Original Research

Programme Learning Outcomes (PLO) as a measure for academic success in postgraduate studies: A case study of a Malaysian Higher Learning Institution

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All Malaysian higher learning institutions (HLIs) must abide by the Malaysian Qualifications Agency (MQA). MQA is an essential organisation established by the government to endorse and review the public and private HLIs curriculum. The accreditation complies with the Malaysian Qualifications Framework (MQF). There are three levels of outcomes in MQF. Programme Educational Outcomes (PEO) is the umbrella of Programme Learning Outcomes (PLO) and Course Learning Outcomes (CLO). The scope of this paper only focuses on PLO. The PLO based on MQF under MQA is used to determine Malaysian tertiary level students' academic success. Universiti Teknologi Malaysia (UTM) has outlined eleven PLOs to measure academic success in its postgraduate studies. The PLOs are enacted through Outcome-Based Education (OBE) throughout the entire course of study. Hence, this paper seeks to investigate the level of attainment of the eleven PLOs among one hundred international postgraduate students at UTM. This paper involves one phase of explanatory sequential design using a 5-point Likert scale questionnaire to achieve the aim. The data were analysed using descriptive statistics through Statistical Package for the Social Sciences (SPSS) to disclose the percentage, mean scores and frequency of the forty-three items in the questionnaire. It is revealed that the students possessed a high level of attainment of the eleven PLOs, which resulted in attaining academic success. It is anticipated that resuming data collection and analysis from other sources will elucidate how students can attain a high level of attainment of the eleven PLOs.

KEYWORDS: *academic success, higher education, outcome-based education, postgraduate students, programme learning outcomes*

1. INTRODUCTION

As we are now living in the era of internationalisation, where not only businesses and cultures, but education too is not limited to domestic compounds (Ismail & Othman, 2020), higher education is currently in high demand across the globe. The mobility of international students can be profitable for the students, their motherland, country of destination and those staying at home.

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'Most international students are aware of a strong bond between their experience studying abroad and their amplified academic success. Primarily, students recognise that going abroad will reach maturity faster and is the vital key to improving their life and career'

Attractive host countries have excellent quality courses delivered in English, produce immense returns on skills, possess stable economic development, and expand labour markets (Chevalier, 2014). Various advantages can be gained when students pursue their studies abroad, especially tertiary level students. Due to that, parents, governments, organisations, and even the international students themselves are investing a large amount of money so that these students can pursue their studies abroad to gain rewarding experiences.

In higher learning institutions (HLIs), students' academic success is the dealbreaker for evaluating the excellence of the educational institutions. Most international students are aware of a strong bond between their experience studying abroad and their amplified academic success. Primarily, students recognise that going abroad will reach maturity faster and is the vital key to improving their life and career. York et al. (2015) depict academic success as the combination of academic achievement, satisfaction, acquirement of necessary skills and readiness, diligence, attainment of educational goals and post-tertiary performance. Singh (2016) describes that the percentage of international students furthering their studies in Malaysia rises yearly. The main intention of these students opting for Malaysia as their study hub is to upgrade their qualifications academically, specifically at the graduate level.

Jeyaraj (2018) claims that research at postgraduate levels *'involves the production of a thesis and there is a rather substantial body of literature that indicates students experience difficulties writing in this genre'* (Jeyaraj, 2018, p. 22). Even the public perceives academic writing as an issue. To attain thesis completion and academic success requires this vital and critical skill. Therefore, students are expected to acquire *'mastery in the conventions of academic writing in English so that they can meet the demands of their postgraduate studies'* (Jeyaraj, 2018, p. 22). Thus, it is essential for these students to gain mastery of the related skills and components as well as equip themselves with the needs and preparation to survive their postgraduate studies.

The students will be allowed to enrol in their respective faculties after fulfilling the entry requirement of the UTM School of Post-Graduate Studies. At the faculty level, they will be academically assessed through assignments, presentations, tests, examinations, dissertations, and thesis papers that require them to hand in their progress every semester. All efforts and progress will be reflected through their grade point average (GPA), cumulative grade point average (CGPA) and progress report grade for those who enrol as full-time research students at the end of every semester. The achievement and success of postgraduate students will be based on UTM's eleven programme learning outcomes (PLOs).

2. THEORETICAL BACKGROUND

The eleven outcomes are used to determine Malaysian tertiary level students' academic success through the implementation of Outcome-Based Education (OBE) throughout the entire study courses or programmes. Malaysian HLIs must implement OBE as specified by the MQF for the courses and HLIs to be accredited by the MQA (Othman & Abdullah, 2019). The system has been incorporated in both public and private HLIs since 2005 (Abdullah, 2015). According to Rao (2020), OBE was first initiated by William Spady in the 1990s, particularly for the American education system. Eventually, OBE became well known and is being used by the tertiary education system switching the emphasis on what is learned instead of what is taught. OBE is a method of teaching that emphasises the attainment of learning outcomes that students should acquire at the end of the programme or level of qualification. The purpose of OBE is to assist learners in obtaining learning anticipation and to make sure that learners' progress and achievement are evaluated objectively (Abdullah, 2015; Damit et al., 2021; Kaliannan & Chandran, 2012; Rao, 2020; Sun & Lee, 2020; Othman & Abdullah, 2020).

Additionally, Rao (2020) finds that OBE, based on outcomes, gives precedence to end results, achievements, and purposes. In short, OBE has shifted the traditional education system into a fresh perspective that inclines towards students' autonomy. Taib et al. (2017) describe the OBE development as based on these three main parts – Programme Educational Outcomes (PEO), Programme Learning Outcomes (PLO), and Course Learning Outcomes (CLO). Table 1 below illustrates the definition of these three main parts in OBE as defined by Abdullah (2015).

