UTMSPACE ESTD 1993™
(931427-K)

VOLUME 20 NO. 1
JULAI 2021

JUTEKS

JURNAL TEKNIKAL & KAJIAN SOSIAL
JOURNAL OF TECHNICAL & SOCIAL STUDIES

ISSN 1675-2228

http://space.utm.my/research/

Published July 2021

Published by:

JOHOR BAHRU
School of Professional and Continuing Education (UTMSPACE)
Level 4 and 5, Block T05
Universiti Teknologi Malaysia
81310 Skudai, Johor

KUALA LUMPUR
UTMSPACE Kuala Lumpur Campus
Aras 2, Residensi UTMKL
No.8, Jalan Maktab
54000 Kuala Lumpur

Tel : +607-531 8080
Email Address : juteks@utmspace.edu.my

Catalogue Information – ISSN 1675-2228

Catalogue Information – eISSN 2805-4369

JURNAL TEKNIKAL & KAJIAN SOSIAL (JUTEKS)
JOURNAL OF TECHNICAL & SOCIAL STUDIES

CONTENTS

VOLUME 20. NO. 1. JULY 2021.

JURNAL TEKNIKAL & KAJIAN SOSIAL (JUTEKS)
JOURNAL OF TECHNICAL & SOCIAL STUDIES
EDITORIAL BOARD

MUHAMAD AFZAMIMAN BIN ARIPIN, Ph.D
School of Education, Faculty of Social Sciences and Humanities
Universiti Teknologi Malaysia (UTM)
[*Technical and Vocational Education*]

NOORZANA BINTI KHAMIS, Ph.D
School of Education, Faculty of Social Sciences and Humanities
Universiti Teknologi Malaysia (UTM)
[*Educational (Physics)*]

Graphic design by:

MARIA BINTI AHMAD
Marketing & Customer Relations Division
UTMSPACE

Typesetting by:

AZNITA HAZLINA BINTI MANSOR
Division of Research Management and Learning Resources
UTMSPACE

NUR ILI NAZIHAH BINTI ROSLAN
Division of Research Management and Learning Resources
UTMSPACE

JURNAL TEKNIKAL & KAJIAN SOSIAL (JUTEKS)
VOLUME 20 NO. 1

QUALITY TEACHING AMONG LECTURERS AND METHODS OF IMPROVEMENT BASED ON INDUSTRAL EXPERIENCE

Rosmiza Awang Noh[1]*, Ahmad Tarmidzi Kusnan[1], Mohamad Hazrafisz Maarif[1], Nabilah Hanim Mohd Anuar[1], Rafiza Mohamed[1], Yusmady Md. Junus[1]
[1]Centre for Diploma Studies SPACE, Universiti Teknologi Malaysia, 54100 Kuala Lumpur, Malaysia
E-mail: rosmiza@utmspace.edu.my

ABSTRACT - The quality of graduates is one of the standards of measurement in meeting the demands of employers. However, the extent of our graduates' employability to fulfil industrial demands does not rely solely on their theoretical skills, but their technical skills as well. Moreover, how the lessons were delivered by lecturers in universities may contribute to the quality of our graduates. Therefore, this study was conducted to determine the need for industrial experience amongst lecturers in teaching and learning. As well as determining the best approach that will assist fellow academicians in the quality of their teaching. A total of 30 out of 121 UTMSPACE lecturers participated as respondents in this study. Data were collected from the questionnaires which were disseminated to lecturers from Centre for Diploma Studies (PPD) and Centre for Degree and Foundation (PPI) in UTMSPACE. Based on the analysis, three (3) categories were determined as required for the first objective, that is; the need for industrial experience amongst lecturers in teaching and learning. While the second objective is to determine the best approach that can assist our lecturers in improving the quality of their teachings. The result shows for the first objective, with the highest average mean score, Program Learning Outcome is the main criteria, which requires lecturers with industrial experience in their teaching and learning. While objective two, majority of respondents (lecturers) prefer to collaborate with industries as the best approach in improving the quality of their teaching and learning in order to produce graduates that are able to meet the need of their potential employers. In conclusion, even though only 24.77% participated in this study, they have provide sufficient data; an indicator on the need of industrial experience in teaching and learning, as well as determining the best approach that may assist lecturers in UTMSPACE on improving the quality of their teachings. The result of this study may be use in devising improvements according to the lecturer's needs and wants.

Keywords: Industrial experience, effective learning, teaching and learning, learning through experience, quality teaching.

1. INTRODUCTION

According to the work of Locke, Berkeley and Hume (1974-1804), defines knowledge that is based on experience as “empiric knowledge” or “aposterian knowledge”, which refers to someone with experience in their field or also known as expert [1]. Whereas the word industry came from the Latin word “industrius” (a) defines as producing goods or services (b) and is an economical activity that processes raw materials or provide services that drives the country’s economy. Industrial experience can be defined as knowledge, skills or experts in a field that able to generate the country’s economy [3]. According to Prof. Tan Sri Dr. Sahol Hamid Abu Bakar the former Vice Chancellor of UiTM (Utusan Malaysia Online, 2017), raised the question about how the graduates will encounters the challenges in the industry and life if only being taught theory by their lecturers [4]. According to him, theoretical knowledge alone is not enough to help the student understand the real challenge in working industry, let alone to produce a more holistic student. In line with the concept of 'Experience is the mother of all knowledge'. the Ministry of Higher Education, (23 December 2017) mentioned, with industrial experience gained by lecturers, that is a set of skills and knowledge that suits their respective fields, the fourth industrial revolution (Industry 4.0) is able to be tackled globally.This statement is supported by Datuk Idris Jusoh (Bernama, 2017), which expects that in the next 6 years, the country will reach 30% teaching force come from individual or professional who have experience working in the industry [5]. In the context of transformation. Public university oblige to create new strategies to encounter the challenges in future when the quality of the graduated become the standard. (Utusan.Com, December 2018). [6]. In overall, majority agreed that the marketability of graduates is very critical due to the poor quality the graduates. Hence we can say that the roles of teaching staff are very crucial in producing quality graduates.

2. METHODOLOGY

The research methodology is shown in Figure 1:

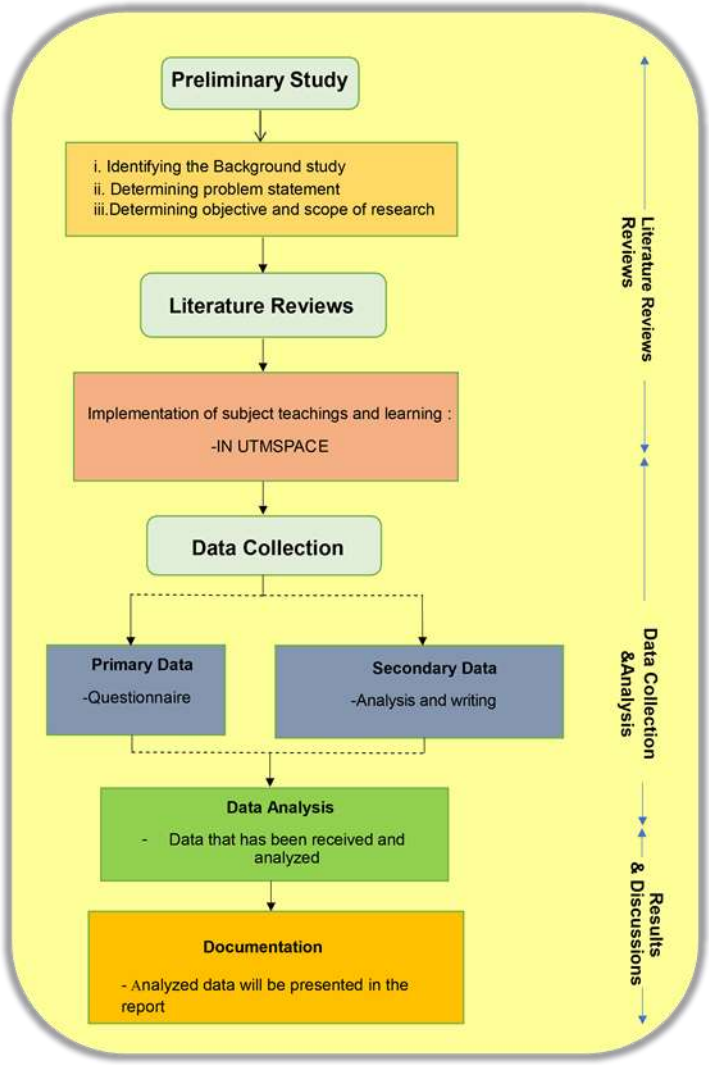


Figure 1: Research Methodology

The questionnaire was distributed to 30 lecturers from the Centre for Diploma Studies (PPD) and Centre for Degree and Foundation Programme (PPI) at UTMSPACE Kuala Lumpur. The information from the sample was collected via questionnaire; while the research data were based on the respondents mean score

towards ways of improving lecturers teaching. The collected data is then analyzed using descriptive analysis in order to obtain mean value, standard deviation, percentage or frequency. The results of the mean score were analyzed via average mean level of agreement, which was classified into three (3) levels; that is low, medium and high [4]. The mean scores obtained were then categorized into interval score to obtain respondents level of tendency of agreement for the first objective and other objectives as tabulated in Table 1 below.

Table 1: Weighted Mean Level of Agreement

Scale	Level of Agreement	Mean Scale Interval
1	Low	1.00 - 2.33
2	Medium	2.34 – 3.66
3	High	3.67 – 5.00

Reference: Student Self-Development Committee 1999/2000

Information was gathered from respondents via questionnaire. The information gathered are respondents' general information and the need for industrial experience amongst lecturers which was based on three (3) main aspects, that is; program learning outcome, task assigned for academic staff and implementation and course assessment and tendency to choose the best approach in improving the quality of teachings amongst lecturers.

2.1. Population and Sample

Total population of UTMSPACE lecturers in Kuala Lumpur and Johor Bahru is 121. A total of 30 lecturers submit their feedbacks via questionnaire were lecturers from Centre for Diploma Studies (PPD) and Centre for Degree and Foundation Studies (PPI).

2.2. Research Instrument

According to Kumar (2011), a questionnaire comprises of sets of written question and will be disseminated to targeted respondents for answers [1]. The advantage of disseminating questionnaires is that the researcher is not required to meet in person with respondents to collect their feedback [2]. The data obtained from the survey is used based on a list of program learning outcome (PLO), task assigned for lecturers and implementation and course assessment [3].

2.3. Data Analysis

The research data for the Likert Scale will be analyzed using descriptive procedure by calculating mean (average), frequency and percentage. According to the work of Abdul Ghafar (2003), once the data has been analyzed, these items may be categorized into three (3) different levels of agreement based on the score range achieved, that is; low (1.00-2.33), medium (2.34-3.66), and high (3.67-5.00) as tabulated in Table 1 [3].

3. RESULTS AND DISCUSSION

The result obtained for this study was able to grouped the respondents weighted mean level of agreement on the need for industrial experience amongst lecturers in teaching and learning into three (3) categories; Program Learning Outcome, Lecturers Task and Implementation and Course Assessment. Overall, respondents' level of agreement is at the highest level for all three (3) categories, as shown in Table 2, Table 3 and Table 4. Meanwhile, Table 5 shows a list of improvement where the lecturers can picked freely for the purpose of improving their teachings. Overall comparison, the practice with the highest mean score of 4.55 is collaboration with other industry. The approach to collaborate received highest tendency amongst lecturers. By implementing collaboration with industries that involves direct cooperation possessed numerous benefits for lecturers, especially in terms of technology skills and practical knowledge on industrial needs that may be useful in their teachings. This was supported by Prof. Tan Sri Dr. Sahol Hamid Abu Bakar (2017). He state, lecturers with industrial experience have a better understanding with current events in industries that will benefit their students [4]

Table 2: Weighted Mean Level of Agreement of Respondents towards learning and teaching outcomes.

