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USING EQUINE ASSISTED LEARNING TO BOOST CHARACTER SKILLS AND ACADEMIC ACHIEVEMENT AMONG UNIVERSITY STUDENTS

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Abstract

Recreational horseback riding has been recognized for its therapeutic benefits, particularly through direct human-horse interactions. Despite known positive impacts of horse's interactions with humans, there is no reported study discussing the relationship of equine assisted therapy and character skill development among university students. This paper examines the impact of equine assisted learning (EAL) on university students who struggled academically in the previous semester. Twelve students participated voluntarily in the program, engaging the study participants in experiential learning of EAL sessions at Majlis Ekuin Malaysia horse stable. The learning sessions, each conducted for nearly three hours, involved tasks to complete including stable cleaning, grooming, feeding, and leading horses. Study participants were requested to complete questionnaires before and after the EAL program to assess their character skill development, measured through "Habits of Minds." Students' academic results in terms of grade point average (GPA) achieved in the previous semester before EAL were compared with their GPA for the current semester after the students had been involved in the EAL program. Results of the study revealed collective improvements in the "Habits of Minds" attributes of Persistence, Flexible Thinking, Responsible Risk-Taking, and Empathetic Listening after the EAL program. However, the attribute Managing Impulsivity was slightly impaired. Interestingly, all students' GPA after the EAL program had also improved compared to their previous GPA. The (mean $\pm$ standard deviation) of the students' GPA after EAL intervention (2.21 ± 0.59) is significantly increased compared to that before the EAL intervention (1.66 ± 0.67) with $p = 0.045$. The overall finding from this study suggests that the practical benefits of the EAL program can enhance character skills development that can lead to better academic results among university students.

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Keywords: Character skills development; equine assisted learning (EAL); experiential learning; horseback riding

Abstrak

Menunggang kuda rekreasi telah diiktiraf dapat memberi faedah terapeutik, terutamanya melalui interaksi manusia-kuda secara langsung. Walaupun terdapat kesan positif interaksi kuda dengan manusia, tidak ada kajian yang dilaporkan membincangkan perkaitan antara terapi berbantu kuda dan pembangunan kemahiran peribadi dalam kalangan pelajar universiti. Kajian ini menyiasat pembelajaran berbantukan kuda (EAL) dalam kalangan pelajar universiti yang terpilih berdasarkan prestasi akademik yang rendah pada semester sebelumnya. Dua belas orang pelajar telah mengambil bahagian secara sukarela dalam program ini, melibatkan peserta kajian merasai pembelajaran melalui pengalaman menerusi sesi EAL di kandang kuda di Majlis Ekuin Malaysia. Sesi pembelajaran, masing-masing dijalankan selama hampir tiga jam, melibatkan tugas-tugas yang perlu diselesaikan termasuk membersihkan kandang, memandikan dan merapi kuda, memberi kuda makan, serta memimpin kuda. Peserta kajian dikehendaki melengkapkan soal selidik sebelum dan selepas program EAL untuk mengenal pasti perkembangan kemahiran peribadi mereka, diukur melalui "Tabiat Minda". Keputusan akademik pelajar dari segi purata nilai gred (GPA) yang dicapai pada semester terdahulu sebelum EAL dibandingkan dengan GPA mereka untuk semester semasa selepas pelajar terlibat dalam program EAL. Hasil kajian menunjukkan penambahbaikan kolektif "Tabiat Minda" bagi atribut Kegigihan, Berfikir secara Fleksibel, Mengambil Risiko yang Bertanggungjawab, dan Mendengar dengan Pemahaman dan Empati selepas program EAL. Walau bagaimanapun, atribut Mengurus Tingkah Laku Impulsif didapati sedikit terjejas selepas program EAL. Menariknya, GPA bagi semua pelajar selepas program EAL juga telah bertambah baik berbanding GPA (min $\pm$ sisihan piawai) sebelumnya. GPA pelajar selepas intervensi EAL (2.21 ± 0.59) meningkat dengan ketara berbanding sebelum EAL (1.66 ± 0.67) dengan $p = 0.045$. Keputusan keseluruhan kajian ini mencadangkan manfaat praktikal program EAL boleh meningkatkan pembangunan kemahiran peribadi yang dapat membawa kepada keputusan akademik yang lebih baik dalam kalangan pelajar universiti.