Table 1
The definitions of PEO, PLO and CLO

PROGRAMME EDUCATIONAL OUTCOMES (PEO)	PROGRAMME LEARNING OUTCOMES (PLO)	COURSE LEARNING OUTCOMES (CLO)
An extensive statement details how learners should possess and be capable of demonstrating the skills taught in the programme years after graduating. The skills mentioned are related to these three areas; cognitive (knowledge), affective (behaviour and soft skills) and psychomotor skills.	A specific statement that explains what learners are required to know and are able to demonstrate by the time of graduation. These involve the knowledge, attitudes and skills that learners gain in each level of qualification.	A more specific statement concerning what learners are expected to gain and attain at the end of the course/ programme.

At the tertiary level, learning outcomes are the description of what a learner should grasp, demonstrate and establish upon programmes or courses completion (Aithal & Kumar, 2016). It can also be regarded as the preferred result of the learning process concerning the attainment of knowledge and skills. The focal notion of these learning outcomes should be schemed based on the mastery learners are meant to develop and expand, not on the lessons' contents that educators plan to teach (Erikson & Erikson, 2019). Overall, learning outcomes are important to determine students' achievement and progress and simultaneously act as a determiner to measure HLIs success.

The tertiary education system in Malaysia is administered by the Malaysian Qualifications Agency (MQA) (Sun & Lee, 2020). It is an essential organisation established by the government to endorse and review the public and private HLIs' curriculum to make certain that the courses offered are of a certain standard to uphold parents' involvement in funding their children's studies apart from ensuring the development and monitoring of the programmes to produce outstanding graduates for the workforce in the real world. The accreditation complies with the Malaysian Qualifications Framework (MQF). MQF was established in 2007 upon the union decisions by all stakeholders. It is the nation's proclamation of its qualifications and standards in connection with its education system. According to the Malaysian Qualifications Agency (MQF, 2017), the MQA Act 2007 posits MQF as a comprehensive framework for all tertiary level qualifications, with a group of aims to be carried out and serviced by MQA. This framework is development-aligned and empowered by overarching government policies and regulations, substantively mandated for MQA, its stakeholders and in affiliation with HLIs and training academies.

This framework is fundamental to the quality assurance practice of MQA. Also, the framework is a tool that develops and groups qualifications based on a series of criteria that are consented to and guided by international practices and elucidate the acquired academic levels, learning outcomes, and academic commitment at each academic level. Other than that, the course design, learning aims and outcomes, teaching and learning methodologies, assessment techniques and approaches, delivery system, resources for support, including refinement and betterment involving the teaching and learning process, are incorporated in the quality assurance checklist. Hence, for HLIs' study programmes to get accredited by MQA, they need to meet both MQF and MQA criteria. As a whole, MQA aims to supervise the quality assurance implementation in Malaysian HLIs.

Malaysian Qualifications Framework (MQF, 2020) indicates that MQF is referred to and created against other global qualifications frameworks, namely in Europe, New Zealand, Australia, and England. The Malaysian Qualifications Agency (MQF, 2017) also adds that MQA obtained recognition through certification for its alignment to the INQAAHE Guideline to Good Practices for Quality Assurance in Higher Education from the year 2013 until 2019. Moreover, the ASEAN and several European peer reviewers have given positive views related to the accreditation as MQA is at a high degree of compliance with the ASEAN Quality Assurance Framework.

It is important to note that Malaysia HLIs are committed to improving their position in world university rankings, thus necessitating the implementation of academic standards and guidelines that are applied worldwide. It is worth mentioning that the core strength of MQF is the strong connection with its stakeholders,

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aligned national policies and fundamentally driven by MQA, its approaches and international partners for the development and improvement of the framework. The framework has eight levels of qualifications. Level 1 to Level 6 is undergraduate levels of qualifications, while the final two concentrate on the postgraduate levels of qualifications. The Malaysian Qualifications Agency (MQF, 2017) describes the two levels as follows.

Level 7 – Master's Degree or Postgraduate Certificate. There are three types of qualifications at this level.

A. Master's Degree is one level above a bachelor's degree. Typically, students would pursue a similar area of study as the knowledge at this level is more extensive and in-depth. There are three modes of study for a master's degree. It can be course work mode, mixed (course work and research) and research-based mode. For coursework and mixed mode, the study duration is usually one year, while research mode usually takes up two years. Students are evaluated through dissertations, thesis papers, presentations, and reports. This certification *'demonstrates an in-depth, and significant advanced specialised theoretical or applied knowledge, which is current and with some at the forefront of a specific field of study or with inter/multi-disciplinary approach; or professional practice'* (MQF, 2017, p. 25). Other than that, students *'demonstrate critical, evaluative and cognitive skills, and applied research skills or advanced professional practice to solve complex issues and problems with reasonable degree of originality and independence'* (MQF, 2017, p. 25). The following two qualifications are specifically for students who have graduated from bachelor's courses or equivalent. Both certifications permit students to gain and expand the knowledge skills developed in their bachelor's course with the intention of pursuing further study or career development.

B. Postgraduate Certificate normally entails students completing one semester of study.

C. Postgraduate Diploma duration is between nine months to one year of full-time study.

Level 8 – Doctoral Degree or PhD. This is the highest level of qualification in the framework. The minimum duration of study is three years for full-time students. Typically, a master's degree qualification is required to enrol in the PhD programme. PhD is the title for those who enrol in a research programme, whilst Doctoral Degree is for those in the coursework and mixed modes. Dissertation or thesis papers in a particular field of study are the output of this certification. At this level, students are required to *'demonstrate innovative and advanced research skills, critical reflections, and competent to conceptualise, design and implement projects'* (MQF, 2017, p. 27). Furthermore, *'it involves substantial, advanced, independent and original research and scholarship in a most advanced area of knowledge and emerging issues of a specific area of study in a discipline or multidiscipline, assessed against international standards'* (MQF, 2017, p. 27).

