



UNIVERSITI PUTRA MALAYSIA

***PERCEPTION TOWARDS ONLINE LEARNING RESOURCES AND CLINICAL
SKILLS GAINED AMONG CLINICAL-BASED STUDENTS AT A PUBLIC
UNIVERSITY IN SELANGOR***

ZAHRA NAZURAH BINTI AZMAN

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BACHELOR OF NURSING

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SEPTEMBER 2021



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**Thesis Submitted to the Faculty of Medicine and Health Sciences,
Universiti Putra Malaysia, In Fulfillment of the Requirements for the
Degree of Bachelor of Nursing**

September 2021

PERCEPTION TOWARDS ONLINE LEARNING RESOURCES AND CLINICAL SKILLS GAINED AMONG CLINICAL-BASED STUDENTS AT A PUBLIC UNIVERSITY IN SELANGOR

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Introduction: The pandemic has affected educational activities all over the world. Online learning resources has been used as a main method for educational delivery that has been implemented since Covid-19 outbreaks emerged. This is probably due to not able having face-to-face classes as this virus is actively spreading among communities. This study investigates the perception towards using online learning resources on the accessibility, navigation, and flexibility. The respondents' view on clinical skills gained throughout using online learning resources were carried out in this study as well. **Objectives:** To identify the perception towards online learning resources and clinical skills gained among clinical-based students in University Putra Malaysia (UPM). **Methodology:** This research study is a cross-sectional study. There were 208 respondents involved among undergraduates clinical-based students. This questionnaire is adopted from Bloomfield and Jones (2013). It has 26 questions in total and has 3 sections which are sociodemographic data, perception towards using online learning resources and views on the clinical skills gained throughout using online learning resources. **Results:** Respondents' age that involved were from 20-25 years old. There were (n=154, 74.0%) female and (n=54, 26.0%) male. Students found that online learning resources are readily accessible, easy to navigate and flexible. There were 45.2% strongly agree and 35.6% agree that classroom-based practical was more useful method. However, most of the respondents (n=83, 39.9%) agree, (n=60, 28.8%) strongly agree, that they prefer the combination of practical class with online learning to learn clinical skills. The findings showed that there was a strong significant association between online learning resources and clinical skills gained where the p-value is <0.001. **Conclusion:** The findings of this study showed that most of the respondents prefer video clips as the most useful resources to learn clinical skills.

Keywords: pandemic, perception, online learning resources, clinical skills.

Persepsi Terhadap Menggunakan Sumber Pembelajaran Dalam Talian Dan Perolehan Kemahiran Klinikal Dalam Kalangan Pelajar Klinikal Di Sebuah Univerisiti Awam Di Selangor.

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Pengenalan: Pandemik yang berlaku telah menjejaskan status pembelajaran di seluruh dunia. Sumber pembelajaran dalam talian telah digunakan sebagai bahan utama dalam pembelajaran sejak munculnya wabak Covid-19. Ini kerana virus ini merebak dengan aktif di dalam komuniti seterusnya menyebabkan pembelajaran bersemuka tidak dapat dilaksanakan. Kajian ini menyelidik akan persepsi terhadap menggunakan sumber pembelajaran dalam talian dalam akses, navigasi dan fleksibiliti. Kajian ini juga akan menjalankan pandangan responden tentang kemahiran klinikal yang diperoleh semasa menggunakan sumber pembelajaran dalam talian. **Objektif:** Bertujuan untuk mengenal pasti persepsi terhadap menggunakan sumber pembelajaran dalam talian dan perolehan kemahiran klinikal dalam kalangan pelajar klinikal di Universiti Putra Malaysia. **Kaedah:** Kajian ini ialah kajian rentas. Sebanyak 208 pelajar prasiswazah klinikal yang terlibat dalam kajian ini. Soal selidik yang digunakan adalah diadaptasi dari Bloomfield dan Jones (2013). Ia mengandungi 26 soalan dan mempunyai 3 bahagian iaitu maklumat sosiodemografi, persepsi terhadap menggunakan sumber pembelajaran dalam talian dan pandangan responden tentang kemahiran klinikal yang diperoleh semasa menggunakan sumber pembelajaran dalam talian. **Keputusan:** Lingkungan umur yang terlibat adalah dari 20-25 tahun. Terdapat (n=154, 74.0%) adalah perempuan dan (n=54, 26.0%) adalah lelaki. Responden mengatakan bahawa sumber pembelajaran dalam talian adalah tersedia untuk diakses, mudah untuk navigasi dan fleksibel. Terdapat 45.2% sangat bersetuju dan 35.6% bersetuju bahawa kelas praktikal bersemuka adalah cara yang berkesan. Walaubagaimanapun, (n=83, 39.9%) bersetuju, (n=60, 28.8%) sangat bersetuju bahawa mereka memilih kombinasi antara kelas praktikal bersemuka dan menggunakan sumber pembelajaran dalam talian. Kajian menunjukkan terdapat hubungan kuat signifikan antara sumber pembelajaran dalam talian dan pandangan responden tentang kemahiran klinikal yang diperoleh semasa menggunakan sumber pembelajaran dalam talian pada nilai $p < 0.001$. **Kesimpulan:** Kajian ini menunjukkan kebanyakan responden memilih klip video sebagai sumber pembelajaran dalam talian yang paling berguna untuk mempelajari kemahiran klinikal.naz

Kata kunci: pandemik, persepsi, sumber pembelajaran dalam talian, kemahiran klinikal.

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Declaration by graduate student

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

According to World Health Organization (2020), Covid-19 was identified on January 7th,2020 and had been announced as pandemic on March 11th,2020. This pandemic has caused lockdown to certain countries that highly affected with Covid-19 outbreaks. The measures began with the limitation of admission into Malaysia of certain foreign nationals, as well as self-quarantine of Malaysian and non-Malaysian people returning from Covid-19 hotspots, and ended with the passage and implementation of the Movement Control Order (MCO) (Tang, 2020). Public places such as institutions, schools, and malls are temporary forced to be closed in order to adopt social distancing and prevent mass-gathering from happening.

Online learning resources as a main method for educational delivery which has been implemented since Covid-19 outbreaks emerged probably due to not able having in-person classes as this virus is actively spreading among communities. In this world crisis, face-to-face learning may be harmful to students (American Safety Council, 2020). At the same time the world is facing a shortage of healthcare practitioners thus requires learning to continue to allow for the students to graduate and continue the manpower supply (Kanchanachitra et al., 2011). Thus, online learning is considered as emergency resort to facilitate the continuation of learning. This is in line with the suggestion internationally for healthcare education to continue online (Foronda & Armstrong, 2020).

According to European Commission (2020), online resources can serve various educational purposes, including many digital tools for both online and offline. The purposes of

online learning resources are to engage educators and learners without place restriction, accessing information, and supporting educators' ongoing professional growth in a versatile manner. Online resources used to assist students to find document and further process learning materials in the process (Jeong & Hmelo-Silver, 2010). Online learning resources also allow students to gain information that are readily accessible, such as massive open online classes (MOOCs), open educational resources (OERs) and commercial e-learning products, opening up a platform for lifelong learning opportunities (Kerrison et al., 2016). The most effective online learning resources in gaining clinical skills rate by students are online videos, photographs and online skill check lists (Gormley et al., 2009)

In this study, the perception towards using online learning resources and clinical skills gained among clinical-based students are investigated in a public university which is University Putra Malaysia. This study investigates the perception towards using online learning resources on the accessibility, navigation, and flexibility whether it is beneficial or not. The respondents' view on clinical skills gained throughout using online learning resources as a main source of learning are carried out in this study. By using online learning resources, it is important to identify whether clinical skills learning have been affected or not.

1.2 Problem Statement

The importance of adopting virtual classroom while using online learning resources during pandemic is to reduce the infection rate as mass-gathering from face-to-face classes which will cause higher chance of virus exposure in communities. In order to resume education status that has stopped due to school closure during Movement Control Order, the idea of online learning was brought up by Ministry of Education (Azman & Abdullah, 2021) and has been execute in all educational level including higher education institutions. Online learning has

been a problem-solving for keeping the education system on track. As online learning has been executed in Malaysia since Movement Control Order (MCO), this study is important in determining the clinical skills gained throughout using online learning resources.

One of the benefits of online learning resources is that it is accessible for 24 hours and flexible in terms of accommodating one's schedule without restriction (Stern, 2015). Students can learn whenever and wherever they want with unlimited sources and time restriction. However, the accessibility of using online learning resources includes a strong internet connection in order to have a smooth learning process. Communications and Multimedia Consumer Forum of Malaysia (CFM) conducted an online poll regarding the satisfaction of Internet speed which the results showed that a lot of Internet users were dissatisfied with the Internet speed quality, especially during Movement Control Order phase as people are depending on Internet connectivity since then (Bernama, 2020). Recent study found that 67.1% of Internet users dissatisfied due to unstable and weak connectivity in East Malaysia (Jalli, 2020).

It is true that using online learning resources has improved the knowledge; however, the main concern for students is does it efficient enough in gaining clinical skills? In this study, the perception towards using online learning resources and clinical skills gained among clinical-based student in UPM will be assessed. According to representatives of General Medical Council, National Health Service England (NHS) and World Health Organization, students concern about the ability to develop clinical competence (Dost et al., 2020).

Clinical skill is as important as theoretical knowledge for students who need to adopt practical skills for better future performance (Vivekand Education Society, 2017). There are several ways to build practical skills by using online learning resources such as learning from the video demonstrations to reinforce the technique skills (Salina, 2012). However, skills

cannot be developed by learning from the videos without any practice. Skills need to be practiced over the time in order to master what they had learnt before. Students need to practice and train early to make sure the experience growth over the time as they master the methods and techniques and develop the confident, at the same time prevent the uncertainty while applying the skills (Torredà et al., 2015). There is one study emphasize the significance of repetitive skills practice to enhance the skills performance (Kirwa et al., 2016).

Online learning resources are flexible as students can learn anytime and anywhere (Stern, 2015). Nevertheless, students cannot apply the clinical skills they learnt as the equipment, facilities and suitable environment are not available to carry out the practical sessions. It is crucial to grab the chance to improve the clinical skills in a proper environment (General Medical Council, 2003). Recent studies show that 75.99% of medical students stated that they cannot learn clinical skills through online resources because of there is no involvement of direct patient contact (Dost et al., 2020). Prior, students utilize laboratory to apply and practice skills on simulated patient or mannequins. Following this, they also have attachment on certain hospitals to practice on real patients (Gormley et al., (2009).

