

CORRELATION BETWEEN MUET AND ACADEMIC PERFORMANCE OF ELECTRICAL ENGINEERING STUDENTS

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ABSTRACT

This paper presents the findings of a case study to identify the impact of English Language Proficiency (ELP) on the academic performance of engineering students in a public university in Malaysia. The case study had the objective to find the correlation between students' English language proficiency and their academic achievement. In this case study, the Malaysian University English Test (MUET) overall score was used as an indicator of English language ability and the students Cumulative Grade Point Average (CGPA) as an indicator of academic performance. The second objective of this study is to investigate and observe the effect of raising the MUET Band from Band 2 to Band 3 for admissions to studies in the field of Science, Technology, Engineering, and Mathematics (STEM) in undergraduate courses in public universities in Malaysia. In addition, the academic performance by gender was also analysed. Eighty-four students were sampled from an engineering program of a local public university. The results from this case study showed that English Language Proficiency to a certain extent does influence academic performance and that raising the MUET Band to Band 3 for admission will result in many potential students losing a place in a public university.

Keywords: English language ability; academic performance; MUET; CGPA; ELP.

1.0 INTRODUCTION

In the last few decades, there have been several changes in the language that is used as the medium of instruction in Malaysian schools. As depicted in Figure 1, the medium of instruction in Malaysian schools was in English in 1957. It was then changed to Malay (Bahasa Malaysia) in 1970 (Buniyamin, 1991; Buniyamin, 2010). However, in 2003, the medium of instruction in schools for Science and Mathematics subjects was reversed to English while at universities English remains as the medium of instruction. Then, from 2012 till now, Malay is re-used as the medium of instruction in schools for Science and Mathematics subjects while in the universities English remains as the medium of instruction.

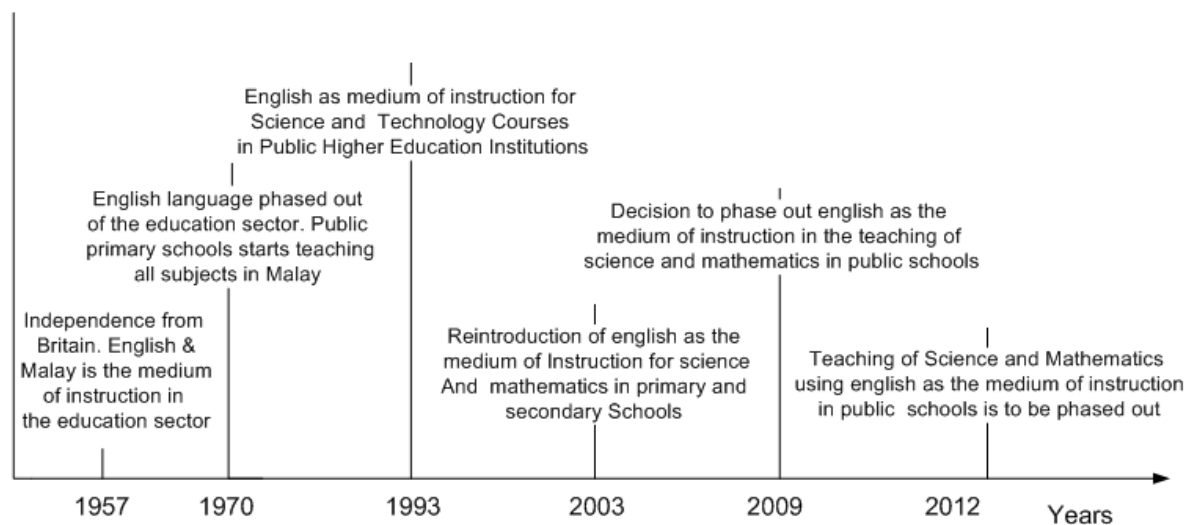


Figure 1: Changes in the Language of Instruction in Malaysian Schools (Buniamin, 2010)

These changes in the medium of instruction have led to many debates and discussion on the importance of English proficiency and its impact on academic performance of students both in schools and university. This led to many Malaysian NGO (non-governmental organization) groups such as Parent Action Group for Education (PAGE), Malacca Action Group for Parents in Education (MAGPIE), and Herald of Penang for Education (HOPE) to voice out their disapproval of the change to Malay as a medium of instruction in various Malaysian newspapers. The various NGOs argued that the medium of instruction for Science and Mathematics subjects in schools should be in English, since if they used Malay as the medium of instruction in secondary schools, the students' English will not be good enough for them to understand what is taught or to write good reports at the university level (Zurairi, 2013). This may have caused students to resort to memorizing and relying only on lecturer's notes rather than reading text books that are written in English of a higher standard.

