Engagement to Collaborative Learning in Formal and Informal Learning Activities

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Abstract

Learning styles in higher education nowadays become more challenging and demanding. Collaborative learning is also part of learning style that students should consider when involving in group activities or engaging learning activities beyond individual range. As some learning activities may need individual self-effort and self-intellectual merit, collaborative learning may contribute to benefit others especially among peers or colleagues. As suppose this mutual relationship grants lot of extra improvement on one soft skills and upbringing leadership, some cases of engaging collaborative learning are difficult to handle. Learning also include the informal activities that one associate in his/her daily life or as students' life. In this paper, we will discuss on some learning activities that show engagement on collaborative learning as in formal and informal learning and also common problems in such activities. It is believed that learning activities in any engagement should be enjoyable and yet enlightening the value of knowledge.

Keywords: *collaborative learning, formal, informal, learning activities*

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Introduction

Numerous researches and suggestions by educators around the world have discussed learning activities by the students (Summers, Bergin & Cole, 2009; Knipfer et al., 2009; Tanner, Chatman & Allen, 2003; Adamson & Walker, 2011; Hamalainen & Hakkinen, 2010; Wang, 2009; Lowyck & Poysa, 2001). Some of the current approaches in teaching involved collaborative, cooperative, reflective, case study and problem based learning. Slavin (1996) suggested and invited further research of cooperative learning among students for better academic performance. Based on the collaborative and cooperative learning by Slavin, there are four major theories underlying the theoretical perspectives; social-psychological, socio-cultural, cognitive development and cognitive elaboration. By definition, collaborative learning is about working together on a given task and all participants benefit from the mutual interaction (*What is collaborative learning,* 2010). It may be relevant at almost everywhere and through any medium of communication, as formal and informal learning activities (Wang, 2009; Knipfer et al., 2009). The benefits of adapting collaborative learning are also discussed by Tanner et al.(2003).

In social-psychological by Slavin (1996), the interdependence among group members encouraging social cohesion, caring and helpfulness to each other. It is mutual relationships that hold and perceived the same goals and objectives. Group reward is also important as recognition to the team development. As socio-cultural perspective, the joint knowledge is greater than the individual knowledge himself. Once, a famoussaying goes, two heads are better than one. As a team, they share the effort towards achieving the goal. The effort may come as physical approach (knowledge, skill, energy, time and money) and emotional approach (motivation and moral support). The team operates as an interacting and dynamic system themselves. Beyond that, student behaviour and civility also have some degree of relationship with autonomy support and collaborative learning (Summers, et al., 2009). Cognitive (brain) development in collaborative learning is a result by the effective peer learning facing conflict and resolution among team members. Students' argument and debate on task would develop critical thinking besides improving their attitude towards the subject matter and lifelong learning. It is also important as arbitrate variables that explain students' achievement through group task and group goals. Moreover, the cognitive elaboration theory addressing the learning engagement by individual when he is teaching others and interactively communicating with peers (Slavin, 1996).

Tanner, et al.,(2003) discussed five elements of effective cooperative learning; i) positive interdependence, ii) face-to-face promoting interaction, iii) individual and group accountability, iv) interpersonal and small-group skills, and v) group processing. The elements show required characteristic for individual and group, respectively. Nevertheless, two-ways of communication is the key of collaborative and cooperative learning (Wang, 2009). Beyond observation, it is suggested for a student or an individual attempting a learning process, they will have four main categories of vicinity engagement (Figure 1).

