

APPLICATION FOR ETHICAL APPROVAL

In order for research to result in benefit and minimise risk of harm, it must be conducted ethically. A researcher may not be covered by the University's insurance if ethical approval has not been obtained prior to commencement.

The University follows the OECD Frascati manual definition of **research activity**: "creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications". As such this covers activities undertaken by members of staff, postgraduate research students, and both taught postgraduate and undergraduate students working on dissertations/projects.

The individual undertaking the research activity is known as the "principal researcher".

Ethical approval is not required for routine audits, performance reviews, quality assurance studies, testing within normal educational requirements, and literary or artistic criticism.

Please read the notes for guidance before completing ALL sections of the form.

This form must be completed and approved prior to undertaking any research activity. Please see Checklist for details of process for different categories of application.

Delete the Guidance Notes at the end of the form BEFORE submitting your application

SECTION A: About You (Principal Researcher)

SECTION A: About You (Principal Researcher)

1	Full Name:	Lam Lai Chun Charlotte			
2	Tick all boxes which apply:	Member of staff:	☐	Honorary research fellow:	☐
3	Undergraduate Student	☐	Taught Postgraduate Student	☒	Postgraduate Research Student
4	Institute/Academic Discipline/Centre:	The Hong Kong Management Association			
5	Campus:	Towngas Management Development Centre			
6	E-mail address:	lam_charlotte@hotmail.com			
7	Contact Telephone Number:	852 9331 7312			
For students:					
8	Student Number:	1818502			
9	Programme of Study:	Master of Business Administration			
10	Director of Studies/Supervisor:	Dr. MO, Wing Ying, Katherine			

SECTION B: Approval for Research Activity

1	Has the research activity received approval in principle? (please check the Guidance Notes as to the appropriate approval process for different levels of research by different categories of individual)	YES	☐	NO	☒
					Date
2	If Yes, please indicate source of approval (and date where known):	Research Degrees Committee	☐		
3	Approval in principle must be obtained from the relevant source prior to seeking ethical approval	Institute Research Committee	☐		
4		Other (write in)	☐		

SECTION C: Internal and External Ethical Guidance Materials

Please list the core ethical guidance documents that have been referred to during the completion of this form (including any discipline-specific codes of research ethics, and also any specific ethical guidance relating to the proposed methodology). Please tick to confirm that your research proposal adheres to these codes and guidelines.	
1	UWTSD Research Ethics & Integrity Code of Practice ☒
2	UWTSD Research Data Management Policy ☒
3	☐

SECTION D: External Collaborative Research Activity

1	Does the research activity involve collaborators outside of the University?	YES	☐	NO	☒	
2	If Yes, please provide the name of the external organisation and name and contact details for the main contact person and confirmation this person has consented to their personal data being shared as part of this collaboration.					
3	Institution					
4	Contact person name					
5	Contact person e-mail address					
6	Has this individual consented to sharing their details on this form?	YES	☐	NO	☒	
7	Are you in receipt of a KESS scholarship?	YES	☐	NO	☒	
8	Is your research externally funded?	YES	☐	NO	☒	
9	Are you specifically employed to undertake this research in either a paid or voluntary capacity?	Voluntary	YES	☐	NO	☒
10		Employed	YES	☐	NO	☒
11	Is the research being undertaken within an existing UWTSD Athrofa Professional Learning Partnership (APLP)?	If YES then the permission question below does not need to be answered.	YES	☐	NO	☒
12	Permission to undertake the research has been provided by the partner organisation	(If YES attach copy) If NO the application cannot continue	YES	☐	NO	☒

Where research activity is carried out in collaboration with an external organisation

13	Does this organisation have its own ethics approval system?	YES	☐	NO	☒
14	If Yes, please attach a copy of any final approval (or interim approval) from the organisation				

