

THE SUCCESS OF ONLINE LEARNING APPROACH OF VIRTUAL MOBILITY: A CRITICAL STRATEGY

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Abstract

Malaysia has been implementing blended learning into the teaching and learning practices. However, the implementation of non-academic activities including mobility program is still taking place in the conventional way. In the era of Revolution Industry 4.0, mobility program should have a new approach using technology as the medium for implementation. This study aims to identify the suitability of the implementation virtual mobility program, the level of students' knowledge towards the implementation of virtual mobility, the factors that motivated students to join virtual mobility programs and the types of medium that students expect to use when joining the virtual mobility. A total of 343 Malaysian university students were involved as a sample in this study. The findings showed that virtual mobility can be seen as an alternative for conventional mobility and it still has an impact on students' soft skills. Besides, the data showed that the level of students' knowledge towards the implementation of virtual mobility is moderate and majority of the respondents decided to join the virtual mobility program because they could develop their information technology skills. Meanwhile, most of the respondents expected to use internet as a main medium to join the virtual mobility program.

Keywords: curricular structure, higher education, industry revolution 4.0, Information Communication Technology and virtual mobility

Introduction

Student mobility program is a programme implemented at the university level. Apart from the purpose of strengthening students' soft skills, mobility programme also aimed at ensuring the achievement of the national higher education internationalization agenda as set out in the National Higher Learning Strategic Plan (NHLSP). The mobilization of the mobility program provides many benefits especially for students, universities, stakeholders, and the nation.

The mobility programme has provided a lot of new exposure to students to learn through the experience of problems solving, communication skills, teamwork, leadership skills and emphasis on moral and ethical aspects (Bilecen and Van Mol, 2017)(Ahmad, Isa, and Yusoff., 2017). As for the stakeholders, the mobility programme has created opportunities to sharing knowledge and earns the advantage of having expertise for the university. In the context of the university and the country, it can be seen as a platform to promote the curriculum of the university and country internationally. Through this approach, the university and the country

can broaden the cooperative network not only in education, but also to open new collaboration opportunities in the aspects of development and economic.

In contrast to foreign countries, the implementation of mobility programmes in Malaysia is still conventional. The programme is conducted physically and face-to-face and hand-on project based. It has an engagement with a target group and has its knowledge transfer element. In line with the Revolution Industry 4.0 and pandemic Covid-19 outbreak globally, mobility programme with technology oriented should be introduced. This is to ensure the Critical Agenda Project's (CAP) Key Performance Indicator (KPI) for internationalization in the National Higher Education Strategic Plan (PSPTN) in the Malaysian Education Development Plan Agenda (PPPMP) 2015-2025 towards transforming and improving the quality of the local world-class tertiary education can be achieved. In addition, the new concept known as 'Internationalization at home' can be introduced as well.

The implementation of a virtual mobility programme is among the alternatives that can be used in order to replace the physical mobility. According to Van De Bunt-Kokhuis (2001), virtual mobility means the collaborative communication between a faculty member and his/her counterpart(s) mediated by a computer. As a matter of fact, the implementation of virtual mobility has been done by most of the foreign countries. Virtual mobility has been introduced at one workshop conducted in Vienna in June 2006 and in Helsinki in 2005. There was a debate at the Being Mobile Workshop held in Vilnius, 2006 which concluded that virtual mobility was a recent phenomenon which had disadvantages and also challenges that needed to be solved (Bijnens et al, 2006).

In order to apply this concept in Malaysia, one study must be done to determine the succession planning on this. Besides, due to the pandemic of Covid-19 and in line with the Industrial Revolution 4.0, new norms are injected into the education system especially in the curricular activities like university-community engagement programme and mobility programme, which must be introduced. In the current study, the success of virtual mobility is viewed as a fundamental need, therefore, this study tries to identify the suitability of the implementation of virtual mobility program, the level of students' knowledge towards the implementation of virtual mobility, the factor that motivated students to join virtual mobility programmes, and the types of medium students expect to use when joining the virtual mobility programme. In the meantime, this study will test several hypotheses regarding the success of online learning approach of virtual mobility:

- H1 Virtual mobility is very suitable to be implemented for students
- H2 Student has high level of knowledge towards the implementation of virtual mobility.
- H3 There are strong factors that motivate students to join virtual mobility programs.
- H4 There are variant types of factor that students used when joining the virtual mobility

Literature Review

Mobility is often an expected practice to be successful, and even became a requirement to secure better employment positions in certain skill-based labour market niches within neoliberal economies (Overbeek, 2002). Initiatives to introduce mobility programmes at higher education level help to promote national higher education institutions to foreign countries. As a result, the terrain of academia has been reshaped not only by student and faculty exchanges but also through exchanges of knowledge and practices as well as repositioning of the higher education institutions.