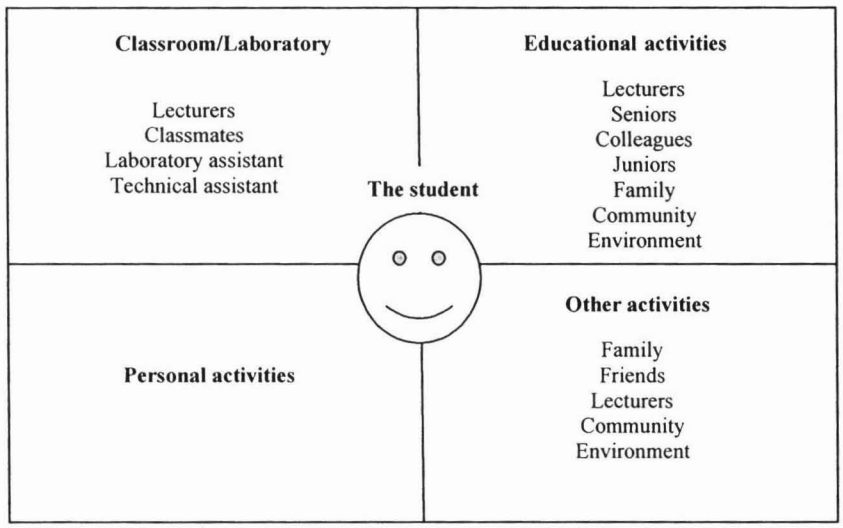


Figure 1 Four categories of students' vicinity engagement

Formal vs. Informal of Collaborative Learning Activities

If a student attending a lecture or laboratory work, the student is basically engaging knowledge as formal. The lecturer or authorised staff will serve as monitor or guide the learning activities from dragging out of topic. The classmates will serve as equal recipient to the conveyed knowledge. In the learning process, every person in the room interact with each other, verbally and physically (completing task together). Out of classroom or laboratory, some of students activities held in the university intervene educational knowledge indirectly. Such activities involved larger group of participants interacting with the students. It is believed that the learning process in this kind of situation may vary depending on the particular audiences. Knipfer et al., (2009) conceptualize science exhibition as an example of dynamic information space for knowledge building which included three different pathways. Other than educational activities and classroom meeting, the student will have their own activities that may include non-educational and personal activities.

As nowadays education highlight the achievement of outcome based education (OBE), the students have to engage three main criteria, soft skill, cognitive and psychomotor activities. To accomplish OBE, collaborative learning presented those three domains. For an example, in the classroom and laboratory practices, students' activities involve pair discussion and group work (3-4 persons). Figure 2 shows students of pre-diploma (science) completing mind map of selected topic in biology syllabus. Before putting them into groups, a few students have chosen (scored better result in their first test) as the group leader. These students may choose their own team members in 2-3 persons (total of 4 group members). Before they started working on the mind mapping, a brief introduction and rules to be followed has given accordingly. Along the way, students were encouraged to give constructive comments on each other's work, actively moving around and discussed how to extract the key words out of the lengthy notes. After two hours of working collectively, they have produced creative artwork and indirectly engaging knowledge by sharing it with the whole class (Figure 3A). In different context of learning, laboratory work is a practical skill applied with concern of knowledge. It is believes that working on the task hands-on is the best practice to endeavour and assess ones knowledge. However, the skill and learning development is greater when the students working in group to complete the practical work and mini projects (Figure 3B and 3C). As for mini projects, the students were able to assess their friends (team members) for their performance in completing the task together (Figure

4A). Gennip et al., (2010) discussed peer evaluation is also one of the collaborative activities as it contributes to psychological safety and lower value diversity. Nevertheless, by some incident, the students were found giving very low marks to the unsupportive team members.

As for informal learning activities out of the classroom, collaborative learning is definitely providing different approaches. In correlation to Figure 1, students are exposed to different types and range of people. As an example of learning and teaching activities out of classroom, Figures 4B, 4C and 5 respectively show students activities at Students' Society Club, treasure hunt and academic trip. In one occasion, the students held a science exhibition, they work together to demonstrate attractive yet educational activities. On the day of the exhibition, the students were disseminating the information and activities they had offered (Figure 4B). The audiences (peers, juniors, seniors and staff) were found enjoying the educational activities without stress. Small token was given for those who participated in all the activities. In the treasure hunt activities, it was organised by a few of science lecturers. The objectives of the activity (team training) were to make different sets of students closer to each other (narrowing the batch gap) and to emphasise teamwork, leadership and collaboration. The students were separated into groups, combination of junior and senior in a group. Tasks given were based on educational and trivial questions. Some of the interesting activities were jigsaw puzzle, Sudoku, naming Ministry in Malaysia, reciting prayer, and sang national or patriotic song. Along the way, the students were directed to their check point by using coordinate number. At the last stage, only four teams that first reached the check point have to negotiate with all their assets in order to locate the treasure (Figure 4C). The winning team should be able to interpret the map and identified the location of the treasure. The winning team was also rewarded and shared their victory with others. Although this activity shows some of competitive learning, yet it was much lower degree than the collaborative work they have shown in completing the mission. Prichard, et al., (2006) supported the team-skill training will enhance collaborative learning. Besides, collaborative learning adapted in the teaching activities was academic trips to other academic institution and research centre. Students were interactively communicate and experience different culture of learning and furthermore, to develop their future profesion. Figures 5A and B show students were having briefing by laboratory staff at UPM. While at FRIM, such activity was also taken place at FRIM's reserved forest (Figure 5C).