SECTION E: Details of Research Activity

1	Indicative title:	Effectiveness of Virtual Learning during COVID-19 pandemic		
2	Proposed start date:	01 April 2021	Proposed end date:	18 October 2021
3	Introduction to the Research (maximum 300 words) Ensure that you write for a <u>Non-Specialist Audience</u> when outlining your response to the three points below: • Purpose of Research Activity • Proposed Research Question • Aims of Research Activity • Objectives of Research Activity Demonstrate, briefly, how <u>Existing Research</u> has informed the proposed activity and explain • What the research activity will add to the body of knowledge • How it addresses an area of importance.			
4	Purpose of Research Activity The purpose of this study to assess how many people are satisfied and effectiveness with the arrangement of studying online during COVID-19 epidemic. (this box should expand as you type)			
5	Research Question What is the current utilization of virtual learning by learners? What is the effectiveness of virtual learning by learners? What are the influence factors of learners in virtual learning? (this box should expand as you type)			
6	Aims of Research Activity This plan defines virtual learning effectiveness as encompassing computer self-efficacy, learning climate, learning satisfaction, and learning challenges. (this box should expand as you type)			
7	Objectives of Research Activity "Effectiveness of Virtual Learning during COVID-19 pandemic " project is to explore the learners at various studying stages from children to adulthood, and how background and various factors influence their effectiveness through longitudinal stratified research. (this box should expand as you type)			
8	Proposed methods (maximum 600 words)			

	Provide a brief summary of all the methods that may be used in the research activity, making it clear what specific techniques may be used. If methods other than those listed in this section are deemed appropriate later, additional ethical approval for those methods will be needed.					
9	In this study, the target audience will be the learners who have participated virtual learning courses during the COVID-19 epidemic to diminish the data gathered and develop the correctness of the research. Firstly, the theoretical basis and requirements of this study are literature review on the principally for the study of the research aspects including computer self-efficacy, learning climate, learning satisfaction, and learning challenges and learning effectiveness. Secondly, this research will establish a focus group to gather their opinions and evaluate the research before assembling of this research questionnaires together with pilot test and comprehensive survey through online. Finally, the SPSS instrument to test reliability and validity of the measurements. (this box should expand as you type)					
10	Location of research activity Identify all locations where research activity will take place.					
11	Hong Kong (this box should expand as you type)					
12	Research activity outside of the UK If research activity will take place overseas, you are responsible for ensuring that local ethical considerations are complied with and that the relevant permissions are sought. Specify any local guidelines (e.g. from local professional associations/learned societies/universities) that exist and whether these involve any ethical stipulations beyond those usual in the UK (provide details of any licenses or permissions required). Also specify whether there are any specific ethical issues raised by the local context in which the research activity is taking place, for example, particular cultural and/or legal sensitivities or vulnerabilities of participants.					
13	N/A (this box should expand as you type)					
14	Use of documentation not in the public domain: Are any documents NOT publicly available?	<table border="1"> <tr> <td>NO</td> <td>☒</td> </tr> <tr> <td>YES</td> <td>☐</td> </tr> </table>	NO	☒	YES	☐
NO	☒					
YES	☐					
15	If Yes, please provide details here of how you will gain access to specific documentation that is not in the public domain and that this is in accordance with prevailing data protection law of the country in question and England and Wales. N/A (this box should expand as you type)					

SECTION F: Scope of Research Activity

1	Will the research activity include:	YES	NO
2	Use of a questionnaire or similar research instrument?	☒	☐
3	Use of interviews?	☐	☒
4	Use of diaries?	☐	☒
5	Participant observation with their knowledge?	☐	☒
6	Participant observation without their knowledge?	☐	☒

7	Use of video or audio recording?	☐	☒
8	Access to personal or confidential information without the participants' specific consent?	☐	☒
9	Administration of any questions, test stimuli, presentation that may be experienced as physically, mentally or emotionally harmful / offensive?	☐	☒
10	Performance of any acts which may cause embarrassment or affect self-esteem?	☐	☒
11	Investigation of participants involved in illegal activities?	☐	☒
12	Use of procedures that involve deception?	☐	☒
13	Administration of any substance, agent or placebo?	☐	☒
14	Working with live vertebrate animals?	☐	☒
15	Other primary data collection methods, please explain in this box For example, 'focus groups'. Please indicate the type of data collection method(s) in this box and tick the accompany box.	☒	☐
16	Details of any other primary data collection method: Focus groups (this box should expand as you type)		

If NO to every question, then the research activity is (ethically) low risk and may be exempt from some of the following sections (please refer to Guidance Notes).

If YES to any question, then no research activity should be undertaken until full ethical approval has been obtained.