Kata kunci: Pembangunan kemahiran watak; pembelajaran berbantukan kuda (EAL); pembelajaran berasaskan pengalaman; menunggang kuda

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1.0 INTRODUCTION

Good academic achievements are highly important for university students, especially those pursuing technical disciplines such as engineering and computer science. Successfully achieving a minimum cumulative grade point average (CGPA) of 3.0 or above at the end of their studies provides the best opportunities for them to secure jobs that offer promising income prospects. Therefore, universities need to ensure that students' academic progress remains at a satisfactory level and consistent throughout their years of study. Additionally, if the failure rate among students is high, this will contribute to a decline in the pool of skilled and professional workforce within the country, thereby impeding the government's plans to carry out various development and modernization activities (Mohamed Nafuri et al. 2023). Academic failures among students of B40, which is a term used in Malaysia referring to the bottom 40 % of income earners who obtain an income below RM 4,850, can have a more pronounced impact. This is because they will need to settle their education financing debts, which in turn could expose them to mental stress and psychiatric issues.

Typically, at a department that conducts undergraduate study programs, a mentor among the lecturers will be appointed for each student to monitor their performance and provide advice on academic or personal matters. In addition to this approach, the Department normally forms a Student Committee responsible for addressing various student-related issues, including monitoring their academic achievements and designing efficient intervention programs. These programs aim to enhance students' motivation, encouraging them to be more diligent and focused on their course of studies. To enhance focus and boost perseverance, motivational talks, specialised guidance classes, and the appointment of advisors from among senior students can be conducted.

Apart from these activities, specialised programs aimed at improving students' soft skills can be implemented to drive their determination and efforts towards academic success. To cultivate strong determination and effort, a shift in mindset is necessary, for instance, through the application of the concept of "Habits of Minds." The “Habits of Minds” are defined as patterns of intellectual behaviours that lead to productive actions, comprising a combination of various skills, attitudes, and past experiences (Senjayani, Retnowati & Prasetyorini, 2023). It was first introduced by Costa and Kallick (2008) with the aim to equip a person with the right behaviours when dealing with struggles, difficulties, pain and stress. In addition, this concept can help students to manage and improve time management skills and sharpen their minds to acquire knowledge. “Habits of Minds” are related to one's intellectual disposition to act and

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should be nurtured from a young age and applied when learning a specific field.

Thus, to nurture and develop good Habits of Minds among academically weak students, the construction of positive Habits of Minds could be aggressively implemented among them through activities involving human and equine engagement. The bonding between humans and horses is initiated to ancient origins. It has evolved gradually over numerous millennia. According to Ibnu Katsir (2007), the Prophet Ismail was considered as the first person to train horses, passing on the skills to his children. Since then, horses have become domesticated and have formed close companionships with humans. Being transformed into domesticated animals, horses have been utilised by humans for a variety of purposes such as for transportation, military use, farming, and sports activities. In recent years, horses now play diverse roles in equine-assisted activities, reflecting a growing interest in their varied services (Jaafar, Abd Aziz & Mansor, 2022).

Activities involving horses serve diverse purposes. The services utilising horses for professional therapies target improvements in physical (physiotherapy), cognitive (occupational therapy), and social-emotional functioning (psychotherapy) (Wood et al. 2021). Adaptive approaches to horse riding and other horsemanship activities aim to enhance the participation and well-being of individuals with various abilities, including those with special needs (Wood et al. 2021). Alternatively, various forms of experiential learning seek to complement educational, personal development, or organisational performance approaches for specific groups of people (Bilginoğlu, 2021). According to Gehtmane-Hofmane (2019), equine assisted learning is a practice in which adults engage in systematic and sustained self–educating activities in order to gain new forms of knowledge, skills, attitudes, or values. Since horses have been domesticated animal and non-human, they are promising companions for leadership learning and promising ways of embodied learning to be affected (Staunæs & Raffnsøe, 2019).

To investigate the impact of human-horse interactions, we conducted a study involving the implementation of an equine-assisted learning (EAL) program, a practice not uncommon in other countries like New Zealand (Lietz & Napan, 2020). The EAL program was administered for selected students from Universiti Kebangsaan Malaysia (UKM) with the primary objective of introducing and providing alternative motivational strategies for those students who have been identified with low academic performance in the previous semester. Through this program, we assessed the effectiveness of human-horse interactions in shaping

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students' character skill development via the "Habits of Minds" attributes assessment. Mickelsson (2019) has concluded that animal-assisted interventions open new possibilities in social pedagogy. Using horses in social pedagogy offers a unique tool to build team spirit, discover inner strengths and enhance communication.