Although online learning resources is good as a key information (Bloomfield & Jones, 2013), online learning resources cause lack of surveillance from the instructors to monitor and correct the students while practicing the skills. A good skill practice should include continuous monitoring, interactivity, feedback and mentoring from the educator (Saiyad et al. 2020). In addition, monitoring the students is one of the best ways to prevent any malpractice and wrongdoing throughout the skills practice. Research shows that student reported learning through video demonstrations cause lack of interaction and lack of integrity (Jang & Kim, 2014). Some studies shown that clinical skills performance will be affected based on the relationship between the educators and students (Serçekus & Bas, 2016). Lecturers have had

to find innovative ways to practice effective teaching methods in order to gain student's attention (Rashid et al., 2020).

Alshahrani et al. (2017) mention based on the availability and accessibility, the internet has become a crucial resource for students' higher education studies. Previously, seminars, books and course materials were the only sources of knowledge in higher education. This transition is likely to change the way students learn, with more accessible sources to gain information and more online materials being accessed outside offered by lecturers, and indeed by institutions (Alshahrani et al., 2017). As a result, students display more engagement with their learning process and perform better in future. One challenge of online learning resources is that students are often unwilling to access despite the easy availability and accessibility of a rich variety of resources (Jeong & Hmelo-Silver, 2010).

Most literatures that have been reviewed only focus on online learning but there is not much study that focus on the clinical skills gained by using online learning resources in Malaysia. Therefore, this study is to fill the gap by examine the use of online learning resources in gaining the clinical skills.

1.3 Research Questions

1. What are the students' level of perception towards using online learning resources?
2. What are the impact of using online leaning resources towards perceived clinical skills gained among clinical-based students?

1.4 Research Objective

1.4.1 General Objectives:

To identify the perception towards using online learning resources and clinical skills gained among clinical-based students in University Putra Malaysia (UPM).

1.4.2 Specific objectives:

1. To identify socio-demographic data of the respondents.
2. To identify the perception towards using online learning resources in relation to accessibility, navigation and flexibility among the respondents.
3. To identify the perceived clinical skills gained throughout using online learning resources among the respondents.
4. To examine the association of socio-demographic factors and perception towards using online learning resources.
5. To examine the association of socio-demographic factors and the clinical skills gained throughout using online learning resources.
6. To examine the association between the perception towards using online learning resources and the clinical skills gained.

1.5 Significance of Study

This paper sought to elicit the perception towards using online learning resources and clinical skills gained. In nursing context, it is good to create awareness among students about the benefit and barrier of using online learning resources in relation to accessibility, navigation and flexibility. Thus, students can be resourceful in choosing online learning resources that suit to their needs. It will help the students to identify their choice while using online learning resources on the clinical skills development.

This study also allows instructors or educators to seek alternative method of learning by using online resources. It can enhance the efficiency of online learning resources in the clinical settings. Thus, it can create a good student-educator relationship in a distance measure.

1.6 Hypothesis

1.6.1 Alternative hypothesis

- i. There is a significant association between socio-demographic factor and the perception towards using online learning resources among respondents.
- ii There is a significant association between socio-demographic factor and perceived clinical skills gained among the respondents.
- iii. There is a significant association between the perception towards using online learning resources and perceived clinical skills gained among respondents.

1.6.2 Null hypothesis

- i. There is no significant association between socio-demographic factor and perception towards using online learning resources among respondents.
- ii. There is no significant association between socio-demographic factor and perceived clinical skills gained among respondents.
- iii. There is no significant association between the perception towards using online learning resources and the perceived clinical skills gained among respondents.

1.7 Operational Definition

1.7.1 Perception towards using online learning resources

Perception towards online learning resources is students' opinions on the using of online learning resources based on their experience whether it is beneficial or not. This study will focus on the accessibility, navigation and flexibility while using online learning resources. There is no 'right or wrong' in the concept of perception as it is up to individual's opinion. The perception of using online learning resources will be measured by using an instrument of 5-point Likert scale where 1 will be strongly disagree and 5 will be strongly agree in the second section.

1.7.2 Clinical skills gained

In this study, clinical skills gained refers to whether using online learning resources does affect the clinical skills gained throughout the whole process of online learning. Students can rate the online learning resources in relation to the acquisition of clinical skills in the last

section of the questionnaire which consists of 8 questions specifically on clinical skills part and will be measured by 5-point Likert-scale.

1.7.3 Socio-demographic factor

Socio-demographic factor is the age, gender, year of study and the program of study based on this paper. It will be related to the perception using online learning resources and the clinical skills gained once the data is being analysed. The data were collected in the first section of questionnaire.

CHAPTER 2

LITERATURE REVIEW

2.1 Online Learning Resources

Online learning had been implemented decades ago. The term of ‘e-learning’ or ‘online learning’ has been existed since 1999 by Elliot Masie at CBT (Computer-Based Training) systems seminar (Gogos, 2013). CD-ROM as an online resource was implemented in the mid-1980s and became a new teaching method. After that, many companies around the world prefer to use CD-based training in order to reduce the cost of instructors being paid to (Cross, 2004).

In Malaysian context, the use of online learning resources has been implemented since late of 1990’s among higher education institutions (Hussin et al., 2009). However, during that time, there are some issues arising such as short of trained educators, lack of online learning facilities, interruption of Internet bandwidth and students’ readiness and resistance of studying online (Azhari & Ming, 2015). Nevertheless, ever since Movement Control Order had announced, online learning has been fully applied in all education level in Malaysia (Bharian, 2020). The pandemic has affected educational status all over the world. Around 220 countries or territories has been affected with Covid-19 including Malaysia (World Health Organization, 2020). Malaysia is one of the countries that having a crisis of education interruption; therefore, Education Ministry of Malaysia has decided to fully adopt online learning approaches that has started since May 2020, two months after Movement Control Order had been announced (The Star, 2020). It has become a new learning process for Malaysian students including those in kindergarten, high schools, and colleges.

According to Arkorful and Abaidoo (2014), online learning or e-learning enables people to learn anytime and anywhere using a computer based educational tool or system. Most authors defined online learning as an approach for learning process by utilizing technology

methods. Online learning resources had been regarded as a 'new' learning method that utilizes the Internet network to deliver the materials and programs. However, many teachers and students were worried about this abrupt transition to online teaching by using online learning resources because a significant segment of the population has unstable internet connectivity and limited mobile devices (Pastor, 2020).

In order to search for information, exploring for learning topics or for general inquiry, students use online resources (Thompson, 2013). According to Lebeničnik et al. (2015), informal online learning applies to the use of online learning resources for content such as video lectures, tutorials, online courses, and e-books. It includes watching video lectures and instructional videos, reading e-books, online articles, slides, text and documents online, and journals, and listening to podcasts.

2.1.1 Accessibility

Accessibility refers to the extent to which the individual perceives opportunity and access to educational online resources (Patricia, 2020). The four categories include a reliable digital interface such as computer, tablet and mobile device, strong internet service like the software/tools for collaboration for example Skype and Zoom and technological problem-solving support. Patricia (2020) also added that accessibility applies to internet access, a reliable computer, and technological assistance for students. For online teaching, accessibility is highly important. Students had to return to their homes and the closure of educational institutions due to Covid-19 outbreaks, and access to technical resources and help would have changed (Patricia, 2020).

According to Royal Academy of Engineering (2016), once online learning resources are established, technology and interface challenges remain. There is always possible that the

materials are not compatible, since students use software and hardware to access the materials. There is also possibility that the teacher will not always be available to help solve any problems that present a possible obstacle to learning, as students may use these tools at any time. Lapitan et al. (2021) mentioned that asynchronous teaching materials must be rendered available for students. The availability and speed of students' internet connections must be taken into account. Videos lectures are submitted to a video streaming website in an open and free format. Students may have technological and personal limitations, such as lack of computers/laptops or other devices, lack of secure internet access, lack of study space, sluggish and outdated computers, non-academic obligations within the family which may prohibit them from studying online (Lapitan et al., 2021).

Material for online learning is accessible via various types such as text, photos, and artifacts and adaptive, interactive, narrative, productive types of media. To satisfy the needs for accessibility requirements, teachers should be familiar with various utilization of ICT, as well as advanced and assistive technology (Lebeničnik et al., 2015). In terms of accessibility, the groups agreed that there was a benefit for students with previous e-learning experience and those with greater computer literacy. Students described the issues accessing to the recommended reading as well. Eventhough links were given, they did not always work (Lebeničnik et al., 2015).

Alshahrani et al., (2017) also agreed that accessibility and availability of up-to-date computer hardware and software as well as the speed and stability of Internet access are crucial factors for the success of using online learning resources. Students who have access to an online learning resources can connect anywhere and at any time with instructional materials in various formats such as text, photographs, sound, videos as long as they can log on to the Internet (Zhang & Zhou, 2003). The benefits of using computer-assisted resources include their

convenience in accessing information, the versatility in adjusting to student educational needs, and cost-effectiveness in opening up opportunities for education (Cuellar, 2002).

2.1.2 Navigation

The navigation of online resources used to identify the pattern of user behavior and provide adaptive navigation support based on navigation styles (Shahzad et al., 2014). One research considers differences in learning environments in navigation for example due to physical disability and differences in information conveyed (Lebeničnik et al., 2015). Shahzad et al. (2014) mentioned that students cannot perform learning processes without proper navigation support because they do not know what page they need to go to.

Bloomfield & Jones (2013) mentioned in their study that as an adjunct to classroom learning, online learning was embraced and presented as saving time by offering the resources that were readily accessible, easily navigated and self-centered approach. They stated that this compares favorably with obtaining information from text books and it was possible for students to navigate back to a specific location. Lake (2016) argues that navigation should be clear, logical, and accurate in the course. Lowering the number of browsing and searching means that students can spend more time learning the content and miss less critical details resulting in a better overall experience for both students and instructors. Navigation features are critical into shaping users' acceptance of books as scholarly resources, but users struggle to navigate e-books effectively (Zhang et al., 2017).

In order to lead the users in the web information room, web navigation systems provide assistance. Due to the limitations of standard browser built-in navigation tools, several people have created browser add-ons to boost the web navigation capabilities of browsers (Zheng, 2015). Complex task will require navigation will include more page visits and re-visits that allows the student to incorporate information from several pages than in a simple task that

needs information to be retrieved that can be found on one single page (Naumann, 2015). According to Browne & Coe (2012), online resources can be more challenging to browse as readers might miss the context provides.

However, Pappas (2019) stated that challenges in navigation using online resources is that it is not as straightforward as searching using books. If students use a split screen, they can only look at one page at a time. While searching the details in books, students just need to open and read the contents. A confusing online resources course layout makes it worse for students who want to navigate data quickly. Instead of attempting to decode the icons or locate buttons embedded in cluttered pages, they need to be able to log into the site, obtain the takeaways, and then implement them in realistic circumstances.