To address the problem, the Malaysian government introduced an entrance English Exam for students to enter universities in Malaysia. Thus, this is done to ensure that students entering Malaysian universities can cope when courses are taught in English. The Malaysian University English Test (MUET) was developed and administered by the Malaysian Examination Council. MUET is used as a benchmark to determine a student's English language proficiency for admission to universities (Rethinasamy, & Kee, 2011). Table 1 below shows the MUET band description (Othman, & Nordin, 2013).

1.1 MUET Band and University Admission

Previously, students in Band 1 were still accepted into degree programs in the university. However, during the tabling of Budget 2015, the Malaysian Prime Minister, announced that the MUET band requirement for student intakes into public universities will be raised to ensure that students could cope during their studies. Different fields of study will require different bands with the new minimum for studies in the field of Science, Technology, Engineering and Mathematics (STEM), raised from Band 1 to Band 3 and that Band 4 is required to graduate (Bernama, 2014a; Bernama, 2014b).

When this new criterion was announced, there were fears that local and public universities may face a reduction in the number of students enrolling in various degree courses. The vice-chancellor of University Utara Malaysia (UUM) for example stated that only 30% of their students are in Bands 3,4,5 and the other 70% are in Bands 1 and 2 (Bernama, 2014b). Based on this figures, public universities may lose potential engineering students when the new criteria are implemented.

Table 1: Muet Band Description

Band	Aggregated Score	Description
6	260 - 300	<i>Very good user</i> - Very good command of the language. Highly expressive, fluent, accurate and appropriate language: hardly any inaccuracies. Very good understanding of language and contexts. Functions extremely well in the language.
5	220 - 259	<i>Good user</i> - Good command of the language. Expressive, fluent, accurate and appropriate language but with minor inaccuracies. Good understanding of language and contexts. Functions well in the language.
4	180 - 219	<i>Competent user</i> - Satisfactory command of the language. Satisfactory expressive and fluent, appropriate language but with occasional inaccuracies. Satisfactory understanding of language and contexts. Functions satisfactorily in the language.
3	140 - 179	<i>Modest user</i> - Modest command of the language. Modestly expressive and fluent, appropriate language but with noticeable inaccuracies. Modest understanding of language and contexts. Able to function modestly in the language.
2	100 - 139	<i>Limited user</i> - Limited command of the language. Lacks expressiveness, fluency and appropriacy: inaccurate use of the language resulting in breakdown in communication. Limited understanding of language and contexts. Limited ability to function in the language.
1	Below 100	<i>Extremely limited user</i> - Poor command of the language. Unable to use language to express ideas: inaccurate use of the language resulting in frequent breakdowns in communication. Little or poor understanding of language and contexts. Hardly able to function in the language.

A preliminary investigation was initiated to observe correlation between engineering students' ELP measured using MUET bands and their academic performance and its effect on university admission intake of engineering programs if the proposed criterion is implemented. In addition, the investigation will offer a snapshot of the impact of English Language Proficiency (ELP) on the academic performance of undergraduate Electrical Engineering students. This study uses

MUET as the basis to evaluate the students' ELP and the Cumulative Grade Point Average (CGPA) to evaluate their academic performance. In addition, this investigation will provide an insight of how students in different MUET bands perform academically in an engineering degree program.

1.2 English Proficiency and University Admission

Poor ELP of international students in countries such as United Kingdom, Canada, New Zealand, Australia and America have always been an issue. Many universities have used English Proficiency as one of the entrance criteria to ensure that international students, whose mother tongue is not English, can cope with the language and succeed. Examples of English entrance exams are TOEFL (Test of English as a Foreign Language) and IELTS, (International English Language Testing System). IELTS, (International English Language Testing System) is one of the most popular examination recognized by many universities worldwide. The IELTS score is reported on a band scale from 1 to 9 where 1 is a non-user to 9 which is an expert user. English language requirements for undergraduate degrees for UK university admission is an overall score ranging from 6.0 – 6.5 (Ghenghesh, 2015). IELTS is jointly owned by the British Council, IELTS Australia and Cambridge English Language. Assessment for IELTS and is available through more than 1,000 test centres and locations in over 140 countries.