Problems in Engaging Collaborative Learning

A few common problems related to collaborative learning are listed as untrained teachers, a depth of coverage, free-rider and evaluating the output. The first challenge of cooperative learning actually comes from the difficulties faced by untrained teachers. Teachers serve as the moderator in cooperative learning need to be able to control the communication channel. In order to establish cooperative learning in the classroom, teachers need to organize their curricula with the emphasis to establish participation from the students. Furthermore, it is believed able to enhance cooperative investigation, problem-solving and reasoning and lastly create supportive yet secured learning environment. Good classroom curricula should be able to engage student in higher-order thinking. Therefore, only trained teacher with depth understanding of such pedagogy should be able to practice cooperative learning in their classroom.

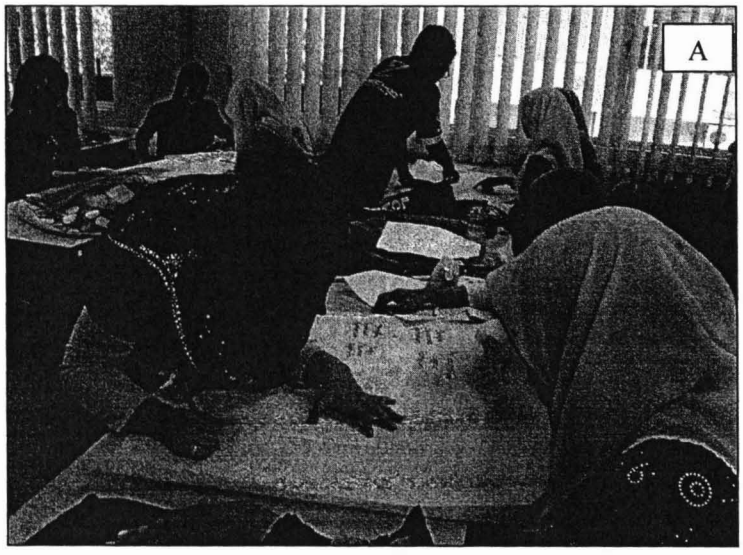
Compared to straight lecture it can be said that a depth of coverage on each topic will be smaller and is difficult to measure in cooperative learning. Cooperative learning requires students to think and needs longer time for them to understand facts on the subject matter. With time constraints, syllabus has to be reduced in order to incorporate with this pedagogy. As believed to be one of the best approaches in fostering higher learning process cooperative learning also creates the free-rider. The cooperative learning approach is used in biology subject with students are assigned to four or five people in group and ask to do research on the selected topic. In the observation of students' involvement and cooperation, three out of nine groups faced difficulties with the free-riders. Two groups preferred the supervisor to intervene after they failed confronting the free riders directly. Whereas another group felt they lost the teamwork spirit. Due to their problems, they keep it secret and giving low marks to their friends in the peer evaluation. However, the three groups personally assigning specific tasks to the free riders and prefer if their supervisor could mark it separately. These resolutions were corresponded to Wang & Burton (2010). Wang & Burton (2010) indicated six possible approaches by peers that they used to deal with free riders in their collaborative group, including asking the instructor to intervene, confronting the free riders directly, making up the group work, assigning specific tasks to the free rider, marginalizing free riders' work during the presentation, and making up the work with other group members. When dealing with the free-riders, supervisors agree that they need to figure out the actual problem of the free riders without being influenced by only one side. Supervisors

should intensively observe the team working in the laboratory. Monitoring on each member contribution was also done through conversation with structure questions. The questions were asked informally to seek their understanding on the subject matter. Supervisors play an important role to motivate and create ways to make sure every student feel accountable to complete a task and mastering the material.