According to Shahzad et al. (2014), in order to minimize the time allocation, the use of the latest approach in the modelling of online learning is crucial to accelerate the search and navigation process. Students shared the advantages of keeping course materials arranged in the online learning environment is the easy navigation and use, as well as having teachers increase their use in the institution (Gierdowski & Galanek, 2020). However, the most popular suggestion from students to educators was to make sure their online course site is structured and easy to navigate. The need for course sites that are intuitively organized, clearly labelled, and modified was addressed by students. Their remarks indicate that some have had encounters where it was hard to find content, with assignments scattered everywhere (Gierdowski & Galanek, 2020). According to Bloomfield & Jones (2013), more students (56%) agreed that using online learning was user-friendly and easy to navigate with the remaining 44% of students disagreeing.

2.1.3 Flexibility

Flexibility refers to the classical online learning concept of learning for anyone, anytime, and anywhere. However, the major concerns are whether students should be able to study at self-pace and whether they know how to choose the resources of content (Mohamad et al., 2012). Online learning resources has become popular due to its ability to offer more flexible access in gaining learning content. According to Bakia et al. (2012), online learning resources has offer three benefits include increase the opportunity to those who choose not to attend traditional classes, efficient content availability and enhance educator-students ratio while accomplishing learning outcomes which is equal with traditional learning instruction. Online learning resources has now become a flexible new method of acquiring essential information for students.

According to Arkorful & Abaidoo (2014) the flexibility of online learning resources allowing students to choose the appropriate location and time. Smedley (2010) also agree that online learning resources provides students with a great deal of flexibility in time and place of delivery or receipt according to learning data.

By using online learning resources, it provides many benefits in terms of flexibility such as the ability to take classes anytime according to the timetable and the chance to learn without having to relocate or attend class in person (Broderick, 2020). Lecture videos offer students flexibility and facilitate active learning by enabling them to replay parts or the whole video and increasing student accessibility (Newton et al., 2014). Kekselä et al. (2016) agree that flexibility is a major characteristic of this type of learning. In general, students stated that it is convenient in location and at self-paced learning, which is a great help for those who do not want to change the usual way of life.

For online students, flexible scheduling is great, however they also need fixed schedule because they have outside-school commitments, such as family responsibilities. This can make it as a challenge in education and personal obligations as they need a great time management skills to succeed in learning online (Purdue University Global, 2021).

They also agree that through online learning courses, they need to be more responsible and motivation than face-to-face courses, as well as a good time management skill (Public Agenda, 2013). The students who choose online course appear to have higher levels of academic ability and motivation than who choose a completely face-to-face course (Xu & Jaggars, 2013).

2.2 Clinical skills

As stated by Michels et al. (2012), clinical skills feature prominently in the curricula of healthcare providers, with allocated curriculum time, specially built clinical skills laboratories, and a wide variety of evaluation methods and procedures for clinical skills. Among the descriptions of clinical skills, different authors provide various aspects of clinical skills. That include skills for physical examination, practical, communication, and treatment skills. Clinical reasoning is also included as domain of clinical skills (Michels et al., 2012).

According to Tolsgaard (2012), clinical skills are a crucial element for a good professional practice. The performance-based aspect of clinical competency has recently been more widely recognized. The major concern of current medical education in clinical skills is the inadequate practice. It is possible to selectively rehearse complex elements of a demanding technique again and again, and learners develop competence through deliberate and repeated practice, assisted by timely input and sufficient reflection.

As discussed by Offiah et al. (2019), the mastery of clinical skills is developmental, therefore education in clinical skills must be an integrated and continuous process. Numerous studies have shown that the utility of a low fidelity simulator increases both technological efficiency and the ability to take part in the components of cognitive skills. Cognitive skills improve the capabilities to perform a technical skill correctly and thus requires particular emphasis within the curriculum of the medical school (Offiah et al., 2019).

Challenges in self-directed clinical skills development often contributed by the students themselves. Students are lacking in readiness to acquire clinical skills since they are unprepared in awareness and practice (Arpanantikul & Pratoonwan, 2017) and communication skill (Jamshidi et al., 2016). Students were not able to memorize, apply skills, and concentrated a lot about on particular procedures, which are among the factors that contribute to the issues (Arpanantikul & Pratoonwan, 2017).

2.2.1 Clinical practice

According to Ewertsson et al. (2017), clinical practice is the crucial part in clinical skills education. It gives students the chance to transfer the knowledge and skills they have obtained from the lessons into practice with actual patients under guidance. There is an insufficient knowledge and comprehension of the ways in which students develop practical skills and apply knowledge within and through various contexts, for example on how they apply clinical skills, how they learnt in the laboratory in university environments, and in the clinical setting (Ewertsson et al., 2017). Kalolo et al. (2019) also agree that clinical practice allows students to apply theoretical knowledge to the practical provision of health care. Students should be able to apply their theoretical knowledge in a practical environment, improve the skills and clinical reasoning, and lastly observe and adjust to the professional position in clinical practice.

To turn a medical undergraduate student into a skilled health professional fit for medical practice, mastery of clinical skills is crucial. A clinical skill is characterized as any distinct and observable act within the entire picture of care delivery (University of Otago, 2013). Traditionally, the training is viewed as being provided through teaching techniques from instructor to student, putting instructor and faculty in charge of learning. (Fukada, 2018) agree that students are expected to learn knowledge, skills and professional attitudes during the medical education. More time is devoted to ensuring appropriate clinical skills in their clinical practice, described as "any action by a health professional engaged in direct care that has a significant impact on clinical outcomes," including cognitive, non-technical, and technical skills (Fukada, 2018).

2.2.2 Procedural skills

A major element of clinical practice is procedural skills (Campbell et al., 2014). A clinical procedure can be described as any practice involving a combination of special skills by a health practitioner which may involve medications, equipment, or both (National Academy of Sciences, 1989). Procedural skills are learned through a big picture concept regarding the skill and its role in clinical care. With clear, positive feedback based on observation, the skill is fixed through intentional practice. After more practice and exposure to increased complexity, autonomous practice is achieved (Wearne, 2011).

However, according to Ewertsson et al. (2017), implementing a practical skill is a complex action which involves theoretical knowledge and a critical attitude, based on current scientific evidence, adjusted to each patient and certain circumstances. Thus, it is essential for the education systems to promote opportunities for students to gain knowledge and skills in this aspect (Ewertsson et al., 2017). In other words, it needs regular opportunities to practice

practical skills. The fact that students can learn practical skills in two separate social environments, the clinical skills and the clinical surrounding, indicates that there is a need to convey between knowledge and these settings.

2.3 Association between the use of online learning resources and clinical skills gained

A wide range of technical advances in clinical skills for nursing education context, such as simulation, interactive teaching aids, online teaching and virtual learning environments, have been facilitated by the ongoing global increase in the use of online learning (Dearnley et al. 2013). Nevertheless, Dearnley et al. (2013), stated that the efficacy of these revolutionary methods in higher education in healthcare has yet to be proved and that this needs to be further studied. This lack of evidence will lead teachers to make bad decisions through online technology in the advancement of student learning outcomes.

Computerized technology has been used in nursing education for some educational goals, either to complement or replace traditional teaching techniques. According to Quail et.al, (2016), they noted the variety of terminology used to identify the use of online learning resources in nursing education, including, web-based learning, and online learning approach.

2.3.2 Theoretical knowledge and skills gained

Before attending the practical sessions, students valued the theoretical content from online learning resources and the opportunity to engage with the theory behind each skill. The theories have a strong basis to go and do the practical sessions (Bloomfield & Jones, 2013). Theory and skills practice are linked and the combination of theoretical and practical learning by using online learning resources helps students to gain the skills, abilities and attitudes to provide optimal treatment (Hashemiparast et al., 2019). Jang & Kim (2014) mentioned in their study that the by using online resources, skills and theory can be effectively gained.

Theoretical knowledge has been only one review has been conducted on using online learning resources in general (Lahti et al., 2014). Bloomfield & Jones (2013) stated that the additional use of online learning resources in clinical skills has been proposed to assist closing the theory-practice gap and facilitate improved clinical skills learning. The views of students were sought in relation to the usefulness of the online learning resources to gain an understanding of the theory supporting clinical skills. The majority 86% of students thought it was beneficial. However, there are 60% approved when asked whether online learning was useful for improving realistic clinical skills. Prior to their clinical performance, students were informally tested on skills and direct comments regarding their performance. The students felt that this approach allowed them to spend more time revising to practice those methods (Bloom & Jones, 2013).

2.3.3 As key information

Another resource in gaining clinical information used at the point of care is DynaMed. UpToDate and DynaMed are fee-based and require subscription. Medscape and StatPearls, on the other hand, are freely accessible, free resources containing important clinical knowledge, written by and aimed for healthcare provider and students (Curran et al., 2020)

Social media sites can be used to include rheumatology learning online tools. The opportunity to post videos on websites such as YouTube has provided a shared instructional content archive for visual and auditory learners (Curran et al., 2020).

However, according to Goss et al, (2020), for people with disabilities, online information related to medical services is not only difficult to locate, but generally have poor technological quality. It will show implication for health information experts, patients, service providers, and information producers.

Literature has shown clear evidence of increased access by nurses to the Internet to obtain clinical practice-related information, which in turn increases the quality of care and interaction among nurses (Ahmad, 2018). Monton et al., (2019) stated that in terms of their readability, usability, quality, and usefulness, online resources for cancer caregivers are not ideal. somehow, there are top rated services such as American Cancer Society.

2.3.4 Accommodating different learning styles

According to Bloomfield & Jones (2013) within the dialogue between students in the focus groups, they defined their own learning style. This was most frequently in relation to visual and auditory learning and the direction in which the online learning package met or did not fulfill these preferences. It was considered that visual materials such as video clips and photographs were the most useful in studying a clinical skill and identifying particular components.

The diversity of online learning resources such as learning material and learning tools encourages informed use and helps students to build the most suitable learning environment for their personal needs and preferences in terms clinical skills learning (Lebeničnik et al., 2015). The structure and emphasis were also identified as crucial in relation to revision and preparation for their assignment (Bloom & Jones, 2013).

To create an online learning environment that fits their specific learning requirements, students can use various online learning resources according to their learning preferences, individual usability needs and motivation (Lebeničnik et al., 2015)

Gormley et al. (2009) mentioned that students were asked to rate different resources for online learning in terms of their effectiveness for learning clinical skills. Overall, the most common resources among respondents chose to be online videos, photographs and online clinical skill check lists. In their learning of clinical skills, moderated hyperlinks seemed not to be as common among students. Their findings also indicate that those students who reported spending more time using e-learning, engaging in e-learning before teaching, and who are motivated to examine real patients performed better while using e-learning.

ICT methods such as video demonstration used could help to improve psychomotor clinical skills (Holland et al., 2013) which are essential for patient care and it is hard to guide

students (Lynch et al., 2012). Teaching techniques involving videos include a visual demonstration of clinical skills in a simulated show similar to actual scenario (Cardoso et al., 2012), providing meaning to the skills (Sowan & Idhail, 2014) and enabling students to witness the efficacy of the skill by linking the traditional learning to clinical practice (Holland et al., 2013).