No.	Learning and Teaching Outcome	Mean Score
1.	Explaining and discussing intellectually on theory, concept and principles related to the basics of the subjects learnt.	3.68
2.	Apply knowledge and skills in the field studied to resolve related issues	4.58
3.	Demonstrate skills in analyzing and evaluating issues in the subjects studied using the latest techniques, tools and technologies in line with institutional and professional practices.	4.52

4.	Interact effectively and collaboratively in managing relationships within teams and organizations	4.84
5.	Communicate effectively and confidently through written, visual and oral presentations to various target groups.	4.87
6.	Use a variety of digital applications while also identifying and processing data related to the field of study.	4.61
7.	Using and interpreting standard and complex numerical data as well as graphical / visual data in related fields	4.00
8.	Able to demonstrate leadership criteria and responsibility to achieve the same objective.	4.29
9.	Identify self-development initiatives and opportunities for career development or continuing education	4.45
10.	Able to demonstrate the ability to identify new opportunities in dealing with related issues	4.68
11.	Demonstrate the ability to perform tasks and make decisions in related fields ethically, professionally and with integrity	4.71
	Average Mean Score	**4.48**

Table 3: Weighted Mean Level of Agreement of respondents towards Lecturers Tasks

No.	Lecturers Tasks	Mean Score
Aspect 1: Learning and Teaching		
1.	Provide CI, lecture notes for teaching and learning purposes.	3.90
2.	Teaching a course include attend lectures and tutorials / lab work / studios / workshops as stated in the CI within a certain period for each semester	4.00
3.	Provide plans and materials for evaluation of courses conducted along with answers and marking scheme that is suitable with the agreed curriculum.	4.93

Aspect 2: Project Supervising		
1.	Carry out supervisory work as listed by the department	4.23
2.	Plan a supervision table for students project, examine students project and evaluate their project during presentation sessions.	4.00
3.	Take appropiate actions to ensure that the students carry out their projects in accordance with the objectives that have been determined.	4.29
Aspect 3: Supervision for Practical / Industrial Training		
1.	Review industry final reports and log books as well as evaluate student industry training presentation sessions	3.97
2.	Assist student by providing solutions to their problems during industrial training	4.19
3.	Conduct industrial training supervision visits to organization for adjusting job scope, supervision and evaluation.	4.65
Aspect 4: Course Adjustment		
1.	Prepare and update the CI for courses that was adjusted according to the suitability of the approved curriculum	4.16
2.	Provide a 'brief project' (if required) according to the guidelines provided by the department	4.09
3.	Prepare exam questions complete with answer schemes and marking schemes in accordance with the curriculum and approved by the panel	3.97
Aspect 5: Students Development		
1.	Carry out work related to the development of student personality, student activities whether organized by academics, Student Affairs (HEMA) or external organizations and so on	3.94
Aspect 6: Moderator of Final Examination Questions		
1.	Ensure reviews of final examination and answer schemes to comply with the syllabus standards in the course outline and is done within a certain period set by the department	3.97

Average Mean Score	**4.15**

Table 4: Weighted Mean Level of Agreement of respondents towards implementation and Assessment of Learning and Teaching

No.	Implementation & Assessment of Learning and Teaching	Mean Score
Aspect 1: Implementation of Learning and Teaching		
1.	Conduct lectures either in the lecture room / studio or workshop that involves theory and learning via oral	4.10
2.	Active teaching that involves activities during learning in class, for instance presentation, entertaining students questions and so forth.	4.13
3.	Conduct 'Scenario Based Learning' through teaching during school visits, for instance, bringing students to visit a place or location that is related to the subject studied while gathering information for the purpose of analysis	4.39
4.	"Cooperative Learning" is a form of teaching that requires students to work together for assignments, lecture session and during activities.	4.16
5.	Academic visits conducted for certain subjects with the purpose of exposing students to work knowledge.	4.39
6.	Conduct industrial training with the aim of exposing students to work environment and the way the world works in reality as well as assisting students in selecting the best firms for their industrial training	4.39
ASPECT 2: Assessment of Learning & Teaching		
1.	Implement course evaluation for students such as tutorials as stated in the CI within a period of time per semester	4.00
2.	Implement course evaluation for students such as quizzes as stated in the CI within a period of time for each semester	3.97

3.	Perform course evaluations on students such as tests as specified in the CI within a period of time for each semester	4.16
4.	Perform course evaluation for students such as assignments as specified in the CI for a period of time per semester	4.00
	Average Mean Score	**4.06**

Table 5: Tendency towards Methods of Improving Teaching and Learning Quality amongst Lecturers

No.	Methods of Improving the Quality of Teaching and Learning	Skor Min
1.	Industrial Training	4.38
2.	Seminars Involving Academic and Industry Representatives	4.22
3.	Workshops Involving the Collaboration of Academics and Industry Representatives for Discussion of Related Issues	4.29
4.	Collaboration with Industries	4.55
5.	Discussion with Industries	4.42
	Average Mean Score	**4.37**

Overall, respondents' level of agreement is high for the need of industrial experience amongst lecturers in teaching and learning with average mean score of 4.06-4.48. From the three (3) mentioned categories, "Program Learning Outcome" requires the most industrial experience amongst lecturers in teaching and learning, with average mean score of 4.48. While "Lecturers Task" was placed last, with average mean score of 4.06. A summary on the need of industrial experience positions for lecturers in teaching and learning was divided into three (3) categories as shown in Table 2, Table 3 and Table 4. Results from analysis have shown, majority of respondents agrees that industrial experience is needed in the teaching and learning of lecturers.

Moreover, analysis conducted for the second objective shows, overall, the level of agreement amongst respondents are high towards method of improvement that will assist in improving the lecturers teaching quality, with average mean score value of 4.37. Of the five (5) methods mentioned, the 'Cooperation with Industry' method is

the main method that is most to improve the quality of teachings with an average mean score of 4.55. On the other hand, “seminar” is ranked lowest with average mean score of 4.22. Summary of improvement methods that can help improve the quality of lecturers’ teaching is ranked in order as shown in Table 5. From the results of the analysis, majority of respondents agree that all methods listed are able to improve the quality of lecturers' teaching.

The findings of the study in line with the statement issued by Datuk Idris Jusoh (Bernama, 2017) expects that in the next six years, the country will reach 30 percent of the teaching force will come from individuals who have worked in the industry [5].

4. CONCLUSION

In conclusion, even though only 9.26% of the total population gave their feedbacks to this study, it’s enough to provide an indicator for tendency to pick the best improvement method for the quality of lecturers teaching based on the perspective of lecturers in Centre for Diploma Studies and Centre for Degree Program and Foundation Studies, SPACE. Therefore, responsible parties need to pay attention and act accordingly to improve and further enhance the quality of learning and teaching of lecturers, hence, producing quality graduates that can meet the demands of industrial market. The findings from this study can be used in preliminary planning for the implementation of effective and efficient improvement methods according to the choice and needs of lecturers.

ACKNOWLEDGEMENT

This study has received funding support from UTMSPACE, Universiti Teknologi Malaysia under the Research Grant Potential Development Fund Vot No. SP-PDF1902.

REFERENCES

[1]Salwa Radwani “Peranan Pensyarah: Pendidik, Penyelidik atau Khidmat Masyarakat” Universiti Kebangsaan Malaysia

[2] Shahabuddin Hashim, et al, (2003). "Pedagogi, Strategi Dan Metod Mengajar

Dengan Berkesan".

[3] Abdul Ghafar & Mohd. Najib (2003) Reka bentuk tinjauan soal selidik pendidikan. Penerbit UTM, Skudai, Johor Bahru

[4] Abdul Ghani Awang (1996). Kemahiran belajar di institusi pengajian tinggi, Kuala Lumpur: Dewan Bahasa dan Pustaka

[5] Bernama (2017)

[6] Utusan.Com (2018).

[7] Ahmad Amiruddin, (1999), "Faktor Yang Mempengaruhi Pencapaian Akademik Di Kalangan Pelajar Dewasa Yang Meningkatkan Profesionalisme Di Universiti Teknologi Malaysia", Universiti Teknologi Malaysia: PSM report.

[8] Brown G. & Atkins M. “Effective Teaching in Higher Education” American Journal of Research

[9] Salvin “Component Building: A Strategy for Research-based Instructional Improvement.” Elementary School Journal 84: 255-269

[10] Rowley J. “Motivation and academic staff in higher education. Quality Assurance in Education” Education Journal 4: 11-16

[11] Harry M. Bracken “Bayle, Berkeley and Hume” Eighteen Centuries Studies by The John Hopkins University Press pp: 227-245

[12] Kerlinger F.N. “Foundation of Behavioral” 3rd Edition, Holt, Rinehart and Winston New York

[13] Curriculum 2020 Diploma Study Centre, UTMKL

[14] *Fail Meja Eksekutif Akademik 2016*

THE DEVELOPMENT OF A SCHEDULING SYSTEM PROTOTYPE BASED ON THE ANALYSIS OF EXISTING SCHEDULING APPLICATIONS IN ACADEMIC INDUSTRY

Noor Asma Husain[1*], Siti Musleha Ab Mutalib[1], Noor Hayati Mohd Zain[1], Norhidayah Mohd Noor Hussain[1], Mohd Khalid Mokhtar[2], Nurul Iman Nor Hisham[2]
[1] School of Professional and Continuous Education, Universiti Teknologi Malaysia
[2] Lestari Technology Enterprise, Skudai, Johor, Malaysia

**E-mail: asma@utmspace.edu.my*

ABSTRACT - A scheduling system is developed based on individual or organisational preferences to create efficient and effective management for prioritising tasks, place, and time. Some scheduling systems will include a database for easy access and storage of large amounts of data. It is challenging to plan class schedules for academic programs due to redundant usage and different semesters in handling student programs and managing task weight for lecturers. Since the class schedule is still a complex issue, to execute administration tasks easier and more efficiently, a few elements must be considered to prepare a class schedule. Therefore, this study will compare and implement a standard process of scheduling framework for future practice in the academic industry and present a practical method for making a comparison based on the studies and the existing scheduling system. This paper discusses the elements that constitute a scheduling system: the objectives, the method used, the constraints faced, and the solution tools used to execute a scheduling system. A scheduling system that emphasises the importance of the elements could generate an optimal presentation of timetables and real-time updates that will help with data handling accuracy and cost-effective and efficient time management. Based on the findings and results, this paper presents a practical method of implementing a scheduling system, including its features, methods, and system design, and executes a robust and responsive scheduling system for e-Scheduler, a web application written in PHP with SQL Server as the database management system, to produce an automated scheduling system.

Keywords: Educational timetabling, Scheduling System, comparative analysis, online system.

1. INTRODUCTION

Scheduling is one of the methods for arranging time effectively. For the academic industry, scheduling would be compulsory to set lesson schedules for students at the beginning of each semester (Saptarini et al., 2018). A learning schedule will allocate time for the students, while teachers will need to prepare a lesson design according to instructional time. Academic learning time will be required as the students will apply the lesson learned to meaningful knowledge, followed by using and demonstrating it. The learning environment will affect the length of time-on-task learning (Pedersen, 2001). Scheduling is considered a system for allocating

resources to a series of tasks in the most effective way possible over time, especially when it is essential for management and educational processes to keep track of related jobs within a specified period (Meccawy, 2018). In general, the scheduling has several resources to be organized, including students, teachers, subjects, and study rooms (Saptarini et al., 2018). The class schedule is one of the platforms that will be very helpful to the instructors in searching for subjects, assigning a subject, time of learning and learning room to a student. According to research, effective scheduling promotes and improves students' academic achievement (Childers, 2018). However, the major problem that led to the development of the scheduling system was the timing constraints by proposing a real-time computing system (Ramamritham & Stankovic, 1994). The problem that would always occur is that setting up and planning for the entire semester would be complex and time-consuming to avoid clashes between classes.

