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BASIC NEEDS IN ONLINE LEARNING DURING COVID-19: A MALAYSIAN STUDENTS' SURVEY

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Abstract

The COVID-19 pandemic has ravaged many nations economically and socially. This survey study involved Malaysian students in the tertiary level on their perspectives of online learning - their only possible method of learning throughout almost two-year of the lockdown. The online survey involved 1410 students in science, technology and engineering programmes throughout public and private universities in Malaysia. This study involves perceptions such as an increase in the level of difficulties in technical courses and compared with humanities course and students' thoughts had they been in different scenarios. Some statistical tests on correlations of important parameters are performed. Despite a well-perceived success in online education, in a contrasting student perspective, there were many challenges faced by students from access to decent device and internet connection to a more mental-related issue such as their study environments. It is possible that the basic expectations in Maslow's hierarchy of needs model in online education are not met. More than 80% of students reported that technical-based courses such as computer programming or material science were harder

in online learning. Again, more than 80% of students reported that it would be easier to understand the subject if they had a peer around. To stay current, universities will need to find ways to offer online education with a local blend to their current and prospective students.

Keywords: *Online learning during a pandemic; underprivileged group; Maslow's theory of needs in education.*

Abstrak

Pandemik COVID-19 telah menyebabkan banyak negara terkesan dari segi ekonomi dan sosial. Kajian tinjauan ini melibatkan pelajar Malaysia di peringkat pengajian tinggi mengenai perspektif pembelajaran dalam talian - satu-satunya kaedah pembelajaran yang boleh dijalankan sepanjang hampir dua tahun ketika arahan perintah kawalan pergerakan. Tinjauan dalam talian itu melibatkan 1410 pelajar program sains, teknologi dan kejuruteraan di seluruh universiti awam dan swasta di Malaysia. Kajian ini melibatkan persepsi seperti peningkatan tahap kesukaran dalam kursus teknikal dan dibandingkan dengan kursus kemanusiaan dan pemikiran pelajar sekiranya mereka berada dalam senario yang berbeza. Beberapa ujian statistik mengenai korelasi parameter penting telah dilaksanakan. Walaupun ada maklumat mengenai kejayaan dalam pengajaran dalam talian, terdapat perbezaan dalam perspektif pelajar, terdapat banyak cabaran yang dihadapi oleh pelajar dari akses ke peranti yang baik dan sambungan internet ke masalah yang lebih berkaitan dengan mental seperti persekitaran belajar mereka. Ada kemungkinan jangkaan asas dalam model hierarki keperluan Maslow dalam pendidikan dalam talian tidak dipenuhi. Lebih daripada 80% pelajar melaporkan bahawa kursus berasaskan teknikal seperti pengaturcaraan komputer atau sains bahan lebih sukar dalam pembelajaran dalam talian. Lebih daripada 80% pelajar juga melaporkan bahawa lebih mudah untuk memahami sesuatu subjek jika mereka mempunyai rakan untuk belajar bersama. Untuk terus relevan, universiti perlu mencari kaedah untuk menawarkan pendidikan dalam talian dengan gabungan kaedah yang dibangunkan sendiri dan sesuai dengan pelajar calon pelajar.

Kata kunci: *Pembelajaran dalam talian semasa wabak; kumpulan kurang berkemampuan; Teori keperluan Maslow dalam pendidikan*

1.0 INTRODUCTION

Nobody would have thought that the lockdowns are to be around for such a long time in many parts of the world. In Malaysia, this is termed as Movement Control Order (MCO). Well into

the second year of the MCO, the Institutions of Higher Learning (IHLs) have adapted quite well in delivering courses or even programmes online. To everybody's surprise, major students' events arranged online or hybrid modes are getting common and accepted, these include registration of new students, orientation week, appreciation of new graduates and even convocations.