There are two versions of learning outcomes established by the MQF. Version 1.0 has eight learning outcomes (MQF, 2020; UTAR Guidelines, 2016; Othman & Abdullah, 2019), while version 2.0 is developed based on the learning outcomes of version 1.0. However, it still maintains the fundamentals of the previous version. As stated by the Malaysian Qualifications Agency (MQF, 2017), the purpose of building on a new version of the existing outcome is to improve, reinforce and tackle the *'developing needs, access, responsiveness, emerging skills or knowledge needs and coherency within the higher education and TVET sector'* (MQF, 2017, p. 3). Hence, it behoves the MQA panels to update the framework after over ten years of its implementation in the higher education system to ensure its applicability and appropriateness. The newest version was approved in 2017 by the MQA Council Meeting (Ministry of Higher Education, 2021). Table 2 below displays version 1.0 and version 2.0 of the framework.

The Malaysian Qualifications Agency reasons that the revised outcomes resonate and mainly coordinate *'aspirations of the National Education Philosophy, the Malaysia Education Blueprint 2013-2025 as well as the Malaysia Education Blueprint 2015-2025 (Higher Education)'* (MQF, 2017, p. 14). Version 2.0 of MQF has been clustered, re-outlined and maintained. Thus, the new version stays relevant and internationally comparable.

In line with UTM's mission to lead in the development of holistic talents and innovative technologies for universal well-being and prosperity, and the four core values – integrity, synergy, excellence and sustainability – the institution has outlined eleven PLOs as the measurement of academic success in postgraduate studies.

For students to achieve academic success, they need to be able to fulfil and acquire all PLOs as follows:

PLO1 – Knowledge and Understanding (KW);
PLO2 – Cognitive Skills (CG);
PLO3 – Practical Skills (PS);
PLO4 – Interpersonal Skills (IPS);
PLO5 – Communication Skills (CS);

Table 2
The Malaysian Qualifications Framework of version 1.0 and version 2.0 Learning Outcomes

THE FIVE CLUSTERS	VERSION 1.0	VERSION 2.0
Knowledge	(PLO1) Knowledge	(PLO1) Knowledge and
Cognitive Competency	(PLO2) Problem Solving and Scientific Skills	(PLO 2) Cognitive Skills
Functional Work Skills	(PLO3) Practical skills	(PLO3) Practical Skills
	(PLO4) Communication, Leadership and Team Skills	(PLO4) Interpersonal Skills
	(PLO5) Social Skills and Responsibilities	(PLO5) Communication Skills
	(PLO6) Value, Attitudes and Professionalism	(PLO6) Digital Skills
	(PLO7) Managerial and Entrepreneurship Skills	(PLO7) Numeracy Skills
	(PLO8) Information Management and Lifelong Learning Skills	(PLO8) Leadership, Autonomy and Responsibility
Personal and Entrepreneurial Skills		(PLO9) Personal Skills
		(PLO10) Entrepreneurial Skills
Ethics and Professionalism		(PLO11) Ethics and Professionalism Skills

PLO6 – Digital Skills (DS);
PLO7 – Numeracy Skills (NS);
PLO8 – Leadership, Autonomy and Responsibility (LAR);
PLO9 – Personal Skills (PS);
PLO10 – Entrepreneurial Skills (ENT);
PLO11 – Ethics and Professionalism skills (ETS).

With that in mind, this paper aims to investigate the level of attainment of the eleven PLOs among international postgraduate students at UTM. To that end, the researcher has conducted a preliminary study involving only one phase of a three-phase explanatory sequential analysis of a very extensive study on eleven international postgraduate students in UTM.

3. METHODOLOGY

This study aims to investigate the level of attainment of the eleven PLOs among international postgraduate students at UTM. The data gathered will verify and address the issue of this study. This is a preliminary study of a whole project which entails a very extensive study. For this paper, the researcher will do a preliminary study that encompasses only the quantitative aspect of the project. Hence, a quantitative research design will be employed to accomplish the study's objectives. According to Kowalczyk (2016), by implementing the quantitative method, researchers can utilise advanced and established statistical tests to guarantee that the outcomes have a statistical connection since this approach uses numbers to interpret findings. Powoh (2016) adds that in this research design, close-ended questions are used, and the researchers play no role in the research instruments. The benefits of this research approach are that it deduces conclusions for many people, and it is not time-consuming (Eyisi, 2016).

For the context of this study, Universiti Teknologi Malaysia (UTM) has made it compulsory for its potential international postgraduate students to take one of the standardised English language proficiency tests such as the International English Language Testing System (IELTS), the Common European Framework of Reference (CEFR) aligned tests; B2 First by Cambridge English Qualification (CEQ) or Pearson Test of English Academic (PTE Academic) or the Test of English as a Foreign Language (TOEFL) or programme like the ELS Certified Intensive English Programme (CIEP), to determine their English proficiency level and admission status. It is believed that making international students sit for either

one of the tests as the entry requirement could be the first step in preparing them to embark on their postgraduate studies as they are required to conduct research, produce papers, develop new skills and knowledge through their research work if they enrol as mixed mode or full research students.

Hence, purposive sampling will be employed to select the target participants as the researcher has a fixed purpose in mind. Alvi (2016) implies that this technique is beneficial to researchers as it is extremely economical and time effective since the criteria of the participants have been predetermined. Therefore, 100 international postgraduate students who have enrolled and completed one of these English preparatory courses: IEP CEFR, IEP IELTS, EPG conducted by Language Academy, UTM and are currently active status students pursuing their master's degree (Level 7 in MQF) or doctoral degree (Level 8 in MQF) in UTM have been selected as intended participants in this study.

A 5-point Likert scale questionnaire consisting of forty-three items involving the eleven PLOs and their subdivisions will be utilised as the instrument of the study. The can-do statement questionnaire allows students to evaluate and review their experience and acquired knowledge of the eleven PLOs.

In sum, the questionnaire provides a comprehensive final evaluation of the eleven PLOs concerning students' level of attainment to achieve academic success in their postgraduate studies.