2.4 Demographic Factor

2.4.1 Gender

According to Naresha et al. (2016), males are more familiar with technology and favour technology more than females in terms of learning context, while females prefer group learning better than males. Male students showed significantly higher student satisfaction than their female peers, which may be partially linked to higher online learning self-efficacy levels and diminished male anxiety opposed to female students.

González-Gómez et al. (2012) mentioned that learning skills are vary depending on different gender. The importance of researching this situation is that taking gender into account. They added that female students are more satisfied than male students in using online learning resources as a learning subject.

2.4.2 Clinical years

The lack of clinical training in the preclinical years may have significant consequences for the training of group of students and will struggle in the clinical years later (Gaur et.al, 2020). Based on study conducted by Al-Balas et.al (2020), year 4, year 5 and year 6 students were studied on their satisfaction while using online learning resources. The results showed the

most not satisfied using online learning resources is came from year 5 students while year 6 is the least not satisfied with 10.8% in total.

A survey was delivered to first year and second year of medical students, the majority of second-year students which is 56.7% thought that their preparation for their test was negatively impacted and 43.3% felt unprepared to start clerkships. Second-year students have found that readiness for subsequent training phases was negatively impacted (Shahrkini et al., 2020).

2.5 Conceptual Framework

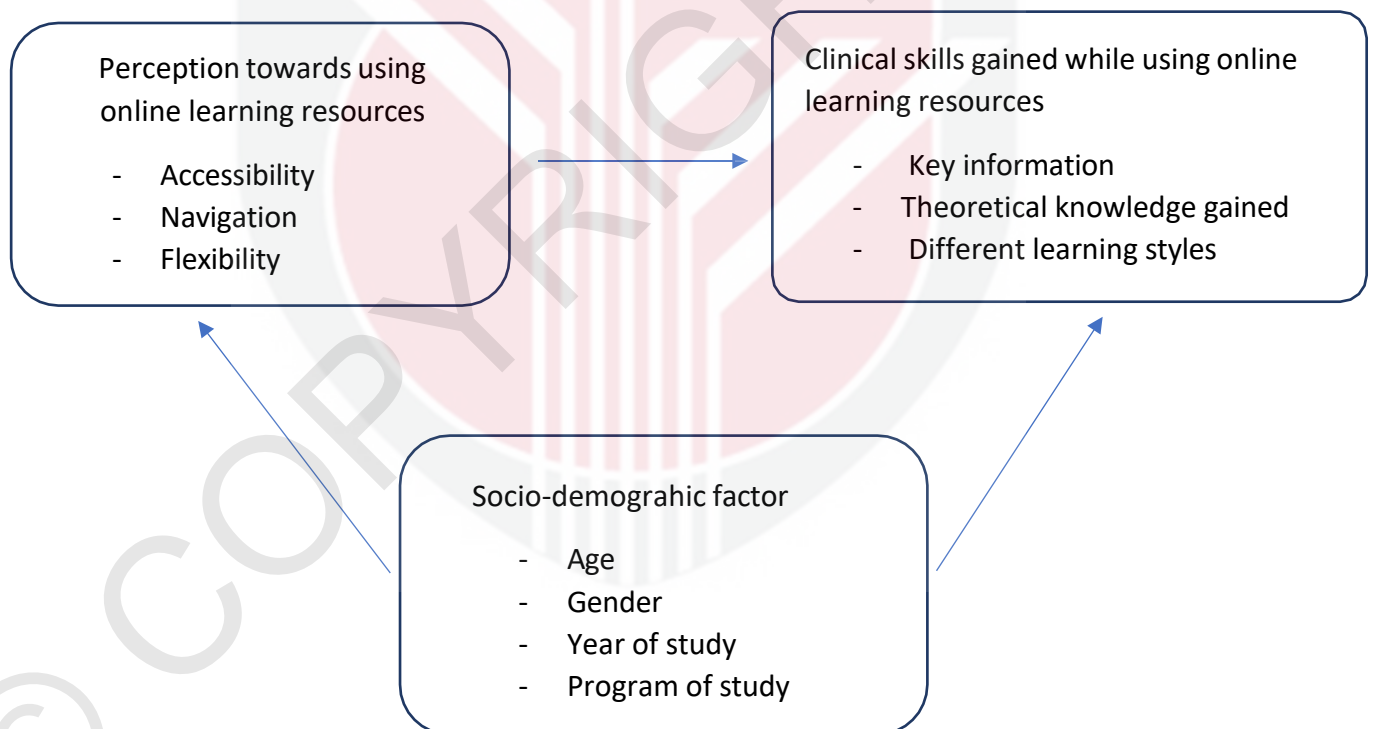


Figure 2.5.1: Conceptual Framework

Based on the diagram above, the relationship between socio-demographic factor (age, gender, year of study and program of study) and both variables which is online learning resources and clinical skills gained will be obtained. The diagram will be representing the concept of this study.

Perception towards using online learning resources will be divided into three parts which are accessibility, navigation and flexibility. It depends on the respondents' answer whether it is beneficial or not while, clinical skills gained will show a relationship with online learning resources as a key information, theoretical knowledge gained and different learning in this study.

By conducting this study, we can analyse whether using online learning resources does affect the clinical skills gained. Age is one of the factors that might influence as growing with technology modern. Gender also can be one of the factors that could affect the use of online learning resources in the clinical skills gained. Different gender could have the possibility of different learning styles to adopt using online learning resources.

Year of study could be one of the most affected variables on how clinical skills gained throughout using online learning resources. Every year of study have different procedures and techniques learnt on the clinical practice. Therefore, it might be one of the factors can be affected with the use online learning in clinical settings. In the study, program of study will differentiate between those three courses that will be involved when being analysed.

All respondents will be given a set of questionnaires to obtain their perception towards using online learning resources and clinical skills gained.

CHAPTER 3

METHOD

3.1 Introduction

In this chapter, the design of the study and methods used were described. It includes study location, study sampling, instrument or research tools and data analysis.

3.2 Study design

In this study, a cross-sectional study was utilized to determine the perception towards using online learning resources and clinical skills gained among clinical-based student in a public university.

3.3 Study location

The faculty that participated in this study was Faculty of Medicine and Health Sciences in University Putra Malaysia at Selangor. Faculty of Medicine and Health Sciences was chosen as the clinical-based students are only located at this faculty.

3.4 Study sampling

3.4.1 Study population

The study population were students of Faculty of Medicine and Health Sciences in UPM since the clinical-based students are only located in this faculty. It includes those who involved in clinical years which are from medical, nursing and dietetic undergraduate students.

3.4.2 Subject criteria

Inclusion criteria

The inclusion criteria were:

- Full-time student
- Students who involve with online learning among clinical-based student
- Medical students (3rd year to final year), nursing students (1st to final year) and dietetic students (final year)

Exclusion criteria

However, those who were excluded from this study are in the categories below:

- Students who are on long leave
- Post-graduate students
- International students

3.5 Sample size estimation

In this study, the theory of Cochran (1963, 1975) was utilized. This theory developed the equation to calculate sample size.

The formula for sample size calculation is shown below:

$$n_0 = \frac{Z^2 pq}{e^2}$$

Where,

n_0 = Cochran's sample size recommendation

Z (Confidence level) = 1.96

e (Margin of error) = 5%

p (Estimation of proportion) = 0.5

q (1- p) = 0.5

Therefore,

$$n_0 = \frac{(1.96)^2 (0.5)(0.5)}{(0.05)^2}$$

$$n_0 \approx 384.16$$

$$n_0 = 384$$

The Cochran's sample size recommendation is 384. In addition, Cochran figured out that the sample size can be moderately reduced as a large population provides proportionally more information than a smaller population, especially when the sample size is estimated to be more than 5% of the actual population. Therefore, to determine the final sample size for analysis, he proposed a new correction formula.

The final sample size formula is shown as below:

$$n = \frac{n_0}{1 + \frac{n_0 - 1}{N}}$$

n = final sample size

n_0 (Cochran's sample size recommendation) = 384

N = population size

The estimated total number of clinical-based students included in this study is 447 students.

Thus,

$$n = \frac{384}{1 + \frac{384 - 1}{447}}$$

$n = 206.8$

$n = 207$

Therefore, the estimated sample size collected is 207 respondents in this study.

3.6 Sampling method

Based on the data sampling, the first method used was stratified random sampling which is an unbiased and probability sampling method. By using stratified random sampling, it divided the population into small groups which according to the program of study and the year of study. This method is chosen because every group has the chance of being selected.

Firstly, the strata were selected three out of five study programmes in Faculty of Medicine and Health Sciences. The three strata involved are medical, nursing and dietetic students. This is because medical, nursing and dietetic students are the only students who involve in clinical placement. Following that, among these three strata, this study was using Probability proportional to size (PPS) sampling to calculate the populations in each strata where the probability of selecting a unit is proportional to its size.

Subsequently, name list of each program of study has been obtained from dean of faculty by sending an email after getting the approval of conducting the research in the faculty. All the requirement in inclusion criteria section were accepted as the respondents. Subsequently, random students were picked through computer generated random picker and the results came out in which the names are chosen as the respondents for this study.

3.7 Research tools/Instrument

The instrument that was utilized in this study was adopted from Bloomfield & Jones (2013) study which the title of questionnaire is Using e-learning to support clinical skills acquisition: exploring the experiences of post-graduate nursing students. The pretest of this study was conducted by taking 10% of the estimated sample size. The result showed a good level of reliability which is 0.857 by using Cronbach Alpha. This study used Content validity

Index (CVI) to measure the validity. The value of S-CVI/UA and S-CVI/Ave were 0.846 and 0.973 respectively. This considers the instrument to have good content validity (Polit & Beck, 2006).

The questionnaire only had English version. The questionnaire consists of 26 items in total and has 3 sections. The first section focuses on socio-demographic data from the respondents such as age, gender, year of study and program of study. The second part comprised of ten questions. This part used to elicit perception towards using online learning resources about the accessibility, navigation and flexibility. The last section has eight questions and used to obtain on the perception of clinical skills gained throughout using online learning resources. The second and third sections are measured by 5-point Likert scale to elicit whether students strongly agree, agree, neutral, disagree and strongly disagree which 1 is strongly disagree and 5 is strongly agree. Students need to select only one choice to indicate the exact answer.

3.8 Data collection

The total number of questionnaires that were distributed is 208. The data were distributed from April 2021 to June 2021. This study was conducted through online platform by using Google Form.

An email was sent to dean of faculty to get the name list and email of each study program that involved. Subsequently, the respondents were contacted through email or WhatsApp and the researcher asked them to participate in this study voluntarily.

Respondents who qualified to carry out this study will be briefed on the objectives, and the purpose of the study before answering the questionnaire. Prior to the study, each respondent was given an informed consent before carrying out the study to validate one identity and data collection. The informed consent is in the initial page of the questionnaire. The confidentiality

of the participants data are secured. All information will be kept confidential and used only for research purpose.