Mental and health issues are one of the many effects brought about by disruptions to daily routines. By April 2020, according to UNESCO, over 90% of enrolled learners i.e. 1.5 billion people worldwide were out of education. For children and adolescents with mental health needs, the closure of education means inaccessibility to formal resources (Lee, 2020). One of the most followed SOPs, social distancing, causes social isolation in abusive homes, with abuse likely increased during times of economic uncertainty and stress. Notwithstanding, there is not much evidence yet about long-term mental health effects in a pandemic (Lee, 2020). A survey conducted involving 1182 individuals of different age groups from various educational institutes in Delhi - National Capital Region (NCR), India found numerous impacts on students i.e. time spent on online classes and self-study, the medium used for learning, sleeping habits, daily fitness routine, and the subsequent effects on weight, social life, and mental health (Chaturvedi et al. 2021). Students seek help from near ones to address these issues adopted different coping mechanisms. Another survey study conducted over 62 countries involving 30,383 students found that inferior computer skills and the perceived higher workloads prevented them from appreciating their improved performance in the new teaching environment. Most importantly mental health issues seem to be the most significant issues haunting students such as boredom, anxiety, and frustration (Aristovnik et al. 2020). A survey study at Changzhi Medical College, China by using cluster sampling found significant unbearable psychological pressure among students (Cao et al. 2020). Living in urban areas, family income stability and living with parents were protective factors against anxiety. In contrast, having relatives or acquaintances infected with COVID-19 was a risk factor for increasing anxiety.

Not all programmes can be switched online over such a short period, for example in an engineering programme, the concerns whether students archive psychomotor-related attributes linger despite clear guidelines in laboratory replacements, literature critiques and simulation works instead of experimental-based activities in Final Year Project (FYP) and prototype simulations instead of working prototypes in capstone projects (BEM, 2020). Similar issues are observed in practical-intensive programmes such as medicine. Although online education provides an opportunity for self-study, the main challenge that online education

faces in veterinary medical science is how to conduct practical lessons (Mahdy, 2020). Developed economies are at an advantage over developing economies when teaching and learning are switched online because of the access to the right device and internet. Despite being at a disadvantage, suitable pedagogy and platform for different class levels of higher secondary, middle and primary education need to be explored further (Pokhrel & Chhetri, 2020). Furthermore, government intervention is required and there is a great need to innovate and implement an alternative educational system and assessment strategies.

As in many parts of the whole, the government provides financial assistance to the economy to address slumping economies due to the lockdown measures (Md Shah et al. 2020, Aziz et al. 2020). Some families living in the poverty thresholds even receive cash for basic needs. The main machineries of any economies i.e. the small-medium enterprises (SMEs) receive some financial initiative, although not all of them. The hardest-hit sectors are tourism and services. Some hotels received no bookings for many months and the only options were closures.

Students who are going through online learning during the pandemic with so many constraints are experiencing distractions. When students have things running in their minds during the online learning process like getting infected by COVID-19, the family running into a financial issue, having a stressful house environment (especially those who put into lockdown orders), and others, these immediate issues will take priority over their long-term educational goal. Students will generally fulfill their most basic needs before they will reach their next objectives as outlined in Maslow (1943) i.e. starting with the psychological needs (food, shelter, clothing sleep), then safety needs (personal security, employment, resources), then love and belonging (friendship, family), then esteem (respect, status, strength), then self-actualization (the most that one can be). For example, in locked-down areas, students might run out of food, either staying in colleges or with family. Students in such a situation will have out-of-normal behaviour because hunger is the top priority, education is not. After having fulfilled psychological needs, the students normally will satisfy safety needs. Safety needs are associated with the environment a student is a part of, their place of stay either their college or house. If financial issues as a result of an extended lock-down period keep popping outs, the family will run into a collapse. Students will have difficulties in their studies because they have not fulfilled safety needs.