In 2002, Feast (2002), conducted a case study in a South Australian University to investigate if there is a relationship between IELTS test scores of international students, and performance at University level as measured using Grade Point Average (GPA). Feast found that there is a significant positive relationship. Her research showed that, raising the overall IELTS score from 6.0 to 6.5 for international students resulted in a loss of 50 percent of the international student population. This concurs with the discussion in section 1.1 where there were fears that raising the MUET Band score to 3 will result in Malaysian universities losing potential students. However, Feast found that raising the IELTS score for entrance purposes resulted in a positive consequent of an increase of 0.89 per cent in GPA. Even though she made a recommendation to raise IELTS score for fee paying international student to ensure that they get better grades, she recognized that the loss of a higher percentage of international student and the financial impact due to this loss caused by the raise of IELTS score to ensure minimum English proficiency standards might be too large to justify. She further argued that *“it may even be decided that the small grade increases are not worthy of the relatively large loss of students for both the postgraduate and undergraduate student body and consequently no changes will be made to English language entry requirements on the basis of these figures.”*

2.0 DATA COLLECTION AND RESPONDENT PROFILE

In this case study, the dependent variable used to measure the academic performance of the students is their Cumulative Grade Point Average (CGPA) and the key independent variable is English proficiency, measured using the students' MUET score on entry to university. The hypothesis is that there is a relationship between English proficiency levels MUET Band Score and academic performance (CGPA).

Data for this study were collected via a questionnaire. The eighty-four (84) respondents were from two engineering courses from an undergraduate engineering degree program of a Malaysian public university during the academic year of 2014/2015. Of the 84 respondents,

only data from 65 respondents could be used as the remaining respondents did not answer a few of the questions including the failure to put in their MUET band score.

Of these 65 respondents, one did not indicate his/her gender. The 64 respondents consist of 41 males and 23 females as shown in percentage in Figure 2. The respondents are from Semester 5 and semester 7. These 2 semesters were selected as the effect of ELP would be reflected in the CGPA scores as the students are from the higher semesters; where good English is required for various report writing and assignments. For example, students in semester 7 must submit a comprehensive research proposal for their Final Year Project. In the proposal, the students must include a literature review, hypothesis, and proposed research methodology. All students must also write various reports and detailed assignment in semester 7 for a non-exam course, Engineers in society, that is evaluated based on numerous assignments and reports.

The data collected comprised of, the students' current cumulative grade point average (CGPA), MUET band score and gender. Figure 3 shows the percentage of respondents in the respective MUET Bands. As shown the majority of the students are in Band 2 which is in the limited user category.