Having an effective scheduling system would also improve time management and self-scheduling rather than manual self-scheduling. The system would help users access other courses or teachers' information and databases to sync with their timeline. Technology nowadays is growing fast and is effectively taking advantage of many aspects of life, including in the learning field. By having a database, users or people worldwide can easily access and store information or data to collect views, reports and queries (Abdullah & Hussan, 2019). These days, software solutions exist to solve complex and manual problems and produce simple and accessible technology features to conquer the problem. Therefore, an automated scheduling system gives the simplest solution to efficiently planning all activities (Meccawy, 2018). Thus, this research did a comparative analysis based on the existing scheduling system. By understanding and making a comparative analysis of current scheduling systems, this research will be able to comprehend the process development that has been carried out to create the scheduling system prototype. The objective of scheduling systems must be to suit the user's needs. The ability to accommodate multiple semesters in UTMSPACE and the task weight of lecturers are two critical challenges that must be addressed. As a result, the prototype development of an online scheduling management system (e-Scheduler) for UTMSPACE institutions is being carried out as part of this research.

2. RELATED WORKS

In this section, several methods of scheduling systems are explained in the context of tools or algorithms that would be required or be used for the proposed scheduling system. According to previous research on the development of scheduling systems, a system needs to understand the scheduling tasks performed for the organization to

reflect on the needs and expectations to solve the issues effectively (Framinan et al., 2014).

2.1. The Comparison Analysis on Academic Scheduling System Research

According to Abdullah & Hussan (2019), they created a class scheduling system to manage university courses with requirements that can select, terminate, generate reports by administrators and give authority to administrators and instructors that request the information. However, class scheduling development is still a complex issue. It considers several elements in terms of its objectives, constraints, and solutions to prepare the class schedule. The development of an automated class scheduling system is to overcome the limitations of the manual scheduling system, which prefers to improve with technological advancement and reduce the load of gathering information and data about students, classes, departments, and arranging timetables. Therefore, to overcome the constraints, the researchers propose developing a scheduling system using the PHP programming language with the database management system MySQL for web applications to execute a web-based design platform for its automatic scheduling system approach. (Abdullah & Hussan, 2019).

The scheduling system can be developed by using various programming languages, including HTML, JavaScript, PHP and many more. Pavel (2019) developed web applications with the PHP programming language and the database management system MySQL. Gamale et al. (2012) propose an Automated Class Scheduling system to design and test the functionalities in terms of speed, accuracy, data handling stability, security, and adaptability in creating class schedules, giving them more outstanding performance and solving primary problems encountered during the preparation of the class schedule. V. Ajanovski (2013) developed a robust web-based application as a base model for future academic management software to handle issues with class routine scheduling management, course enrolment and other functionalities. The Rapid Application Development (RAD) technique is an incremental model that integrates a Google drive and links with an external database using an Apache webserver connection and the SQL language used as a Database Management System (DBMS). It used to render better environments and improve automated scheduling systems to be flexible, easy to use and improve the scheduling quality with unlimited capabilities by building according to the System Development Cycle (SDLC) with six development phases (Nielsen, 2015).

2.2. The Comparison of the Existing and Marketed Scheduling Systems

The scheduling system's features have been adapted to recent technological advances by becoming automated, real-time, and user-friendly. It is also flexible and can integrate with other users, set reminders, offer synchronization, and an integrated payment system to retrieve information and access the scheduling system at any time and place by using any available device effectively and efficiently. Moreover, the scheduling system can be found and synced on various platforms, such as desktop-based, mobile applications and web-based. However, there is still a constraint on accessing functional features because there are limitations based on free features and paid features. Thus, the premium scheduling system offers many features but is very costly to manage and purchase. As a result, a comparison was made between an academic scheduling software available on the market and a software comparison website called G2.com. Table 1 shows the comparison between the educational scheduling processes. However, all scheduling systems must meet the requirements of the user. The comparison of academic scheduling systems above revealed two missing features: the ability to accommodate multiple semesters and the task weight of lecturers. Thus, by referring to the current scheduling system's problems and constraints, this system (e-Scheduler) focuses on developing and adding new elements of student sectioning by semester enrolments and managing the task weight for lecturers for a year.

Table 1. Comparison between Academic Scheduling Software Features

Supports	Pick time	Prime Timetable	Tes (Edval)	asC Timetables	Docendo	Skooly
Manage class						
Manage subjects						
Manage period						
Manage meetings						
Students view						
Teachers view						
Web-based						
Responsive						
Import excel file						
Software-based						
Drag and drop						
Updated interface						
Inventory management						
Digital attendance						

Announcement/ Notification						
Auto scheduling						
Mobile apps						

2.3 Proposed Method for Prototype Development of an Online Scheduling Management System (e-Scheduler)

By comparing existing and marketed scheduling software and its features, this research proposes a conceptual framework for the prototype development of an online scheduling management system (e-scheduler) to organise and manage classes, lecturers, timetables, and university programmes in UTMSPACE. From the conceptual framework in Figure 1, the database was organised using MySQL, and the system process and interface were developed using HTML programming, PHP scripting and Java scripting. It was proposed to ensure data handling and synchronisation updates through a server with an internet connection. The web-based automated scheduling system needs to be responsive to manage the collaborative features of this framework effectively. According to a report, a computerised scheduling process that integrates with a database is crucial for obtaining a complete list of user information and courses (Nielsen, 2015). By comparison with the current automated scheduling system, the expansion of usage of functionalities, usability, and interface have been improved significantly with the direct involvement of clients and users. To ensure a smooth/proper scheduling process and desired features for the e-scheduler system, a system flow design of the e-Scheduler System Prototype has been proposed.

2.4. System Flow and Designing Proposed for E-Scheduler Prototype

To meet the requirements of UTMSPACE, a system flow design of the proposed e-Scheduler prototype is created, as in Figure 2, to customize an online scheduling system and manage multiple programmes. From the entire process, the development focuses on the important process, which is assigning schedule functions. This function purpose is to assign schedules for the sections and classes for the lecturers, avoiding the clashing of classes in terms of place of the event, lecturers, and scheduling time slots. Figure 3 is the flowchart process design of assigned scheduling.

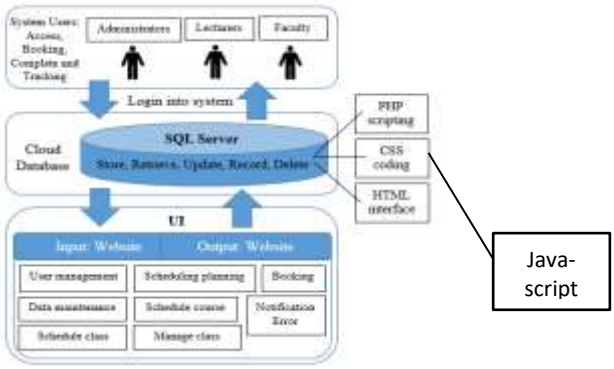


Figure 1. Conceptual Framework of the Online Automated Scheduling System (e-Scheduler)

3. RESULTS AND DISCUSSION

The customization of required elements was developed to improve from a manual to an online scheduling system to manage multiple programmes in UTMSPACE easily. The result is also achieved by designing and developing a database management structure (DBMS) and manage a control panel, to store data information in the system. The web-based scheduling system interface was developed using HTML and PHP programming languages for an attractive and user-friendly interface. Figure 4,5,6, and 7 depict the scheduling system database and website interface designed for UTMSPACE, known as an e-Scheduler. The prototype system meets the basic general requirements of a scheduling system, including a user-friendly and responsive user interface and various data stored as in Figure 6. The elements that must be adapted to address the complexities of issues have been identified to solve the constraints on managing multiple programs and balancing a lecturer's task weight per year. It results in a fully automated solution that can function in different semesters and adds task weight elements to view performance and avoid an unbalanced distribution of teaching hours among lecturers based on the credit hours of the subjects, as in Figure 7. As a result, the prototype system provides a complete solution to UTMSPACE's academic scheduling system problems and constraints.