This paper described a comprehensive implementation of the EAL program, detailed the assessment methodology employed, discussed the results obtained and presented the concluding remarks. The results of the study will offer valuable insights into the EAL intervention approach. It not only contributes to expanding the knowledge base on the EAL but also establishes a crucial foundation for future equine-related therapy activities for university students.

2.0 MATERIALS AND METHODS

EAL is categorised as a therapeutic and educational approach that involves interactions between humans and horses to promote personal growth, self-awareness, and learning skill development. EAL can have a positive impact on Habits of Minds by providing unique and experiential learning opportunities (Jung et al. 2022). It is important to note that the effects of EAL on Habits of Minds can vary depending on the specific program, the facilitator's approach, and the participants' individual experiences.

The proposal for organising the EAL program for UKM students was presented to Majlis Ekuin Malaysia (MEM). Surprisingly, MEM has provided substantial support, enabling student participants to actively engage in horse activities at their horse stable located in Malaysia Agro Exposition Malaysia (MAEPS), Serdang. The study's inclusion criteria were UKM students from Department of Electrical, Electronics Systems Engineering (JKEES), Faculty of Engineering and Built Environment (FKAB), specifically those who had achieved low academic performance (CGPA < 2.5 on a 4.0-point scale) in the previous semester. A total of 12 JKEES students voluntarily participated in the program.

For effective learning, critical thinking, and personal development, mental habits are crucial. Duckor and Perlstein (2014) elaborate 16 attributes of "Habits of Minds" on what human beings do when they behave intelligently. However, in this work, we only evaluated five criteria of "Habits of Minds" as shown in Figure 1. A student's cognitive, emotional, and behavioural patterns that affect their thinking, problem-solving, and decision-making processes are assessed. These students underwent an experiential learning process through

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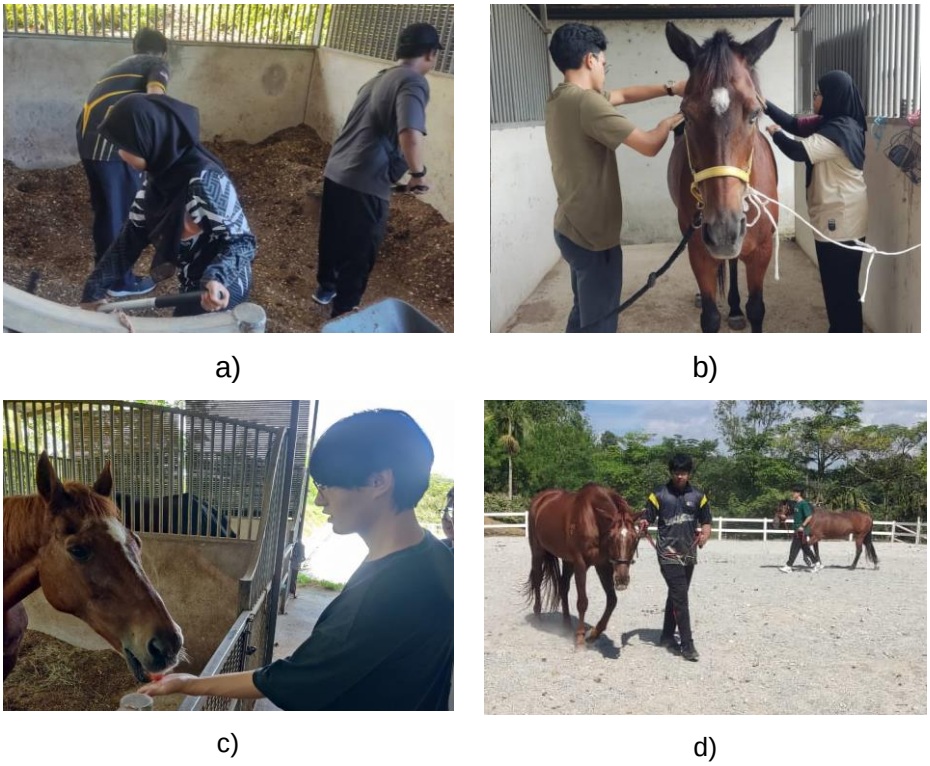
four sessions of the EAL activity sessions at the stable. Each EAL session lasted for almost three hours, during which the students were engaged in stable chores such as cleaning, bathing, and grooming the horses, as well as feeding and leading them as shown in Figure 2.