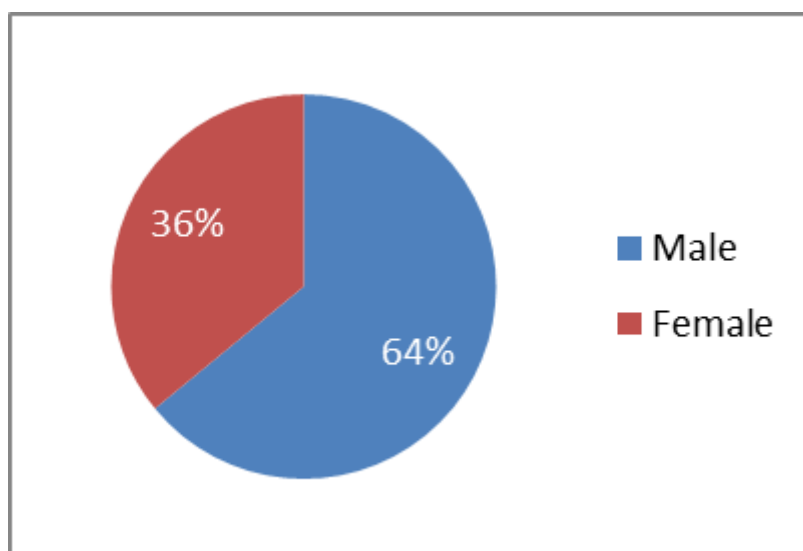


Figure 2: Respondent Profile According to Gender

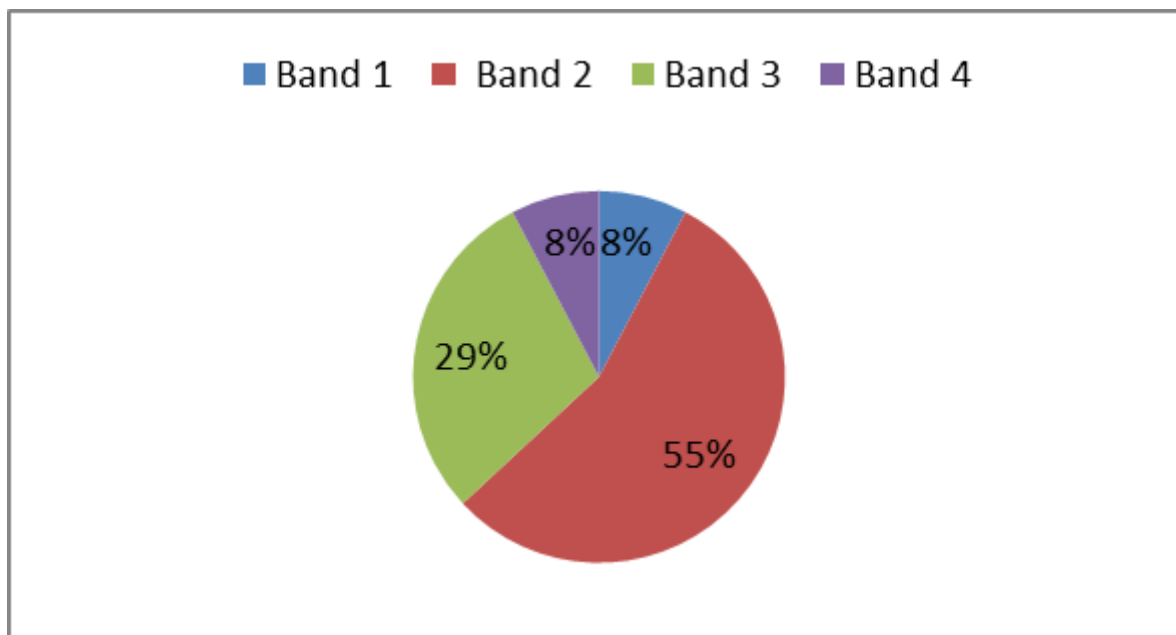


Figure 3: Percentage of Respondents in the Respective MUET Band

3.0 ANALYSIS AND RESULTS

Data were analysed in several stages. The first stage was carried out to observe the correlation between students' ELP measured by MUET band and their academic performance measured using their current CGPA scores. In the second stage, an analysis was carried out to observe the correlation between MUET band and the students' academic performance based on gender.

3.1 Correlation between MUET and Students CGPA

To facilitate data analysis, the students CGPA scores were categorized into four (4) categories: weak, satisfactory, good and excellent as shown in Table 1. The respondents were then placed in the respective categories and average CGPA of the students in that category was calculated. This is then plotted as shown in Fig. 4, which is a graph of MUET Band as opposed to the average CGPA of the students in the respective MUET band. The percentage of students in each MUET band is shown in Figure 3, is also shown in Figure 4 in each MUET band.

Table 1: Categories of CGPA Scores

CGPA category CGPA score	Description of CGPA Categories			
	Weak	Satisfactory	Good	Excellent
	≤ 2.19	2.20-2.99	3.0-3.49	3.4-4.0

As can be seen, there is a positive relationship between students' CGPA and MUET score. The student in the higher MUET bands have higher CGPA scores than students with weak English command in Bands 1 and 2.

From Figure 4, it can be seen that the majority of the students are in MUET Bands 1 to 3 with only 7.81% of the students are in Band 4. The students in Band 4 have a much higher CGPA average score which is 3.1 compared to students in Bands 1, 2 and 3. There are no students in

Bands 5 and 6. If the new MUET band criteria were implemented, students in Bands 1 and 2 will not be accepted in the University for Engineering Undergraduate Programs. Thus, 64.06% of the students will miss out and even the 56.25 % of students in the satisfactory CGPA category would not have been admitted. As Band 4 is the new requirement to graduate for STEM programs, most of the respondents will have difficulty graduating if the new criterion is implemented.