3.9 Flow chart of data collection

Proposal was sent to JKE UPM and ethical approval is obtained.



The students' name list are obtained through dean of faculty.



The respondents were picked through computer generated random picker and the respondents are selected.



The chosen respondents are reached out through email or WhatsApp and has been informed regarding purpose and objectives of this study.



Respondents require to fill in the consent and answer all the questions given in the questionnaire.



The respondents are estimated to finish the questionnaire in 10-15 minutes.



The respondents will be traced and contacted through WhatsApp or email for incomplete answer in questionnaire.

Figure 3.9.1: Flowchart of data collection

3.10 Data analysis

3.10.1 Descriptive Statistic

The data analysed used in this study for Descriptive Statistic is Mean and Standard Deviation for continuous variables while for categorical variable, this study used Frequency and Percentage to analyse.

Variables	Types of Variable	Descriptive Analysis
Age	Continuous	Mean (Standard Deviation)
Gender	Categorical	Frequency and Percentage
Year of study	Categorical	Frequency and Percentage
Study programme	Categorical	Frequency and Percentage

Objectives	Type of variables	Descriptive Analysis
To identify the perception towards using online learning resources in relation to accessibility,	Continuous	Mean (Standard Deviation)

navigation and flexibility among the respondents.		
To identify the perceived clinical skills gained throughout using online learning resources among the respondents.	Continuous	Mean (Standard Deviation)

3.10.2 Inferential Statistics

The data for Inferential Statistics was normally distributed with results of Skewness and Kurtosis value is 0.380 and -0.017 respectively. Parametric tests were used to analyse the relationship between demographic data, perception towards using online learning resources and the perceived clinical skills gained of the respondents. The statistical measurement used in this study is Pearson Correlation for both continuous variables. Independent t-test used when the dependent variable is continuous data while independent variable is in two groups of categorical data. Lastly, One Way Independent ANOVA used in this study when the independent variable is a categorical data and has more than two groups.

Objectives	Dependent variable	Independent variable	Statistical measurement
To examine the association of socio-demographic	Perception towards using	Age (Continuous)	Pearson Correlation

Objectives	Dependent variable	Independent variable	Statistical measurement
factors and perception towards using online learning resources.	online learning resources (Continuous)	Gender (Categorical)	Independent t-test
		Year of study (Categorical)	One-Way Independent ANOVA
		Program of study (Categorical)	Independent t-test
To examine the association of socio-demographic factor and the perceived clinical skills gained throughout using online learning resources.	Clinical skills gained throughout using online learning resources (Continuous)	Age (Continuous)	Pearson Correlation
		Gender (Categorical)	Independent t-test
		Year of study (Categorical)	One-Way Independent ANOVA
		Program of study (Categorical)	Independent t-test
To examine the association between the perception towards using	Clinical skills gained (Continuous)	Perception towards using online learning	Pearson Correlation

Objectives	Dependent variable	Independent variable	Statistical measurement
online learning resources and the perceived clinical skills gained.		resources (Continuous)	

3.11 Ethical consideration

Ethical consideration was obtained from Ethics Committee for Research Involving Human Subject (JKEUPM) with the reference number is JKEUPM-2021-143.

Participants were explained regarding the study details once they decided to participate in the study. Prior obtaining consent from the participants, all the potential participants is provided with the participant's information sheet alongside with the questionnaire. The participants are free to ask any clarification about the study by contacting the researcher. The contact information of the researcher is provided in the first page of the questionnaire. This study is a voluntary in which there is no obligation to participate. Withdrawal from the study also allowable once the participant decides to stop continuing in the participation.

The information of the participants will be kept confidential and used for research purpose only. The information of the participants will be anonymous throughout the study and the information are kept under a protected facility such as Google Account. Only the researcher and supervisory committee have total access to the findings.

CHAPTER 4

RESULTS

4.1 Socio-demographic data of the respondents

Table 4.1.1 shows the socio-demographic data which are age, gender, year of study and program of study of clinical-based undergraduate students. All the approached participants responded to the survey gives a response rate of 100%. Basically, the age of respondents that involved in this study are between 20 to 25 years old which the mean of age is 22.79. Out of 208 respondents, 74.0% are female and 26.0% are male. The result showed that 6.3% respondents are from first year students, 2.9% respondents are from second year students, 33.7% respondents are from third year students, 40.4% respondents are from fourth year students and lastly, 16.8% respondents are from fifth year students. Based on the results, the program of study includes medical students (63.5%), nursing students (26%) and dietetic students (10.6%).

Table 4.1.1: Socio-demographic data of the respondents (n=208)

Socio-demographic data	n	%	Mean	±SD
Age	208	100	22.79	±1.192
Gender				
Female	154	74.0		
Male	54	26.0		
Year of study				
Year 1	6	2.9		
Year 2	70	33.7		
Year 3	84	40.4		
Year 4	35	16.8		
Year 5	13	6.2		
Program of Study				
Medical	132	63.5		
Nursing	54	26.0		
Dietitian	22	10.6		

4.2 Perception towards using online learning resources in relation to accessibility, navigation and flexibility among the respondents.

The mean score for perception towards using online learning resources was 36.42. Majority of the respondents (51.9%) agreed that they were provided with adequate orientation and information on how to access online learning resources and 118 of respondents (56.7%) agreed that online learning resources were readily accessible. Furthermore, 48.1% of respondents agreed that online learning resources were straight-forward to navigate meanwhile, there were (0.5%) who were strongly disagree and (6.7%) disagreed with the statement.

There were 39.9% respondents had agreed and 27.4% chose neutral in accessing the online learning at a time of their choice. The highest number of respondents (39.9%) had equal number of responses regarding with the three statements which they chose “I liked to use online learning resources to learn about clinical skills anywhere I want”, “I liked being able to work through the online learning resources to learn about clinical skills at a time of my choice”, and also “I liked being able to use online learning resources to learn about clinical skills independently and at my own pace”.

There were 33.2% respondents agreed and 32.7% chose neutral to the statement of “the time that it took me to complete using online learning resources was quite similar to the time that was estimated”. However, 22.6% of respondents disagreed and 3.4% strongly disagreed to the statement. Most of the respondents preferred printed materials rather than reading information on a computer screen which based on the results, there were 36.5% of respondents strongly agreed, 27.9% agreed and 28.4% chose neutral to this statement.

Table 4.2.1: Perception towards using online learning resources among respondents (n=208)

Questions	n (%)				
	1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree
1. I was provided with adequate orientation and information about how to access the online learning resources.	0 (0%)	11 (5.3%)	54 (26.0%)	108 (51.9%)	35 (16.8%)
2. The online learning resources were readily accessible.	0 (0%)	7 (3.4%)	40 (19.2%)	118 (56.7%)	43 (20.7%)
3. The online learning resources were straight-forward to navigate.	1 (0.5%)	14 (6.7%)	59 (28.4%)	100 (48.1%)	34 (16.3%)
4. I liked being able to work through the online learning resources to learn about clinical skills at a time of my choice.	10 (4.8%)	31 (14.9%)	60 (28.8%)	80 (38.5%)	27 (13.0%)
5. I liked being able to use online learning resources to learn about clinical skills independently and at my own pace.	7 (3.4%)	30 (14.4%)	57 (27.4%)	83 (39.9%)	31 (14.9%)
6. I liked to use online learning resources to learn about clinical skills anywhere I want.	8 (3.8%)	32 (15.4%)	49 (23.6%)	83 (39.9%)	36 (17.3%)
7. The online learning resources allowed me to focus on areas that were individual to my practical skills needs.	8 (3.8%)	30 (14.4%)	54 (26.0%)	83 (39.9%)	33 (15.9%)
8. I liked having the opportunity to repeat parts of the e-learning resources that addressed information about clinical skills that was new to me.	3 (1.4%)	11 (5.3%)	37 (17.8%)	103 (49.5%)	54 (26.0%)
9. The time that it took me to complete the e-learning resources was an accurate	7 (3.4%)	47 (22.6%)	68 (32.7%)	69 (33.2%)	17 (8.2%)

reflection of the time that was estimated.

10. I prefer learning materials that are printed rather than reading information on a computer screen.	5 (2.4%)	10 (4.8%)	59 (28.4%)	58 (27.9%)	76 (36.5%)
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4.3 Clinical skills gained throughout using online learning resources among the respondents.

The mean score for this section of questionnaire was 44.08. Most of the respondents (45.7%) agreed that online learning resources were useful as a preparation for the clinical skills teaching sessions. There were 24.5% respondents disagreed while 29.8% agreed when asked if the online learning resources were of a sufficient to provide the key information about the clinical skills.

Respondents' views were sought regarding the usefulness of the online learning resources for developing an understanding of the theory underpinning clinical skills which most of them (51.9%) agreed. However, there were 24.0% respondents disagreed and 32.7% chose neutral on online learning resources which were said to be useful for their practical clinical skills development.

Furthermore, the highest number of respondents (45.2%) strongly agreed that classroom-based practical sessions were more useful than the online learning resources for learning clinical skill, and only 4.8% disagreed while 1.0% chose strongly disagreed to this question. In regard to the previous statement, 37.0% of the respondents disagreed that online learning resources were more useful than classroom-based practical sessions for learning clinical skills. There were only 14.9% agreed and 6.7% strongly agreed.

Most of the respondents 39.9% agreed and 28.8% strongly agreed that online learning combination with classroom-based practical sessions is the most useful strategy for learning clinical skills. The least number of respondents (2.9%) strongly disagreed while most of them (42.8%) agreed that online learning resources were helpful in preparing to undertake clinical skills during my practical sessions.

Last but not least, respondents were asked to rate which part of the online learning resources were most useful for clinical skills learning, 28.8% of respondents strongly agreed and 12.0% agreed in which the total is 40.8% agreed that video clips are the most useful, followed by 18.3% agreed and 20.2% strongly agreed with total 38.5% who found the interactive activities are most useful. However, most of them 34.1% of respondents agreed and 17.8% strongly agreed that recommended readings as the least useful in helping them to learn about clinical skills.