After physiological and safety requirements have been met, love, affection and family become the priority. This will follow the hierarchy of needs mentioned above until the ultimate

objective of self-actualization in education is achieved. The third level relates to an individual's goal of belonging and being accepted by others. Through dialogues and collaborative activities, students have the opportunities to develop relationships with peers and lecturers (Milheim, 2012). In modern society online learning and during the recovery phase of COVID-19 pandemic and post-pandemic era where face-to-face interactions are still limited, any online discussions such as using social media tools and learning management systems (LMS) are considered collaborative activities. Students must know what they are expected to do to build a sense of community with their peers using the available tools. A central part of this goal in online learning is achieving a suitable degree of presence (Hrastinski, 2009). Students can achieve the highest level in Maslow's theory of needs i.e. self-actualization in education if they reach each successive prior level. In the pandemic, in many parts of the world, with no access to a computer, books, and other basic materials, for instance, students are not prepared to even start a course with a correct step.

2.0 METHODOLOGY

A two-tier survey regarding COVID-19 effects on Malaysian varsity students was conducted. Results of the first-tier study on socio-economic impact are available in Harun et al (2021). In the first-tier questionaries, direct questions regarding major issues such as internet coverage, disturbances at places of study and were asked. In that study, students in the lower income-groups were affected worse than their peers in the higher income groups. In this second-tier study, more perspective-based questions are the focus. The internet-based survey performed from 10 November 2020 to 20 December 2020 involving 1410 tertiary students from almost 20 public and private IHLs as shown in Figure 1. Students from Universiti Teknologi Malaysia (UTM) made up almost 39% of the surveys flowed by Universiti Sains Malaysia (USM) with 20.4% and Universiti Malaysia Sarawak with almost 14%.

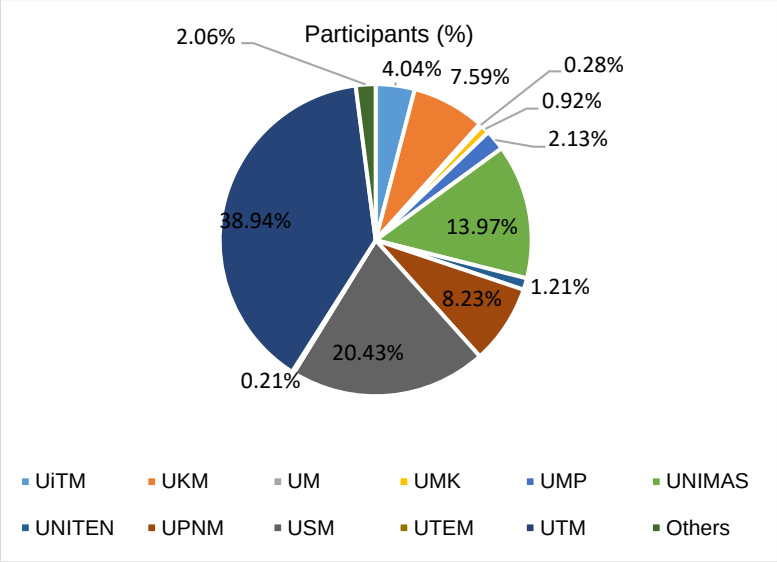

Figure 1: Participations of students by universities

The distribution of participants' current place of stay is as shown in Figure 2. At the end of 2020, most students pursuing technical-based programs such as engineering, science, and technology, i.e. the target participants of the survey were staying in colleges or accommodations nearby their universities either by way of renting or staying with relatives or friends. Students in year one and two mostly have to complete laboratory works while students in year three / four have some kind of design project sometimes called the capstone project. Students in their final year have Final Year Project (FYP), many of these projects involve experiments therefore physically attending university is required.