Evaluating the output in cooperative learning could be difficult in some circumstances. Student grading in the case of group project can be challenging since some students prefer to have full control over their individual grade. A case study of biology project showed that 1 out of 9 groups have dominant personalities. It is means that they have high expectation and unintentionally exclude their weaker team members. The dominant personalities prefer to work alone. In this situation, supervisors play important role to reinforce positive interaction and create interdependence among group members. Ambiguity can be avoided with regular evaluation. The evaluations are divided into three stages which are planning, work activities and report. By having scheme evaluation, it enhances all members in the group including dominant personalities to work as a team. The present of dominant personalities should nurture other members to work more dynamic and these eventually sharpen their leadership skills.

Conclusion

Formal learning is considered as concrete evidence in an academic framework as engagement of fundamental and applied knowledge. However, beyond the classroom there is more opportunity of informal learning that one may engage in their surroundings. Individual learning may encounter some knowledge, while as collective, it may give a major transformation. As learning is a dynamic process, collaborative learning may support this is by having active and mutual processes that require interactive communication with others. Learning may exist in almost everywhere, anytime and with anyone. Educators should engage collaborative learning for one of teaching approaches in spite of its drawbacks, as it is integrating knowledge (brain), affective or behaviour (body language and civility) and physical skills (psychomotor). As one true benefit, collaborative learning does support OBE in producing well-developed and holistic students.



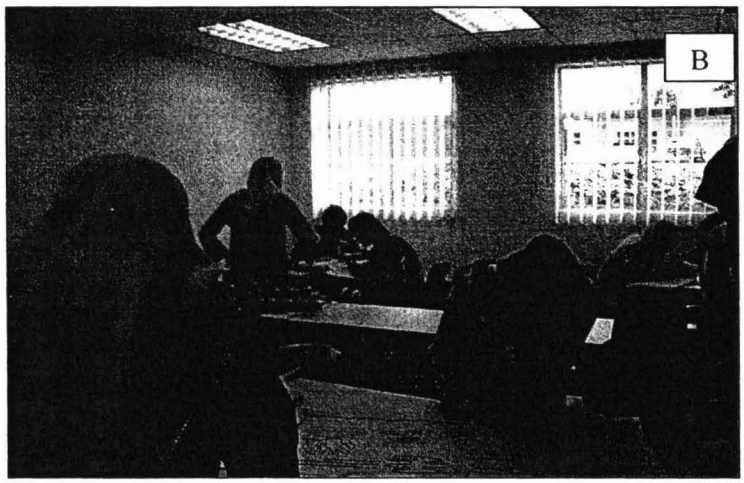
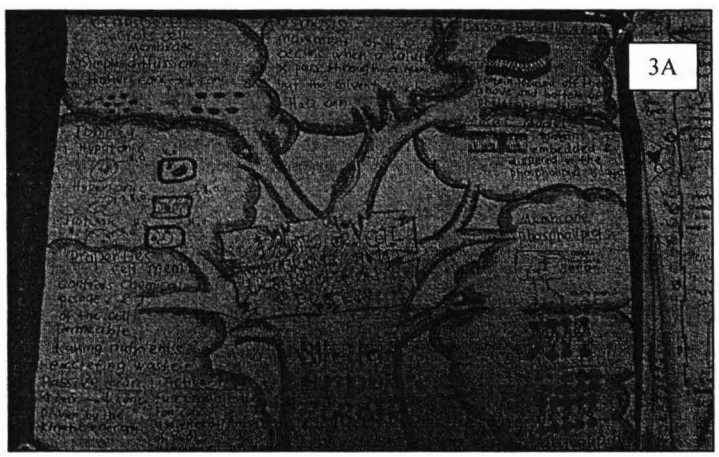
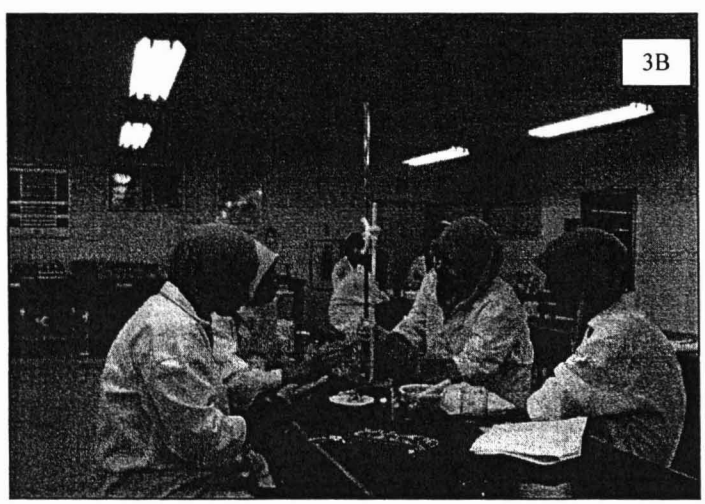


Figure 2 Students working in group to produce mind map of the selected topic in biology.





