID-19 has been claimed as an involuntary boost for the educations sector due to its huge impact on the implementation of online learning in many universities (Martin et al., 2020).

In section C, the readiness for online learning among FMHS students were measured involving three parameters which are computer internet literacy, self-dependent learning and motivation of learning. The findings gained from this study revealed that the percentage for high and moderate readiness for online learning. is same which is 48.5% form the respondents. According to Gordon (2013), many students are ready to accept online learning technology but it must achieve with high competency in computer internet literacy (CIL). As the respondents are UPM students, they may have high CIL due to the implementation of Blended learning using PutraBlast platform since 2015.

Even though UPM had implement blended learning for quite long, but the self-dependent learning (SDL) and motivation of learning (ML) may be different at this moments due to the different environment as well as the pressure of COVID-19 where all class are fully conducted in the online platform such as via

Zoom, Google Meet, Cisco Webex and others. Those students that have high SDL believed will able to perform their study plan, managing time very well and have high expectation for learning performance (Yu & Richardson, 2015). Motivation learning also one of the parameters to measured readiness for online learning as motivation has been defined as the weapon for learning (Paris& Turner 1994). Besides, according to Howe (1998), it also stated motivation as the engine in human learning. Furthermore, self-regulation and motivation believed as fundamental characteristics for students to succeed in the online environment (Artino, 2008). Artino & Stephens (2009) also said for those students that do not have highly motivated as well as self- regulated in their learning tend to face more disadvantages in online learning rather than benefits.

The next findings are 62.0 % of students claimed that online learning and face-to-face learning is equally effective based on 10 parameters such as in term of communication and interaction, knowledge as well as the assignments submission. Out of 10 parameters, three parameters which are effective communication, interaction level and balance between practical and theoretical experience got less effective in online learning compared to face-face learning. As medical and health sciences students, the limitation of an online class in due to less effective of practical as the experiment cannot be done physically.

Furthermore, the different level of interaction either physical or virtual among students and the instructors give a huge impact to the rank of effectiveness between two different types of learning as interaction is vital in learning in order to make sure the students understand the knowledge that has been delivered by the instructors. Nevertheless, 2 out of 10 parameters so more effective in online learning which understand through recorded classes and submission of assignment

The submission of assignment through an online platform is more flexible compare to physical submission as it is time-consuming and reduces the use of paper. Besides, the online learning gave benefits in understanding through recorded classes especially for those students that are auditory person. These students usually will study via videos or voice recording from the lectures.

Next findings is to associate the perception of online learning among FMHS with the readiness for online learning and the effectiveness of online learning and face-to-face learning. Table 4.0, showed that it is a null model which revealed 84.0% of respondents before entering the variable in the model. The findings of null model show good fit in BLR. After entering the variable, referred Table 5, it showed 1.5% increase from the null model. According to Hosmer & Lemeshow (2000), the increased value around 1-5% from null model to predictive model show the model is good enough.

Table 6.0 shows The Hosmer-Lemeshow statistics test where the results indicates a good fit as the significance value is more than 0.05 which is 0.614. Hence, this model for this study adequately fits the data. Table 7.0 shows the significance value is less than 0.05 where it is statistically significant. Thus, there is association between readiness, effective of online learning with the perception of online learning.

CHAPTER 6
CONCLUSIONS

6.1 Limitations

As calculated before, the sample size should achieve minum 598 respondents from the populations but with the time limitations this study only managed to gather 200 respondents. Thus, reduces in statistical power.

6.2 Recommendation

Further studies are needed to explore the perception of online learning with others factor including the type of online learning either synchronous or asynchronous thus it will get a better understanding in the implementation of a better method of teaching and learning.

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APPENDIX A
QUESTIONNAIRE

Section A **:** Please **tick** (√) at the suitable answer and fill in the blank.

Bil.	Infromation	Details
1.	Gender	Male Female
2.	Ethnic group	Malay Chinese Indian Others (Please state:_____)
4.	Course	Dietetic Doctor of medicine Nursing Environmental and Occupational Health Nutrition and Community Health Biomedical Sciences
6.	Level of Education	1st year 4th year 2nd year 5th year 3rd year
7.	Residence	City Rural
8.	Internet connection at home	Strong Weak

Section B : Please circle **ONE** the most appropriate answers based on your thoughts,feelings and experiences. **THERE IS NO CORRECT OR WRONG ANSWER TO THIS SECTION**

1. How closely are you following news about the coronavirus (COVID-19)?
   A. Very closely
   B. Somewhat closely
   C. Not so closely
   D. Not closely at all

2. How often would you like to receive updates from your school about the coronavirus (COVID-19) crisis?
   A. Daily
   B. Every two or three days
   C. Once a week
   D. Whenever there's new information

3. How do you think COVID-19 is affecting your progress in your studies?

   A. Very disruptive
   B. Somewhat disruptive
   C. Not so disruptive
   D. Not disruptive at all

4. How prepared do you feel to shift to an online learning environment?

   A. Very prepared
   B. Somewhat prepared
   C. Not too prepared
   D. Not at all prepared

5. What are your biggest concerns as your universities shifts fully to an online learning environment during COVID-19?

   A. Keeping up with coursework
   B. Losing contact with professors/instructors
   C. Being physically isolated from classmates
   D. Juggling other priorities (e.g. child care, family care, etc)
   E. Keeping up with extracurricular activities (e.g. athletics, student groups)