The implementation of virtual mobility abroad has long been pre-existing since the number of studies on virtual mobility increased rapidly in 2005. Meanwhile, most of the researchers focus on the definition of virtual mobility. In Malaysia, virtual mobility is yet to be implemented. However, the blended learning approach is used as a main pedagogy for all higher education institution and e-learning has been chosen as an important component of teaching and learning session in higher education.

Shifting from physical to virtual mobility will have many advantages, challenges and barriers as well. Bijmens et al. (2006) stated that the implementation of virtual mobility at higher education will help to reduce obstacles and help people with disabilities to gain equivalent international experience as they would with physical mobility. Besides, virtual mobility reduces the socio-economic barriers, therefore, it ensures social inclusion in some part (Bijmens et al., 2006). In the report of European Cooperation in Education through Virtual Mobility (2006), it was stated that European Commission has set a goal in Integrated Action Programme in Lifelong Learning whereby in the year 2011, there were 3 million European students who participated in the Erasmus programme which totaled about 20% of them. But, the rest of the 80% students who did not have the opportunity to participate were identified to have social, financial and other reasons (Bijmens et al., 2006).

The most commonly quoted definition of virtual mobility is provided by 'e-learning europa' portal where it refers to "The use of information and communication technologies (ICT) to obtain the same benefits as one would have with physical mobility but without the need to travel" which means that the students may take an abroad course without travelling. Virtual mobility is a form of learning which consists of virtual components through a fully ICT supported learning environment that includes cross-border collaboration with people from different backgrounds and cultures working and studying together, having, as its main purpose, the enhancement of intercultural understanding and the exchange of knowledge (Bijmens et al., 2006). Vriens et al., (2010) added that virtual mobility is different from physical mobility but it can be used as an alternative to run the mobility programme. According to Vriens et al., (2010), virtual mobility can be seen as a set of ICT-supported activities that realizes cross-border and collaborative experiences in the context of teaching and learning (Vriens et al., 2010). Nevertheless, Op de Beeck et al. (2007) stated that virtual mobility enables students to take part in courses from other universities either at local or international level without leaving their home university.

DOBA Faculty Maribor of Slovenia has started developing virtual mobility since 2006 and the satisfaction level of virtual programmes was measured yearly. Maček and Ritonija (2016) found in their study that some important competencies that students expect from international virtual mobility are the improvement of intercultural capabilities and improved knowledge of English. Other than that, they also found that the most difficult challenges faced by the students are the specific knowledge and skills that students should have in order to take part in the virtual environment.

Aguado et al. (2014) in their study found that attempting a new concept such as virtual mobility involves changes in the routines of the organizations and the most difficult challenge is involving high-level institutional commitment which is related to academic administration of the program and the technical-administrative nature. However, one of the benefits from the implementation of virtual mobility is that the students can access differently designed platforms as well as programmes and materials which were not offered to them by their home universities. Meanwhile, the learning community generated by virtual mobility fosters knowledge that is more collaborative which comes directly from the lecturer or instructor who handles the programme.

Previous studies showed that the use of technology in academic activities including online learning can contribute to increased motivation and learning performance of students (Syarif, 2012), support active learning and use of online attractive materials (Gecer and Dag, 2012), enable to increase the happiness of the students while pursuing learning (Hubackova et al, 2011), encourage the opportunity to collaborate online (Barhoumi, 2015). Students are also encouraged to participate in the discussion and contribute something worth in learning (Eddy et al., 2014). Supporting those studies in the context of virtual mobility, Daukšienė et al. (2010) found that the students were eager to attend the course under virtual mobility programme which was academic oriented and the students were expected to apply what was learnt in their virtual mobility programme in their studies and future workplace.

Methodology

This study is in the form of quantitative research using survey design to assess the success of online learning approach of virtual mobility. In this section, there are four sub-sections, which include instrument, data collection, participation, and data analysis.