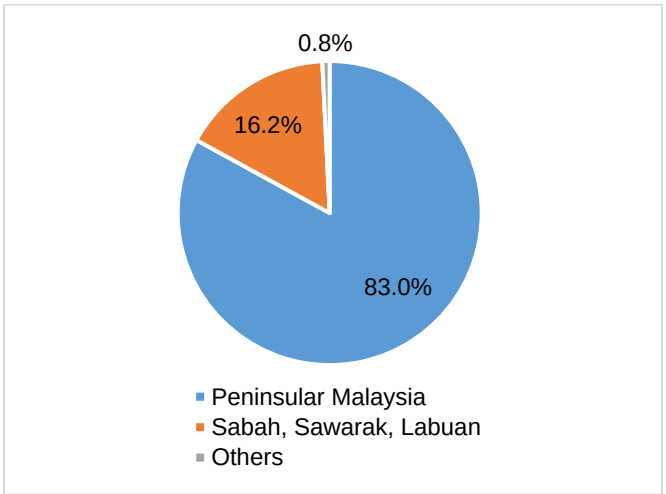

Figure 2: University location by region

A total of 83.0% of participants were in Peninsular Malaysia and 16.2% were from

Sabah, Sarawak and Labuan while the remaining 0.8% chose others. The 0.8% who chose other could be international students who have left for their countries but were still registered students with Malaysian universities. Likert's scale-type answer was preferred to ease analysis. Some statistics methods were checked to ensure the validity of the survey.

3.0 RESULTS AND DISCUSSION

The second part of the survey performed in Harun et al. (2021) discusses the type of assessments for a particular course to suit online delivery and the type of subjects. Figure 3 shows the first set of questions in this article regarding the different study environments students were in. The most appropriate method in online assessment is the open-ended type of questions, open-book and/or take-home examination over conventional examination in a controlled-environment. For many students in Malaysia, distance learning which includes online learning, electronics learning and correspondence learning is a new thing (Dhawan, 2020). The most student-friendly one for first-time tertiary-level education is probably online learning. Online learning itself consists of the synchronous method where student-teacher meet in real-time, asynchronous method, blended learning, massive online open courses (MOOC), and open schedule online courses. In Fidalgo et al. (2020), students were interested in distance learning despite some reservations. Students' most common concerns were time management, motivation, and English language skills (Fidalgo et al. 2020). This study was conducted in Portugal, Ukraine and UAE; these are considered developed countries where Portugal is a European Union (EU) member, Ukraine is fast realizing its citizens' western-friendly approach and itself aspires to be equivalent to be an EU member as well as a NATO member. UAE people possess the world's highest Gross-Domestic Per Capita (GDP) and many of the people staying in these countries are expatriates. This article recommends that each country or region develop its own distance learning because of its strong cultural blend.

Detailed questions on students feeling and perspectives are therefore important. The first question in Figure 3 is regarding the difficulties in open-ended and take-home type examinations. Academic accrediting bodies such as Engineering Accreditation Council (EAC) has provided guideline during COVID-19 period where conventional approach such as examinations are no longer appropriate (BEM, 2020). New assessment methods such as take-home examination and open-book are most appropriate to handle integrity issues among students. A surprising 41.6% and 22.4% reported difficulties in their learning progress by choosing to agree and strongly agree with the question 'Hard for me to prepare assignment / examinations - which is open-ended, take-home examination'. This is a contrasting effect to that of Fidalgo et al. (2020) study. In the latter, students in Portugal indicated strong

endorsement for distance learning with almost 53% choosing favourable, and 5.5% very favourable, there was 0% choosing very unfavourable. This is in agreement with data from the same survey that almost 95% of participating students have already had some kind of distance learning in their academic careers.

