



**EXPLORING THE RELEVANCE OF OUTDOOR  
CLASSROOM FOR ADAPTIVE PROBLEM BASED  
LEARNING (PBL) AMONG STUDENTS IN SELECTED  
MALAYSIAN UNIVERSITIES**

**BY**

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## ABSTRACT

This research explores the relevancy of an outdoor classroom for adaptive Problem Based Learning (PBL) approach in Malaysian Higher Institutions. The purpose of this research is to examine the significant criteria of the outdoor classroom in the university campus design and to analyse the relevancy of the outdoor classroom in adapting the PBL approach for students effective learning. Currently, students have limited exposure to learning sessions in outdoor classrooms due to the limitation of the physical environment and cultural context. Students tend to minimise their use of outdoor spaces and utilise indoor classroom more often. This leads to less connectivity between outdoor spaces and indoor classrooms, causes students to create a 'space barrier' and limit their learning activities outdoors. This also hinders students to facilitate the usage of outdoor spaces, as the PBL approach encourages students to utilise outdoor classrooms effectively. This research employs both qualitative and quantitative approaches, where a mixed-method of data collection is structured for table research and questionnaire survey. The purpose of the table research is to gather secondary data, to provide in-depth understanding and to further analyse the relationship between campus environment and students' physical and psychological development. A survey is conducted to examine students' effective learning with the PBL approach in the outdoor classrooms. For the survey, targeted participants are students from Architecture and Landscape Architecture students in three selected universities; Universiti Islam Antarabangsa Malaysia (UIAM), Universiti Putra Malaysia (UPM), and Universiti Teknologi Mara Kampus Puncak Alam (UiTM). The questionnaire survey has obtained 300 samples, and analyse of the survey are used to determine the statistical relationship between outdoor classrooms with student learning activities and performances, and also to provide a correlation analysis between intervening variables to establish the connections on the physical qualities of an outdoor classroom and student PBL processes. The result of the analysis indicates that the criteria for an outdoor classroom and PBL practices in the studio design-based programme promote positive benefits to student learning performances, as well as increase the positive influence on student personal and social skills. The thesis then provides recommendations to improve outdoor landscape environment on campus layout that integrate with the PBL approach for future reference.

## خلاصة البحث

تستكشف هذه الدراسة مدى ملاءمة الدراسة خارج الصف الدراسي لطريقة التعلم على أساس حل المشكلة في مؤسسات التعليم الماليزية. والغرض من هذه الدراسة هو فحص المعايير الهامة للدراسة خارج الصف الدراسي في تصميم الحرم الجامعي وتحليل مدى ملاءمة الدراسة خارج الصف الدراسي لتبني طريقة تعلم فعالة للطلبة. حالياً، الطلاب لديهم وقت محدد للتعلم خارج الصف الدراسي نظراً لمحدودية البيئة المادية والسياق الثقافي. فالطلاب يميلون إلى التقليل من استخدام المساحات خارج الصف، والإفادة من استخدام الصف غالباً. وهذا يؤدي إلى ضالة الربط بين المساحات خارج الصفوف الدراسية وداخلها، ويسبب وجود حاجز مساحي للطلبة والحد من أنشطتهم التعليمية خارج الصف الدراسي. وهذا أيضاً يعيق الطلاب من استخدام المساحات خارج الصف الدراسي كنهج للطريقة المعتمدة على أساس حل المشكلات لتشجيع الطلاب على الاستفادة من الأنشطة الدراسية الفعالة خارج الصفوف الدراسية. واستخدمت هذه الدراسة المنهجين؛ الكمي والنوعي، حيث إن المنهج المختلطة مصم للدراسة المكتبية، واستبيان للدراسة الاستقصائية. والغرض من المنهج النوعي هو جمع البيانات الثانوية، لتوفير فهم متعمق وتحليل العلاقة بين بيئة الحرم الجامعي ونمو الطلاب البدني والنفسي. أما الدراسة الاستقصائية فهي لفحص التعلم الفعال للطلبة مع الطريقة المعتمدة على حل المشكلات خارج الصفوف الدراسية. واستهدفت الدراسة طلاباً من كليات الهندسة المعمارية، وهندسة المناظر الطبيعية في ثلاث جامعات؛ الجامعة الإسلامية العالمية ماليزيا (UIAM)، وجامعة بوترا ماليزيا (UPM)، وجامعة مارا للتكنولوجيا في بونشاك علام (MiTM). وتم الحصول على 300 إجابات الاستبانة من عينة البحث، وتم تحليل الاستبانة لتحديد العلاقة الإحصائية بين الدراسة خارج الصفوف الدراسية وبين أنشطة الطلاب وأدائهم التعليمي، وأيضاً لتحليل العلاقة بين المتغيرات المتداخلة لمعرفة صلة الصفات المادية للتعلم خارج الصفوف الدراسية وإجراءات الطلبة في التعلم المعتمد على حل المشكلات. وأشارت نتيجة التحليل إلى أن المعايير الخاصة بالدراسة خارج الصفوف وممارسات طريقة حل المشكلات في برنامج قائم على تصميم استوديو تعزز الفائدة الإيجابية لتعلم الطلاب، فضلاً عن تعزيز التأثير الإيجابي على مهارات الطلاب الشخصية والاجتماعية. وتقدم هذه الدراسة توصيات لتحسين البيئة الخارجية للصفوف الدراسية في تخطيط الحرم الجامعي التي تتكامل مع نهج التعلم عن طريق حل المشكلات للرجوع إليها في المستقبل.