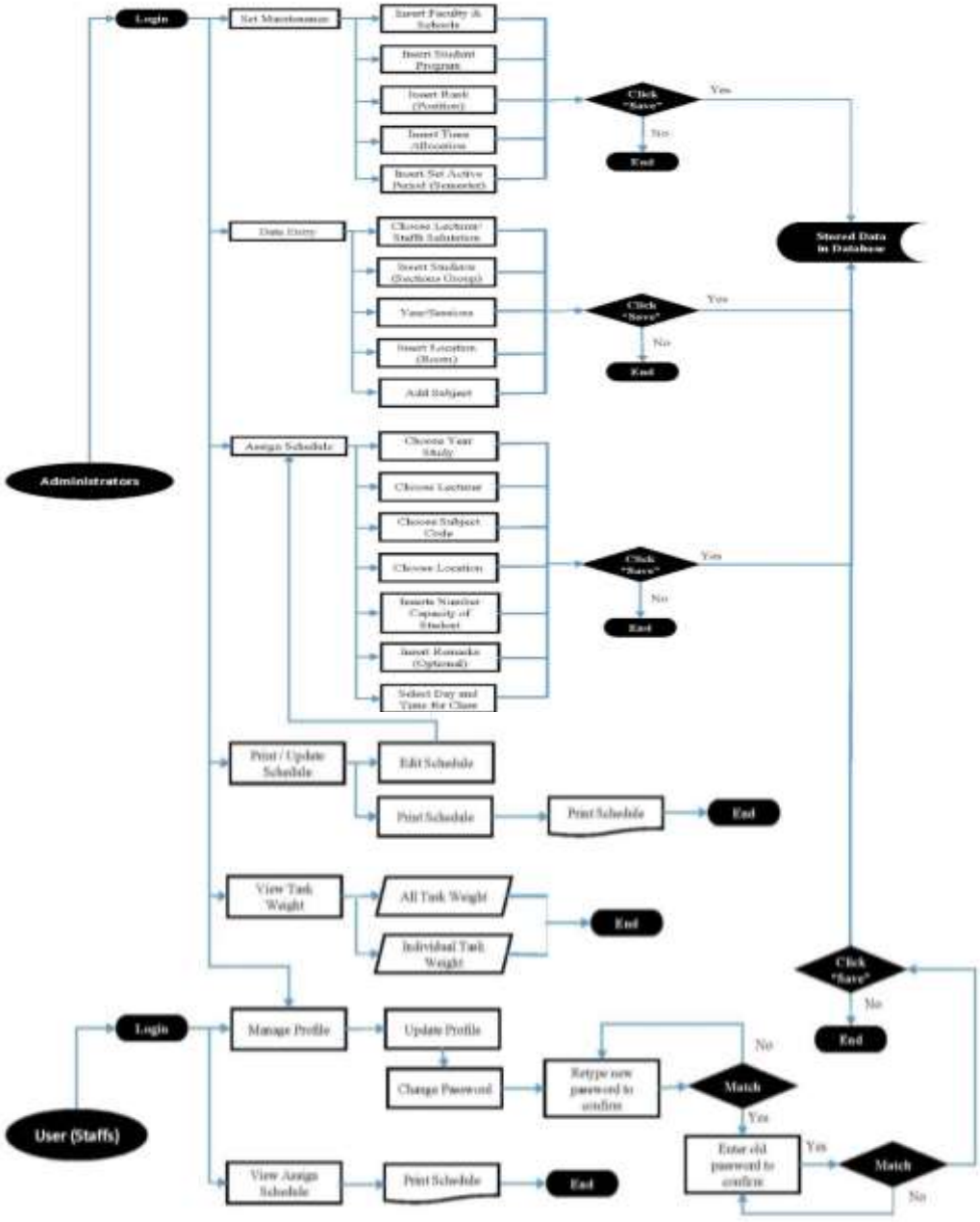


Figure 2. System Flow Design of e-Scheduler

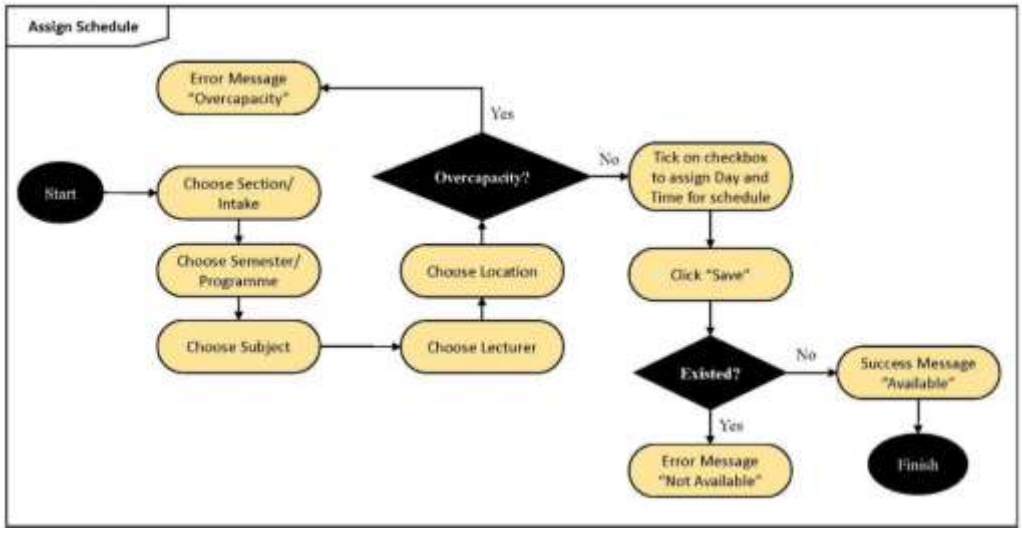


Figure 3. System Flow Design of Assign Schedule

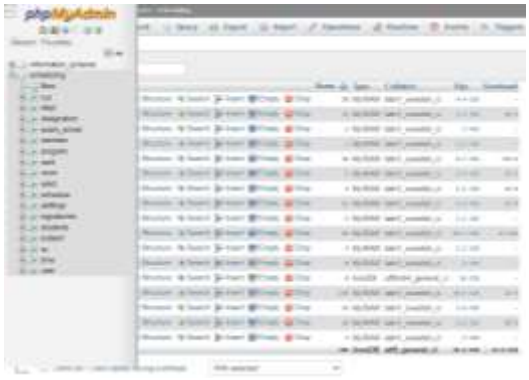


Figure 4. PHP MyAdmin Interface

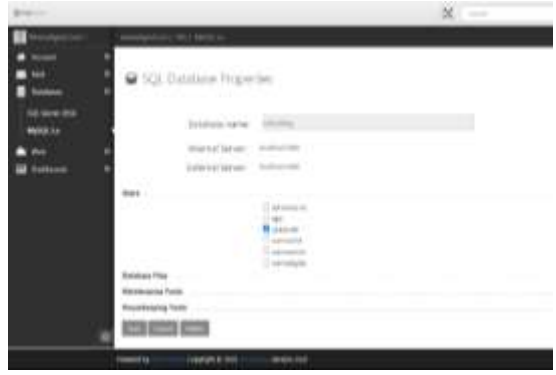


Figure 5. Control Panel for e-Scheduler

Figure 6. Homepage interface of e-Scheduler

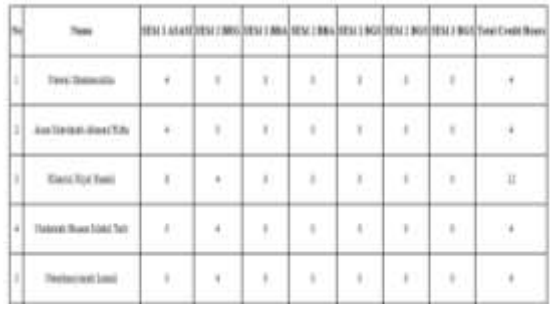


Figure 7. Task Weight for Lecturers

3.1. Future Works

From the comparative analysis and development of the scheduling system, the e-Scheduler system can be expanded in the future by enhancing the scheduling system into an auto-responsive scheduling system. The system can be synchronized through multiple gadgets, has a wide scope of features, and improves the system on par with existing commercialized scheduling system software. In general, scheduling systems can also be enhanced in security features where the login system is integrated with multiple security features for a more secure form of authentication.

4. CONCLUSION

A scheduling system is built based on individual or organisational preferences to produce efficient and effective management for prioritising activities, places, and time. The issue that constantly arises in the academic industry is that setting up and planning for the entire semester is complex and time-consuming to avoid class clashes. According to research on the creation of scheduling systems, a system must comprehend the organisation's scheduling activities to reflect on its needs and expectations to resolve challenges effectively. The aim of scheduling systems should be to meet the needs of the users. However, based on current and marketed scheduling technology, there are still some limitations to fulfilling the requirements of UTMSPACE. By developing a prototype of an online scheduling system with an integrated DBMS, the multiple semester sectioning and balancing of task weight for the lecturers per year can be realised. As a result, customisation of essential components built to transition from a manual to an online scheduling system in UTMSPACE, making it easier to manage multiple programmes.

ACKNOWLEDGEMENT

This research was funded by UTMSPACE through Potential Development Fund, Research Grant Scheme managed by Division of Research Management and Learning Resources,SPACE Vot No. SP-PDF2011.

REFERENCES

[1]. Abdullah, P. Y., & Hussan, D. B. K. (2019). Class Scheduling System. *Special Collections, September*.
[2]. Childers, E. A. (2018). *Effects of Class Scheduling and Student Achievement*

on State Testing.

[3]. Framinan, J. M., Leisten, R., & García, R. R. (2014). Manufacturing scheduling systems: An integrated view on models, methods and tools. *Manufacturing Scheduling Systems: An Integrated View on Models, Methods and Tools*, *9781447162*(May 2016), 1–400.

[4]. Gamale, J. M., Anuta, E. C., & Sayson, Z. D. (2012). Automated Class Scheduling System. *JPAIR Multidisciplinary Research*.

[5]. Meccawy, M. (2018). The Brilliant Scheduler: Automated Scheduling System for Video Conferencing Courses. *Computer and Information Science*.

[6]. Nielsen, R. (2015). *CS651 Computer Systems Security Foundations 3d Imagination Cyber Security Management Plan LA-UR-15-21507 Approved for public release; distribution is unlimited. Title: Author (s): Intended for: CS651 Computer Systems Security Foundations 3d Imagination*. *January*.

[7]. Pedersen, J. L. (2001). *The effects of scheduling modes on high school student achievement in Iowa*.

[8]. Ramamritham, K., & Stankovic, J. A. (1994). Scheduling Algorithms and Operating Systems Support for Real-Time Systems. *Proceedings of the IEEE*, *82*(1), 55–67.

[9]. Saptarini, N. G. A. P. H., Suasnawa, I. W., & Ciptayani, P. I. (2018). Senior high school course scheduling using genetic algorithm. *Journal of Physics: Conference Series*, *953*(1).

[10]. V. Ajanovski, V. (2013). Integration of a Course Enrolment and Class Timetable Scheduling in a Student Information System. *International Journal of Database Management Systems*.

[11]. *Best Academic Scheduling Software*. G2.com. (2021). Retrieved 20 April 2021, from https://www.g2.com/categories/academic-scheduling

THE REMOTE WORK AND JOB SATISFACTION ON EMPLOYEE'S PERFORMANCE DURING COVID-19 PANDEMIC

Yashini A/P Ganaseghran[1], Norazlina Mohd Yasin[1*]
[1]School of Professional and Continuous Education (SPACE), Universiti Teknologi Malaysia**E-mail: norazlina@utmspace.edu.my*

ABSTRACT- Due to this COVID-19 pandemic, remote work became a new norm to employees. This study aims to explore the relationship between remote work and the employee's performance and to measure the relationship between the job satisfaction and employee's performance. In this research, there two independent variables such as remote work and job satisfaction of employees during pandemic. Then, the dependent variable is employee's performance during COVID-19 pandemic. The data was collected through a online survey. The samples of this study were remote workers from private and public sectors in Malaysia. A total of 200 questionnaires were gave it to the remote workers via the link of 'Google Form'. The, data collection was analyzed by SPSS software. The research result found a positive correlation between remote work and employee's performance. Next, the result also found a positive correlation between job satisfaction and employee's performance. Other than that, the analysis indicates that, job satisfaction gives that highest influence factor towards employee's performance.

Keywords: Remote Work, Job Satisfaction, Employees Performance, COVID-19

1. INTRODUCTION

In the present circumstances, the world is facing the threatening COVID-19 pandemics. Due to this pandemic, almost all the countries around the world decided to held Movement Control Order (MCO). During this time, both public and private organizations recognized the critical need to digitize their everyday operations, requiring office workers to relocate to virtual workspaces, educational activities in universities, secondary and elementary schools to shift to online classrooms, and e-commerce to expand. According to a recent JobStreet poll, the top five businesses that need workers to work from home are insurance or pension funds (81%), information technology (77%), education (70%), property development (70%), and banking (70%)[1].

The coronavirus pandemic of 2020 has resulted in a significant shift of work to employees' homes, with many corporations implementing obligatory teleworking. Remote work offers flexible, convenient and easy to employees, nevertheless the

working style may not fit to all and become challenges which will affect their performance. Employees that work from home have challenges with communication, cooperation, and the use of ICT (Information and Communication Technologies) [2]. For instance, while working remotely, communication between colleagues is limited, reducing workplace openness. Conducting online group meetings establishes limits, particularly in terms of managing expectations. Sharing information with peers is critical for workplace openness and trust building, and as such, the organisation should emphasise constructive communication as a key value in digital communication. The information exchange keeps each team member informed and contributes to the maintenance of a healthy workflow. Additionally, personnel face problems related to technology and facility readiness. Most employees were unprepared for the work-from-home routine, due to the lack of updated technology in the present system. The lack of specialists available to repair the system or individual computers has exacerbated the problem. Additionally, amid the ad-hoc pandemic crisis, the internet connection grew clogged, making online work impossible. Certain video conferencing systems are not always dependable and can cause employee frustration during meetings.

On the other hand, job satisfaction also effects employee's performance during this pandemic such as wages, organization culture, benefits, stress, training and development, promotion prospects and job security [3]. Wages and benefits are linked to management's evaluation of their contribution to the organization. On the other hand, coping with overwhelming workloads and unachievable deadlines during a pandemic crisis results in low job satisfaction even for the best employees. This is one of the primary reasons why employees experience job burnout, which can result in emotional despair. Employees, particularly those with high goals and potential, report greater job satisfaction in positions that offer advancement prospects. However, most businesses are struggling to survive owing to unpredictable economic conditions, which raises concern about job security. Employees who lack a sense of security in their organization will eventually see a reduction in work satisfaction. The organization that provides better working circumstances for its employees would obtain a greater level of satisfaction. Despite the enormous obstacles in terms of job performance, study on the influence of remote working and job satisfaction on employee performance is critical.

2. LITERATURE REVIEW

2.1. Remote Work

Remote work is also known as telecommute, telework, working from home, and working from anywhere. Remote work is a working arrangement in which a worker fulfills the essential responsibilities of his/her job while remaining at home, using information and communication technology (ICT). Working from home is a new approach of battling the COVID-19 epidemic. Remote work demands both employers and employees to share responsibility and dedication to secure company sustainability and employment. The definition of remote work is when employees are not physically present at the typical central office but instead fulfil their professional duties using Internet services [4]. Additionally, remote work may be classified into two categories: remote work, which refers to those who work remotely full-time, and telecommuting, which refers to those who work remotely one to three days a week. [5].