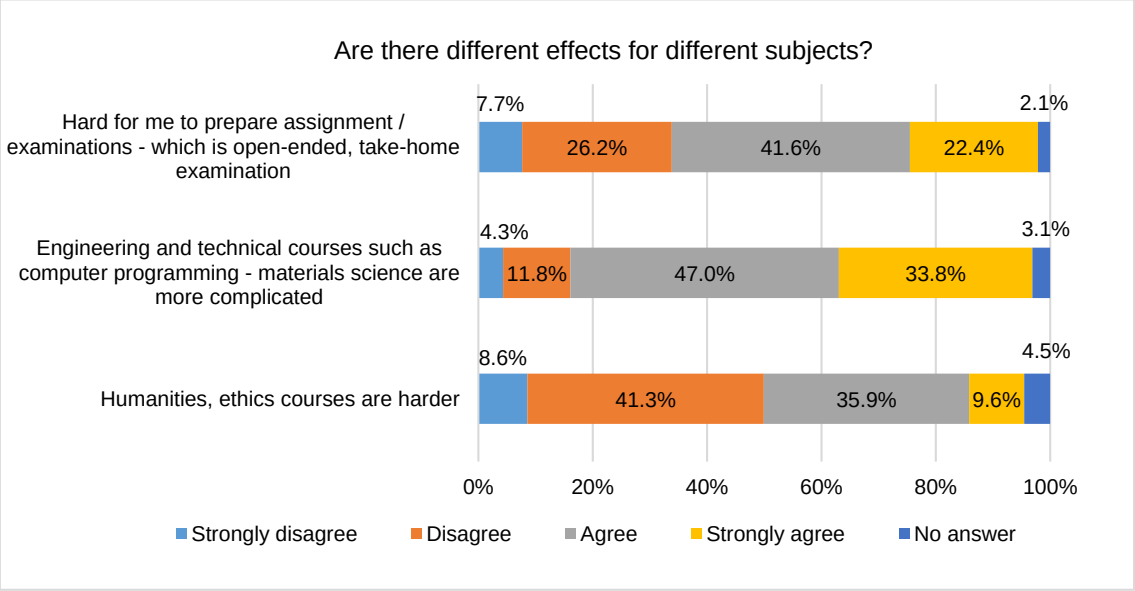

Figure 3: First set question: Are there different effects for different subjects?

Comparing with a developed nation such as Portugal might not reveal the reason for the contrasting perceptions. In general, most of the participants as shown in Figure 2 are from public universities except for UNITEN, which are known to have not offered online learning in a big scale. This is the first time and the lecturers and the management of programmes were probably too worried about not achieving the programme outcomes. This has caused lecturers to assign students such plenty of works and conduct more evaluations. A negligible 2.1% gave no answers to this question. 7.7% and 26.2% chose strongly disagree and disagree respectively.

A resounding 47.0% and 33.8% chose to agree and strongly agree to question ‘engineering and technical courses such as computer programming - materials science are more complicated’ the second question. The significant majority here, slightly more than 80%, is expected as learning computer programming online is as hard as it can get for some students. The programming software has to be installed, and the students need laptops or personal computers, not simply a smartphone. The syntax needs to be entered step-by-step, there is no shortcut to learning computer programming. Likewise, students might be required to have access to some material selection software in the material-related course. This type of software is usually only allowed to be installed using university-approved machines only.

Comparatively fewer students, 35.9% and 9.6% chose to agree and strongly agree with the question 'humanities, ethics courses are harder'. No software, powerful personal computer or exotic equipment are required for humanities or ethics courses. Lecturers too have the flexibilities to assign numerous scenarios as case studies for these courses – online T&L itself can be a good case study-base where many sub-topics can be generated.

Table 1 shows the correlation between 'Engineering and technical courses such as computer programming - materials science are more complicated (*Y*)' and 'Hard for me to prepare assignment - which is open-ended, take-home examination (*Z*)'. The results indicate a significant and positive low relationship between the two variables at the significant level of 0.01. Hence, it is highly likely that the hardness of the preparation of open-ended and take-home examination-based assignments has a low relationship with the complexity of the engineering and technical courses such as computer programming and material science.