Figure 1. The “Habits of Minds” representing character skills investigated in the study



a) b)

c) d)

Figure 2. Activities during the EAL program showing a) stable cleaning, b) horse grooming, c) horse feeding, d) horse leading

All study participants were required to answer 2 sets of questionnaires containing two sections to be answered during before and after the EAL activities to identify their “Habits of Minds” as the measures of character skills development (Ho et al. 2017). The source of the questionnaire was partly primary, especially questions regarding the students’ background information in the first section. The second section asked the student to rate themselves based

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on the choice of answers which describe the criteria of “Habits of Minds traits” in four categorical situations equivalent to the Likert’s scale rating of 1 to 4 as described in Table 1. The examples of criteria traits for the “Habits of Minds” investigated are listed in Table 2 which is adopted from The Institute of Habits of Minds Self-Assessment Rubric.

Table 1. The level of “Habits of Minds” and equivalent Likert’s scale value

Level of habits	Likert’s score value
Beginning Habits	1
Apprentice Habits	2
Proficient Habits	3
Exemplary Habits	4

Table 2. The example of criteria traits for “the Habits of Minds”

Category	Beginning Habits	Apprentice Habits	Proficient Habits	Exemplary Habits
Persisting	Constant struggle and difficulty to complete a task. Need to improve persistence and focus in activities.	Inconsistent task adherence. Occasional instances of giving up on tasks.	Generally maintain task commitment and display moderate persistence.	Consistently demonstrates strong adherence to tasks, persistent behaviour, and a focused mindset.
Managing Impulsivity	Make judgments before fully comprehend problems and struggle to control their impulses	Frequently interrupts and blurts, less thinking before acting. Need to improve on controlling impulses	Engage in thoughtful and deliberate actions. Maintain calm demeanors most of the time.	Exhibit thoughtful and deliberate approaches, thinking before acting. Always have a plan of actions.
Listening to Others with Understanding and Empathy	Engage in negative behaviours: ridiculing, laughing at, and belittling others' ideas. Lack of openness to different perspectives.	Infrequent active listening, disregard the importance of body language in communication. Need improvement in understanding different perspectives.	Demonstrate varying levels of engagement in communication: listen, paraphrase, and occasionally interpreting body language.	Able to listen and accurately paraphrase others' ideas. Discern emotional states through both oral and body language cues.
Thinking Flexibly	Struggle with considering different perspectives. Express reluctance to change viewpoints even when presented with additional data.	Infrequent consideration of alternative perspectives. Need to be flexible in thinking and change my mind.	Occasionally embrace change in thinking, exploring new approaches to problems. Able to generate alternatives and consider different options.	Open to change the mind. Actively create and explore novel approaches to problem-solving view ideas from different perspectives.

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Taking Responsible Risks	Too much fear of failures and hold back potential opportunities. Avoid ambiguous situations and venture into unfamiliar territory.	Rarely engages in educated and responsible risk-taking. Lack of desire to exceed established limits and personal growth.	Occasionally takes educated and responsible risks, demonstrating a lack of impulsivity. Look forward to opportunities for personal growth.	Consistently takes educated and responsible risks, demonstrating a lack of impulsivity. Willingness to get new experiences and go beyond established limits.

For the academic results, we evaluated the students' GPA of the previous semester (before EAL) and the GPA of the current semester (after EAL) interventions. Results of GPA for the academic performance are reported as the students' group mean and standard deviation. Significant difference for two groups of sample population is indicated by statistical t-test with p-value < 0.05.

3.0 RESULTS

The summary of data distribution for the students participating in the EAL program was illustrated in Figure 3. The figure shows that the majority of participants (10 of 12) are male students composed of five Chinese and seven Malay students. The age of the students ranges from 19-24 years with mean and standard deviation of 20.6±1.68 years. In terms of experience dealing with horses, the majority (9 of 12) of them have never physically seen a horse.

The questionnaires that the students had completed before and after the EAL program were analysed by evaluating the average scores of the equivalent Likert scales for the "Habits of Minds" criteria. Figure 4 shows the bar charts of average Likert's scores for the five "Habits of Minds" before the students went through the EAL program and after they finished the program. The results of scores before versus after show that the students had collective improvement in the "Habits of Minds" criteria in which they demonstrated better scores in the attributes of Persistence (2.50 versus 2.58), Listening with Understanding and Empathy (3.08 versus 3.33), Thinking Flexibly (2.93 versus 3.00), and Taking Responsible Risks (2.92 versus 3.08). However, the attribute of Managing Impulsivity (2.92 versus 2.83) was found slightly impaired by 0.09 Likert's score following the EAL activities.