Instruments

The development of an item was referred to the previous research based on The Technology in My Life Survey by McKenzie in 1999 (McKenzie, 1999). The questionnaire was divided into five sections where section A measured the respondents' demographic information, section B measured the suitability of the implementation virtual mobility program, section C measured the level of students' knowledge towards the implementation of virtual mobility, section D measured the factors that motivated students to join virtual mobility, and section E measured the types of medium that students expected to use when joining the virtual mobility.

Conceptual Framework

This research shows the relationship of independent variables towards dependent variable as shown in Figure 1. The independent variables included in this research are suitability of the virtual mobility programme implementation, level of students' knowledge towards the implementation of virtual mobility, motivating factors for students to join virtual mobility and the medium students are expected to use when joining virtual mobility while the dependent variable is the success of online learning approach for virtual mobility.

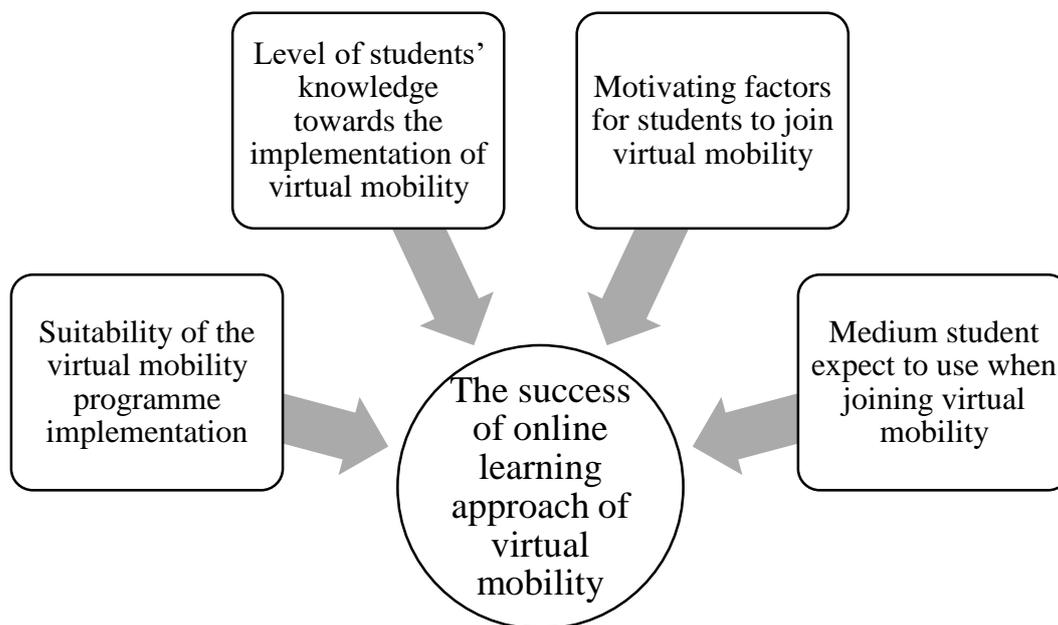


Figure 1: Conceptual framework

Data Collection

The data were collected on Jan 2020 through an online survey. The data were gathered by the respective lecturers, in their virtual classes and workshop. Meanwhile, nobody was forced to participate in the survey. The survey was conducted on voluntary basis so the students could drop out anytime. This study received feedback from respondents using a questionnaire instrument that was distributed online through google form. However, there was limitation in the data collection stage. During a pandemic, the online survey method is the effective way to comply with the official orders to 'stay at home' and practice 'social distancing.' The snowball sampling was used as a sample selection procedure where it was not a compelling strategy for selecting a sample that represented the chosen population that satisfied the sampling criteria. However, it was a good strategy to reach out to a huge number of people with limited movement and time.

Participation

This study was conducted in Malaysian Public University. This study involved 343 respondents who were randomly selected using the table of Morgan and Krejcie (1970). The respondents were from various Malaysian Public Universities who were enrolled in online studies from various disciplines.

Data Analysis

The data was collected using an online questionnaire distribution method and analysed using a quantitative technique. The deductive technique was employed to test the hypotheses in accordance with the design framework in this study (Saunders et al., 2012). Since it focused on establishing a relationship between independent factors and dependent variables, this study was known as a correlation design (Kumar, 2010). Hence, the tool of the data collection was distributed among the students to determine the relationship between the suitability of the virtual mobility program, level of student knowledge, motivating factor, and medium used towards the success of online learning approach for virtual mobility.