SECTION G: Intended Participants

1	Who are the intended participants:	YES	NO
2	Students or staff at the University?	☒	☐
3	Adults (over the age of 18 and competent to give consent)?	☒	☐
4	Vulnerable adults?	☐	☒
5	Children and Young People under the age of 18? (Consent from Parent, Carer or Guardian will be required)	☐	☒
6	Prisoners?	☐	☒
7	Young offenders?	☐	☒
8	Those who could be considered to have a particularly dependent relationship with the investigator or a gatekeeper?	☐	☒
9	People engaged in illegal activities?	☐	☒
10	Others (please identify specifically any group who may be unable to give consent) please indicate here and tick the appropriate box.	☐	☒
11	Other – please indicate here: (this box should expand as you type)		

12	Participant numbers and source Provide an estimate of the expected number of participants. How will you identify participants and how will they be recruited?
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13	How many participants are expected?	400 <i>(this box should expand as you type)</i>		
14	Who will the participants be?	Adult learners <i>(this box should expand as you type)</i>		
15	How will you identify the participants?	Invite participants to complete the google form. <i>(this box should expand as you type)</i>		
16	Information for participants:	YES	NO	N/A
17	Will you describe the main research procedures to participants in advance, so that they are informed about what to expect?	☒	☐	☐
18	Will you tell participants that their participation is voluntary?	☒	☐	☐
19	Will you obtain written consent for participation?	☒	☐	☐
20	Will you explain to participants that refusal to participate in the research will not affect their treatment or education (if relevant)?	☒	☐	☐
21	If the research is observational, will you ask participants for their consent to being observed?	☐	☐	☒
22	Will you tell participants that they may withdraw from the research at any time and for any reason?	☒	☐	☐
23	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	☒	☐	☐
24	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	☒	☐	☐
25	Will you debrief participants at the end of their participation, in a way appropriate to the type of research undertaken?	☒	☐	☐
26	If NO to any of above questions, please give an explanation			
27	<i>(this box should expand as you type)</i>			
28	Information for participants:	YES	NO	N/A
29	Will participants be paid?	☐	☒	☐
30	Is specialist electrical or other equipment to be used with participants?	☐	☒	☐
31	Are there any financial or other interests to the investigator or University arising from this study?	☐	☒	☐
32	Will the research activity involve deliberately misleading participants in any way, or the partial or full concealment of the specific study aims?	☐	☒	☐
33	If YES to any question, please provide full details			
34	<i>(this box should expand as you type)</i>			

SECTION H: Anticipated Risks

1	Outline any anticipated risks that may adversely affect any of the participants, the researchers and/or the University, and the steps that will be taken to address them. If you have completed a full risk assessment (for example as required by a laboratory, or external research collaborator) you may append that to this form.		
2	Full risk assessment completed and appended?	Yes	☐
		No	☒
3	Risks to participants For example: emotional distress, financial disclosure, physical harm, transfer of personal data, sensitive organisational information		
4	Risk to Participant: <i>(this box should expand as you type)</i>	How will you mitigate the Risk to Participant <i>(this box should expand as you type)</i>	
5	If research activity may include sensitive, embarrassing or upsetting topics (e.g. sexual activity, drug use) or issues likely to disclose information requiring further action (e.g. criminal activity), give details of the procedures to deal with these issues, including any support/advice (e.g. helpline numbers) to be offered to participants. Note that where applicable, consent procedures should make it clear that if something potentially or actually illegal is discovered in the course of a project, it may need to be disclosed to the proper authorities <i>(this box should expand as you type)</i>		
6	Risks to investigator For example: personal safety, physical harm, emotional distress, risk of accusation of harm/impropriety, conflict of interest		
	Risk to Investigator: <i>(this box should expand as you type)</i>	How will you mitigate the Risk to Investigator: <i>(this box should expand as you type)</i>	
7	University/institutional risks For example: adverse publicity, financial loss, data protection		
	Risk to University: <i>(this box should expand as you type)</i>	How will you mitigate the Risk to University: <i>(this box should expand as you type)</i>	
8	Disclosure and Barring Service		
9	If the research activity involves children or vulnerable adults, a Disclosure and Barring Service (DBS) certificate must be obtained before any contact with such participants.	YES	NO
10	Does your research require you to hold a current DBS Certificate?	☐	☒