Table 4.3.1: Clinical skills gained throughout using online learning resources among the respondents (n=208)

Questions	n (%)				
	1 Strongly disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly agree
1. The online learning resources were a useful starting point as preparation for the clinical skills teaching sessions.	2 (1.0%)	27 (13.0%)	51 (24.5%)	95 (45.7%)	33 (15.9%)
2. The online learning resources were of a sufficient depth and focus to provide the key information that I needed to learn about the clinical skills.	4 (1.9%)	51 (24.5%)	72 (34.6%)	62 (29.8%)	19 (9.1%)

3. The online learning resources were useful for developing my understanding of the theory underpinning clinical skills.	4 (1.9%)	16 (7.7%)	55 (26.4%)	108 (51.9%)	25 (12.0%)
4. The online learning resources were useful for developing my practical clinical skills.	13 (6.3%)	50 (24.0%)	68 (32.7%)	58 (27.9%)	19 (9.1%)
5. The classroom-based practical sessions were more useful than the online learning resources for learning clinical skills.	2 (1.0%)	10 (4.8%)	28 (13.5%)	74 (35.6%)	94 (45.2%)
6. The online learning resources were more useful than the classroom-based practical sessions for learning clinical skills.	31 (14.9%)	77 (37.0%)	55 (26.4%)	31 (14.9%)	14 (6.7%)
7. Using online learning in combination with classroom-based practical sessions is the most useful strategy for learning clinical skills.	3 (1.4%)	12 (5.8%)	50 (24.0%)	83 (39.9%)	60 (28.8%)
8. The online learning resources were helpful in preparing me to undertake clinical skills during my practical sessions.	6 (2.9%)	25 (12.0%)	54 (26.0%)	89 (42.8%)	34 (16.3%)
9. Please rate as 1 being the least useful and 5 being the most useful, which parts of the online learning resources you feel helped you to learn about clinical skills.	Least useful	Not useful	Neutral	Useful	Most useful
	1	2	3	4	5
Written text	62 (29.8%)	44 (21.2%)	36 (17.3%)	33 (15.9%)	33 (15.9%)
Recommended readings	71 (34.1%)	33 (17.8%)	38 (18.3%)	29 (13.9%)	29 (13.9%)
Graphics and diagrams	76 (36.5%)	30 (14.4%)	23 (11.1%)	32 (15.4%)	47 (22.6%)
Video clips	76 (36.5%)	23 (11.1%)	24 (11.5%)	25 (12.0%)	60 (28.8%)
Interactive activities	74 (35.6%)	26 (12.5%)	28 (13.5%)	38 (18.3%)	42 (20.2%)
Quizzes	64	42	36	37	29

4.4 Association of socio-demographic factors and perception towards using online learning resources.

Normality test had been done and the result shown that the data was normally distributed with Skewness and Kurtosis value of 0.380 and -0.017 respectively and parametric measures were being utilized. For this part, Pearson Correlation was used to determine the association of socio-demographic factors and perception towards using online learning resources. Based on the result shown in the Table 4.4.1, the age had no significant difference with perception towards online learning resources in which the p-value is 0.357. The negative correlation (-0.064) showed that as the age is increasing, the perception towards using online learning resources among clinical-based students is decreasing.

Independent T-test was used to identify the association between gender with perception towards online learning resources. The result shown that there is no significant difference between them in which the p-value is 0.288. Association between year of study and perception towards using online learning resources had been tested by using One-way ANOVA. The result also shown that there is no significant difference between these two where the p-value is 0.178. Program of study had been planned to use One-way ANOVA test, however, dietetic group data were slightly insufficient to use in SPSS software. Therefore, SPSS cannot read the data and Independent T-test was used to identify them. The result shown there is no significant association where the p-value is 0.544. It means that there was not much difference by learning in traditional methods or using online learning resources

Table 4.4.1: Association of socio-demographic factors and perception towards using online learning resources among the respondents (n=208)

Socio-demographic	Online	learning	resources		
	Mean ± SD	Mean (95% CI)	F/t	r	p-value
Age				-0.064	0.357 ^a
Gender		-1.02934 (-2.93 - 0.87)	0.012		0.288 ^b
Female	36.16 ± (6.10168)				
Male	37.18 ± (6.11239)				
Year of study	58.711		1.593		0.178 ^c
First year	40.00 ± (8.71780)	34.73 – 45.26			
Second year	36.50 ± (7.52994)	28.60 – 44.40			
Third year	35.93 ± (5.59327)	34.59 – 37.36			
Fourth year	36.74 ± (5.79597)	35.48 – 37.99			
Fifth year	35.31 ± (6.28149)	33.16 – 37.47			
Program of study		-0.53589 (-2.27 - 1.20)	3.426		0.544 ^b
Medical	36.22 (5.70602)				
Health sciences	36.76 (6.77223)				

a. Pearson Correlation

b. Independent T- test

c. One- way ANOVA

***Significant at p-value <0.05**

4.5 Association of socio-demographic factors and the clinical skills gained throughout using online learning resources.

Based on the Table 4.5.1, the result shown that the p-value of the association of age and the clinical skills gained throughout using online learning resources is 0.521 by using Pearson Correlation test. It showed that there is no significant association between these two variables. Same goes to gender, year of study and program of study in which the p-value are 0.154, 0.496 and 0.638 respectively. The test used in this section was similar with the association of socio-demographic factors and perception towards using online learning resources. Independent T-test was used to analyse gender and program of study, while year of study used One-way ANOVA to identify the association with the clinical skills gained throughout using online learning resources.

Table 4.5.1: Association of socio-demographic factors and the clinical skills gained throughout online learning resources among the respondents (n=208)

Socio-demographic	Clinical skills gained				
	Mean ± SD	Mean (95% CI)	F/t	r	p-value
Age				0.045	0.521 ^a
Gender		2.01130 (-0.76 - 4.78)	0.218		0.154 ^b

Female	44.60 ± (8.93507)			
Male	42.59 ± (8.79433)			
Year of study	67.744		0.849	0.496 ^c
First year	43.85 ± (4.77574)	40.96 – 46.73		
Second year	38.67 ± (6.71317)	31.62 – 45.71		
Third year	44.31 ± (8.66200)	42.25 – 46.38		
Fourth year	43.69 ± (9.36280)	41.66 – 45.72		
Fifth year	45.57 ± (9.78079)	42.21 – 45.93		
Program of study		0.60566 (-1.93 - 3.14)	0.077	0.638 ^b
Medical	44.30 ± (9.05196)			
Health Sciences	43.70 ± (8.73616)			

a. Pearson Correlation

b. Independent T- test

c. One- way ANOVA

*Significant at p-value <0.05

4.6 Association between the perception towards using online learning resources and the clinical skills gained.

In order to identify the association between the perception towards using online learning resources and the clinical skills gained, Pearson Correlation was used as both of the variables are continuous data with the result shown the p-value is <0.001. This means that the null hypothesis is rejected. It has strong significant association between online learning resources and clinical skills gained. However, the correlation between these two variables is weak as the correlation value is 0.287.

Table 4.6.1: Association between the perception towards using online learning resources and the clinical skills gained among respondents (n=208)

Characteristics	r	p-value
Online learning resources and clinical skills gained	0.287	<0.001*

CHAPTER 5 DISCUSSION

5.1 Perception towards using online learning resources in relation to accessibility, navigation and flexibility.

The mean score for perception towards using online learning resources in this study is 36.42. Based on this study result, majority of students agreed that online learning resources were provided with adequate orientation with readily accessible, easy to navigate and flexible in terms of time, place and can study at their own pace. There were 95.7% of the respondents have used online learning resources before.

Paudel (2020) mentioned in his study, according to the majority of students, the course allows them to work within their own pace in a set period. Although the majority seemed to prefer the flexibility of completing work at a time and place that was most convenient for them, the course nonetheless imposed time constraints on them in terms of assignment deadlines. Furthermore, 60% of respondents asked the government to make internet service accessible to all students across the country in order to enable online education; otherwise, traditional teaching and learning modes will persist (Paudel, 2020).

Gilbert (2015) stated that the most common issue raised by respondents was a lack of good internet connection at home. Three of the respondents did not have internet access at home while enrolled in the online course, therefore they had to accomplish everything by going to the public library.

In one study, the respondents believed online resources to be an accessible and user-friendly site, and easy to navigate. There was one student commented that the website is very easy to operate. He explained "there were definitely perplexing aspects such as where to go to discover resources," while the other half of the student respondents expressed issues about the site's overall accessibility (Britanny, 2015).

The findings of this study revealed that when utilising an e-learning system, students will navigate to a certain page. Furthermore, according to the research, the majority of students prefer to navigate using only one link (Shahzad, Hafizi & Golamdin, 2014).

Recent study showed that 84.6% of the respondents agreed that online education is useful in promoting online research and resources, and 84.4% believed that it connects people to the global village. Likewise, online courses improve independency in learning, according to 76.9% of the respondents. Similarly, 69.2% of respondents said that online education helped them work at their own pace and helped them become more self-disciplined. Furthermore, the

findings showed that an equal number of participants (61.5%) believed that online courses provide flexibility in their modes, and allow participants to learn the expertise of the experts (Paudel, 2020).

Furthermore, the data demonstrated, 46.2% of the respondents believed that the online courses are beneficial to them because they are more accessible, provide individual attention to learning, and promote lifelong learning (Paudel, 2020). Similarly, 55% of respondents said they desired more online courses because they liked how flexible in terms of time and location, how they could develop their professional skills, and how they could study for the rest of their lives through online education.

5.2 The clinical skills gained throughout using online learning resources among the respondents.

Based on this study findings, the mean score for clinical skills gained throughout using online learning resources is 44.08. Most of the respondents agreed that the clinical skills teaching session were useful by using online learning resources. Based on the results, the highest number of respondents strongly agreed that classroom-based practical sessions were more useful than the online learning resources for learning clinical skill. In regards, 37.0% disagreed that online learning resources were more useful than classroom-based practical sessions for learning clinical skills. Most of the respondents (68.7%) strongly agreed that online learning combination with classroom-based practical sessions is the most useful strategy for learning clinical skills. Based on this study, video clips are the most useful as respondents chose strongly agreed and agreed as in total (n=85, 40.8%).

In a study done by Bloomfield & Jones (2013), there were 65 % respondents agreed the practical skills class was more useful than online learning resources for this purpose, while

14% chose online learning resources was more useful. Jang & Kim (2014) found that majority of the respondents perceived that by using OSCE videos, it was useful in learning clinical skills.

According to Shuid et al. (2015) study, the results shown majority of respondents (90%) agreed or strongly agreed that clinical skills module was useful among preclinical students. Similarly, over 92% of students agreed or strongly agreed that the clinical skills module provided a good foundation as a preparation for their clinical years.

Bloomfield & Jones (2020) mentioned that 87% of respondents said that using online learning in conjunction with face-to-face instruction was a good method. Similarly, a study done by Paudel (2020) stated that all respondents agreed that online resources would not be helpful in Nepal, and instead recommended that policymakers foster blended learning, which combines face-to-face and online learning in an appropriate manner. There were 71% of respondents has the same problem recommended that ICT policy should be properly established and that its implementation be made successful.

Chan et. al (2020) mentioned in their study, other virtual simulation programmes can be implemented to help students improve their critical thinking skills and clinical judgement while managing cases. Clinical scenarios were developed during the online class to demonstrate the clinical relevance of the material covered. Students are engaged in an active learning experience by being required to recognise clinical problems and plan nursing care via mini quizzes.

In one study mentioned that a simulated training ward allows a beneficial educational environment for nursing students to study and develop their knowledge and skills in a clinical setting. Nursing students' decision-making and critical thinking abilities, as well as their performance and psychomotor skills, can all benefit from clinical virtual simulation (Chan et. al, 2020).