Table 1: The Correlation of Y and Z

	Y	Z
Correlation Coefficient	1.000	.277**
p-value		.000

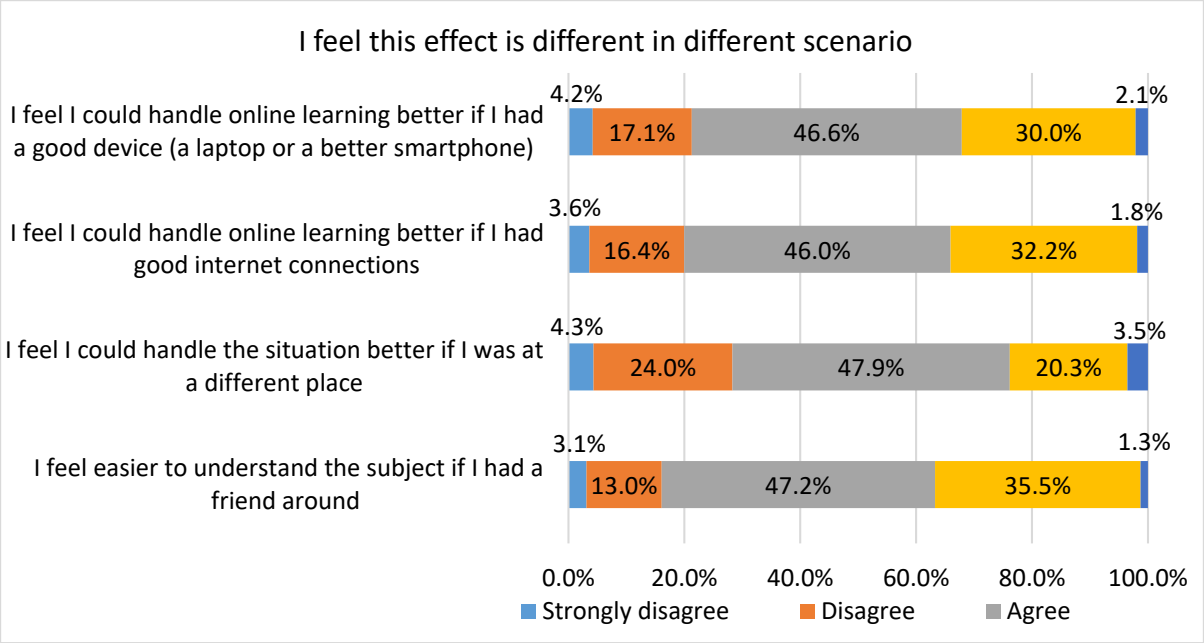

Figure 4: Second set question: I feel this effect would be different in a different scenario

In this second set of survey questions, students were asked about their current environment and scenario concerning their studies. Many scenarios can affect students' mental preparedness such as the availability of online learning devices and internet connections. A resounding majority chose to agree (46.6%) and strongly agree (30.0%) to question 'I feel I could handle online learning better if I had a good device (a laptop or a better smartphone)'. The poor access to device with decent quality to the economically vulnerable group has been observed in developing and under-developed countries and have been mentioned Md Shah et al. (2020). In Malaysia, this widening category is called the Bottom 40% (B40). Relatively small a group chose strongly disagree (4.2%) and disagree (17.1%). This suggests that most students under the study group have difficulties in accessing good device which is very important in online learning (Dhawan, 2020). A typical developing countries problem is securing a budget from the federal government – which responsibility generally covers education, for ICT upgrades (Bhuasiri et al. 2012). There shall be a paradigm shift especially during this time around as ICT equipment is no longer a luxury.

Relating this to Maslow's theory of needs in education, the basic aspects of accessing decent educational devices cause students' focus to be steered away. The first essential need that students must have satisfied to be successful in an online course relates to some of the necessities required to take a course, such as lecture notes, online materials, appropriate software, an LMS and a learning device with adequately high-bandwidth Internet access. Without these basic resources, students will not be able to achieve higher levels of satisfaction in Maslow's hierarchy. One way in which an educational institution can help prepare students to ensure basic needs such as the above are met is through the provision of precise instructions, via LMS and must be obtained by students ahead of the date when classes are scheduled to begin (Milheim, 2012).