While remote employees often work in remote regions without a fixed location, they are still required to communicate with and engage with the organization or agency and their managers. The remote worker is frequently misinterpreted by the other participants or feels distanced from them [6]. Self-efficacy theory, as well as social cognitive theory in general, discusses how an individual's behavior, environment, and cognitive aspects are all intricately connected [7]. Additionally, self-efficacy judgments influence how much effort individuals will devote to an activity and how long they will persevere with it [8]. This idea refers to remote work and employee performance; it demonstrates the influence of an employee's work environment on their performance. It demonstrates that remote work has a favorable effect on employee performance. Therefore, the researcher hypothesizes that:

H1: Remote work is significantly positive with the employee’s performance

2.2. Job Satisfaction

Job satisfaction can be defined as how much extent an individual is pleased, comfortable, or satisfied with his or her job. Job or work experience evaluation results in a pleasant or positive emotional state [9]. Job satisfaction is a term that refers to an employee's attitude about his or her employment. Cognitive dimensions of job satisfaction include an employee's confidence in his or her work, namely the perception that the job is appealing, unappealing, or a combination of the two. The cognitive dimension is not a self-contained affective

dimension significantly related with sentiments of positive impact. Component behavior is frequently used to refer to an employee's conduct or behavioral inclinations in relation to his employment. The level of employee's satisfaction also becomes apparent by fact that he/she tried to follow a regular job, working hard, and intends to remain a member of the organization for a long time [10].

According to the equity theory, people would feel satisfied or unhappy based on whether they sensed equity in a circumstance or not. Equity theory is composed of three components: input, results, and comparison individuals. To begin, input refers to anything deemed useful by employees as a contribution to their job. Second, job outcomes relate to the value felt by workers as a result of their labor; comparison individuals refer to others or to those with whom the employee is comparing the input-output ratio. The comparable person might be a coworker or a role model. The theory clarifies the relationship between job satisfaction and employee performance. Therefore, the researcher hypothesizes that:

H2: Job satisfaction is significantly positive with the employee's performance.

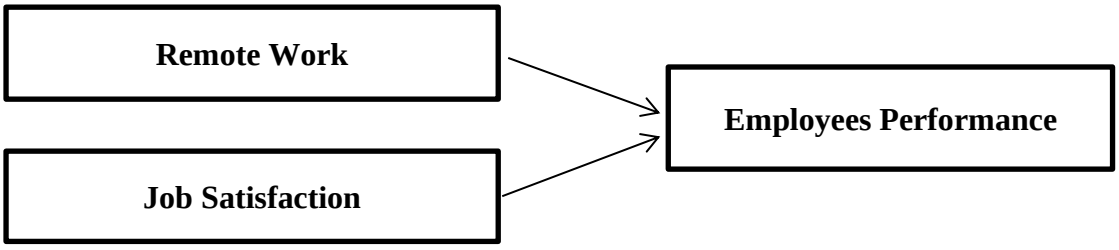
2.3. Employee's Performance

Many studies conducted earlier indicate that human resource management practices are positively related to employee performance [11]. However, the new normal phenomena has changed the business operational approach; working at home or commuting as a new business practice has grown significantly due to increasing organizational pressure to reduce costs and increase employee performance [12]. A study conducted at a prominent Chinese travel agency to determine the effect of working from home on employee performance discovered that workers working from home have a greater overall performance than workers working in the office [13]. Employee productivity has been linked to a peaceful work environment in studies. When employees work from home in a less stressful atmosphere, their motivation to accomplish their task increases [18].

Additionally, employing staff must be performed efficiently and effectively during pandemic crisis [14]. Simultaneously, management should recognize that employees have specific requirements and personal preferences that must be respected, particularly while working from home. Their attitude to the business and their job, whether favourable or bad, is strongly dependent on rewards and job recognition. Indeed, employee performance serves as the criterion for promotions, layoffs, incentives, sanctions, comments, and compensation changes. When the benefits meet the individual's personal demands for recognition, job promotion,

and income increase, the employee will be classified as a high performer, as specified by the expectation theory. The hypothesis established that the interplay of three distinct beliefs generates the motivation that satisfies expectation, utility, and valence [15]. To encourage an individual to accomplish a task, the individual must feel that with enough effort, he or she can accomplish any level of performance necessary..

3. CONCEPTUAL FRAMEWORK



The conceptual framework shows about the relationship between remote work and employee's performance and the relationship between job satisfaction and employee's performance.

4. MATERIALS AND METHOD

4.1 Research Design

In this research, the researcher measures the effect of remote work and job satisfaction on employee's performance. The remote work and job satisfaction are independent variables and the employee's performance is dependent variable. Essentially, this survey will be conducted with Malaysian individuals who currently work from home. Participants are drawn from the public and private sectors. In this study, the quantitative technique was utilized to collect data from the target participants using questionnaires that contained closed-ended questions. The questionnaire consisted of four sections with a total of 58 questions. The data will be utilized to derive statistical conclusions in this study using data analysis.

4.2 Population and Sampling

This study intended to explore the relationship between remote work and employee's performance and the relationship between job satisfaction and

employee's performance. The remote workers from Malaysia were approached to participate in the study. In total of 200 remote workers were took part in the study. The questionnaire contains close-ended questions to collect data from the participants. In order to avoid the bias, this study only distributed questionnaires to remote workers who are working in private sectors and public sectors during COVID-19 pandemic. The questionnaires were delivered via 'Google Form' link to remote workers.

Sampling is a method that allows researcher to infer information about the population based on the results of a subset of the population without having to survey everyone. The sampling method used in this research is simple random sampling. The method is suitable for this research because during COVID-19 pandemic most of the employees working from home. So that, this sampling method is easy to collect data among the remote workers.

4.3 Instrument and Instrumentation

In this study, the questionnaire consisted of four parts (Section A: Demographic Profile, Section B: Remote Work, and Section C: Job Satisfaction and Section D: Employees Performance). Section A consist of demographic profile such as age, gender, marital status, education level, occupation, working experience and income. The section B (15 items), C (20 items) and D (items 16) consist closed-ended questions were based on a Likert 5-point scale.

4.4 Data Collection

The collected data was analyzed by using quantitative method. Quantitative methods emphasize objective measurement and statistical, mathematical or numerical analysis of data collected through questionnaires using computational techniques. To analyze the data, this research used SPSS software. The descriptive statistics, reliability, correlation, and regression were analyzed in the SPSS.

5. PILOT STUDY

The researcher conducted the pilot test among 50 remote workers to collect possible suggestions on the length, clarity and measures of the questionnaires. All the questions from the questionnaires were took from the previous study. Then, questions in the questionnaire were modified in the simplest brief to the employees.

The researcher chose the remote work questionnaire that developed by Zhang et al. (2020) to measure the acceptance of employees to new norm which is working from home. Next, the researcher chose the short form of Minnesota satisfaction questionnaire (MSQ) developed by Weiss et al. (1967) [16]. Then, the researcher assessed employee's performance through Yu (1996) measure the task performance and context performance with 16 items [17]. The respondents were asked to estimate their levels of agreements in the questionnaires through a five-point Likert scale (1=Strongly Disagree, 2=Disagree, 3=Neither Agree nor Disagree, 4= Agree and 5=Strongly Agree).

The Table 1 shows the reliability of pilot test. From the result of the reliability test, it has been found that all the constructs have high-reliability values in the range of 0.865 to 0.935 using Cronbach's Alpha. The Cronbach's Alpha is a measure of internal consistency or reliability between multiple items, metrics or levels. Basically, the Cronbach's Alpha value should be higher that 0.7 then only the internal consistency is acceptable (Bonett & Wright, 2014).

Table 1: Reliability Analysis

Constructs	**Number of Items *(N)***	**Cronbach's Alpha ($\propto$)**
Remote Work	15	0.934
Job Satisfaction	20	0.935
Employees Performance	16	0.865

6. RESULTS AND DISCUSSION

Table 2 shows the demographic profile of respondents. A descriptive analysis was conduct and the respondents have been categorized according to age, gender, marital status, educational level, occupational sector, working experience and monthly income. The total number of participants who took part in this study was 200. The demographic profile stated that most of the respondents were male (54%), followed by female (46%); in the age group of 31 to 40 years old (32.5%), 41 to 50 years old (31%), 20 to 30 years old (30.5%) and followed by 51 to 60 years old (6%). The respondents were single (38.5%) and followed by married (61.5%); had educational background of Degree (55%), Master (32.5%), Diploma (9%), PHD (3%) and followed by STPM (0.5%). Next, most of the respondents

working in private sector (76.5%) than public sector (23.5%). Other than that, the respondents had working experience 1 to 5 years (18%), 6 to 10 years (39%), 11 to 15 years (29.5%), 16 to 20 years (7.5%), 21 to 25 years (3.5%) and over 26 years (2.5%). Finally, the monthly income of the respondents was RM 1 000 to RM 3 000 (2.5%), RM 3 001 to RM 6 000 (34.5%),
RM 6 001 to RM 9 000 (35.5%), RM 9 001 to RM 12 000 (25%) and RM 12 001 to RM 15 000 (2.5%).

Table 2: Demographic Profile

Demographic Profile	Frequency *(N)*	Percentage *(%)*
Age		
20-30 years	61	30.5
31-40 years	65	32.5
41-50 years	62	31.0
51-60 years	12	6.0
Total	**200**	**100**
Gender		
Male	108	54
Female	92	46
Total	**200**	**100**
Marital Status		
Single	77	38.5
Married	123	61.5
Total	**200**	**100**
Educational Level		
STPM	1	0.5
Diploma	18	9.0
Degree	110	55.0
Master	65	32.5
PHD	6	3.0
Total	**200**	**100**
Occupational Sector		
Public Sector	47	23.5
Private Sector	153	76.5
Total	**200**	**100**
Working Experience		
1-5 years	36	18.0
6-10 years	78	39.0
11-15 years	59	29.5
16-20 years	15	7.5
21-25 years	7	3.5
Over 26 years	5	2.5

Total	**200**	**100**
Monthly Income		
RM 1000 - RM 3 000	5	2.5
RM 3 001 - RM 6 000	69	34.5
RM 6 001 - RM 9 000	71	35.5
RM 9 001 - RM 12 000	50	25.0
RM 12 001 - RM 15 000	5	2.5
Total	**200**	**100**

The mean value for remote work is 3.88 (agree), job satisfaction is 3.63 (agree) and employee's performance is 4.21 (agree). Next, the standard deviation for remote work is 0.55, job satisfaction 0.38 and employee's performance is 0.26. To sum up, most of the respondents agreed that remote work make employees life easy, satisfied with their jobs and have a positive effect on employee's performance with a mean score higher that 3 as shows in Table 3.

Table 3: The Descriptive Statistics

	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
	Statistic	Statistic	Statistic	Statistic	Statistic
Remote Work	200	1.93	4.80	3.8847	.55431
Job Satisfaction	200	2.00	4.55	3.6318	.37678
Employees Performance	200	3.00	4.81	4.2107	.26067
Valid N (listwise)	200				

A correlation analysis between the study variable was performed. The first objective is to measure the relationship between remote work and the employee's performance. There is positive moderate correlation between remote work and employee's performance ($p<0.05$) as shown in Table 4. The result indicates that, if the positive effects of remote work increase than the employee's performance level should be increase which supported the first hypothesis (Remote work is significantly positive with the employees performance).

Table 4: Correlations between Remote Work and Employees Performance

		Remote_Work	Employees_Performance
Remote_Work	Pearson Correlation	1	.402**
	Sig. (2-tailed)		.000
	N	200	200

Employees_Performance	Pearson Correlation	.402**	1
	Sig. (2-tailed)	.000	
	N	200	200
**. Correlation is significant at the 0.01 level (2-tailed).			