Based on this study findings, some respondents among recommended that interactive games, audio, simulated patients, demonstration of procedure are other features in online learning resources that can help students in gaining clinical skills using online learning resources.

5.3 The association of socio-demographic factors and perception towards using online learning resources.

In this study, the socio-demographic factors which are age, gender, year of study and program of study has no association significant with the perception towards using online learning resources. This may be due to small sample size that had been collected and also it may show that there is no difference between studying using online resources and using traditional methods.

However, a study done by Paudel (2020), for students over the age of 16, online education is considered to be effective by 75% respondents. However, 20% of them stated that the appropriate age for online education is the age of higher education is tentatively 18 years old. Therefore, the age related to using online learning resources should be a good significant.

Based on this study findings, there were 95.7% have used online learning resources before. The remaining 4.3% respondents are from first year students in which they never used online learning resources for their education. It shows that first year students never have any experience in using online learning resources than the other year of study.

There was no significant difference between genders and year of study in this study. It is supported by Schlenz, et al. (2020) study, where they mentioned that there were no significant differences in gender and semester distribution when compared to the control group which the result is more than 0.005.

However, in the midst of the epidemic, a Jordanian study revealed that medical students in clinical years were only 26.77% satisfied with online learning which indicate a low satisfaction (Al-Abas et al., 2020). According to Frehywot et al. (2013), online learning implementation among health sciences students is typically technical challenged, with the main issues being slow Internet access and download speeds, poor image and sound quality, limited electronic facilities, and frequent electrical power outages.

However, in one study done by Khalil et al. (2020) stated that medical students were willing to study using an online learning resource, indicating that this is the future model of medical education.

5.4 The association of socio-demographic factors and the clinical skills gained throughout using online learning resources.

Based on this study findings, there was no significant differences association between the socio-demographic and clinical skills gained including age, gender, year of study and program of study. There was no significant difference between program of study and clinical skills gained as all of them are still going to clinical practice.

This is supported by one study done by Jang & Kim (2014) where the finding showed there were no significant differences in the amount of OSCE videos viewed across all age groups which the p-value is 0.62. In addition, there were no gender differences in the quantity of OSCE videos that participants watched as the p-value is 0.13. However, according to Li et.al (2021) more students in their clinical years (72.5%) were negative about the online learning effect than those in their pre-clinical years (58.7%) where their p-value is < 0.05 .

A study done by Jang & Kim (2014) mentioned that there was no significant difference between respondents' perceived effectiveness of OSCE videos among groups of various levels of self-efficacy on OSCE and years of study in which the p-value is 0.60.

Shuid et. al (2015) stated that with no students disagreeing, about 90.5% students agreed that clinical skills module was a beneficial module for first year and second year students. Similarly, 92.0% believed that it provided a good foundation for their clinical years. There was only one student who disagreed. Clinical skills module assisted approximately two-thirds of the students (n=101) in adjusting to the clinical learning setting.

5.5 Association between the perception towards using online learning resources and the clinical skills gained.

This study found that there is a strong significant difference between association between the perception towards using online learning resources and the clinical skills gained where the p-value is <0.001. This means that the null hypothesis is rejected. It showed that by using online learning resources, it is quite difficult to gain clinical skills.

According to the findings, the highest number of respondents strongly agreed (45.2%) that classroom-based practical sessions were more useful than the online learning resources for learning clinical skill. Most of the respondents (39.9%) agreed and 28.8% strongly agreed that online learning combination with classroom-based practical sessions is the most useful strategy for learning clinical skills.

Based on this study, video clips are the most useful as respondents chose strongly agreed and agreed as in total (n=85, 40.8%) and least useful is recommended readings as the total strongly agree and agree is 51.9%. However, Jang & Kim (2014) study mentioned that some students have negative concerns about the effectiveness of OSCE videos. It is possible

that simply watching video clips will not be sufficient for certain students to gain clinical skills. This is also due to fact that OSCE videos should be included into faculty training in order to maximise their effectiveness.

However, in line with previous search, the current study find that students showed good perceptions of OSCE videos and that they use them in a variety of ways to enhance their self-study of clinical skills. The findings suggested that e-learning can help improve clinical education by fulfilling students' needs and supplementing traditional clinical skill teaching (Jang & Kim, 2014).

Research done by Bloomfield & Jones (2013) mentioned that only 60% respondents chose online learning resources was helpful in developing clinical skills. Furthermore, 65% respondents said the practical skills class was more useful than the online learning resources.

Jang & Kim (2014) mentioned that 42% respondents used the video clips to study clinical skills that were difficult to comprehend simply by listening to lectures. 37% responded they watched the videos to refresh their memories before practising the procedures. In addition, 13% respondents said they used the video clips to gain clinical skills they could not learn in class or during clinical placements. 8% respondents said they watched the video clips on their own to acquire skills that were not covered in class.

CHAPTER 6

LIMITATION AND RECOMMENDATION

6.1 Limitations

There were some limitations identified during conducting of this research study. First and foremost, each of the strata did not evenly distribute as expected since some of medical students did not decide to participate in this study. However, this study achieved the expected total number of sample size which filled in by other study programme.

In addition, the sample size of dietetic students was too small to be analysed using SPSS One-Way ANOVA. The data cannot be recognized, therefore, the researcher had to change the study programmes from three groups into two groups which are medical students and health sciences students then analysed by using Independent T-test.

There is also limited research study about online learning resources and clinical skills gained in Malaysia as online learning is a new platform that has been fully implemented since pandemic happened. Therefore, it caused lesser comparison and discussion can be done on the findings based on this study.

Lastly, this study used email to distribute the questionnaire since the study had to conduct using online platform however, the students rarely responded to the email. Therefore, the researcher had to find alternative way by using the Whatsapp to distribute the questionnaire through the class representative according to each year and each program of study.

6.2 Recommendations

In this pandemic, online learning resources has been fully implemented in Malaysia in order to reduce the possibility of face-to-face interaction between the students. It includes nursing students as well as we need to complete the clinical practice. Prior to that, clinical skills need to be learnt and practiced time by time to master each of the procedures that have learnt.

It is crucial to produce skilled nurses with well-prepared knowledge in future to serve the community. Therefore, nursing students should know how to use online learning resources wisely and which online resource has big impact to improve the efficiency in clinical skills. Living in this new norm era whereby clinical-based students need to use online resources for their clinical practice, it is important to be able to adapt to the new learning styles. Each individual has different opinion in choosing the most useful and efficient resources to enhance their skills.

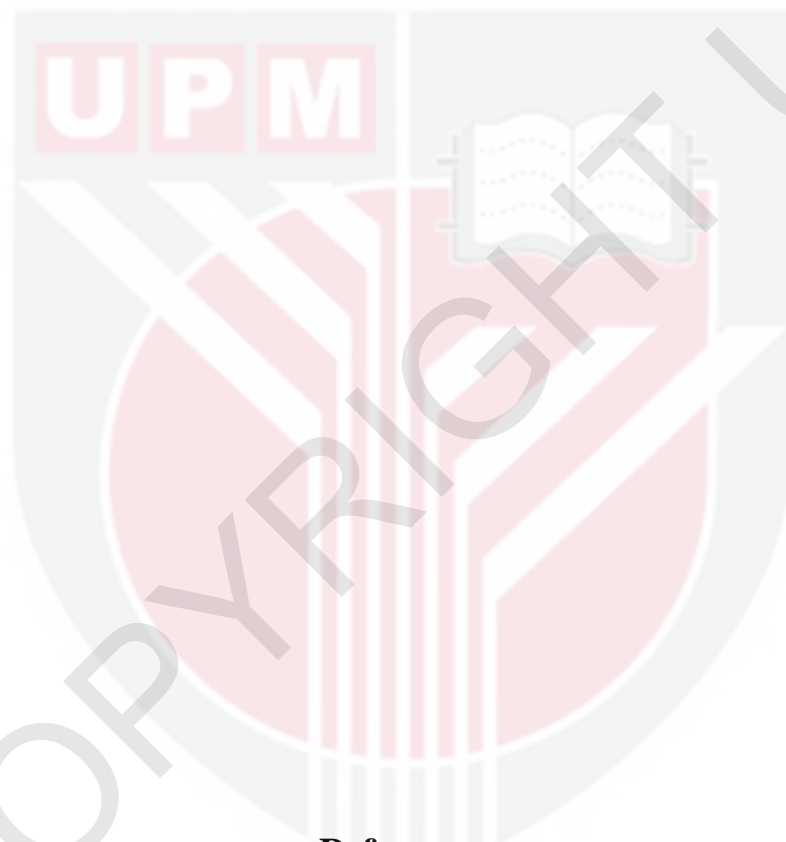
In addition, a bigger sample size is highly recommended in order to gain more data from various perceptions which then can be widely categorized by different groups.

For future studies, it is recommended to produce more research on how to restore online learning resources more efficiently among clinical-based students in order to acquire clinical skills better. Future research should include how does online learning resources has been affecting students' skills in practical. Further studies should also recognize and include more options of the online resources method and which learning styles that should be considered to enhance clinical skills. It also needs to include level of understanding and skills gained. More research study should investigate how to educate students on navigating wisely to search through reliable sources.

6.3 Conclusion

In conclusion, there was a strong significant difference between using online learning resources and clinical skills gained among clinical-based students in which the result shown the p-value is <0.001 . It shows that it might be difficult for clinical-based students to learn clinical skills efficiently by using online learning resources. It may be due to insufficient skills practiced in laboratory and they were just relying on online learning resources. However, the

results of the perception towards online learning in relation to accessibility, navigation, and flexibility showed that there was no significant difference. Majority of the respondents agree that online learning resources were readily accessible. They also agree that online resources can navigate easily and it was flexible in terms of place and time management. The findings of this study showed that most of the respondents prefer video clips as the most useful resources to learn clinical skills followed by interactive activities.