Table 3 illustrates the breakdown of eleven PLOs with their subdivisions.

Table 3
The breakdown of eleven PLOs with their subdivisions

PROGRAMME LEARNING OUTCOMES (PLO)	NUMBER OF SUBDIVISIONS
PLO1 Knowledge and Understanding (KW)	5
PLO2 Cognitive Skills (CG)	3
PLO3 Practical Skills (PS)	3
PLO4 Interpersonal Skills (IPS)	3
PLO5 Communication Skills (CS)	4
PLO6 Digital Skills (DS)	3
PLO7 Numerical Skills (NS)	4
PLO8 Leadership, Autonomy and Responsibility	7
PLO9 Personal Skills (PRS)	5
PLO10 Entrepreneurial Skills (ENT)	2
PLO11 Ethics and Professionalism	4
Total	43

The participants were given the flexibility of time to complete the questionnaire within a week of receiving it. Each PLO was analysed based on its subdivisions using descriptive statistics through SPSS for Mac-Version 27 to disclose the percentage, mean scores, and frequency. The findings were then used to summarise and describe the level of attainment of the eleven PLOs amongst the participants. The Likert scale utilised was ranked from 1 = Strongly Disagree, 2 = Disagree, 3 = Somewhat Agree, 4 = Agree, and 5 = Strongly Agree. The average value of the scale would be 3 = Somewhat Agree. The obtained mean value above the average value of 3.67, displaying the participants had a high level or good strength of attainment of the eleven PLOs in their postgraduate studies. The rank is classed as follows (Table 4).

Table 4
Rank interpretation of results

THE RANGE OF RESULTS	INTERPRETATION OF THE RANGE
1 to 2.33	Low or Developmental Area
2.34 to 3.66	Moderate or Adequate Effectiveness
3.67 to 5.00	High or Good Strength

4. STUDY AND RESULTS

The Cronbach's Alpha was employed to ensure the reliability of the instruments. The result based on the test for this study is 0.936 for 43 items. This concludes that the questionnaire was reliable and should be considered an acceptable and appropriate instrument for this study. Table 5 demonstrated the level of qualifications and the mode of study of the participants (*N* = 100) in the pilot study.

Most participants (36.0%) are currently pursuing their studies in the doctoral degree through a research-based mode of study (*N* = 36). 33.0% enrolling in UTM as master's degree students in coursework (*N* = 33). Another 24.0% are the master's degree in mixed mode students (*N* = 24), and only 7.0%, equivalent to seven participants, are from the master's degree in full research mode. These several levels of qualifications and mode of study are suitable indicators of students' level of attainment of the eleven PLOs as different students will have various views and indications of the instrument's content.

Table 6 presented the data gathered for PLO1 – Knowledge and Understanding (KW). There are five subdivisions of PLO1.

Table 5
The level of qualifications and mode of study

LEVEL OF QUALIFICATIONS	FREQUENCY	PERCENTAGE
PhD Full Research	36	36.0%
Masters Full Research	7	7.0%
Master Mixed Mode	24	24.0%
Master Course Work	33	33.0%
Total	100	100.0%

The five subdivisions of PLO1 comprise the statements on how well the participants understand and acknowledge the overall checklists of their level of qualifications. KW1 with the mean score of M = 4.61 indicates that students are in the good strength of understanding in the academic aspects concerning related works and assessments in their level of qualifications as most participants (57.0%) ranked 4 = Agree to the first aspect of PLO1. As for KW2 with the mean score of M = 4.53, the majority (64.0%) ranked 5 = Strongly Agree implying that students are attentive to the entry requirement and other requirements that need to be fulfilled by them for the students to be eligible for the certifications. KW3 focuses on the aspect of Grade Point Average (GPA), Cumulative Grade Point Average (CGPA) for coursework students and progress reports grades for mixed mode and full research students as the determiner of students' performance in their postgraduate studies. A mean score of M = 4.53 with the majority ranked 5 = Strongly Agree demonstrates that students reckon that their results indeed act as an indicator of their academic performance. The next aspect, KW4 is with regards to students' skills to demonstrate their knowledge following the aims of the postgraduate course. A mean score of M = 4.53 shows that all students can use their knowledge and they are familiar with their course outcomes. Finally, KW5 emphasises the aspect of students being able to present their postgraduate and research work in the form of presentations, explaining and expressing their ideas and

thoughts to supervisors or peers, fluently and smoothly. 49.0% of students with a mean score of M = 4.45 strongly agree that they are capable of presenting their work coherently. This indicates that students are committed to their work. Those in the 4.0%, who ranked 3 = Somewhat Agree probably need an extra push for them to be confident in their work. Moderate motivational messages from teachers will improve the self-efficacy of students. One of the most important influences that encourages learners in continuing their great efforts in the journey of learning is self-efficacy (Law & Che Hassan, 2015).

Overall, it can be concluded that students have attained a high level of attainment in the five subdivisions of PLO1, since these students have attended and completed the preparatory courses that equipped them with the necessary skills to survive their postgraduate studies.