3.2 ELP and Correlation with Academic Performance

Figure 4 clearly shows that ELP measured using MUET scores does have an impact on the academic performance of the students. From the graph it is obvious that students in Band 4 (Competent users) do perform much better than those in the lower bands. This strongly indicates that ELP does have an impact on the student's academic performance and validates the findings of Feast (2002) as discussed in section 1.2. This finding is similar to that of Aina, Ogundele, & Olanipekun (2013) who stated that: "there is correlation between proficiency in English language and academic performance of students in science and technical education" (p.355).

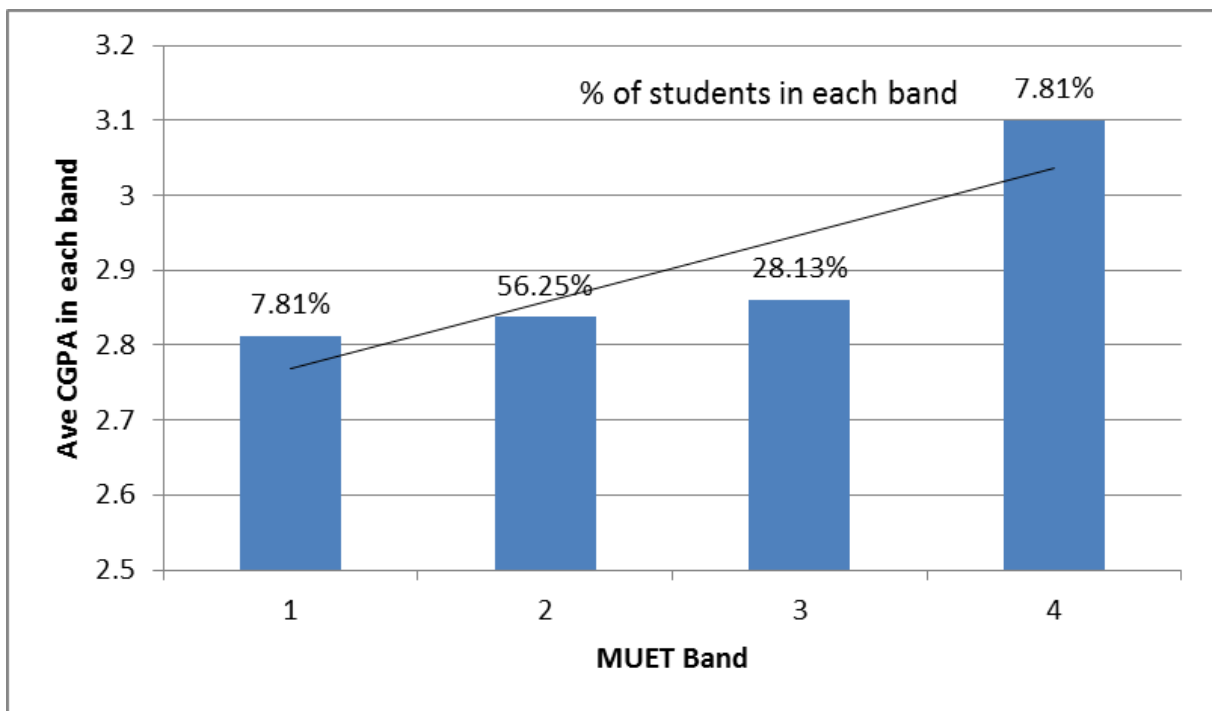


Figure 4: Graph of Student's Current Average CGPA in Respective MUET Band Score. The Percentage Number of Student in Each Muet Band is Also Indicated on the Graph

Similarly, this result is in accordance with the findings of (Moon, & Siew, 2004; Wilson, & Komba, 2012; Aina, Ogundele, & Olanipekun, 2013; Othman, & Nordin, 2013; Ghenghesh, 2015; Saquing-Guingab 2015) that shows ELP does have an effect on a student's academic performance. For example, Ghenghesh (2015) stated that "the higher the English proficiency of students on entry to the university, the better they performed in their degree area courses as well as in their English levels" (p.91).