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Appendices

Permission for using questionnaire

Jacqueline Bloomfield
to me

Tue, Jan 12, 8:04 AM (7 days ago)

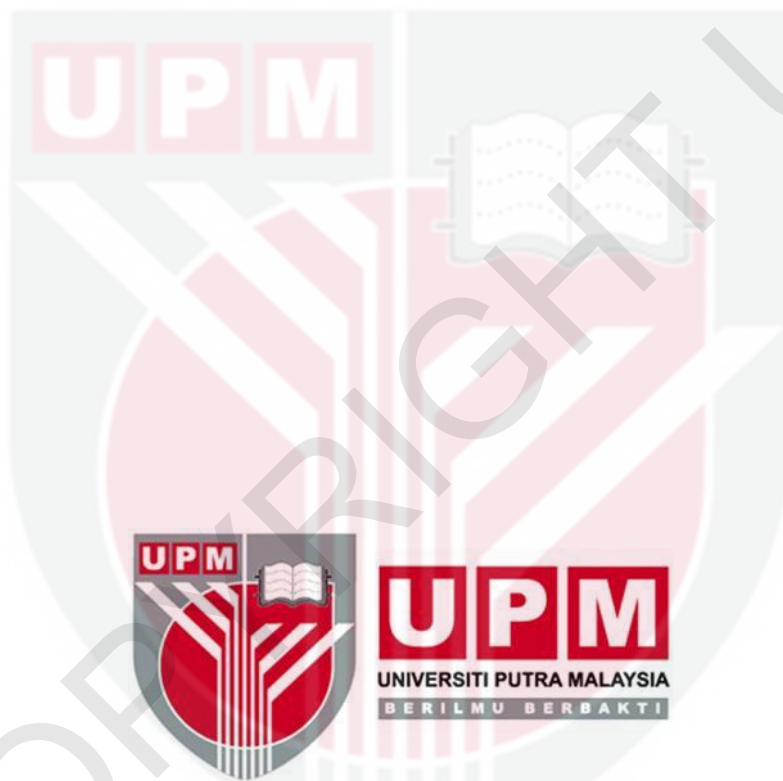
Dear Zahra,

Please find the questionnaire attached. I would request that you please acknowledge myself and Dr Anne Jones as the authors' of the questionnaire in your report/ thesis and any associated publications.

Wishing you all the very best with your study.

Kind regards,
Jacqueline

Associate Professor Jacqueline Bloomfield | Director- Offshore Programs (Singapore)
Susan Wakil School of Nursing and Midwifery| Sydney Nursing School
Faculty of Medicine and Health
THE UNIVERSITY OF SYDNEY
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UNIVERSITI PUTRA MALAYSIA

FACULTY OF MEDICINE AND HEALTH SCIENCES

DEPARTMENT OF NURSING AND REHABILITATION

BACHELOR OF NURSING

NUR4999 FINAL YEAR PROJECT

QUESTIONNAIRE

**PERCEPTION TOWARDS USING ONLINE LEARNING RESOURCES AND
CLINICAL SKILLS GAINED AMONG CLINICAL-BASED STUDENTS AT A
PUBLIC UNIVERSITY IN SELANGOR**

NAME: ZAHRA NAZURAH BINTI AZMAN

SUPERVISOR: DR. LEE KHUAN

CO-SUPERVISOR: DR. MUHAMMAD HIBATULLAH ROMLI

INSTRUCTIONS:

This study is conducted for academic purposes. All information will be kept private and confidential. Thank you for your cooperation in answering the questionnaire.

SECTION A: Socio-demographic

Instructions: Please answer all questions by marking (v) or write the appropriate answer.

NO	ITEM	
1.	Age years old
2.	Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
3.	Year of study	<input type="checkbox"/> First year <input type="checkbox"/> Second year <input type="checkbox"/> Third year <input type="checkbox"/> Fourth year <input type="checkbox"/> Fifth year
4.	Program of study	<input type="checkbox"/> Medical <input type="checkbox"/> Nursing <input type="checkbox"/> Dietitian
About your previous experience of computers, previous experience online learning resources and self-rated computer expertise.		
5.	How would you rate your ability to use a computer on a scale of 1-10? (1 is no ability and 10 is extremely competent). State the scale of number on the space provided.
6.	In a day, approximately how many hours do you spend using a computer for online learning?
7.	Have you used online learning resources previously?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Section B: Perception towards using online learning resources in relation to accessibility, navigation and flexibility

Please carefully read each of the statements below and place a circle in the box that best represents your response to the statement.

No.	Items	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
8.	I was provided with adequate orientation and information about how to access the online learning resources.	1	2	3	4	5
9.	The online learning resources were readily accessible.	1	2	3	4	5
10.	The online learning resources were straight-forward to navigate.	1	2	3	4	5
11.	I liked being able to work through the online learning resources to learn about clinical skills at a time of my choice.	1	2	3	4	5
12.	I liked being able to use online learning resources to learn about clinical skills independently and at my own pace.	1	2	3	4	5
13.	I liked to use online learning resources to learn about clinical skills anywhere I want.	1	2	3	4	5
14.	The online learning resources allowed me to focus on areas that were individual to my practical skills needs.	1	2	3	4	5
15.	I liked having the opportunity to repeat parts of the e-learning resources that addressed information about clinical skills that was new to me.	1	2	3	4	5
16.	The time that it took me to complete using online learning resources was quite similar to the time that was estimated.	1	2	3	4	5
17.	I prefer learning materials that are printed rather than reading information on a computer screen.	1	2	3	4	5

Section C: Clinical skills gained throughout using online learning resources

Please carefully read each of the statements below and place a circle in the box that best represents your response to the statement.

No.	Items	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
18.	The online learning resources were a useful starting point as preparation for the clinical skills teaching sessions.	1	2	3	4	5
19.	The online learning resources were of a sufficient depth and focus to provide the key information that I needed to learn about the clinical skills.	1	2	3	4	5
20.	The online learning resources were useful for developing my understanding of the theory underpinning clinical skills.	1	2	3	4	5
21.	The online learning resources were useful for developing my practical clinical skills.	1	2	3	4	5
22.	The classroom-based practical sessions were more useful than the online learning resources for learning clinical skills.	1	2	3	4	5
23.	The online learning resources were more useful than the classroom-based practical sessions for learning clinical skills.	1	2	3	4	5
24.	Using online learning in combination with classroom-based practical sessions is the most useful strategy for learning clinical skills.	1	2	3	4	5
25.	The online learning resources were helpful in preparing me to undertake clinical skills during my practical sessions.	1	2	3	4	5

26.	<p>Please rate as 5 being the most useful and 1 being the least useful, which parts of the online learning resources you feel helped you to learn about clinical skills.</p> <p>Were there any additional resources/ features that you would have liked included in the online learning resources (E.g audio clips)?</p> <p>If yes, please write what you would have liked in the space provided.</p>	<p>Written text <input type="checkbox"/></p> <p>Recommended readings <input type="checkbox"/></p> <p>Graphics and diagrams <input type="checkbox"/></p> <p>Video clips <input type="checkbox"/></p> <p>Interactive activities <input type="checkbox"/></p> <p>Quizzes <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>.....</p>
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FORM 2.4: RESPONDENT'S INFORMATION SHEET AND INFORMED CONSENT FORM

Please read the following information carefully and do not hesitate to discuss any questions you may have with the researcher.

1. STUDY TITLE : Perception towards using online learning resources and clinical skills gained among clinical-based students at a public university in Selangor

2. INTRODUCTION:

The pandemic has affected educational status all over the world. Online learning is being implemented since Covid-19 outbreaks. In this study, students' perception towards online learning resources and clinical skills gained among clinical-based students will be held in a public university which is University Putra Malaysia. This study investigating the perception using online learning resources on the accessibility, navigation, and flexibility. The respondents' view on clinical skills gained throughout using online learning resources will be carried out in this study as well

3. WHAT WILL YOU HAVE TO DO?:

The requirement to involve in this study is to fulfill all the inclusion criteria and you have to sign the consent form to participate in this study. You are allowed to refuse to involve in this study as this is a voluntary research study. The respondents also have the right to withdraw any time without any consequences. This questionnaire is in Google Form and the link will be sent through an online platform such as Whatsapp or email. Respondents will have to answer the questionnaire online through Google Form. The respondents should read carefully the instruction before answering the questionnaire. The respondents are expected to finish answering this questionnaire about 15-20 minutes.

4. WHO SHOULD NOT PARTICIPATE IN THE STUDY?:

The respondents that will be excluded in this study are those students who were on long leave and post graduate students.

5. WHAT WILL BE THE BENEFITS OF THE STUDY:

(a) TO YOU AS THE SUBJECT?

There is no compensation is given for taking part in this study. All the participants would be thanked for the voluntary involvement in this study. However, by participating in this study, it will help the respondents to identify their choice while using online learning resources on the clinical skills development.

(b) TO THE INVESTIGATOR?

All the data collected in this study could provide information regarding the perception towards using online learning resources and clinical skills gained among clinical-based students at a public university in Selangor. This could help investigators or future investigators to seek alternative method

of learning by using online resources. Thus, it also can enhance the efficiency the use of online learning resources in the clinical settings.

6. WHAT ARE THE POSSIBLE RISKS?

There are no possible risks as data will be collected using an online platform questionnaire and there is no face to face contact with the respondent. The data also will be kept confidential.

7. WILL THE INFORMATION THAT YOU PROVIDE AND YOUR IDENTITY REMAIN CONFIDENTIAL?

All your information obtained in this study will be kept and handled in a confidential manner, in accordance with applicable laws and/or regulations. When publishing or presenting the study results, your identity will not be revealed without your consent.

8. WHO SHOULD YOU CONTACT IF YOU HAVE ADDITIONAL QUESTIONS DURING THE COURSE OF THE RESEARCH?

If you have any queries about this study, please contact:

The researcher: Zahra Nazurah Binti Azman

Contact number: 012-3743211

Email: zahanazurah@gmail.com

The supervisor: Dr. Lee Khuan

Contact number: 016-2040157

Email: leekhuan@upm.edu.my

Approval Letter from JKEUPM

Ref. no: UPM/TNCPI/RMC/JKEUPM/1.4.18.2 (JKEUPM)

Date: 29 March 2021

Dear Prof./Dr./Mr./Ms.,

APPLICATION FOR JKEUPM ETHICAL CLEARANCE: APPROVED

With reference to the above, I am pleased to inform you that your application for ethical clearance for the research project entitled 'Perception Towards Using Online Learning Resources and Clinical Skills Gained among Clinical-Based Students at a Public University in Selangor' has been approved.

Please note that the official letter of approval will be issued as soon as possible. However, the ethical clearance is considered effective from the date of this email, and you may now proceed with your research.

Kindly remind the ethical approval is required in the case of amendments/ changes to the study documents/ study sites/ study team.

Researchers should also complete a Study Final Report upon study completion. The form can be obtained from the Ethics Committee for Research Involving Human Subjects (JKEUPM) website (<http://www.tncpi.upm.edu.my/faildokumen>).

If you have any enquiries, please contact Ms. Nurulhasanah Ishak (03-97691605) or Ms. Nor Ellia Abd Ajis (03-97691244).

Note: Please use this reference number for any transaction:- JKEUPM-2021-143

Thank you.

Yours faithfully,

Prof. Dr. Zamberi Sekawi
Chair
Ethics Committee for Research Involving Human Subjects
Universiti Putra Malaysia

Gantt chart & milestone

Project activities	2020			2021								
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Project implementation plan write up												
Proposal draft preparation												
Ethics application												
Data collection												
Data analysis												
Thesis preparation and discussion												
Final presentation												
Thesis submission												

Budget

No.	Items	Cost
1.	Printing - All the required documents	RM 50
2.	Transportation	RM 30
Total		RM 80