Table 6
The five subdivisions of PLO1 – Knowledge and Understanding (KW)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
KW1: I am well versed in my academic aspects such as assignments and research areas			
3 = Somewhat Agree	7	7.0%	4.29
4 = Agree	57	57.0%	
5 = Strongly Agree	36	36.0%	
KW2: I acknowledged that I need to meet the UTM entry requirement and fulfil UTM postgraduate requirement in order to complete my postgraduate studies			
3 = Somewhat Agree	3	3.0%	4.61
4 = Agree	33	33.0%	
5 = Strongly Agree	64	64.0%	
KW3: I am aware that my results are the indicator/determiner of my competency in postgraduate studies			
3 = Somewhat Agree	1	1.0%	4.53
4 = Agree	45	45.0%	
5 = Strongly Agree	54	54.0%	
KW4: I am able to demonstrate my postgraduate knowledge in accordance with the objectives of my postgraduate programme			
3 = Somewhat Agree	1	1.0%	4.53
4 = Agree	45	45.0%	
5 = Strongly Agree	54	54.0%	
KW5: I am able to present my postgraduate work, coherently, whenever required			
3 = Somewhat Agree	4	4.0%	4.45
4 = Agree	47	47.0%	
5 = Strongly Agree	49	49.0%	

Table 7
The three subdivisions of PLO2 – Cognitive Skills (CG)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
CG1: I have a clear understanding of the acquired knowledge and information delivered during my postgraduate studies			
3 = Somewhat Agree	5	5.0%	4.48
4 = Agree	42	42.0%	
5 = Strongly Agree	53	53.0%	
CG2: I am capable of finding relevant and latest literature, studies and references related to my postgraduate studies			
3 = Somewhat Agree	3	3.0%	4.52
4 = Agree	42	42.0%	
5 = Strongly Agree	55	55.0%	
CG3: I am able to think critically and systematically during the process of teaching and learning			
3 = Somewhat Agree	6	6.0%	4.37
4 = Agree	51	51.0%	
5 = Strongly Agree	43	43.0%	

The three subdivisions of PLO2 constitute students' thinking ability, the skills to expand the newly added knowledge and skills to search and gain new information regarding related context and area of study. CG1, with a mean score of M = 4.48, proves that students of Level 7 and 8 of MQF in UTM can stay focused and concentrate during the teaching and learning process as only 5.0% of them ranked the aspect 3 = Somewhat Agree which is still considered as a positive attitude. The second aspect of CG2 focuses on students' ability to find resources for their postgraduate studies. A mean score of M = 4.52 indicates that most students are willing and enthusiastic to give extra effort in their studies and do not always depend on their lecturers and supervisors to spoon-feed them with relevant information and resources. The final aspect of PLO2 is laid out in CG3. With the majority of 51.0% ranked 4 = Agree and a mean score of M = 4.37, it conveys that students possess a high level of cognitive engagement as they can think critically and orderly during the process of learning acquisition. It is interesting to note that students attained a high level of attainment for all the subdivisions of PLO2. Therefore, it can be gathered that students have a keen interest in their postgraduate studies. Kpolovie et al. 2014 highlight that interest is a notion of being enthralled, attracted, captivated and invigorated *'to cognitively process information much faster and more accurately in addition to the most effective application of psycho motor traits like self-regulatory skills, self-discipline, working harder and smarter with optimum persistence'* (Kpolovie et al., 2014, p. 75).

The three subdivisions of PLO3 surround students' practical skills and how they implement them in their postgraduate studies. PS1 focuses on students' acquired skills to succeed in their postgraduate studies. With a mean score of M = 4.35, only six students (6.0%) ranked 3 = Somewhat Agree. The other fifty-three students (53.0%) ranked 4 = Agree, and forty-one students (41.0%) ranked 5 = Strongly Agree are competent and possess a high level of confidence in attaining academic success. Meanwhile, PS2 emphasises students' ability to work on their tasks with minimal supervision from lecturers and mentors. With a mean score of 4.17, three students (3.0%) reveal that they require constant supervision. In contrast, another thirteen students (13.0%) sometimes require their supervisors' and lecturers' attention to complete their tasks. The remaining students (48.0%) ranked 4 = Agree and another 36.0% ranked 5 = Strongly Agree have a high tendency to sort things out by themselves regardless of the aspects and possibly

Table 8
The three subdivisions of PLO3 – Practical Skills (PS)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
PS1: I have the required skills and knowledge to excel in my postgraduate studies			
3 = Somewhat Agree	6	6.0%	4.35
4 = Agree	53	53.0%	
5 = Strongly Agree	41	41.0%	
PS2: I can complete my work with minimal supervision from lecturers/supervisors			
2 = Disagree	3	3.0%	4.17
3 = Somewhat Agree	13	13.0%	
4 = Agree	48	48.0%	
5 = Strongly Agree	36	36.0%	
PS3: I frequently make use of appropriate skills to complete my work (e.g., research skills to assess and gather relevant articles)			
3 = Somewhat Agree	6	6.0%	4.47
4 = Agree	41	41.0%	
5 = Strongly Agree	53	53.0%	

Table 9
The three subdivisions of PLO4 – Interpersonal Skills (IPS)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
IPS1: I am determined to attain academic success in my postgraduate studies			
3 = Somewhat Agree	3	3.0%	4.62
4 = Agree	32	32.0%	
5 = Strongly Agree	65	65.0%	
IPS2: I am interested in attending workshops, conferences, talks and seminars to widen my knowledge and network			
3 = Somewhat Agree	3	3.0%	4.67
4 = Agree	27	27.0%	
5 = Strongly Agree	70	70.0%	
IPS3: I am willing to take extra measures for the betterment of my postgraduate studies (e.g., publish articles, study abroad)			
3 = Somewhat Agree	3	3.0%	4.64
4 = Agree	30	30.0%	
5 = Strongly Agree	67	67.0%	

have been trained to work independently. PS3 emphasises the incorporation of relevant skills to finish the tasks given. With a mean score of M = 4.47, six students (6.0%) ranked this final aspect in PLO3 3 = Somewhat Agree while the other forty-one students (41.0%) ranked 4 = Agree and most students (53.0%) ranked the highest scale. Those who ranked somewhat agree are probably the coursework and mixed mode students as the statement specifies research skills used to collect relevant articles. Overall, it can be seen that students possessed a high level of attainment in all subdivisions of PLO3.