SECTION I: Feedback, Consent and Confidentiality

1	Feedback What de-briefing and feedback will be provided to participants, how will this be done and when? De-briefing and feedback will be provided to participants during focus group discussion. <i>(this box should expand as you type)</i>
2	Informed consent Describe the arrangements to inform potential participants, before providing consent, of what is involved in participating. Describe the arrangements for participants to provide full consent before

	data collection begins. If gaining consent in this way is inappropriate, explain how consent will be obtained and recorded in accordance with prevailing data protection legislation.
	Provided full consent before data collection for participants on focus group discussion and embedded it in the questionnaire. <i>(this box should expand as you type)</i>
3	Confidentiality / Anonymity Set out how anonymity of participants and confidentiality will be ensured in any outputs. If anonymity is not being offered, explain why this is the case.
	To offer an anonymity of all participants and to ensure confidentiality during focus group discussion and embedded it in the questionnaire. <i>(this box should expand as you type)</i>

SECTION J: Data Protection and Storage

In completing this section refer to the University's Research Data Management Policy and the extensive resources on the University's Research Data Management web pages (<http://uwtsd.ac.uk/library/research-data-management/>).

1	Does the research activity involve personal data (as defined by the General Data Protection Regulation 2016 "GDPR" and the Data Protection Act 2018 "DPA")?	YES	NO
	<i>"Personal data" means any information relating to an identified or identifiable natural person ('data subject'). An identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person.</i>	☐	☒
2	If YES, provide a description of the data and explain why this data needs to be collected:		
	<i>(this box should expand as you type)</i>		
3	Does it involve special category data (as defined by the GDPR)?	YES	NO
	<i>"Special category data" means sensitive personal data consisting of information as to the data subjects' –</i> <i>(a) racial or ethnic origin,</i> <i>(b) political opinions,</i> <i>(c) religious beliefs or other beliefs of a similar nature,</i> <i>(d) membership of a trade union (within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992),</i> <i>(e) physical or mental health or condition,</i> <i>(f) sexual life,</i> <i>(g) genetics,</i> <i>(h) biometric data (as used for ID purposes).</i>	☐	☒
4	If YES, provide a description of the special category data and explain why this data needs to be collected:		
	<i>(this box should expand as you type)</i>		
5	Will the research activity involve storing personal data and/or special category data on one of the following:	YES	NO

6	Manual files (i.e. in paper form)?	☐	☒
7	University computers?	☐	☒
8	Private company computers?	☐	☒
9	Home or other personal computers?	☒	☐
10	Laptop computers/ CDs/ Portable disk-drives/ memory sticks?	☐	☒
11	"Cloud" storage or websites?	☒	☐
12	Other – specify: Google Form	☒	☐
13	For all stored data, explain the measures in place to ensure the security of the data collected, data confidentiality, including details of password protection, encryption, anonymisation and pseudonymisation:		
	Password protection and encryption will be executed to ensure the data collected and confidentially is in place <i>(if appropriate)</i> <i>(this box should expand as you type)</i>		
14	All Data Storage		
15	Will the research activity involve any of the following activities:	YES	NO
16	Electronic transfer of data in any form?	☒	☐
17	Sharing of data with others at the University?	☐	☒
18	Sharing of data with other organisations?	☐	☒
19	Export of data outside the European Union or importing of data from outside the UK?	☐	☒
20	Use of personal addresses, postcodes, faxes, emails or telephone numbers?	☐	☒
21	Publication of data that might allow identification of individuals?	☐	☒
22	Use of data management system?	☐	☒
23	Data archiving?	☐	☒
24	If YES to any question, please provide full details, explaining how this will be conducted in accordance with the GDPR and DPA (and/or any international equivalent):		
	Electronic transfer of data from Google Form to SPSS software. <i>(this box should expand as you type)</i>		
25	List all who will have access to the data generated by the research activity:		
	Myself My supervisor <i>(this box should expand as you type)</i>		
26	List who will have control of, and act as custodian(s) for, data generated by the research activity:		
	Myself <i>(this box should expand as you type)</i>		