Thus, this would support the Malaysian government's proposal to increase the MUET admission band for STEM programs to band 3 which is the modest user category.

However, as depicted in Figure 4 there is not much difference in academic performance of students in Band 2 (limited users) and 3 (modest users). The average CGPA scores is 2.83 for students in Band 2 and 2.86 for students in Band 3. This finding indicates that Band 2 students could also be accepted rather than limited to Band 3 students and above. However, students from Band 2 will probably require additional assistance or tutorial to improve their ELP.

3.3 The Relationship between Gender, MUET and CGPA

Figure 5 shows the relationship between students' academic performance and MUET band based on gender. As depicted, female students are more proficient in English than males, nevertheless when they are in the same MUET band (Bands 2 and 3), there is not much difference in academic performance. However, there is a marked difference in the average CGPA of females (4.69% of total respondents) compared to males (3.12%) in Band 4.

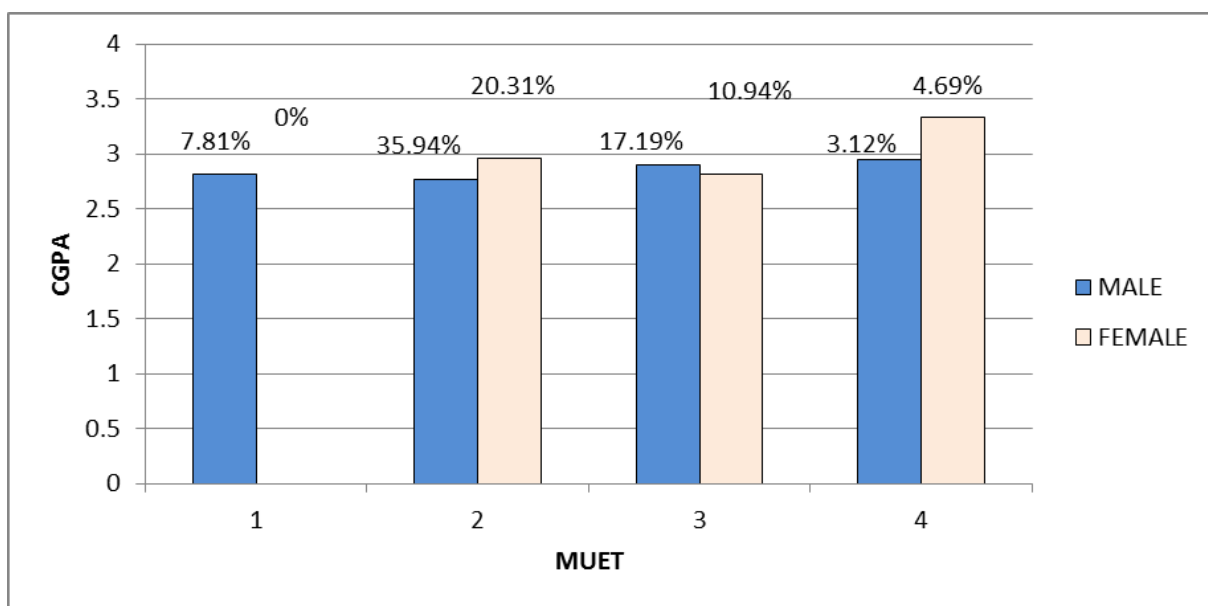


Figure 5: Graph of Academic Performance (ave CGPA) Based on Gender vs MUET Band. The percentage Number of Students in Each Category is Showed at the Top

4.0 DISCUSSION AND CONCLUSION

This study shows that there is a positive correlation between academic performance measured using CGPA and ELP measured using MUET bands for students in an Engineering undergraduate program. However, the difference between academic performances of those in MUET Bands 2 and 3 is not very significant. The respondents in Band 2 (30%) when evaluated have an average CGPA that is categorized in the satisfactory range. In the light of these findings, it is recommended that those students be given a chance to undertake an engineering program even if they are in Band 2 as opposed to the new MUET band admission requirement of a minimum of MUET Band 3 (Modest user) for admission for STEM courses in public universities.

However, these students should be given extra tutorial and assistance to improve their ELP so that they could obtain a MUET band of at least band 3 by semester 4 before they can proceed to undertake courses in the higher semester that would require a better ELP to perform better in

courses that require discussion and more technical report writing. Figure 6 illustrates this recommendation.