There are three subdivisions of PLO4 that centres on interpersonal skills where students use their initiative to make their postgraduate studies interesting and fulfilling. IPS1 focuses on the students' determination to succeed academically in their postgraduate studies. A mean score of M = 4.62 indicates these international students have the will to complete their studies. In IPS2, students are asked about their willingness to attend seminars, conferences and other talks to broaden their social networking and knowledge. Scoring a mean of M = 4.67, most students (70.0%) express their readiness to participate in academic workshops and seminars. Other than broadening their perspectives on education, attending these talks can also assist them in improving their English language. The final aspect of PLO4 is stated in IPS3. With a mean score of M = 4.64, it appears that students are willing to take extra measures for a better progression in their postgraduate studies. All in all, students have achieved a good strength of attainment for all subdivisions in PLO4. This may be influenced by the motivation that they instilled within themselves to optimise their performance in their studies.

Table 10
The four subdivisions of PLO5 – Communication Skills (CS)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
CS1: I possess good spoken and written communication skills			
3 = Somewhat Agree	10	10.0%	4.26
4 = Agree	54	54.0%	
5 = Strongly Agree	36	36.0%	
CS2: I can articulate my ideas and opinions, coherently in spoken and/or written form			
3 = Somewhat Agree	9	9.0%	4.26
4 = Agree	56	56.0%	
5 = Strongly Agree	35	35.0%	
CS3: I know how to simplify things to make them understandable			
3 = Somewhat Agree	5	5.0%	4.43
4 = Agree	47	47.0%	
5 = Strongly Agree	48	48.0%	
CS4: I know how to arrange my words, orderly and systematically in spoken and/or written form			
3 = Somewhat Agree	9	9.0%	4.25
4 = Agree	57	57.0%	
5 = Strongly Agree	34	34.0%	

PLO5 consists of four subdivisions that concern the possession of good communication skills, in speaking and/or writing. CS1 focuses on acquired speaking and writing skills. Most of the students (54.0) ranked 4 = Agree indicate that students have high confidence in communicating and writing in English as the UTM means of instruction is English. It is shown that the mean score of this subdivision is M = 4.26. CS2 focuses on the idea of coherently expressing and sharing thoughts and ideas in oral and written form. With a mean score of M = 4.26, and only nine students (9.0%) ranked 3 = Somewhat Agree, it indicates that the rest of the participants can effectively present their ideas and opinions, whether in oral or written forms. The next aspect, CS3, regarding clarifying things to make them understandable, scored a mean of M = 4.43 as most students (48.0%) ranked 5 = Strongly Agree with the statement. It points out that students somehow have the skills to simplify things which can be a good way for them to accomplish their tasks on time.

The final statement, C4, concerns the wording and sentence arrangement in spoken and/or written form. With a mean score of M = 4.25, which means a higher level of attainment, all one hundred students ranked the statement with the lowest 3 = Somewhat Agree by nine students (9.0%), the majority (57.0%) rated 4 = Agree and thirty-four students (34.0%) ranked the highest 5 = Strongly Agree. To conclude, in all four subdivisions of PLO5, students show their competencies in communication skills.

Table 11
The three subdivisions of PLO6 – Digital skills (DS)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
DS1: I integrate the use of technology in my postgraduate studies			
3 = Somewhat Agree	4	4.0%	4.56
4 = Agree	36	36.0%	
5 = Strongly Agree	60	60.0%	
DS2: I admit that technological devices and applications ease my postgraduate journey (e.g., laptops, smart phones, Google)			
3 = Somewhat Agree	2	2.0%	4.72
4 = Agree	24	24.0%	
5 = Strongly Agree	74	74.0%	
DS3: I am able to find the latest resources for my postgraduate studies because of technology (e.g., articles, slides, data)			
3 = Somewhat Agree	2	2.0%	4.61
4 = Agree	35	35.0%	
5 = Strongly Agree	63	63.0%	

There are three subdivisions of PLO6 that centre on technology. In DS1, the statement indicates that students are incorporating technology in their postgraduate studies. With a mean score of M = 4.56, majority of students (60.0%) ranked 5 = Strongly Agree, thirty-six students (36.0%) ranked 4 = Agree and four student (4%) ranked 3 = Somewhat Agree. Maor and Currie (2017) describe a technology that expeditiously affects research methods such as software and data management instruments. In implementing these latest technologies, students may expedite collecting, disseminating and analysing data. DS2 stresses the devices and applications that smoothen students' postgraduate journeys. The statement has a mean score of M = 4.72, demonstrating that the students attain a high level of PLO6. Lastly, the DS3 result of mean score M = 4.61, with the majority (63.0%) ranked 5 = Strongly Agree, and the remaining thirty-five (35.0%) ranked 4 = Agree,

also indicates that students are fully utilising technology to ease their postgraduate journey. In short, students are aware of the importance of technology in their studies. It also helps students to manage their time better, hence why all the subdivisions of PLO6's mean score are above 3.66.

Table 12
The four subdivisions of PLO7 – Numeracy Skills (NS)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
NS1: I am able to solve basic numerical problems			
3 = Somewhat Agree	2	2.0%	4.52
4 = Agree	44	44.0%	
5 = Strongly Agree	54	54.0%	
NS2: I acknowledge the importance of numeracy skills in my postgraduate studies			
3 = Somewhat Agree	5	5.0%	4.56
4 = Agree	34	34.0%	
5 = Strongly Agree	61	61.0%	
NS3: I utilise my numeracy skills to fulfil certain areas/subjects of my postgraduate studies (e.g., data analysis, statistics, software)			
3 = Somewhat Agree	4	4.0%	4.44
4 = Agree	48	48.0%	
5 = Strongly Agree	48	48.0%	
NS4: I am able to present, interpret and explain own numerical data, in spoken and/or written form			
3 = Somewhat Agree	4	4.0%	4.40
4 = Agree	52	52.0%	
5 = Strongly Agree	44	44.0%	