27	Give details of data storage arrangements, including security measures in place to protect the data, where data will be stored, how long for, and in what form. Will data be archived – if so how and if not why not.		
	The online questionnaire is compiled by using Google Form. <i>(this box should expand as you type)</i>		
28	Please indicate if your data will be stored in the UWTSD Research Data Repository (see https://researchdata.uwtsd.ac.uk/). If so please explain. <i>(Most relevant to academic staff)</i>		
	<i>(this box should expand as you type)</i>		
29	Confirm that you have read the UWTSD guidance on data management (see https://www.uwtsd.ac.uk/library/research-data-management/)	YES NO	☒ ☐
30	Confirm that you are aware that you need to keep all data until after your research has completed or the end of your funding	YES NO	☒ ☐

SECTION K: Declaration

31	The information which I have provided is correct and complete to the best of my knowledge. I have attempted to identify any risks and issues related to the research activity and acknowledge my obligations and the rights of the participants. In submitting this application I hereby confirm that I undertake to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice which is published on the website: https://www.uwtsd.ac.uk/research/research-ethics/		
	Signature of applicant:		Date: 15 June 2021

For STUDENT Submissions:

32	Director of Studies/Supervisor:	Dr. Katherine Mo	Date: 15 June 2021
33	Signature:		

For STAFF Submissions:

34	Academic Director/ Assistant Dean:		Date:
35	Signature:		

Checklist: Please complete the checklist below to ensure that you have completed the form according to the guidelines and attached any required documentation:

☒	I have read the guidance notes supplied before completing the form.
☒	I have completed ALL RELEVANT sections of the form in full.
☒	I confirm that the research activity has received approval in principle
☐	I have attached a copy of final/interim approval from external organisation (where appropriate)

☐	I have attached a full risk assessment (and have NOT completed Section H of this form) (where appropriate) ONLY TICK IF YOU HAVE ATTACHED A FULL RISK ASSESSMENT
☒	I understand that it is my responsibility to ensure that the above named research activity will meet the University's Research Ethics and Integrity Code of Practice.
☒	I understand that before commencing data collection all documents aimed at respondents (including information sheets, consent forms, questionnaires, interview schedules etc.) must be confirmed by the DoS/Supervisor, module tutor or Academic Director.
☒	I have deleted the guidance notes before submitting the PG2 for consideration

RESEARCH STUDENTS AND STAFF ONLY

All communications relating to this application during its processing must be in writing and emailed to pgresearch@uwtsd.ac.uk, with the title 'Ethical Approval' followed by your name. You will be informed of the outcome of your claim by email; therefore it is important that you check your University and personal email accounts regularly.

STUDENTS ON UNDERGRADUATE OR TAUGHT MASTERS PROGRAMMES should submit this form (and receive the outcome) via systems explained to you by the supervisor/module leader.

This form is available electronically from the Academic Office web pages:

<https://www.uwtsd.ac.uk/academic-office/appendices-and-forms/>

Application Process

All staff research projects and all research students must submit the Ethical Approval Form to the **University Research Ethics Committee** via the Academic Office (pgresearch@uwtsd.ac.uk). Staff research directly in relation to personal study for taught undergraduate or Masters programmes should be submitted via the Institute procedures explained below.

Taught masters and taught undergraduate research Ethical Approval Forms are considered **within Institutes**. Institutes will provide details of the specific processes for this. Where the Ethical issues within any single ethical application are of particular concern the Institute will refer these to the University Research Ethics Committee. Any student activity that involves the collection of primary data needs to undergo Ethical approval, this includes assignment work as well as dissertations.



UNIVERSITY OF WALES

TRINITY SAINT DAVID

MASTER OF BUSINESS ADMINISTRATION

Assignment Title :

**Effectiveness of Virtual Learning during COVID-19 pandemic
(Research Proposal)**

Student name : Lam Lai Chun Charlotte

Student ID number : 1818502

Date : 15 June 2021

Table of Contents

	<u>Page</u>
CHAPTER 1 INTRODUCTION	1 - 3
1.1 Research background	
1.2 Research aim	
1.3 Research objectives	
CHAPTER 2 LITERATURE REIVEW	4 - 7
2.1 Computer self-efficacy	
2.2 Learning climate	
2.3 Learning challenges	
2.4 Learning satisfaction	
2.5 Learning effectiveness	
CHAPTER 3 RESEARCH METHODOLOGIES	8 - 11
3.1 Research Design	
3.2 Research Hypothesis	
3.3 Secondary Research	
3.4 Primary Research	
3.5 Pilot Study	
3.6 Research Object	
3.7 Statistical Analysis	
3.8 Limitations in Research	
REFERENCES	12 - 14

Chapter 1 Introduction

1.1 Research Background

The COVID-19 pandemic spotted us unexpectedly. Last year, educational institutions around the world required to implement rapid adjustments to continue to operate while maintaining social distancing. This has created about a major change in our teaching and learning procedures.