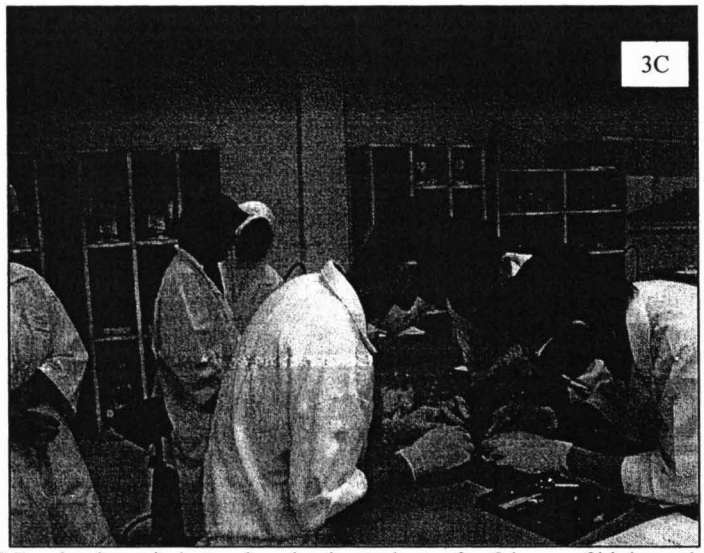
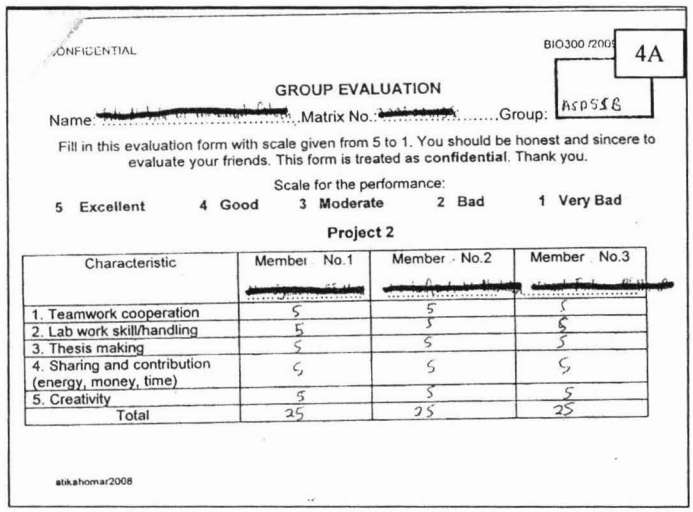
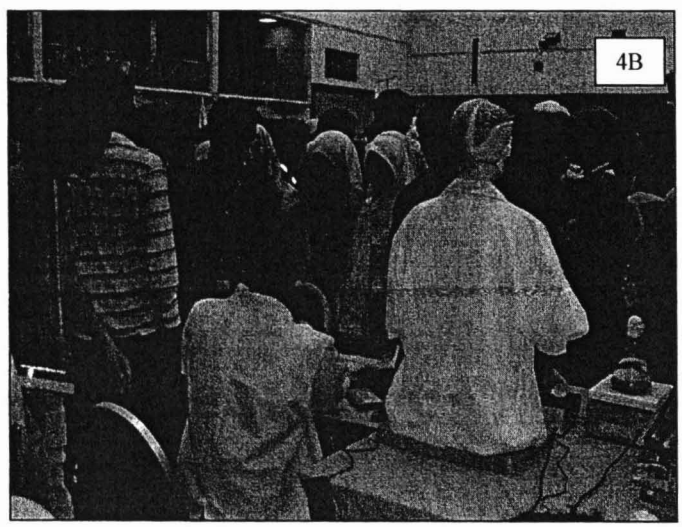


Figure 3 Fascinating mind map done by the students after 2 hours of biology class (3A). Students working in mini projects (3B) and Students having practical work in laboratory (3C).