The four subdivisions of PLO7 focus on basic mathematical skills. NS1 displays that students can figure out basic mathematical problems. The majority of students comprised fifty-four students (54.0%) ranked 5= Strongly Agree, and another 44.0% ranked 4 = Agree with the statement. Only two (2.0%) ranked 3 = Somewhat Agree to indicate that they are having certain difficulties in solving basic problems of mathematics. The mean score of M = 4.52 shows that students acquire a strong comprehension of the mathematical skills. NS2 focuses on the importance of mathematical skills in students' postgraduate studies. More than half of the students (61.0%) agreed that numeracy skills are essential, while only five (5.0%) ranked 3 = Somewhat Agree, likely due to different modes of study and research designs. The second aspect scored a mean of M = 4.56. In NS3, the statement centres on the utilisation of their mathematical skills in a certain area of their study and all students ranked the lowest 3= Somewhat Agree, and the highest 5 = Strongly Agree with the same percentage of (48.0%) for both 4 = Agree and 5= Strongly Agree scales. A mean score of M = 4.44 proves that students are employing their mathematical skills for certain areas of their area of study. Finally, NS4 is about presenting, interpreting and explaining students' mathematical data, whether in speaking or in writing. With a mean score of M = 4.40, the statement indicates the high level of attainment of PLO7 among the students.

Table 13
The seven subdivisions of PLO8 – Leadership, Autonomy and Responsibility (LAR)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
LAR1: I have a strong interest in my postgraduate studies			
3 = Somewhat Agree	2	2.0%	4.72
4 = Agree	24	24.0%	
5 = Strongly Agree	74	74.0%	
LAR2: I know I am responsible for my own actions and decisions throughout my postgraduate studies			
3 = Somewhat Agree	3	3.0%	4.69
4 = Agree	25	25.0%	
5 = Strongly Agree	72	72.0%	
LAR3: I am able to work independently with a minimal supervision of lecturers/supervisors			
2 = Disagree	3	3.0%	4.17
3 = Somewhat Agree	15	15.0%	
4 = Agree	44	44.0%	
5 = Strongly Agree	38	38.0%	
LAR4: I am able to work in groups with minimal supervision of lecturers/supervisors			
2 = Disagree	3	3.0%	4.28
3 = Somewhat Agree	10	10.0%	
4 = Agree	43	43.0%	
5 = Strongly Agree	44	44.0%	
LAR5: I admit that having frequent academic discussions with peers can boost my motivation to excel in postgraduate studies			
3 = Somewhat Agree	4	4.0%	4.60
4 = Agree	32	32.0%	
5 = Strongly Agree	64	64.0%	
LAR6: I admit that frequent meetings with supervisors can have positive effects on my postgraduate studies			
3 = Somewhat Agree	3	3.0%	4.69
4 = Agree	25	25.0%	
5 = Strongly Agree	72	72.0%	
LAR7: I have a good relationship with my peers			
3 = Somewhat Agree	3	3.0%	4.63
4 = Agree	31	31.0%	
5 = Strongly Agree	66	66.0%	

There are seven subdivisions of PLO8 that surround the ability to take responsibility, be independent, and be a leader. The result of LAR1 proved that all participants were attentive to their postgraduate studies. This can be seen through the mean score M = 4.72 and with the majority (74.0%) ranked 5 = Strongly Agree, the remaining (24.0%) ranked 4 = Agree, and two students ranked 3 = Somewhat Agree.

LAR2 touches on the accountability of the students throughout their studies. Similar to LAR1, the majority of the students (72.0%) ranked 5 = Strongly Agree, and the other twenty-five (25.0%) and three (3.0%) ranked 4 = Agree and 3 = Somewhat Agree as they acknowledged the responsibilities towards every action they make. In LAR3, working independently with minimal supervision is brought up. With a mean score of M = 4.17 and only three (3.0%) that show they are not capable of working independently, others display that they have a high level of autonomy.

Slightly similar to LAR3, LAR4 is related to the students' capability to work in a group with minimal supervision from lecturers or facilitators. Only three students (3.0%) show that they are incapable of working in groups independently while others can. LAR5 is closely related to LAR4.

Findings showed that students enjoy peer discussion activities as it can boost students' motivation and engagement to succeed in their postgraduate studies, as indicated by the mean score of M = 4.60 and the majority (64.0%) ranked 5 = Strongly Agree. LAR6 focuses on the meet-up with mentors. With a mean score of M = 4.69, it is safe to say that regular meetings with supervisors positively impact the students.

Finally, LAR7 focuses on the relationship between peers, where most students have a good relationship with their classmates and friends as the mean score of M = 4.63.

There are five subdivisions of PLO9. In PRS1, with a mean score of M = 4.69. It reveals that students are dedicated to their studies as more than half of them (71.0%) agreed with the statement on the highest scale. PRS2 shows through the mean score of M = 4.74 and the majority (76.0%) ranked 5 = Strongly Agree, that the students are excellent at managing their time and discipline. PRS4 centres on being dependent on lecturers and mentors.

Based on the mean score of M = 4.20, most students are still manageable in terms of being dependent on their role models, even though one student (1.0%) indicates that they rely too much on their mentors. Finally, the results of PRS5 demonstrate all students do have their approaches and ways to enhance their skills and results, given that the mean score of this subdivision is M = 4.53.

The two subdivisions of PLO10 aim at publication and conference attendance as one of the requirements to fulfil before graduation. ENT1 reveals mixed results due to different study modes; hence the mean score is below 3.66. Those who ranked 1 = Strongly Disagree and 2 = Disagree are probably in the coursework mode that does not require them to publish or are most likely newcomers and are currently focusing on their proposal or attending compulsory lectures. Those ranked 4 = Agree might be waiting for the reviewers' decision regarding their articles.

Lastly, 52.0% of the participants have already published at least one article to meet the needs of their graduation requirements. Data gathered for ENT2 display a mean score of M = 3.66, demonstrating that the majority of students (58.0%) have participated in at least one conference.