However, today the world is still responding to COVID-19 step by step, allowing us to see the prevailing impact of new trends, redefining education and transforming our traditional attitude towards education.

Virtual learning has developed an online information system and a crucial education instrument as technological evolution and widespread utilization of the Internet. (Keller C & Cernerud L., 2002)

1.2 Research Aim

The main purpose of the "Effectiveness of Virtual Learning during COVID-19 pandemic " project is to explore the learners at various studying stages from children to adulthood, and how background and various factors influence their effectiveness through longitudinal stratified research. This plan defines virtual learning effectiveness as encompassing computer self-efficacy, learning climate, learning satisfaction, and learning challenges.

1.3 Research Objectives

According to the Hong Kong's researchers to assess the impact of the COVID-19 on students and office workers around the world during February to June 2020. The survey found that only 27% of Hong Kong university students are satisfied with online learning (e-learning was adopted when it first broke out in Hong Kong in early-February 2020). And 60% of the respondents said that online learning is not as effective as classroom teaching. Therefore, if the organizations aim to improve online learning and work efficiency and user satisfaction, they must improve and optimize them. (Lingnan, 2020)

Our life has undergone tremendous changes due to social distancing restrictions under the COVID-19 epidemic, no matter where we are or whether we are a student or an office worker. Most people rely on their laptop to study and work at home, and communicate with instructors, learners, and co-workers through online. The purpose of this study to assess how many people are satisfied and effectiveness with the arrangement of studying online during COVID-19 epidemic.

According to the above research purposes, the questions that this research aims to understand that:

1. What is the current utilization of virtual learning by learners? Investigate and analyze the current learning behaviors of learners in virtual learning environment (VLE) to understand the status of learners using virtual learning mechanisms and make a summary discussion of their usage.

2. What is the effectiveness of virtual learning by learners? Understand the learners' self-perceived learning effectiveness in virtual learning environment, including their computer self-efficacy, learning climate, learning satisfaction, and learning challenges, to overall evaluate the learning effectiveness of learners using the virtual learning mechanism.
3. What are the influence factors of learners in virtual learning? Targeting the systematic macro-level to understand those factors distract learners to engage in virtual learning; develop solutions to improve learners' incentives and motivations for virtual learning; and propose improvements to deepen and develop for future virtual learning mechanisms.

In this study, the target audience will be the learners who have participated virtual learning courses during the COVID-19 epidemic to diminish the data gathered and develop the correctness of the research. Firstly, the theoretical basis and requirements of this study are literature review on the principally for the study of the research aspects including computer self-efficacy, learning climate, learning satisfaction, and learning challenges and learning effectiveness. Secondly, this research will establish a focus group to gather their opinions and evaluate the research before assembling of this research questionnaires together with pilot test and comprehensive survey through online. Finally, the SPSS instrument to test reliability and validity of the measurements.

Chapter 2 Literature Review

This study will investigate the virtual learning usage elements of learner and relevant literature on virtual learning effectiveness, computer self-efficacy (Marakas et al., 2004), learning climate (Evers, 2012), learning challenge (Olutola and Olatoye, 2015) directly influence learner's satisfaction. (DeLone and McLean, 2003)

2.1 Computer Self-efficacy

The literature related to computer self-efficacy related to the usage of computers to perform specific work-related tasks as computer self-efficacy: "The judgment of a person's ability to operate a computer. It does not concern about what a person has achieved in the past, but a judgment about what a person can achieve in the future" (Compeau and Higgins, 1995, p. 192). Computer self-efficacy individuals' judgment of their capabilities to use computers in diverse situations (Marakas et al., 2004)

Towards evaluate and investigate the computer self-efficacy of instructors and learners in the virtual learning environment is the significance of this research on expansion of current computer self-efficacy literature by using modernized instruments.