Another similar strong result is shown in the next question 'I feel I could handle online learning better if I had good internet connections' – 46.0% and 32.2% chose to agree and strongly agree respectively. Data limits and internet access has been one of the major hardship faced by students (Gonzales et al. 2018). Rural parts of Malaysia face bigger problems as uninterruptible internet access requires a large investment and physical installations of required equipment will take a few years. This is to endorse that the digital divide mentioned by Gonzales et al. (2018) is to stay for many years to come.

The third question is to uncover whether existing students' location gives rise to their

academic performance. 47.9% and 20.3% of students chose to agree and strongly agree to the question ‘I feel I could handle the situation better if I was at a different place’. When the survey was conducted, most students in technical programs were at their colleges (mostly for year one) or at rented homes near universities. However, all T&L activities were conducted online except for studios for architectural programmes and some very specific laboratory works – these however account for a very small percentage. For students who stay with their families, students' focus on learning activities might be affected because many houses are small and the number of occupants in a house (household size) is quite large. Malaysia's household size (4.34) is about that of its neighbours which are 3.5, 4.5, 4.5, 5.0, 5.0 and 5.6 for Thailand, Vietnam, Indonesia, Philippines, Cambodia and Laos (Dommaraju & Tan, 2014; Ayyash & Sek, 2020). However, this is considered high as compared with the EU countries and North Americas. Students might be facing disturbances from their younger siblings during T&L activities. During most of this time, all schools including pre-school, primary and secondary schools were closed, therefore houses were crammed with parents working from home (WFH), school children and university students. It is expected that students needed more conducive places for learning. For students who stayed in colleges, they found different issues. Colleges had the minimum ICT infrastructure installed to support students' requirements like wifi. However, when almost 100% of students were connected to the internet during peak hours 9am - 12pm, the internet crashed in some cases causing students to switch to the alternative – their data plan. 24.0% disagreed and 4.3% strongly disagreed. Many colleges can support students’ requirements. Many students belong to well-off families where study room and internet are not an issue.

The last question aims to get some response on students’ peer support. 82.7% of students chose agree and strongly agree (47.2% and 35.5% respectively) to the question ‘I feel easier to understand the subject if I have a friend around’. Horspool & Lange (2012) reported that students preferred online courses to avoid travel time to class and avoid scheduling problems, however students indicated that peer communication was occurring much less often. Students in developing countries might perceive peer supports more important than their counterparts in developed economies because online learning culture has been around for a while, in the developed economies. Distance education seems to be based on the perspective to reflect the educational culture of each country and the Institution of Higher Learnings (IHLs) (Fidalgo et al. 2020).

In Maslow’s theory of needs in an educational framework, interactions with peers including instructors are categorized as level three – love and belonging. In modern online

learning, students can interact with their peers through LMS system and social media tools. An assertion by Pawan et al (2013) 'Collaborative interactions are an essential element of any pedagogy which assumes that good learning is collaborative and that understanding comes through modeling, participation in, and reaction to the behaviors and thoughts of others' are poorly perceived in this survey. To fulfill the third-level needs, students must be able to build a sense of home with their peers where they can freely participate in any of the activities. To overcome the negative perspective here (as 82.7% mentioned they would do better with a peer around), Vonderwell & Zacahriah (2005) suggested instructors be in the steering position by encouraging students to take part through monitoring patterns of participation.

4.0 CONCLUSION

The study in students' physical and mental preparedness for online learning has been carried out in Malaysian public and private universities in late 2020. The study revealed a contrasting finding as compared with developed countries especially access to a decent device for online learning. Strong messages are observed here as a significant number of students reported difficulties in accessing device with decent quality and stable internet connection for online learning. Milheim (2012) categorized that the access to basic infrastructure to online learning such as stable internet and an LMS system as well as decent devices must be provided before psychological needs which is the first level of Maslow's theory of needs can be met. This suggests that students will have difficulty in attaining their education goal which is to earn a degree.

5.0 ACKNOWLEDGEMENTS

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