There are four subdivisions of PLO11. EPS1 findings show that students acknowledge that they should act professionally and ethically throughout their studies, as indicated by the mean score of M = 4.69, and the only two scales they selected were 4 = Agree and 5 = Strongly Agree in which the majority (69.0%) ranked the latter. As for EPS2, more than half the participants (68.0%) ranked 5 = Strongly Agree, and the remaining (32.0%) ranked 4 = Agree, which brings the mean score of M = 4.68 that, indicates the high level of attainment of EPS2 in PLO11.

Every HLIs has its thesis format and criteria for each assessment. Findings in EPS3 displayed that all participants, with the majority (74.0%) ranked 5 = Strongly Agree and the remaining four (26.0%) ranked 4 = Agree, have a great understanding of the format and are trying their best to meet the requirements of every assessment. For the final aspect of PLO11, EPS4 emphasises the act of plagiarising. Almost all participants (79.0%) oppose the act of copying. This shows that students have a high level of professionalism and ethics. The skill assists students in developing positive attitudes and a tendency to mould them to be better in any aspect. It is one of the soft skills that graduates must develop before entering the job market.

As explicitly stressed by Zabidi et al. (2020), elements of soft skill encompass the ability to apply high degrees of morals in any practice alongside social interaction.

Table 14
The five subdivisions of PLO9 – Personal Skills (PRS)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
PRS1: I am fully committed to my postgraduate studies			
3 = Somewhat Agree	2	2.0%	4.69
4 = Agree	27	27.0%	
5 = Strongly Agree	71	71.0%	
PRS2: I always submit my assignments on time			
3 = Somewhat Agree	2	2.0%	4.74
4 = Agree	22	22.0%	
5 = Strongly Agree	76	76.0%	
PRS3: I am actively involved in my postgraduate studies			
3 = Somewhat Agree	6	6.0%	4.56
4 = Agree	32	32.0%	
5 = Strongly Agree	62	62.0%	
PRS4: I do not rely too much on my lecturers/supervisors			
2 = Disagree	1	1.0%	4.20
3 = Somewhat Agree	18	18.0%	
4 = Agree	41	41.0%	
5 = Strongly Agree	40	40.0%	
PRS5: I make own initiatives to improve my skills and grades			
3 = Somewhat Agree	4	4.0%	4.53
4 = Agree	39	39.0%	
5 = Strongly Agree	57	57.0%	

Table 15
The two subdivisions of PLO10 – Entrepreneurial Skills (ENT)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
ENT1: I have published at least one article to fulfil my study requirements. I learned a lot about paper publishing			
1 = Strongly Disagree	36	36.0%	3.38
3 = Somewhat Agree	3	3.0%	
4 = Agree	9	9.0%	
5 = Strongly Agree	52	52.0%	
NS2: I acknowledge the importance of numeracy skills in my postgraduate studies			
1 = Strongly Disagree	30	30.0%	3.66
3 = Somewhat Agree	1	1.0%	
4 = Agree	11	11.0%	
5 = Strongly Agree	58	58.0%	

Table 16
The four subdivisions of PLO11 – Ethics and Professionalism (EPS)

SCALE	FREQUENCY	PERCENTAGE	MEAN SCORE
EPS1: I act professionally and ethically throughout my postgraduate studies			
4 = Agree	31	31.0%	
5 = Strongly Agree	69	69.0%	
EPS2: I am well aware of ethics, privacy, and confidentiality while conducting postgraduate tasks (e.g., interview, questionnaire)			
4 = Agree	32	32.0%	
5 = Strongly Agree	68	68.0%	
EPS3: I am following the format given by the university and making sure all criteria are met for every task and assignment			
4 = Agree	26	26.0%	
5 = Strongly Agree	74	74.0%	
EPS4: I do not condone plagiarism			
1 = Strongly Disagree	1	1.0%	4.74
3 = Somewhat Agree	2	2.0%	
4 = Agree	18	18.0%	
5 = Strongly Agree	79	79.0%	

5. CONCLUSION

There is a shred of clear evidence from the data that these international postgraduate students possess a high level of attainment of the eleven PLOs, as the mean score of most subdivisions in the eleven PLOs are above 3.67. However, achieving academic and social excellence entails more than possessing a high level of attainment of the eleven PLOs. Kassarnig et al. (2018) stress that recognising the factors that affect academic progress is crucial in academic research. A heap of studies has explored the aspects that measure academic achievement through various methods and techniques. Accomplishment is essential in education. Low academic achievement is rooted in educational issues. These non-achievers often feel that they lack knowledge and are unwilling to use their abilities, skills and strengths, which lead to the losing of interest and motivation that are imperative for academic success.

Students' attainment of the eleven PLOs is certainly the outcome of their ability to process knowledge and new information related to a specific area of study as well as the outstanding quality of the lecturers, supervisors and the implementation of the suitable methods and techniques in the teaching and learning process. However, it is quite clear that some participants in this study seem to face difficulties in their postgraduate studies with the strong possibility of experiencing communication barrier issues rooted in a low level of English. Moreover, the surging competition from education hubs across the globe requires Malaysia to strengthen its higher education value proposition, capacity, and capabilities in order to enhance the appeal and competitiveness in the region and beyond (Ministry of Education Malaysia, 2015). Concerning the above matter, it entails Malaysia to uplift its higher education identity further, not only for the quality of life and the best value for money. It must also be acknowledged, referred to and recognised internationally for its expertise in research and academics.

This paper has presented on only a small scale the preliminary findings of a more extensive study. Ergo, it is still too early to reach any compelling conclusions. However, it is anticipated that resuming data collection and analysis from other sources, namely interview sessions with the participants and their designated supervisors will enhance the views on how students can attain a high level of attainment of the eleven PLOs and, consequently, discover the answers to the low-ranked statements in the questionnaire, such as why students are incapable of working independently with minimal supervision from lecturers and supervisors and how level 7 and 8 students still face challenges in articulating their thoughts and ideas coherently in spoken and written form.

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