The reliability test was used in this study to measure the stability, internal consistency and underlying inaccuracy. Based on Hair et al (2010), good reliability could be determined from the alpha value if it was more than 0.70 in Cronbach alpha test. For section A, the items like gender and ethnic were categorized in frequency and percentage analysis. For section B, Likert scale was used to achieve the objective of the study, while the mean score was used for the analysis in section C and D. The mean score for each variable was divided into three categories which were low, moderate and high as shown in Table 1. With the use of the sample data, the proposed hypothesis was tested. The probability basis would be rejected if the sample obtained from the questionnaire did not support the null hypothesis and accept the alternative hypothesis. The hypothesis would be accepted if the sample did not contradict it. The accuracy of the findings was heavily dependent on the respondents' honesty, transparency, and cooperation since the sample size and sample space were both constrained in this study.

Mean value	Indicator
1.00 – 2.33	Low
2.34 – 3.66	Moderate
3.67 – 5.00	High

Table 1: Mean Score of Variable

Results

Reliability test

The reliability test is necessary to ensure that the questionnaire is comparable among respondents and to verify the study's validity (Mohajan, 2017; Pallant, 2011). Cronbach's Alpha for all items from both dependent and independent variables is greater than 0.8, as seen in table 10. According to Sekaran and Bougie, (2019), a Cronbach's Alpha of more than 0.7 implies a

very good reliability in the reliability test. As a result, all the items in the questionnaire are really reliable and ideal for collecting complete data as shown in Table 2.

Variables	Cronbach's Alpha	Number of items
The success of online learning approach of virtual mobility (Dependent Variable)	0.846	4
Suitability of the virtual mobility programme implementation (Independent Variable)	0.806	6
Level of students' knowledge towards the implementation of virtual mobility (Independent Variable)	0.916	10
Motivating factors for students to join virtual mobility (Independent Variable)	0.925	10
Medium student expect to use when joining virtual mobility (Independent Variable)	0.790	15

Table 2: Reliability Test result for dependent and independent variables

A: Respondent's Demographic

Table 3 shows the responses from 343 Malaysian Public University students who were selected randomly to participate in this study. A total of 179 out of 343 respondents were females (50.7%) and the rest were males (49.4%). According to Osman and Hamzah (2017) there are no difference between gender and the readiness to join virtual mobility programme. Based on the analysis, majority of the respondents were Malays (72.9%, n=250) followed by Chinese (12.5%, n=43) and others (10.5%, n=36). Indians showed only 4.1% (n=14) which was a small group in this study.

Category	Frequency	Percentage (100%)
Gender		
Male	169	49.3
Female	174	50.7
Total	343	100
Ethnic		
Malay	250	72.9
Chinese	43	12.5
Others	14	4.1
Indian	36	10.5
Total	343	100

Table 3: Demographic Factor Analysis among Respondents

Section B: Suitability of the virtual mobility programme implementation

As it can be seen in Table 4, more than half of the students (60.9%, n=209) took part in conventional mobility programme before and majority of them (91.8%, n=315) agreed that mobility programme which was organised by the university played a significant role in developing student soft skills. Most of the students (78.4%, n=269) agreed that mobility

programme should be continued even if social distancing was needed and majority of them (85.1%, n=292) agreed that virtual mobility can be chosen as an alternative for conventional mobility. Agreeing to this point, Ain and Liza (2018) found that the teaching and learning session will more effective and easy when using the internet. Thus, many of them (86%, n=295) stated that there was no problem to conduct virtual mobility programme and it still has impact on student soft skill (81.6%, n=280). The percentages of cross tabulating of ‘yes’ and ‘no’ on the suitability of the virtual mobility programme implementation are depicted using pie chart in Figure 2.