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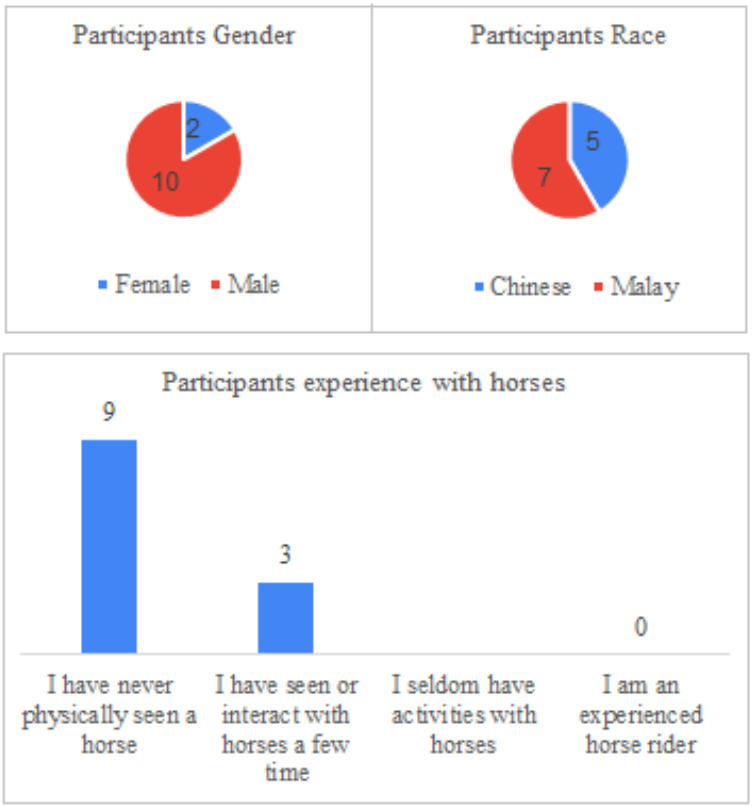

Figure 3. Statistics of student participants

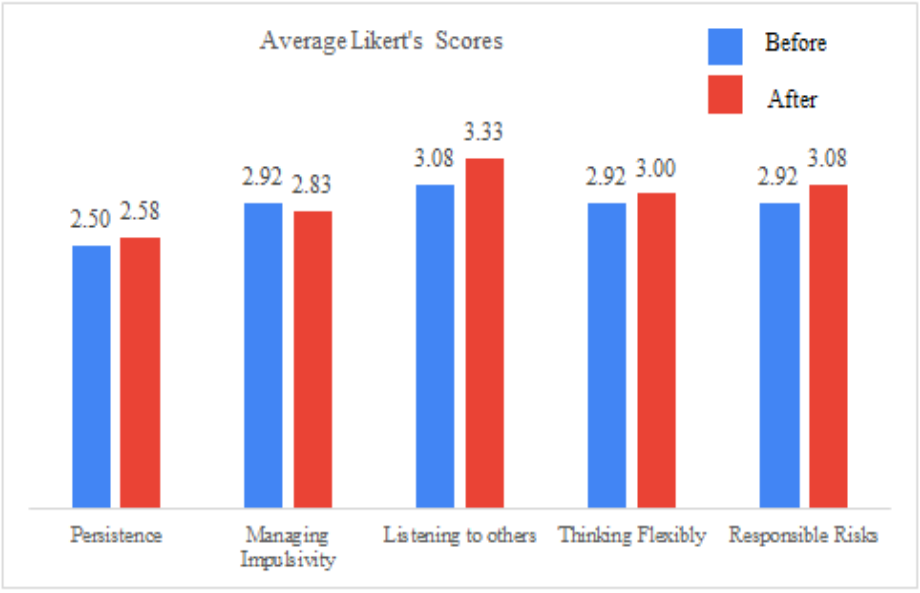

Figure 4. Average Likert's scores of "Habits of Minds" for the students during before and after EAL activities

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For the academic results in the preceding semester, the students' GPA ranges from 0.69 - 2.47 with mean + standard deviation of 1.66 + 0.67. Whereas, for the current semester, the students' GPA ranges from 1.20 - 3.19 with mean + standard deviation of 2.21 + 0.59. The academic performance evaluated as the students' GPA before EAL intervention has shown significant improvement as the results of independent t-test having $p = 0.045$. The comparison of students' GPA during before and after EAL is shown in Figure 5. As an overall group performance, the study participants had improved their GPA following the EAL program.