The second objective is to measure the relationship between job satisfaction and employee's performance. There is positive moderate correlation between job satisfaction and employee's performance ($p<0.05$) as shown in Table 5. This means, if the positive effects of job satisfaction increase than the employee's performance also increase which supported the second hypothesis (Job satisfaction is significantly positive with the employees performance).

Table 5: Correlations between Job Satisfaction and Employees Performance

		Job_Satisfaction	Employees_Performance
Job_Satisfaction	Pearson Correlation	1	.412**
	Sig. (2-tailed)		.000
	N	200	200
Employees_Performance	Pearson Correlation	.412**	1
	Sig. (2-tailed)	.000	
	N	200	200
**. Correlation is significant at the 0.01 level (2-tailed).			

The multiple regression analysis indicated that, Remote Work ($B= 0.113$, $p<0.05$) and Job Satisfaction ($B= 0.185$, $p<0.05$) give a significant positive influence towards employee's performance since the probability value was less than 5% level of significance ($p<0.05$) as shown in Table 6. Therefore, it can be concluded that, if the average rating job satisfaction increase than the average rating of employee's performance should be increase too by remaining another independent variable constant. In addition, the analysis indicated that, if the average rating of remote work increases than the average rating of employee's performance should be increase, by remaining other independent variables remain constant. Other than that, the analysis indicates that, job satisfaction (Beta= 0.267) gives that highest influence factor towards employee's performance, since it produces the highest value of standardized beta coefficient, followed by remote work (Beta= 0.240).

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.102	.162		19.125	.000		
	Remote_Work	.113	.037	.240	3.012	.003	.634	1.578
	Job_Satisfaction	.185	.055	.267	3.346	.001	.634	1.578
a. Dependent Variable: Employees_Performance								

7. CONCLUSION

In conclusion, the job satisfaction gives highest influence towards employee's performance. There are two research questions were built in this research. The first research question is "What is the significant effect of remote work and the employee's performance? There is evidence that remote work has a favorable influence on employee performance. During this pandemic, technology enables people to work from home. Additionally, it protects personnel against the COVID-19 virus. Employees benefit from remote work since they may work at their own speed. Additionally, it is more appropriate, adaptable, and handy during this epidemic. The first hypothesis is supported (remote work has a significant positive effect on an employee's performance). The second study question is, "Is there a statistically significant relationship between work happiness and employee performance?" Job satisfaction has a substantial positive correlation with employee performance, according to the data. This is because if an employee is content with his or her job, he or she will inevitably perform well. The second hypothesis is supported by the evidence. However, this study has limitations of its own. To obtain reliable results in the future, the sample size must be increased, and the study narrowed in on a certain area.

ACKNOWLEDGEMENT

Primarily, I would thank God for being able to complete this research with success. Then, I would like to express my special thanks of gratitude to Dr. Norazlina binti Mohd Yasin for her guidance and support in completing this research. Next, I would like to thank my parents for their moral support. This work was supported by UTMSPACE for publication incentives.

REFERENCES

[1]. JobStreet. (2020). *COVID-19 Job Report*. https://www.jobstreet.com.my/en/cms/employer/wp-content/themes/jobstreet-employer/assets/loa/report/my/JobStreet-COVID-19-Job-Report-Malaysia-Sept-2020.pdf

[2]. Raišienė, A. G., Rapuano, V., Varkulevičiūtė, K., & Stachová, K. (2020). Working from Home—Who is Happy? A Survey of Lithuania's employees during the COVID-19 quarantine period. *Sustainability*, *12*(13), 5332.

[3]. Abuhashesh, M. Y., Aldmour, R., & Masa'deh, R. (2019, April 17). *Factors that affect Employees Job Satisfaction and Performance to Increase Customers' Satisfactions*. https://www.researchgate.net/publication/332471132_Factors_that_affect_Employees_Job_Satisfaction_and_Performance_to_Increase_Customers'_Satisfaction

[4]. Zhang, Y., Lim, Q., Yee, K., Ruslan, M., Nizam, I., Kelun, J., & Jun, Y. (2020). Telecommute Acceptance and Work Performance: A Multiple Regression Analysis. *International Journal of Innovation and Business Strategy (IJIBS)*, *14*(2), 44. https://business.utm.my/ijibs/attachments/article/115/IJIBS_14_02_04.pdf

[5]. Eddleston, K. A., & Mulki, J. (2017). Toward understanding remote workers' management of work–family boundaries: The complexity of workplace embeddedness. *Group & Organization Management*, *42*(3), 346-387.

[6]. Stadtlander, L., Sickel, A., & Giles, M. (2014). The online faculty work environment. *Poster presented at the Walden University Summer Session, Washington, DC*.

[7]. Bandura, A., & Cervone, D. (1986). Differential engagement of self-reactive influences in cognitive motivation. *Organizational behavior and human decision processes*, *38*(1), 92-113.

[8]. Trevelyan, R. (2011). Self-efficacy and effort in new venture development. *Available at SSRN 1758993*.

[9]. Ali, W. (2016). Understanding the Concept of Job Satisfaction, Measurements, Theories and its Significance in the Recent Organizational Environment: A Theoretical Framework. *Archives of Business Research*, *4*(1). https://doi.org/10.14738/abr.41.1735

[10]. Renyut, B. C., Modding, H. B., & Bima, J. (2017). The effect of organizational commitment, competence on Job satisfaction and employees performance in Maluku Governor's Office.

[11]. Hafeez, U., & Akbar, W. (2015). "Impact of Training on Employees Performance" (Evidence from Pharmaceutical Companies in Karachi, Pakistan). *Business Management and Strategy*, *6*(1), 49. https://doi.org/10.5296/bms.v6i1.7804

[12]. Potter, E. (2013). Telecommuting: The future of work, corporate culture and American society. Journal of Labor Research, 24(1), 73-84. https://doi.org/10.1007/s12122-003-1030-1

[13]. Bloom, N., Liang, J., Roberts, J., & Ying, Z. J. (2014). Does Working from Home Work? Evidence from a Chinese Experiment. *The Quarterly Journal of Economics*, *130*(1), 165–218. https://doi.org/10.1093/qje/qju032

[14]. Shmailan, A. (2016). The relationship between job satisfaction, job performance and employee engagement: An explorative study. *Issues in Business Management and Economics*, *4*(1), 1–8. https://doi.org/10.15739/IBME.16.001

[15]. Lambright, K. T. (2010). An update of a classic: Applying expectancy theory to understand contracted provider motivation. *Administration & Society*, *42*(4), 375-40

[16]. Weiss, D. J. , Dawis, R. V. England, G. W. and Lofquist, L. H. (1967), *Manual for the Minnesota Satisfaction Questionnaire*. Vol. 22, Minnesota Studies in Vocational Rehabilitation, Minneapolis: University of Minnesota, Industrial Relations Center.

[17]. Yu, T.C. (1996). *Effects of Human Elements in Quality Management on Job Performances.* Master's thesis, Graduate Institute of Business Administration, National Sun Yat-sen University.

[18]. Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting?Assessing the status of our scientific findings. *Psychological Science in the Public Interest*, *16*(2), 40-68

JURNAL TEKNIKAL & KAJIAN SOSIAL (JUTEKS)
VOLUME 20 NO. 1

CONSUMER PERCEIVED RISK AND PERCEIVED BENEFITS ONLINE BUYING BEHAVIOUR

Syafiqah Mohammed Hidayat[1], Norazlina Mohd Yasin[1*]
[1]School of Professional and Continuous Education (SPACE), Universiti Teknologi

Malaysia**E-mail: norazlina@utmspace.edu.my*

Abstract – Due to the fact that the future of company is dependent on technology and digitisation, it is critical to investigate the elements that influence online purchasing behaviour. The purpose of this study was to determine if the primary concern of the consumer was with the risks or the advantages. The primary objective of this study is to quantify the link between perceived risk and reported advantages associated with online purchasing behaviour. The study gathered data from 213 respondents using a survey questionnaire. IBM SPSS Statistics 20.0 was used to conduct a quantitative analysis of the data collected. Multiple regression analysis reveals that benefits have a strong positive correlation with online purchasing behaviour. This research is valuable for e-commerce businesses and might be used to show online purchasing behaviours to students, as the future is built on a completely new digital environment.

Keywords: *perceived benefits (PB), perceived risks (PR), online buying behaviours (OBB), e-commerce*

1.INTRODUCTION

Ecommerce (or electronic commerce) refers to the online purchasing and selling of goods (or services). It comprises a broad range of data, methods, and solutions aimed for online buyers and sellers, including mobile shopping and payment encryption (E-commerce, n.d). Online shopping is a procedure in which consumers purchase products, services, and other items directly from a vendor through the Internet without the need of an intermediary provider. The digital platform enables the purchase of any item without the need to visit a physical store, which typically operates 24 hours a day [1]. Consumers were no longer had to visit many stores in search of the proper goods, deal with overly exuberant salespeople, or even await in lengthy lines. The majority of business-to-consumer (B2C) transactions utilise an ecommerce platform to manage online marketing and sales operations, as well as logistics and fulfilment [2].

The marketing world environment has been significantly altered by the advent of the internet, which enabled businesses to extend and improve their capacity to contact clients in a variety of areas, both locally and worldwide, via electronic commerce [3]. As the internet of things (IoT) continues to expand in popularity, customers may stay current on worldwide trends without having to pay for flights. They may shop from stores located around the state, country, and even the world, rather than being restricted to their immediate geographic area. Certain online retailers accept requests for things that are temporarily unavailable and dispatch them as soon as they become available. Additionally, consumers benefit from reduced prices since items are supplied directly from the manufacturer or seller, eliminating the need for intermediaries. Additionally, online transactions enable customers to compare prices in order to locate a better deal. Additionally, many online retailers provide coupons and rebates, and consumers may send presents to relatives and friends regardless of their location.

Despite the obvious benefits of internet shopping, consumers were nevertheless exposed to risk. The likelihood of an online shopper experiencing financial loss as a result of an unsatisfactory product that is not worth the price paid is greater. Additionally, the product may not perform as advertised on the Internet, for example, in terms of colour, shape, and appearance. Online buyers may perceive a degree of risk associated with security tools and on-time delivery, since their expectations of product information quality on the website, online transaction, and delivery are higher. Additionally, internet consumers may feel a probable loss of self-esteem as a result of aggravation associated with not achieving a purchase objective and unhappiness associated with selecting a subpar product or service. A substandard product or service may lead to a consumer being judged and appraised poorly depending on their preferences [4].

Since 1991, Amazon.com was one of the earliest ecommerce sites in the United States, with many of firms following suit [5]. As the internet of things (IoT) expands, there are a growing number of instances of unscrupulous parties attempting to pervert the purpose of online commerce. Online shopping has a larger degree of risk throughout the purchase process. Risk perception is a factor that influences consumer online buying decisions. Perceived risk is a term that relates to the type and magnitude of risk that a customer perceives while making a buying decision. Thus, this research focuses on two objectives: first, determining

the link between perceived risk and online purchase purchasing behaviours; and second, determining the link between perceived advantages and online purchase purchasing behaviours. The findings will add to the body of knowledge in marketing research concerning customer behaviour.

2. LITERATURE REVIEW

Online purchasing buying behaviour

Online shopping is a type of electronic commerce that lets people to purchase goods or services directly from businesses via the internet using a web browser [6]. It is the most convenient method of purchasing products and services for customers. Indeed, online retailers eliminate additional expenses associated with transportation (including gasoline, tolls, and parking) and eliminate the need for customers to queue or navigate through crowds. With a single click of the mouse, the customer's preferred item will be delivered to his or her doorstep for a little fee, or in some cases, for free. Occasionally, internet businesses may provide free shipping and a cash-on-delivery option [7]. Online buying intention is often associated with favourable online buying behaviour [8]. Thus, the stronger an individual's intention to purchase online, the more likely the consumer will engage in online purchasing behaviour. As such, we have concentrated our efforts on determining the elements that impact customer intention to purchase online as a predictor of subsequent behaviour [9].