	Item	Yes	No	Total
1	Mobility helps in developing student soft skill	315(91.8)	28(8.2)	343(100)
2	Mobility should be continued even if social distancing is needed.	269(78.4)	74(21.6)	343(100)
3	Virtual mobility is an alternative for conventional mobility	292(85.1)	51(14.9)	343(100)
	Mobility can be run virtually	295(86)	48(14)	343(100)
5	Virtual mobility still has an impact on student soft skill	280(81.6)	63(18.4)	343(100)
6	I took part in conventional mobility programme before	134(39.1)	209(60.9)	343(100)
Total of Yes and No		1585	473	

Table 4: Suitability of the virtual mobility programme implementation

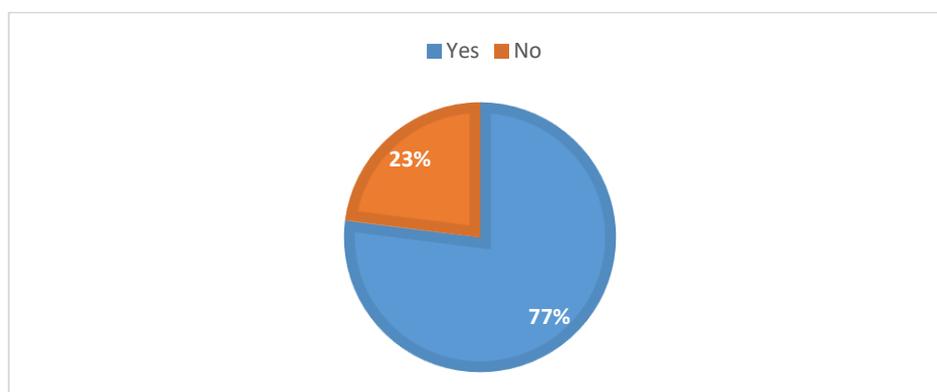


Figure 2: Total percentage between yes and no on the suitability of the virtual mobility programme implementation

Section C: Level of students’ knowledge towards the implementation of virtual mobility

Table 5 shows the level of students’ knowledge towards the implementation of virtual mobility. The mean score shows that the level of respondent readiness knowledge is moderate with mean score = 3.027 with standard deviation value is .60079.

	Knowledge readiness
Mean	3.0278
Std. Deviation	.60079

Table 5: Mean score on respondents' knowledge towards the implementation of virtual mobility

Table 6 shows the level of students' knowledge towards the implementation of virtual mobility was at the moderate level with mean value 3.03 and the respondents have at least basic knowledge of the computer and they can use it with confidence (mean=3.56). With that knowledge, respondents were definitely able to interpret the internet materials' content (mean=3.28). The respondents also had moderate level of knowledge to implement the virtual mobility programme but the study found that they still could make demonstrations using the new software on the Internet (mean=2.83) and design activities by integrating information technology (mean=2.89) because the respondents assured that they were skilled in using any software supplied (mean=2.94). El-Hmoudova (2004) stated that interactive and a variety of courses can be used to enhance the qualities of teaching, make them more attractive and encourage students to learn. With moderate level of knowledge, it was easy to diversify mobility activities online (mean=2.78) without ignoring any unethical usage of information technology (mean=3.17). In addition, Bucovetchi et al. (2016) stated that students were ready to join online courses to enhance their knowledge and skills therefore, this study showed that respondents were willing to improve their computer competency at any time with the opportunities provided (mean=3.17).

	Item	Mean	s.d
1	I know the basic usage of computer.	3.56	.616
2	I can diversify mobility activities online	2.78	.878
3	I am able to find opportunities to improve computer competency	3.17	.707
4	I can identify the relevance among the skills of finding information with the objective of mobility	3.11	.676
5	I can make demonstrations using new software on the Internet	2.83	.924
6	I can design activities by integrating information technology	2.89	.832
7	I am skilled in using the software supplied	2.94	.802
8	I understand all aspects related to the ethical use of information technology	3.17	.618
9	I can diversify the use of information technology as a mobility student intake strategy	2.56	.511
10	I can interprate the internet materials to students	3.28	.575

Table 6: Level of students' knowledge towards on the implementation of virtual mobility

Section D: Motivating factors for students to join virtual mobility

Table 7 shows that respondents decide to joined the virtual mobility programme because they can develop their information technology skills (mean=3.09) and being creative when facing