6. Do your univetrsities systems provide reliable sources and material for online learning during COVID-19?

   A. Yes
   B. No
   C. Maybe

7. How your motivation for online learning in comparison to the situation before the state of emergency (COVID-19) ?

   A. Much worse
   B. Worse
   C. No change
   D. Better
   E. Much better

Section C : Please circle **ONE** the most appropriate answers based on your thoughts,feelings and experiences.**THERE IS NO CORRECT OR WRONG ANSWER TO THIS SECTION**

Bil.	Statement	Strongly disagree	Disagree	Not sure	Agree	Strongly Agree
1.	I feel confident using computer.	**1**	**2**	**3**	**4**	**5**
2.	I feel confident in using the Internet (Google, Yahoo) to find or gather information for online learning.	**1**	**2**	**3**	**4**	**5**
3.	I feel confident to search, download and upload document by using Internet.	**1**	**2**	**3**	**4**	**5**
4.	I feel confident to use any applications or software for online learning.	**1**	**2**	**3**	**4**	**5**
5.	I carry out my own study plan.	**1**	**2**	**3**	**4**	**5**
6.	I seek assistance when facing learning problems.	**1**	**2**	**3**	**4**	**5**
7.	I manage time well.	**1**	**2**	**3**	**4**	**5**
8.	I set up my learning goals.	**1**	**2**	**3**	**4**	**5**

Bil.	Statement	Strongly disagree	Disagree	Not sure	Agree	Strongly Agree
9.	I have higher expectations for my learning performance.	**1**	**2**	**3**	**4**	**5**
10.	I am able to complete my work even when there are destructions in my home (television, children etc).	**1**	**2**	**3**	**4**	**5**
11.	I am able to complete my work even when there are online destructions (Friends sending email, online chatting and shopping etc).	**1**	**2**	**3**	**4**	**5**
12.	Even in the face of technical difficulties I am certain I can learn the material presented in online learning.	**1**	**2**	**3**	**4**	**5**
13.	I have motivation to learn for best academic achievement and performance.	**1**	**2**	**3**	**4**	**5**
14.	Using the online learning improves my performances in my studies.	**1**	**2**	**3**	**4**	**5**
15.	Using online learning will increase productivity.	**1**	**2**	**3**	**4**	**5**
16.	Using online learning enhances my effectiveness in my studies.	**1**	**2**	**3**	**4**	**5**

Section D : Please circle **ONE** the most appropriate answers based on your thoughts,feelings and experiences.**THERE IS NO CORRECT OR WRONG ANSWER TO THIS SECTION**

THE EFFECTIVENESS OF ONLINE LEARNING COMPARED TO FACE-TO-FACE LEARNING (PHYSICAL LEARNING)

Bil	Statement	Much less effective (%)	Somewhat less effective (%)	Equally effective (%)	Somewhat more effective (%)	Much more effective (%)
1.	Offering convenience	**1**	**2**	**3**	**4**	**5**
2.	Meeting individual learning needs	**1**	**2**	**3**	**4**	**5**
3.	Contributing to effective communication	**1**	**2**	**3**	**4**	**5**
4.	Building skills and knowledge	**1**	**2**	**3**	**4**	**5**
5.	Offering better understanding through recorded class	**1**	**2**	**3**	**4**	**5**
6.	Interaction level	**1**	**2**	**3**	**4**	**5**
7.	Doubt sessions	**1**	**2**	**3**	**4**	**5**
8.	Balancing of practical and theoretical experience	**1**	**2**	**3**	**4**	**5**
9.	Grooming of Professional career	**1**	**2**	**3**	**4**	**5**
10.	Assignment submission	**1**	**2**	**3**	**4**	**5**

Section E : Please circle **ONE** the most appropriate answers based on your thoughts,feelings and experiences.**THERE IS NO CORRECT OR WRONG ANSWER TO THIS SECTION**

1. Do you have intention to use online learning in the future as method of studying?

A. Yes
B. No
C. Maybe

2. Which type of learning modes do you prefer?

A. Hybrid (Mixed mode)
B. Fully-online only
C. Only classroom/face-to-face

3. Which type of platform you will choose for online learning?

A. Google meet
B. Zoom
C. Webex Meet
D. Microsoft team

4. How easy the platform to be used during online learning?

A. Easy to handle
B. Complicated to handle

5. What is your overall perception towards online learning?

A. Positives strategy in education
B. Negatives strategy in education

APPENDIX B
RESULTS

Course

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Dietetic	15	7.5	7.5	7.5
	Doctor od medicine	36	18.0	18.0	25.5
	Nursing	9	4.5	4.5	30.0
	Environmental and Occupational Health	23	11.5	11.5	41.5
	Nutrition and Community Health	33	16.5	16.5	58.0
	Biomedical Sciences	84	42.0	42.0	100.0
	Total	200	100.0	100.0	

Residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	City	133	66.5	66.5	66.5
	Rural	67	33.5	33.5	100.0
	Total	200	100.0	100.0	

Internetstatus

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strong	156	78.0	78.0	78.0
	Weak	44	22.0	22.0	100.0
	Total	200	100.0	100.0	

Type of learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hybrid (Mixed mode)	168	84.0	84.0	84.0
	Fully-online only	3	1.5	1.5	85.5
	Only classroom/face-to-face	29	14.5	14.5	100.0
	Total	200	100.0	100.0	

Online platfrom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Google meet	107	53.5	53.5	53.5
	Zoom	88	44.0	44.0	97.5
	Webex meet	3	1.5	1.5	99.0
	Microsoft team	2	1.0	1.0	100.0
	Total	200	100.0	100.0	

Perception Of Online Learning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positives strategy in education	168	84.0	84.0	84.0
	Negatives strategy in education	32	16.0	16.0	100.0
	Total	200	100.0	100.0	