## **APPROVAL PAGE**

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# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 INTRODUCTION**

This study focuses on understanding the criteria of outdoor classrooms and the PBL approach in Malaysian higher education institutions. Many studies stated that outdoor classrooms influence student performance and learning behavior (Yaman, 2005). In the current educational system, Problem Based Learning (PBL) is an innovative pedagogical approach to preparing graduates with personal and social skills and competence (Abdullah, 2006). The essential outdoor classroom environment could equip students with standard design learning spaces that engage in innovative and dynamic constructivist education (Wulsin, 2013). Hence, shaping the Malaysian educational system with learner – centered education approaches.

The purpose of this study is to explore the relevant of the outdoor classroom with the adaptability of PBL approaches in Malaysian higher education institutions. The study is conducted in selected universities focusing on the studio design – based program, as it is part of the principle PBL approaches in higher education institutions.

This chapter provides an overview of the current education system in Malaysia, the outdoor classroom context in Malaysian higher education institutions and the PBL approach in student learning performance in Malaysian tertiary education. Following the issues statement on the research area, the construction of the research questions and the development of research aim and objectives. Next, the methodology used and finally the significance of the research. This study provides an assessment to understand and determine the significant criteria of the outdoor classroom and the

relevance with the PBL approach in the attempt to generate proposed guidelines for outdoor classroom model to create an effective learning environment in higher education institutions.

### **1.1.1 An Overview of Outdoor Classroom in Malaysian Education Institutions**

This research seeks to support the mission of the Ministry of Education (MOE) to produce world-class education and to ensure the development of individual potential and fulfill the nation's aspiration. In line with that, through the 9<sup>th</sup> Malaysian Plan, the MOE developed the Education Development Master Plan (EDMP) over a period of five years (2006-2010) to serve as a guideline for holistic development in Malaysia's educational sector. The research links to the strategies of EDMP to provide better infrastructure and physical environment for educational programs (Ramli, n.d).

One of the aspects of education reforms in Malaysia is to qualify teachers to use research and inquiry as a foundation for their professional development. This is suggested by the Malaysia's school curriculum which is committed to developing children intellectually, spiritually, emotionally and physically in parallel with the National Education Philosophy ("Preliminary-Blueprint-Eng," 2013). Even though conceptions of modern education in Malaysia emerged historically from the post-colonial period, the Islamic philosophy was implemented via the *madrasa* systems, where Islamic teachings explored the relationship between humankind and the environment (devotion to God). The reflective practice borrowed from the West together with Islamic philosophy were then integrated into the Malaysian National Education System.