new challenge that virtual mobility brings in academic system (mean=3.03). By joining virtual mobility programme, respondents believe that it will help them to gain new experience in online learning (mean=3.00) and develop some other skills such as professional development (mean=2.82), English language skills (mean=2.98) and even their competency (mean=2.85). Kerrison et al. (2016) stated that online courses will open up space and learning opportunities to all community with the elements of flexible, conducive and free of charge. Meanwhile, according to Kasim and Khalid (2016), teaching and learning activities with the application of internet will give a lot of experiences and advantages to students as it provides opportunity to explore main and additional references, do their own revision and become knowledgeable in their topic of interest. Besides, respondents will be motivated to join virtual mobility programme because the module provided during the session looks attractive and interactive (mean=2.88) and some of module are relevant to the field of study (mean=2.89). Apart from that, the respondents point out to join the virtual mobility programme in order to build new networking from various countries (mean=2.83) and interested with the approach that is been used in virtual teching and learning session (mean=2.72). Furthermore, Wahid et al. (2017) supported that online courses such as Massive Open Online Courses (MOOC) can be seen as an alternative to the variety of teaching and learning current methods which offer better quality access and is able to attract students' interest. The total mean from all items of the motivating factors for students to join virtual mobility was mean=2.91, showing that the students had moderate level of motivation to join virtual mobility.

	Item	Mean	s.d
1	Attractive and interactive module	2.88	.609
2	Virtual teaching and learning approach	2.72	.638
3	Improve competency	2.85	.609
4	Build new networking from different country	2.83	.667
5	Interesting topic relevant with field of study	2.89	.582
6	Gain new experience in online learning	3.00	.583
7	Professional development	2.82	.671
8	Improvement in English language skill	2.98	.577
9	Development on information technology skills.	3.09	.505
10	Being creative when facing new challenge	3.03	.548

Table 7: Motivating factors for students to join virtual mobility

Section E: Which types of medium do student expect to use when joining virtual mobility

Table 8 shows the findings of the types of medium that respondents expect to use when they join the virtual mobility programme. Based on the data, most of the respondents expect to use internet (n=334, 97.4%) when they join virtual mobility programme followed by ethic of internet usage (n=323, 94.2%), data accessibility (n=317, 92.4%), e-mail (n=309, 90.1%) and basic computer operation (n=300, 87.5%). It shows that the internet and the ethic of internet usage are both prioritised in the implementation of virtual mobility programme. Hossain et al. (2015) states that the implementation of internet like online courses will allow students to interact with other students either locally or abroad.

The expected medium to use during the virtual mobility programme were closely related to the success of the programme. Therefore, majority of the respondents stated that information literacy (n=297, 86.6%), database (n=283, 82.5%), file management (n=280, 81.6%) and graphic (n=275, 80.2%) were the mediums that can be used during virtual mobility programme. Word processing and software also could be seen as the mediums which were required during the implementation of virtual mobility even if they were not seen as a priority. Meanwhile, social media brand such as Facebook, Instagram and twitter had less priority in the implementation of the virtual mobility programme. Hubackova et al. (2011) also supported that students were happy and excited in joining the teaching and learning activities with the integration of internet as blended learning practice. The percentage of all types of medium that students are expected to use in joining virtual mobility is depicted in Figure 3.

	Item	Need	Prioritize
		N (%)	
1	Basic Computer Operation	300 (87.5)	5
2	File Management	280 (81.6)	8
3	Word Processing	273 (79.6)	10
4	Database	283 (82.5)	7
5	Graphic	275 (80.2)	9
6	Internet	334 (97.4)	1
7	E-mail	309 (90.1)	4
8	Facebook	197 (57.4)	12
9	Instagram	180 (52.5)	13
10	Twitter	138 (40.2)	14
11	Ethic of internet usage	323 (94.2)	2
12	Software	273 (79.6)	10
13	Information Literacy	297 (86.6)	6
14	Website Development	234 (68.2)	11
15	Data Accessibility	317 (92.4)	3