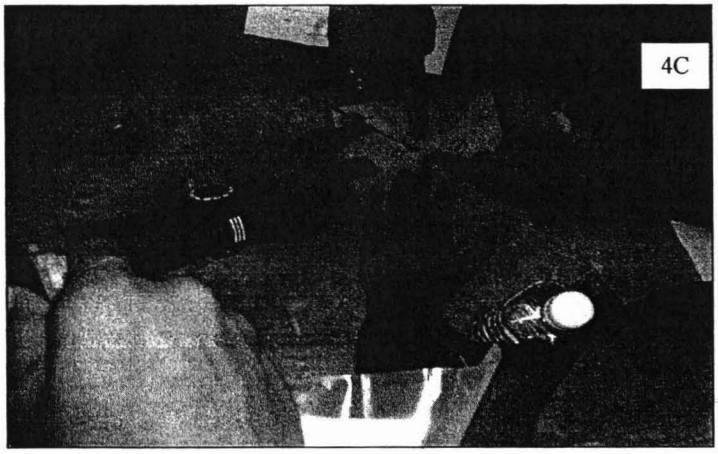
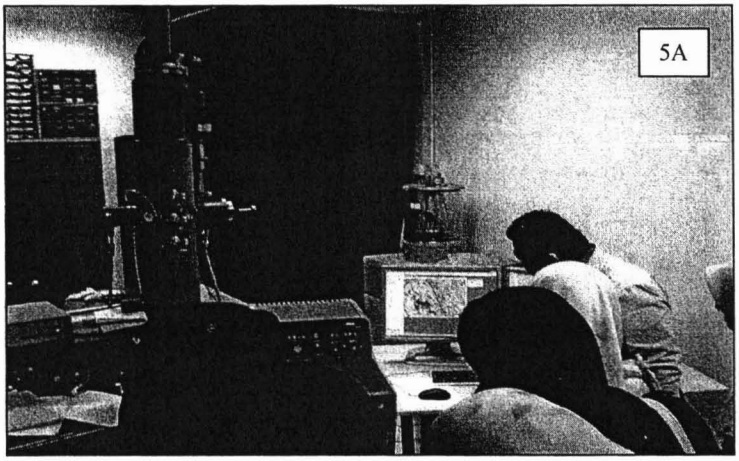


Figure 4 An example of peer assessment form in a final year mini project (4A).
Students were organising science exhibition in campus activity (4B).
The last check point needs all groups to merge the map pieces (4C).



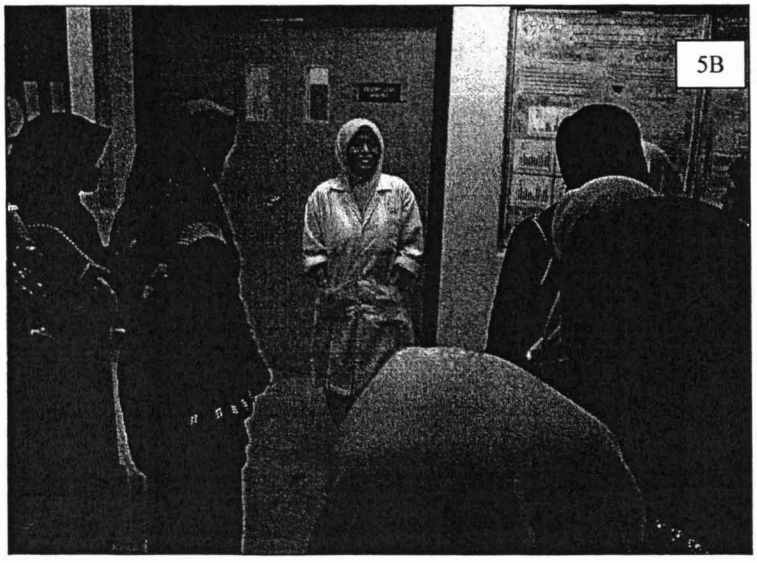


Figure 5 Academic trips to Universiti Putra Malaysia (UPM) (5A and 5B) and Forest Research Institute Malaysia (FRIM) for final year exposure (5C).

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