Perceived risk and online purchasing buying behaviour

Despite the advantages of internet commerce over conventional commerce and the positive projections for future development of online buying, the disadvantages of this type of purchasing are becoming increasingly apparent [10]. Risk is critical to consumer behaviour; it contributes significantly to the explanation of information-seeking behaviour and consumer purchase decision making. There are two theoretical perspectives on risk: one that is centred on the uncertainty of a decision result and another that is centred on the costs or consequences of such results [11]. While customers believe the internet to have a lot of advantages, it has a tendency to exaggerate some of the uncertainties inherent in any purchasing transaction. When consumers shop online, they

perceive a greater amount of danger than when they shop in traditional retail forms [12]. Perceived risk is described as the prospect of losing money when seeking a desired end while purchasing online; it is a mixture of uncertainty and the probability of a negative consequence. The concept of perceived risk has been captured through the use of numerous measures that assess how risky events are thought to be [13]. Consumers' desire to purchase items via the internet is reduced by perceived risk. Consumers' increased sense of risk works as a disincentive to their purchasing intentions. Numerous writers have discovered that the perceived risk associated with E-commerce has a detrimental influence on online buying behaviour, attitude toward use behaviour, and desire to embrace E-commerce [14]. The retail channel for E-commerce is the internet. In online buying, the risk associated with the channel is typically larger than the risk associated with the seller. Online shopping may have negative consequences that are not observed in traditional trade. Such as the consumer's inability to directly value the product's quality, the lack of personal contact with the salesperson, the costs associated with learning how to use the internet or website, the transition from other channels to the electronic one, the generation of anxiety and stress among consumers who are uncomfortable using the internet, the lack of interaction and social contact with other people, and so forth. As a result, we hypothesise the following:

H1: Perceived Risk has a negative effect on Online Purchasing Buying Behaviour

Perceived benefits and online purchasing buying behaviour

The internet introduces some risk to online purchasing, but it also provides several benefits that alter customer perceptions of online purchasing. Consumer belief and pleasure with online transactions, as well as the view that online shopping is simple, simple, offers a greater range of products, and is less hazardous than conventional shopping [16]. Convenience is a significant factor in why customers purchase online [17]. Consumers no longer need to go to the market or leave their house, and with globalisation, they are no longer constrained by time limitations at home and may purchase anything at any time because internet shopping is available 24 hours a day [18]. Additionally, internet retailers provide a diverse selection of brands from which consumers may choose. There are no stock constraints in an online business, and no requirement for window displays.

The increased choice is the primary reason customers shop online. It is quite convenient for consumers who purchase on a regular basis, since they may simply obtain diversity [19]. The diversity of products is the primary component that attracts customer attention, motivates them, and develops the intention to purchase online. Several previous research have established a favourable correlation between product diversity and online buying behaviour [20]. The basis for this study is based on planned behaviour theory. Thus, our hypothesis is:

H2: Perceived benefits have a positive effect on Online Buying Behaviour

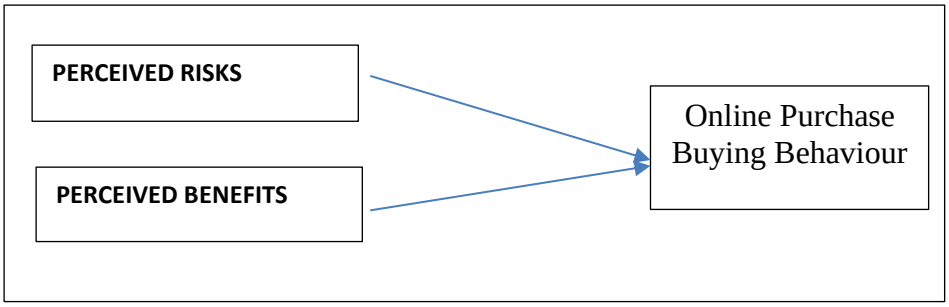


Figure 1: Conceptual framework

This research is conceptualised on the Theory of Reasoned Action (TRA). The Theory of Reasoned Action (TRA) assumes that the behaviour under investigated is under volitional control, that individuals feel they can perform the behaviour whenever they choose. Theory of Reasoned Action (TRA) was more frequently employed to investigate behaviours in which control was a variable component. Fishbein and Azjen proposed the Theory of Reasoned Action (TRA) model, which focuses on the development of a system of observation for two types of variables: attitudes, which are defined as a positive or negative feeling in relation to the achievement of an objective, and subjective norms, which are the exact representations of an individual's perception of their ability to achieve those goals using the products. In this study, Theory of Reasoned Action (TRA) was used to forecast customer purchasing behaviours based on perceived risks and rewards.

3. RESEARCH METHOD

The data was collected using survey through questionnaire which had close-ended questions comprised of 4 part and sum of 23 questions. The population size comprised of 350 respondents. The data was collected online using Google Form, from every types of positions and education of Malaysians as long as they fulfil the main criteria of the research which is an online purchase consumer. Perceived risk according to is the expectation of losses. The larger the expectations of losses are, the higher the degree of risk consumers will perceive [4]. Perceived benefit refers to the perception of the positive consequences that are caused by a specific action [21]. Online purchase buying behaviour refers to an action taken by consumers before buying a product or service [22].

To analyse this data researcher have used Statistical Package for the Social Sciences (SPSS) that has been used by previous researchers for complex statistical data analysis [23]. The analysis were including frequencies and descriptive statistics with graphs and chart [24]. The sampling technique used was convenience sampling which defined as a method adopted by researchers where they collect market research data from a conveniently available pool of respondents. It is the most commonly used sampling technique as it is incredibly prompt, uncomplicated and economical. On top of that apart from the researcher criteria, there are no specific criteria required to be part of this sample [25]. Due to Covid-19 pandemic testing the entire community is practically impossible researcher use convenience sampling in situations where additional inputs are not necessary for the principal research.

The data were collected from online questionnaire Google Form that held for less than a month. This research aims sum of 350 respondents and by that an online questionnaire was distributed randomly to 350 potential respondents. However the reliable data received were only 213 which are 61% from total targeted respondents.

4. DATA ANALYSIS

Demographic Profile

Ratio of female respondents were 68.1% and male 31.9% which means the majority were female respondents. The highest age of respondent with 50.2%% were age of 21-25, 20.8% were age 26-30, 16% from above 36, 12.2% from 16-20 and the least were 31-35. The position category was divided into four, the majority were employee which resulted as 57.7% of the sample size, students were 37.6%, 4.2% were Retired and only 0.5% were Job seeker. For education section most of the respondents were diploma which is 49.3%, 23% were Bachelor, High school were 21.1% and 6.6 of the respondents were master and above. 55.4% respondents usage were more than 4 hours, 35.2% were 3 hours-4hours, usage of 2hours-3hours had 5.6% and the least were less than 1 hour. 98.6% of the respondents have experience of shopping online. For frequency section most of the respondents shops more than 10 times 42.7% and 34.7% were 5-10 times. This data gave us an explanation that people tend to shop online regardless of their age and most of the online shopper was an employee and students (refer to Table 1).

Table 1: Demographic Profile

GENDER	FREQUENCY	PERCENT
FEMALE	145	68.1%
MALE	68	31.9%
AGE		
16 – 20	26	12.2%
21 – 25	107	50.2%
26 – 30	46	20.8%
31 – 35	0	0%
Above 36	34	16.0&
POSITION		

Employee	123	57.7%
Job Seeker	1	0.5%
Retired	9	4.2%
Student	80	37.6%
EDUCATION		
Bachelor	49	23.0%
Diploma	105	49.3%
Level High School	45	21.1%
Master and above	14	6.6%
USAGE		
2hour - 3 hours	12	5.6%
3 hour - 4 hour	75	35.2%
Less than 1 hour	8	3.8%
More than 4 hours	118	55.4%
SHOPPER		
Have experience of shopping online	210	98.6
No experience of shopping online	3	1.4
FREQUENCY		
3 - 5 times	19	8.9%
5 - 10 times	74	34.7%
Less than 3 times	29	13.6%
More than 10 times	91	42.7%

Validity test

A sample of between 30 and 50 target respondents was asked to evaluate and provide comments on the usefulness of the altered questions for

measuring the construct. Several items were re-worded or re-phrased appropriately based on these findings in order to accurately assess the construct and also to be understood by potential responders.

Reliability analysis

Table 2 shows reliability analysis of independent variable and dependent variable. However for perceived risks researcher had to omit 1 items (Shopping online can involve a waste of money - refer to table 1) that indicate unreliable level of reliability 0.53> α. Additionally, the table indicates that the modified Cronbach's Alpha value meets the permissible threshold of Cronbach's Alpha.

Table 2: Reliability Analysis

Variable	Number of items (*N*)	Cronbach's Alpha (α)
Perceived Risks	5	0.84
Perceived Benefits	6	0.82
Online purchase buying behaviour	5	0.72

Descriptive analysis

The term "descriptive analysis" refers to the process of describing the fundamental characteristics of data in a research. Simple summaries of the sample and measurements are provided throughout the analysis. Together with basic graphic analysis, it serves as the foundation for practically all quantitative data analysis [27]. Table 3 contains researcher summaries of completed questionnaires.

Table 3: Descriptive analysis

Descriptive Statistics

Constructs	Items	N	Min	Max	Mean	Std. Deviation
Risk	*Risk 1*: I might not receive the exact quality of a product that I purchased	213	1	5	2.09	1.217

	Risk 5: Shopping online can involve a waste of money	213	1	5	3.19	.979
Benefit	*Benefit 1*: I can shop whenever I want	213	1	5	2.21	1.053
	Benefit 2: I can get a broader selection of product	213	1	5	1.91	1.149
	Benefit 3: I don't have to deal with pushy salesperson on Internet Items from everywhere are available	213	1	5	2.29	.990
	Benefit 4: I can access many brands and retailers	213	1	5	2.27	1.004
	Benefit 5: I can shop in privacy of home	213	1	5	2.32	.991
	Benefit 6: I can avoid the hassle of driving and parking	213	1	5	2.69	.960
Online Purchase Buying Behaviour (OPBB)	*OPBB1*: Wide variety	213	1	5	2.12	1.312
	OPBB2: Good discount / Lower price	213	1	5	2.07	1.240
	OPBB3: No crowds	213	1	5	2.59	1.136
	OPBB 4: Fewer expenses	213	1	5	2.85	1.003
	OPBB 5: Price comparison	213	1	5	2.10	1.306
Valid N (listwise)		213				

Correlation

Correlation is a statistical measure that expresses the extent to which two variables are linearly related. It's a common tool for describing simple relationships without making a statement about cause and effect [28]. Significant correlation between the independent variables (perceived risks and perceived benefits) and dependent variable (online buying behaviour) enable researcher to ascertain the relationship between independent

variable and dependent variable. The Pearson correlation (R) indications shows that risk and benefits are positive correlated with online purchase behaviour as shown on table 4 and table 5. The correlation between dependent variables and both independent variable which is perceived risk perceived benefits both is significant (p=0.66 and 0.73). Thus for this research regression analysis is employed to carried out hypothesis on consumer online buying behaviour on perceived risk and benefits.

H1: Perceived risks are positively associated with online purchase buying behaviour

Table 4: Correlation between risk and Consumer Perceived Risk And Perceived Benefits Online Buying Behaviour

Correlations

		Risk_Type	OPBB
Risk_Type	Pearson Correlation	1	.699**
	Sig. (2-tailed)		.000
	N	213	213
OPBB	Pearson Correlation	.699**	1
	Sig. (2-tailed)	.000	
	N	213	213

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4 shows that Perceived risks R = 0.66 indicate that there is a moderate 66% relationship between perceived risks and online purchase behaviour, thus there is a significant relationship between perceived risks and online purchase behaviour.

H2: Perceived benefits are positively associated with and online purchase buying behaviour.