Table 8: Prioritization in the medium that are students expect to use

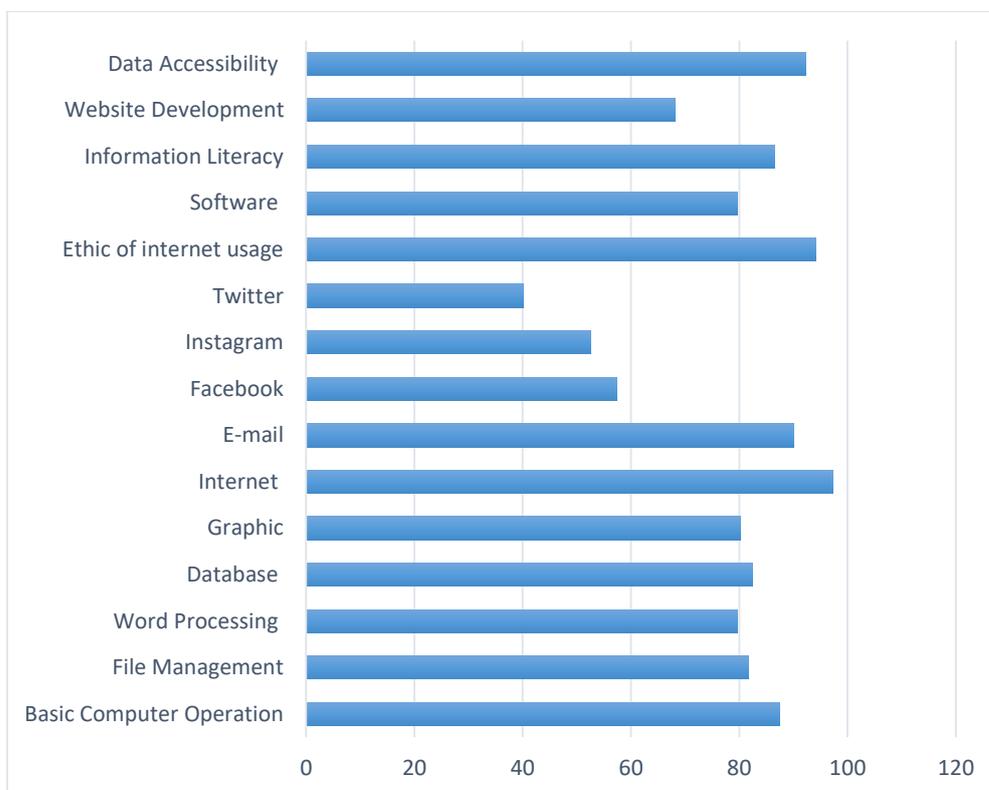


Figure 3: Types of medium students expect to use in joining virtual mobility.

Summary of Hypotheses Status

The data to conclude the hypotheses was obtained from the results (Section B to Section E). The first hypothesis was that "Virtual mobility is very suitable to be implemented for students ". The analysis from this study could be referred to in Figure 2 (Section B). The percentage of students who said 'yes' to the items was 77%. It showed that most of the students thought virtual mobility was very suitable to be implemented. The second hypothesis was that "Student has high level of knowledge towards the implementation of virtual mobility ". Based on the total mean score of the level of students' knowledge towards the implementation of virtual mobility, the result showed that they had an average level of students' knowledge. The third hypothesis was related to Section D, which stated, "There are strong factors that motivate students to participate in virtual mobility programs". The total mean for all the items of the motivating factors for students to join virtual mobility was mean =2.91, showing that students had a moderate level of motivation to join virtual mobility. The results from Sections C and D contradicted the second and third hypotheses, respectively. For the fourth hypothesis, it could be referred to Figure 3 in Section E. It showed the variant types that students used when joining the virtual mobility, coincided with the hypotheses that had been made. All the data analysis show that not all the hypotheses are accepted in this research, as shown in the summary in Table 9.

Hypotheses	Status
H1: Virtual mobility is very suitable to be implemented for students.	Accepted
H2: Student has high level of knowledge towards the implementation of virtual mobility.	Reject
H3: There are strong factors that motivate students to join virtual mobility programs.	Reject
H4: There are variant types that students used when joining the virtual mobility.	Accepted

Table 9: Status of Research Hypotheses

Conclusion

Malaysia has implemented blended learning in the education system but the curriculum of the mobility programme is still in the conventional method. In line with the current situation and globalization, Malaysia has to implement a new touch which is the virtual mobility approach that has been implemented by most of the foreign universities. Overall, it can be said that majority of the respondents are convinced that mobility programme should be continued even in the new norms which need social distancing and it can be applied virtually. This is because most of the students agreed that mobility programme is the best medium in developing student soft skills and if the programme is run virtually, it still has an impact on student soft skills. Based on the study, there are some issues that can be seen as a critical strategy which contributes to the success of the implementation of virtual mobility programme such as the level of respondents' knowledge to join the programme, the factor affecting the respondents and motivation to join the programme. Greater understanding in this area is essential to truly connect with the students' issues, as well as promoting positive settlement in conducting the mobility programme. Therefore, in the process of implementing the virtual mobility programme, the syllabus and structure of mobility curriculum need to revised inline with the content and approach that fit the virtual mobility implementation. In future research, it can take research forward through analyzing the successful of virtual mobility from difference regions and countries for better understanding towards the education culture.

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