As Malaysia is practicing a three clustered schools environment with the multi-ethnic group, the concentration of physical and intellectual growth essentially

focuses on the primary level, as the children observe differently compared to adults (Oloumi et al.,2012) The children explored their world through movement and senses, then begin to think logically in the age 7 to 12 onwards. The restorative development affects their focus and concentration, through the outdoor spaces that promote calm, comfortable and relaxed ambiance. Therefore, the primary perspectives of outdoor classroom in primary level is to provide the space for explore, leisure, interactive physical ambience and multi-spaces for social communication. The school landscape is not just for aesthetics, but also to encourage students to appreciate nature and develop their interests in learning (Ali et al., 2015). Moreover, good landscape surroundings help in children's physical and psychological development as well as reduce emotional pressure among students, teachers and parents.

Yaman (2005) defined outdoor classrooms as spaces that have a roof, adequate floor, and semi-open side panels. As Malaysia is situated in a hot and humid region, the school layout is designed to include naturally ventilated buildings and the structures that require thermal comfort to ensure the classroom environment are comfortable for teaching-learning practices.

Furthermore, the school layout should have a connection with the landscape school grounds to allow students utilize the outdoor spaces for teaching, learning and playing that benefits for their physical and psychological development. The vegetation also could improve the human thermal comfort and serves as a cooling agent in buildings. The plants can reduce heat absorption and create sustainable, low energy use, as well as improve buildings ventilation indoors and outdoors.

Above all, educational theorists have considered the importance of the environmental landscape in the students' learning. When the outdoors engages with the natural environment, it supports the academic achievement and improves students'

emotional intelligence (Shamsuddin et al., 2012) . The outdoor environment can be considered one of the tools to improve positive social behavior and reduce disciplinary problems in the schools.

### **1.1.2 Outdoor Classroom Teaching in Malaysia: Overview**

According to Shamsuddin et al., (2012) “...*having enough space within the whole school where the community can meet is particularly important in the secondary school settings*”. The classroom layout for primary and secondary schools in Malaysia have not changed since the past 1970s with the similar conditions and an arrangement that limits the students’ movements (Yesuiah, 2017). Improper indoors ventilation generates hot and sweaty conditions, especially after playing during recess, resulting children felt uncomfortable and unable to concentrate on studying. Lack of ventilation in the classroom also resulted students feel the heat and warmth in the classroom. In addition, formal classroom layout with minimal open-air structured have least considered for outdoor spaces that actually provide positive benefits to children’s attention in studying, as well as enhancing the learning development. Therefore, the outdoor classroom for school layout have to be associated with the activities for learning, such as passive, active and interactive learning and also reducing the thermal comfort indoors.

Studies have shown that primary and secondary schools linked with natural landscape provided opportunities to enhance social and personal behavior. Schools with good natural environments record significant improvements in self-confidence, responsibility, and generate a better connection between teachers and students (Mirrahimi et al, 2011). Moreover, formal or informal school landscape environments

increase positive elements in developing physical activity and psychological enrichment for a child's growth.

The school architectural environment is important in the student's physical and restorative development, in such producing enough activities and social relationship in outdoor classroom. Detailed plans for convenient landscape surrounding for learning is vital to produce students with great potential for Malaysia's development. Yaman (2005) stated that students could improve their educational outcomes with more varied environments and stimulating surroundings compared to the standardized and bland classrooms that currently used in Malaysia. The expertises are concerned with improving the landscape environment to provide good ambiance for students, teachers and public perspectives.

In addition, the Ministry of Education launched the 3K program in 1993 that emphasize on safety (*keselamatan*), cleanliness (*kebersihan*) and beautifying the schools (*kecantikan*) to develop the 'Green Schools' concept to encourage students and teachers to be concerned with the school environment by emphasizing its visual importance and aesthetical values (Ali et al., 2015). As such, the students' interaction with the outdoor environment can be described as an introduction for students in developing an affection for natural context, as well as providing a deeper understanding of the function of the school landscape in students learning performance.