Correlations

		Benefit_Type	OPBB
Benefit_Type	Pearson Correlation	1	.739**
	Sig. (2-tailed)		.000
	N	213	213
OPBB	Pearson Correlation	.739**	1
	Sig. (2-tailed)	.000	
	N	213	213

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5: Correlation between benefits and Consumer Perceived Risk and Perceived Benefits Online Buying Behaviour

Table 5 shows that perceived benefits R = 0.73 indicate that there is a strong 73% relationship between perceived benefits and online purchase behaviour, thus there is a significant relationship between perceived benefits and online purchase behaviour

Regression analysis

The term "regression analysis" refers to a collection of statistical techniques for estimating the associations between a dependent variable and one or more independent variables. It may be used to determine the strength of relationships between variables and to forecast their future relationships [29].

Analysis of variance (ANOVA) is a statistical technique that divides observed aggregate variability within a data set into systematic and random elements. In a regression analysis, analysts utilise the ANOVA test to examine the effects of independent factors on the dependent variable [30].Table 9 shows ANOVA test indicated that, at least one independent variable was able to explain the dependent variable, since the ANOVA test was highly significant ($p < 0.5$). Therefore, it can be concluded that, the regression model was valid and the data was also fit to the model.

Table 6: ANOVA

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	99.454	2	49.727	220.610	.000[b]
Residual	47.336	210	.225		
Total	146.790	212			

a. Dependent Variable: OPBB
b. Predictors: (Constant), Benefit_Type, Risk_Type

Regression coefficients are estimates of the unknown population parameters and describe the relationship between a predictor variable and the response [32]. According to table 9, the multiple regression analysis

indicate that perceived risk (B = 0.57, P < 0.5) and perceived benefits (B = 0.57, P < 0.5) give a significant positive influence towards online purchase behaviour since the probability value was less than 5% level of significance (p < 0.5). On the other hand, the analysis indicated that, perceived benefits (Beta = 0.51) gives the highest influence factor towards online buying behaviour, since it produce the highest value of standardized beta coefficient.

Table 7: Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.395	.140		-2.816	.005
	Risk_Type	.570	.062	.427	9.235	.000
	Benefit_Type	.574	.052	.513	11.099	.000

a. Dependent Variable: OPBB

Perceived risk is supported by the regression analysis as perceived risk (B = 0.57, P < 0.5) give a significant positive influence towards online purchase behaviour since the probability value was less than 5% level of significance (p < 0.5). However, perceived risk (Beta = 0.42) gives the moderate influence factor towards online buying behaviour and does not produce the highest value of standardized beta coefficient. Along with it, according to table 6 perceived risks (R = 0.66) indicate that there is only a moderate 66% relationship between perceived risks and online purchase behaviour. In depth, referring to table 5 descriptive analysis risk 1 (I might not receive the exact quality of a product that I purchased) and risk 2 (the size description may not be accurate) shows high value of standard deviation (σ) apart from the other 3 risks. Risk 1 which is refers to risks of product quality with σ1.217 standard deviation and risk 2 refers to size product with σ1.238 standard deviation.

Perceived benefits is supported by the regression analysis as perceived benefits (B = 0.57, P < 0.5) give a significant positive influence towards online purchase behaviour since the probability value was less than 5% level of significance (p < 0.5). On the other hand, the analysis indicated that, perceived benefits (Beta = 0.51) gives the highest influence factor towards online buying behaviour, since it produce the highest value of standardized beta coefficient. Not to mention, table 7 shows that perceived benefits (R = 0.73) indicate that there is a strong 73% relationship between

perceived benefits and online purchase behaviour, thus there is a significant relationship between perceived benefits and online purchase behaviour. In depth, referring to table 5 descriptive analysis benefit 1 (I can shop whenever I want), benefit 2 (I can get a broader selection of products) and benefits 4 (I can access many brands and retailers) shows high value of standard deviation (σ) apart from the other 3 benefits. Benefits 1 which is refers to flexibility of online shopping time with σ1.053 standard deviation, benefits 2 refers to consumer could get broader selection with σ1.145 standard deviation and benefits 4 refers to consumer could access many brands and retailer with σ1.004 standard deviation.

5. DISCUSSION AND CONCLUSION

As a result of this analysis, we can conclude that online purchase consumers are extremely concerned about the risk of not receiving the exact quality of the product they purchased and about the size of the product, in addition to other risks such as credit or debit card details being compromised, online shopping companies disclosing my personal information, and shopping online being a waste of time. Perceived risk, on the other hand, does not result in the largest value of the standardised beta coefficient. On the other hand, we can infer that benefits are highly related with online buying behaviour despite the fact that there are various risks connected with it, and for this research, perceived risk results in the greatest value of the standardised beta coefficient.

Because the future of company is dependent on technology and digitisation, it is critical to investigate the elements that influence online purchasing behaviour. As a result of this study's findings, the researcher may infer that the study's purpose was met by randomly distributing questionnaires to online purchase consumers and analysing their responses. This study indicates that perceived advantages have a substantial positive correlation with the purchasing behaviour for online purchases. Perceived advantages exert the greatest effect on online purchasing behaviour, as they provide the largest value of the standardised beta coefficient. This demonstrates that, despite the fact that consumers are exposed to multiple risks while shopping online, the advantages remain prevalent. Apart from that, the study concluded that there are four major dimensions of perceived benefits: the flexibility of online shopping time (Benefits 1), the consumer's ability to obtain a broader selection (Benefits

2) and the consumer's ability to access a variety of brands and retailers (Benefits 4). Hence, based on the perceived benefits dimension, the researcher might conclude that customers are drawn to the flexibility offered by online shopping.

This study has various limitations that should be considered. The study's primary weakness is that it was conducted during the Covid-19 epidemic, which imposed restrictions on survey distribution. Due to the fact that the researcher could only disseminate the survey to common friends and family, the scope of variation was limited. Additionally, the researcher is unable to examine this research in a broader context due to the lack of variance across participants. Individuals may have been biased while answering the question due to previous purchases that influenced their responses.

ACKNOWLEDGEMENT

Primarily, I would thank God for being able to complete this research with success. Then, I would like to express my special thanks of gratitude to Dr. Norazlina binti Mohd Yasin for her guidance and support in completing this research. Next, I would like to thank my parents for their moral support. This work was supported by UTMSPACE for publication incentives.

References

[1] Gnanadhas. (2015). Online Shopping - An Overview. 10.

[2] E-commerce. (n.d). *E-commerce* . Retrieved from Bigcommerce : https://www.bigcommerce.com/articles/ecommerce/

[3] Ogundare, F. &. (2016). Influence Of customers' Perceived Risk On Online Shopping . *International Journal of Information System and Engineering*, 13.

[4] Ariffin, M. a. (2018). Influence of consumers' perceived. *Emerald Insight*, 19.

[5] Miva. (2011, 10 26). *The History Of Ecommerce: How Did It All Begin?* Retrieved from MIVA.COM:

https://www.miva.com/blog/the-history-of-ecommerce-how-did-it-all-begin/

[6] Sarayrah, A. (2016). An investigation of factors influencing consumers? intention to use online shopping: An empirical study in south of Jordan. *Research Gate*, 21

[7] Kumar. (2016). Consumer behaviour and satisfaction in e-commerce: a comparative study based on online shopping of some electronic gadgets . *Semantic Scholar* .

[8] Lim, O. S. (2016). Factors Influencing Online Shopping Behavior: The Mediating Role of Purchase Intention. *Science Direct* , 10.

[9] Wahid, A. &. (2018). Factors Influencing Online Purchase Intention. *International Journal Of Academic Research In Business & Social Sciences*, 16.

[10] Ko, e. a. (2004). Cross-Cultural Differences in Perceived Risk of Online Shopping. *Research Gate*.

[11] Bauer, e. a. (2007). Segmenting cyberspace: A customer typology for the Internet. *Research Gate*, 93.

[12] Lee, T. (2003). E-retailing versus physical retailing: A theoretical model and empirical test of consumer choice. *Science Direct*.

[13] Featherman, P. (2003). Predicting e-services adoption: a perceived risk facets perspective. *Science Direct*.

[14] Zhang, T. X. (2011). Dimensions of Perceived Risk and Their Influence on Consumers' Purchasing Behavior in the Overall Process of B2C. *Research Gate*.

[15] Salo, K. (2007). A conceptual model of trust in the online environment. *Research Gate*.

[16] Rahman, B. &. (2020). Perceived benefits and perceived risks effect on online shopping behaviour with the mediating role of consumer purchase intention in Pakistan . *International Journal of Management* .

[17] Ahmad. (2002). Service failures and customer defection: a closer look at online shopping experiences. *Emerald Insight* .

[18] To, L. &. (2007). Shopping motivations on Internet: A study based on utilitarian and hedonic value. *Science Direct* .

[19] Tse, S. &. (2002). Profiling internet shoppers in Hong Kong: Demographic, psychographic, attitudinal and experiential factors. *Research Gate* .

[20] Ammeter, K. &. (2017). Shifts in Online Consumer Behavior: A Preliminary Investigation of the Net Generation. *Journal of Theoretical and Applied Electronic Commerce Research*.

[21] Leung. (2013). Encyclopedia of Behavioral Medicine. *Springer Link*, 94.

[22] Team, D. (2020, January 20). *What Is Consumer Buying Behavior?* Retrieved from Demand Jump: https://www.demandjump.com/blog/what-is-consumer-buying-behavior

[23] Foley, B. (2018, July 3). *What is SPSS?* Retrieved from Alchemer : https://www.alchemer.com/resources/blog/what-is-spss/

[24] Ogundare, F. (2016). Influence of Customers' Perceived Risk On Online Shopping. *International Journal of Information System and Engineering*, 13.

[25] Sampling, C. (n.d). *CONVENIENCE SAMPLING: DEFINITION, APPLICATIONS, ADVANTAGES, METHOD, AND EXAMPLES*. Retrieved from Question Pro: https://www.questionpro.com/blog/convenience-sampling/

[26] Res. (2012, May 1). *The Role and Interpretation of Pilot Studies in Clinical Research*. Retrieved from NCBI: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3081994/#:~:text=Pilot%20studies%20represent%20a%20fundamental,clinical%20trial%20as%20an%20example.

[27] Trochim. (2020, March 10). *Descriptive Statistics*. Retrieved from Conjointly: https://conjointly.com/kb/descriptive-statistics/

[28] *Correlation*. (n.d). Retrieved from Statistic Knowledge Portal : https://www.jmp.com/en_ca/statistics-knowledge-portal/what-is-correlation.html#:~:text=Correlation%20is%20a%20statistical%20measure,statement%20about%20cause%20and%20effect.

[29]

Vipond, T. (n.d). *What is Regression Analysis?* Retrieved from Corporate Finance Institute: https://corporatefinanceinstitute.com/resources/knowledge/finance/regression-analysis/#:~:text=Regression%20analysis%20is%20a%20set,a%20dependent%20variable%20(the%20outcome

[30] Kenton. (2019, April 19). *Analysis of Variance (ANOVA)*. Retrieved from Investopedia: https://www.investopedia.com/terms/a/anova.asp

[31] Kenton. (2019, April 19). *Analysis of Variance (ANOVA)*. Retrieved from Investopedia: https://www.investopedia.com/terms/a/anova.asp

[32] Frost. (n.d). *Regression coefficients*. Retrieved from Statistics By Jim: https://statisticsbyjim.com/glossary/regression-coefficient/

ISSN 1675-2228

UTMSPACE JOHOR BAHRU
Aras 4 & 5, Blok T05
Universiti Teknologi Malaysia
81310 Skudai, Johor

UTMSPACE KUALA LUMPUR CAMPUS
Aras 2, Residensi UTM Kuala Lumpur
No. 8 Jalan Maktab
541000 Kuala Lumpur

utmspace.edu.my