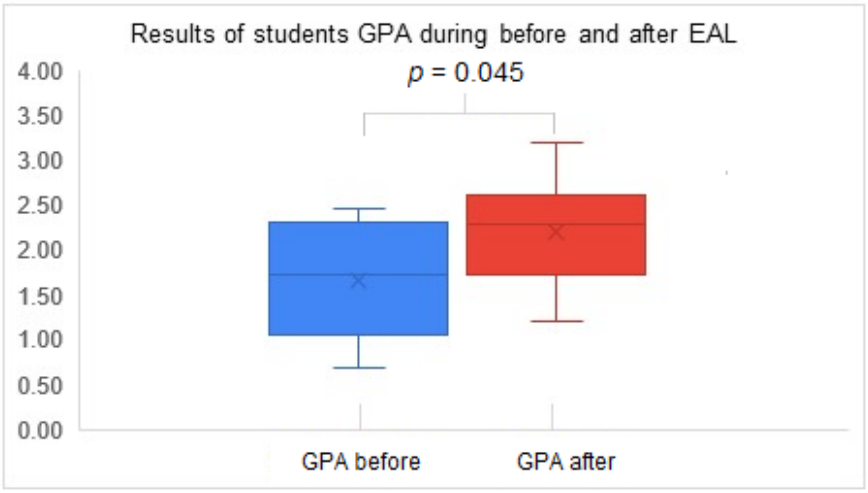

Figure 5. Students' GPA during before and after EAL program

4.0 DISCUSSION

Persistence attribute has achieved the lowest score (2.50 before the EAL and 2.58 after the EAL) from the participants. Persistence allows one to overcome challenges, achieve long-term goals, and enhance skills. It fosters resilience, learning, and personal growth, creating a pathway to success despite obstacles. It is proved from the result that the EAL program can contribute to the increase of Persistence attribute.

Thinking flexibly empowers adaptability, permitting individuals to navigate diverse situations with creativity and open-mindedness. It promotes effective problem-solving, better decision-making, and harmonious interpersonal relationships, leading to successful outcomes in both personal and professional realms. Taking Responsible Risks cultivates growth and innovation, opens one to new opportunities, enriches experiences, and propels individuals towards achieving their aspirations. Listening with Understanding and Empathy enhances relationships by fostering trust and emotional connection and support. This approach builds bridges between individuals, encourages cooperation, and creates a supportive environment

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for meaningful interactions and shared solutions. The attribute of Listening to Others has the highest score (3.08 before the EAL and 3.33 following the EAL) indicating that on average the participants possess effective communication, tend to reduce conflicts, and promote mutual respect.

Impulsivity is defined as a human behaviour characterised by the inclination of an individual to act on urge rather than thought, with diminished regard to consequences. It is a multifaceted characteristic that is perceived both as a typical dimensional behaviour and as a central pathological component in numerous mental health conditions (Meda et al. 2009). Managing impulsivity can be challenging for several reasons, as it involves complex cognitive, emotional, and behavioural factors. In this study the complexity of understanding and managing impulsivity is portrayed in the study results which is a little bit reduced score following the EAL program. Poor impulsivity control may be due to lack of self-awareness, habitual patterns, and inadequate coping strategies. Addressing these factors through self-awareness, skill-building, and support can improve the Managing Impulsivity attribute.

Above all, the students who participated in the study had improved after the program EAL in four of the five attributes being investigated. The improvement surely will help them to be able to manage their life as university students who are frequently engaged with challenges, coping with studying and the learning process. Eventually, it is anticipated that with better “Habits of Minds”, the students will have a greater opportunity of improving their academic achievement in the future.

5.0 CONCLUSION

Eventually, it is anticipated that with better character skills, the students will have a better chance of improving their academic achievement in the near future. A program of experiential learning via EAL has been implemented on a group of students with low academic achievement. The students’ character skills represented by the Habits of Minds criteria before and after EAL were analysed. Above all, the students who participated in the study had improved after the program EAL in four of the five-character skills being investigated. The improvement surely will help them to be able to manage their life as university students who are frequently engaged with challenges coping with studying and learning process. The results of the study revealed that the students have improved in four of the criteria of Habits of Minds and their academic results. This suggests practical implications of EAL activities would benefit character development and academic performance.

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