In tertiary institutions, the outdoor classroom trend is concentrate on the active and collaborative learning spaces (Oblinger, 2005). The spaces are designed to support students' information, collaboration, socializing and communication between faculty, staffs and learners. Moreover, the learning activities also contribute to the size

of the spaces. Those activities will determine the specific requirements to meet students' needs, such as project area, individual learning or common study area.

The understanding of the students' demand in informal spaces have encourage designer and planners to design an outdoor classroom that support (i) student-centered learning, (ii) transforming spaces, (iii) informal learning environment and (iv) diverse learning spaces (Acker and Miller, 2005). The study highlights the outdoor learning spaces that could adapt students' learning styles and follow the demands to suit with the campus environment. Table 1.1 shows the criteria of an outdoor classroom for campus planning.

Table 1.1 Criteria of Outdoor Classroom for Campus Planning

Criteria of Outdoor Classroom	Description
1. Commitment to student-centered learning	<ul style="list-style-type: none"> <li>• Formal spaces, shared area, effective and efficient outdoor spaces that provide access to learning resources</li> <li>• Outdoor spaces that integrate with teaching and preferred learning styles</li> <li>• <b>Criteria:</b> <ul style="list-style-type: none"> <li>a) Power supply and network connectivity</li> <li>b) Movable furniture to form working groups</li> <li>c) Spaces for quiet learning</li> <li>d) Variety of learning area-free barrier to support collaborative spaces</li> </ul> </li> <li>• Outdoor classroom that can build more study groups area</li> </ul>
2. Transforming spaces	<ul style="list-style-type: none"> <li>• <b>Criteria:</b> <ul style="list-style-type: none"> <li>a) Movable furniture for easy access</li> <li>b) Wireless networking over time</li> <li>c) Innovative spaces for both groups and individual learning</li> </ul> </li> </ul>
3. Informal learning environment	<ul style="list-style-type: none"> <li>• Spaces that support divergent conversation, linger, meet and socialize informally</li> <li>• <b>Criteria:</b> <ul style="list-style-type: none"> <li>a) Outdoor spaces that support academic value and social exchange</li> <li>b) Well-designed space for students spend before and after classes</li> <li>c) Flexibility, comfort and ergonomic settings</li> <li>d) 'Noise-zone area' and community-based spaces</li> <li>e) Outdoor spaces that access to learning resources such as library or student center</li> <li>f) Space that allows students to move and change the</li> </ul> </li> </ul>

- orientation to each other
  - Celebrating institutional landmarks such as library, student center and residences
  - The landmarks that offer integrated collaborative with groups and individual for active learning environment
  - Students freely access for multitasking approach
  - Vibrant, adaptable and welcoming
  - Outdoor spaces that allow students and faculty meet different teaching-learning strategies
- 

Other study by (Ibrahim and Fadzil, 2013; Scholl, 2015) also suggests that outdoor classroom setting in campus design must include physical and nature elements that can facilitate cognitive in terms of problem solving, focus and concentration on studies and also can promote social development such as carrying out group work, self-directed learning and meet daily activities for effective learning performances.

### **1.1.3 An Overview of Higher Educational Institutions in Malaysia**

By the year 2020, Malaysia aims to be a successfully developed country. To achieve this target, the government is eager to provide highly employable and skilled graduates. Looking back at history, University of Malaya were Malaysia's first public institutions in 1905, followed by Universiti Teknologi Mara (UiTM) in 1959. Then, the rising development of public institutions until in 2007, there were 20 public universities 30 private institutions, of which listed as universities or university colleges (Goi, 2009). This statistic responds to the demands of the Malaysia economic and social growth in order to produce graduate students that highly competitive in industries development.

Currently, public and private tertiary education institutions have developed new phases of learning and alternative routes to offer academic and professional skills to students. The impacts of globalization in Malaysia demonstrate that students need