2.2 Learning Climate

Constructive learning climate fosters and accelerates the discussion of opinions and knowledge within the organization, thereby boosting learning satisfaction (Prieto and Revilla, 2006)

whatever working or learning (Hopson and Lawson, 2011) and instructors or learners (Evers, 2012).

2.3 Learning Challenges

Magnitude factors effect on learning challenges, “technical factors are IT infrastructure (Cantoni et al., 2004; Sarrab, 2013); human factors comprising IT competences, instructors and learners’ awareness (Bhuasiri et al., 2012; Kasse and Balunywa, 2013; Sangrà Et al., 2012); institutional factors involving unsatisfactory institutional conditions and inconsistency policy along with e-learning activities, etc.) (Ansong et al., 2017; Dadzie, 2009), teaching factors (Cantoni et al., 2004), system design challenges influencing IT inter-activity and instructional design (Ansong et al., 2017; Bhuasiri et al., 2012; Kasse and Balunywa, 2013) (Olutola & Olatoye, 2015). Policy makers must minimize the impact of these challenges on organization before implementation and dissemination of virtual learning.

2.4 Learning Satisfaction

Learners' values construct a cohesive, positive and socio-emotional support VLE with small-scale group (Brophy, 1999) (Jucks, Paechter, and Tatar, 2003). Learners’ engagement in teamwork, their motivation to participate in VLE and learning satisfaction are also based on mutual support (Concannon, Flynn, and Campbell, 2005). Learners have their preferences time, venue, and the learning processes management (Narciss, Proske, and Körndle, 2007). Learners’ motivation affected by the crucial trait of self-regulation (Pintrich, 2000).

Learning satisfaction is an emotional variable, it can influence on learners determine to persist or terminate of learning course. (Chiu, Hsu, Sun, Lin, and Sun, 2005) (Levy, 2007).

2.5 Learning Effectiveness

Assessing the effectiveness of virtual learning is critical. The primary intention is assessing the value or pertinence of a virtual learning system for a specific educational goal (Wild et al., 2002) (Shim et al., 2007). Substantial studies evaluated numerous dimensions of e-learning effectiveness (Roffe, 2002) (Mhod et al., 2004) (Marks et al., 2005).

However, these technical rational views also oversee the influence of "human subjectivity" (Kant, 1999) on the results of online education learning when virtual learning is performed. It is extremely straightforward to fall into excessive "techno-romantic" (Coyne, 1999), leading to the lack of critical perspective. Suppose the various limitations of different educational contexts on virtual learning (Benyon and Mackay, 1989).

In the virtual learning space, the instructor's model of curriculum philosophy centered on the learner, or the instructor will lead to different curriculum design models, and students will also have very different learning results.

In addition, the interaction of students with various factors in the online virtual learning space also affects their online learning to varying degrees, adding to the complexity and unpredictability of virtual learning results. Therefore, technological tools are not the only factor that determines or affects students' learning outcomes. The "human" factor challenges the

assumption that “as long as technological tools or platforms are upgraded; learners’ learning effectiveness can be improved”.

The technical rational thinking mode emphasizes the effective instillation of existing knowledge. In the learning process, the subjectivity of students is not valued. Teaching and learning are both a technology. In a strong goal-oriented curriculum, students have critical thinking ability (Jhurani and Demkowicz, 2012). The training of students will not be their concern. Although students may indeed learn all subject knowledge and content under training, it cannot help students become individuals who can think and develop independently to meet the challenges of the future world.

In related studies in the field of online learning, the constructivist-oriented (Cady et al., 2006) learning theory gives learners more power to actively participate in the learning process (e.g., Richter et al., 2013; Wang and Odell, 2002), respects learners’ subjectivity, and takes care of the subject of human subjectivity in the learning process.

Chapter 3 Research Methodology

This research implements an empirical study approach. Based on literature discussion and theoretical construction questions are transformed into research questions and factors for instance independent and dependent variables are identified sequentially. Design a questionnaire and categorize the responses of the sample before conducting quantitative research and analysis. The questionnaire sample towards the research question and its factual condition to provide normative recommendations from descriptive awareness and cognitive application.

In this chapter, it will explain the research methods to define the scope of research; the principles of questionnaire design and its scoring; describe the sampling and its results of questionnaire.