Similarly, Feast (2002) indicated that strengthening the English proficiencies of international students and provide better support once they have gained entry into university is a better option rather than raising the IELTS minimum score and losing a high percentage of students. She suggested that some resources should be diverted towards employing extra staff skilled in assisting students to improve their English.

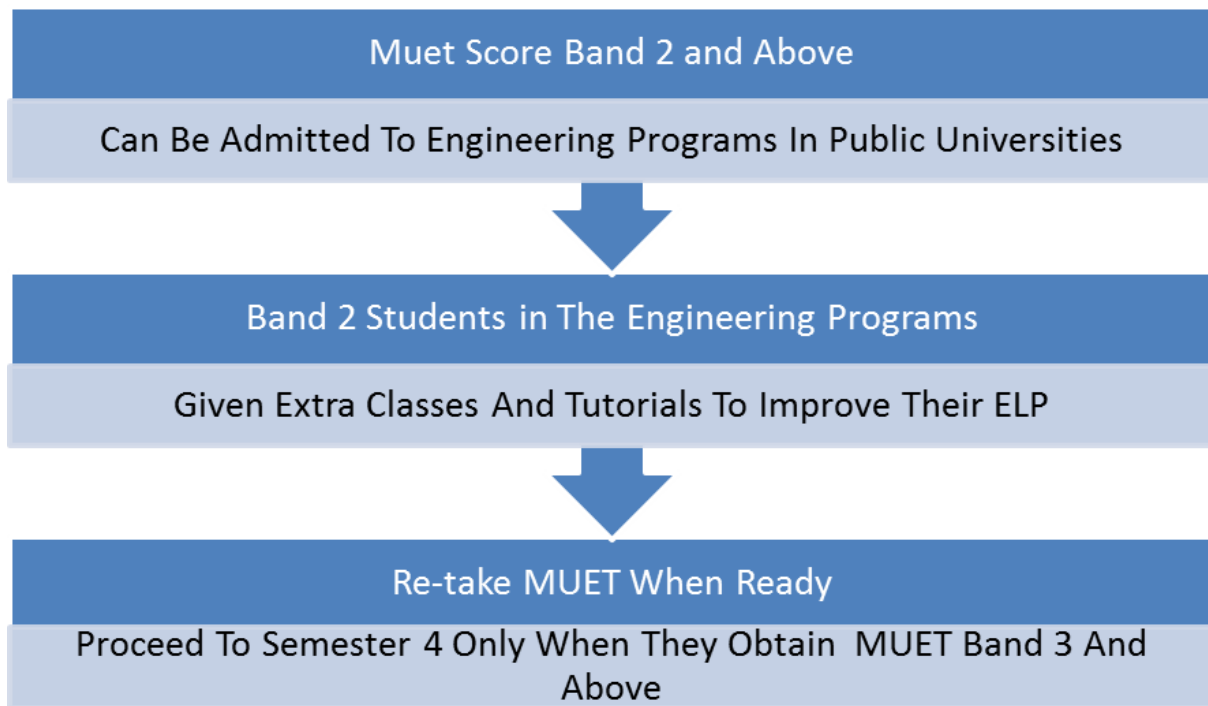


Figure 6: Procedure to Improve Student ELP

It is hoped that this recommendation could minimize the loss of students due to poor MUET band score and provide an opportunity for these candidates to improve their ELP in the university. It must be noted that in Malaysia, there is a high number of public university candidates that are from rural villages where they have little opportunity to improve their ELP due to poor exposure to the use of English. These candidates may perform better in semester 4 after exposure to better English usage, teaching and environment in the universities that would enable them to improve their oral ability in English as well as writing skills.

To ensure that these students will graduate with adequate ELP to enable them to be acceptable and competitive in the industry, the MUET band 4 (Competent user) requirements must be enforced and be made compulsory before the students are allowed to graduate. This will ensure that the students' ELP is adequate to enable them to write good reports and discussion which are usually required in engineering subjects in the higher semesters and the working environment in Malaysia.

As this is a preliminary research designed to provide an insight on the effect of ELP on an engineering student's academic performance, a more comprehensive research with a detailed statistical analysis is currently undertaken.

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