3.1 Research Design

In this study, the assumptions could be reviewed to define the possibility of the research framework for “computer self-efficacy (Marakas et al., 2004), learning climate (Evers, 2012), learning challenge (Olutola and Olatoye, 2015), learning satisfaction. (DeLone and McLean, 2003) and the effectiveness of virtual learning during COVID-19.

3.2 Research Hypothesis

Therefore, the following hypotheses are proposed and the figure 1 shown the hypothesis of this study.

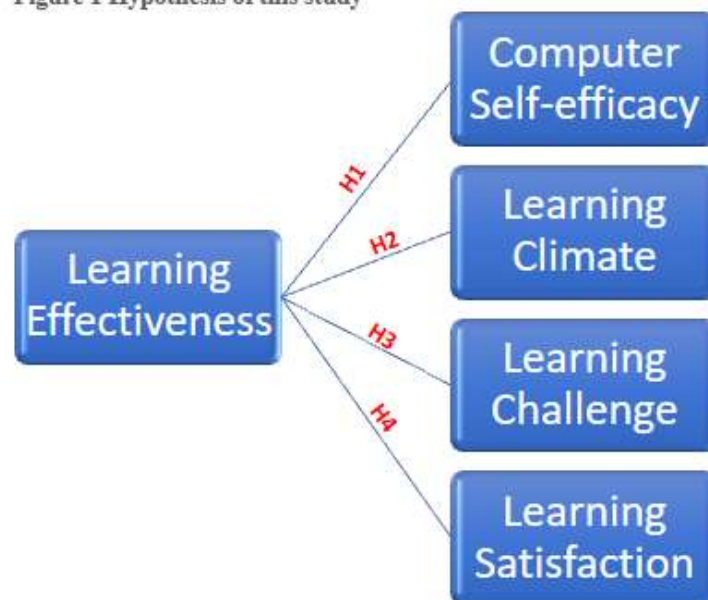
H1: Computer self-efficacy has a considerable influence on effectiveness of virtual learning.

H2: Learning climate has a considerable influence on effectiveness of virtual learning.

H3: Learning challenge has a considerable influence on effectiveness of virtual learning.

H4: Learning satisfaction has a considerable influence on effectiveness of virtual learning.

Figure 1 Hypothesis of this study



3.3 Secondary Research

Secondary Research depends on both of quantitative and qualitative secondary data collected from previously researchers' literature review, journals, textbooks, articles, government publications and online resources. Data is easily accessible, save time and inexpensive but insufficient information and different format. To recognize three aspects of virtual learning and its effectiveness. (Fachienelli, et al, 2015) Synthesize relevant information to identify the value of virtual learning, evaluate its influencing factors and design the structure of virtual learning mechanism and the questionnaire that impact of the effectiveness of virtual learning.

3.4 Primary Research

Primary research adopts online survey to collect data directly in specific issue with qualified sample or focus group to collect data from a small group directly. (Dilshad and Latif, 2013) Structured questionnaires have a good mix of open or close ended questions by 5-Liket scale (Duffy, et al. 2012) based on the considerable influence on effectiveness of virtual learning after literature review. (Nugraha and Putra, 2015) The online questionnaire is compiled by using Google Form, an online questionnaire design software widely used by researchers, to create and distribute online questionnaires, collect, and analyze data related to effectiveness of virtual learning. (Novak, Hoffman and Yung, 1999)

3.5 Pilot Study

A pilot study is a minor trial to evaluate feasibility and areas of improvement before implementation of full-scale research project.

3.6 Research Object

The object of this research is the learners who have been participated a virtual learning during COVID-19. They will be selected as the research objects of this study. The target number of respondents: 400 learners.

3.7 Statistical Analysis

Systematic sampling is tremendously suitable for the researchers to establish, conduct, analyze samples to minimize risk of data exploitation in research.

Effectively collect questionnaires through the procedures of file creation, error detection and analysis of the SPSS statistical package software.

3.8 Limitations in Research

Anticipated the limitations of this research study related to lack of secondary data as certain data is threshold and inadequate; quality primary data collection is very challenging during COVID-19 pandemic and time constraints to conduct simultaneously with other learning activities. (Creswell, 2002)

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