

# TEACHING METHOD OF LANDSCAPE ECOLOGY STUDIO

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## ABSTRACT

This paper presents a teaching method on a landscape architectural design studio, Basic Ecology and Nature Conservation, at the Department of Landscape Architecture, Universiti Teknologi Malaysia. The objectives of the studio are to enhance students' skills in observing, understanding, analyzing, evaluating, and to explore the ecological planning for generating sustainable design idea. The subject content is made up of two main sections. The first section was introduction via lecture inputs, literature review, and graphic exercise and assignments. The second section was outdoor learning experience or case study to provide an opportunity for students to visit and to observe real project. The projects that visited were Kuala Selangor Nature Park, Putrajaya Wetlands, and Sekeping Serendah retreat home. This teaching and learning method was used as comparative study for studio design through discussion, site observation, and analyzed related data and information. The stages of design began with minor project: literature review and reference study, ecological art work, travelogue, and doodling exercise. It was followed by a major project focused on ecological site planning and design. The design process of the major project included site inventory, analysis and synthesis, conceptual development, master plan planning, detailed area design and construction drawing. The design was evaluated using five criteria: design clarity and contents, development of conceptual idea, verbal presentation skill, graphic composition, and rationalize on ecological design. Evaluation was done by studio master and assisted by practicing landscape architect whom shared the professional experiences in doing real project. This teaching method enabled the students to gain self learning experiences, design practices, and thinking ideas to increase their sensitivity and awareness of creating an appropriate and meaningful ecology's design.

**Keywords:** Ecology studio, ecological design, teaching method and learning.

## 1. INTRODUCTION

The course subject SBL2036, Basic Ecology and Nature Conservation is introduced to second years' students in the third semester of landscape architecture programme. The landscape ecology studio carried six-credit hours and this course is designed as approaching students to appreciate and understand the nature resources and environments. According to the American Society of Landscape Architects (ASLA), the ecology planning and design studies is specified as the interaction between people and natural environment which concerned with interpretation, analysis, formulation of design policies and guideline to certify the quality environment (Motloch 2001). However, the awareness of students' perception and responsive towards ecology design was inadequate. So, the consideration of ecology studio's teaching method should be integrated in-class lecturing and outdoor learning to supervise the ecology design learning process. Again, Beer (2000) also defined the purpose of introducing basic environmental sustainable site planning and development is initiation learning for fundamental undergraduates. Students have to accumulate the design knowledge through this learning process in this ecology studio. Subsequently, students should intend to recognize environmental problem and overcome the design solution with applicable ecological site planning and sustainable design ideas.

## 2. PURPOSE OF THIS STUDY

The main purpose of this study is to emphasis Ecology Studio's teaching method with emerged 'indoor' and 'outdoor' learning experiences. The integration of this teaching method is to ensure students can understand the concept of landscape ecological design by exposed to self-learning experience and reviewing the life projects. More broadly, this learning opportunity had brought students toward expanding their design creativity and ecological knowledge enhancement.



### 3. TEACHING METHODS

The emerging of two of teaching methods: lecturing and case study or field trip visit. Students had participated in this essential programme from the beginning of individual assignment till major design project.

#### 3.1 Lecturing (In-class/indoor learning)

The input lectures had accessible by studio master for each assignments briefing. The first section was lecturing on the basic ecology design, planning theory, site inventory, and conceptual development. Following, is delivering artwork input lecture on environmental art design, graphic presentation composition and colouring techniques. These lecturing functioned as guidance for students to comprehend each design assignments.

Gazvoda (2002) had revealed the basic educated methods for landscape architect used are a combination of artistic perception and creativity with strong graphic expression on one hand and systematic, scientific analytical thinking on the other. Instance, the introducing of environmental arts was intention to allow students generate and translate ecological artwork with ecology ethical. In this landscape design learning process, the purpose of demonstrated colouring technique is to improve students' presentation in graphic and colouring skills. The demonstration of colouring technique: 'quick colouring' and the 'mix colouring media' is to pursue students to increase their proficiency in graphic presentation and landscape plan.

In the same time, the supporting input lecturers for students are also accomplished by local council. Students attended seminar and discussion at JPS (Drainage and Irrigation Department), Johor. The seminar was concentrated on current issue of river pollution and the overcome method for instance appropriate engineering structure and ecological landscape design at river bank. Hence, student had gain the benefit and idea of sustainable river landscape for design project.

#### 3.2 Case study (outdoor learning)

Case study method had been used broadly in landscape education and research that can be used to critically document and evaluate projects and issues mentioned by Francis (2001). In the design stage, case study or outdoor learning is used to expand students' visual and environment experiences of visited real landscape project. For this Ecology Studio, we had visited Kuala Selangor Nature Park, Putrajaya Wetlands, and Sekeping Serendah retreat home. This opportunity had evoked student to gain more learning experiences through observation and senses, identified site issue, site potential, and followed by the site synthesis.

During site visited, students had to describe and compared the visit's case study places through doodling exercise. All of the sketches and ideas had to illustrate the nature ecological experiences. The contents of this comparative study comprised: site planning and design of nature park and man-made wetland, landscape interpretation in the nature park, observation of species flora and wildlife, the implementation

of wetland cells filtration system and maintenance, hardscape detailing, wetland vegetation, material, eco-activities and special events that had execution in the parks. Besides, the purpose of the doodling exercise is to help students improved their manual doodling skills and to get significant understanding of landscape re-interpretation projects as shown in (Figure 1.)

This case study teaching method had increased students learning's interested. The effective of this learning programme are able to let students expressed their understanding of landscape ecology design which is assimilated to studio input lecture given by studio master. Furthermore, students are exposed by real experiences to address site issue and some strategies toward ecological design approach for their major project planning and design ideas.

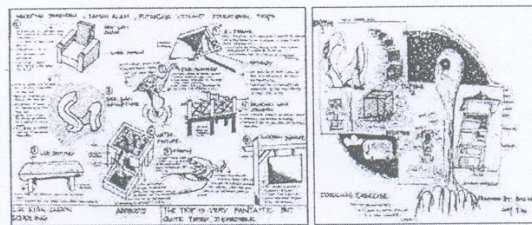


Figure 1. Doodling exercise illustrated the comparative case studies of case study visit. The explanation is described about the understanding of landscape interpretation at Nature Park and manmade wetland.

#### 3.2 COMPARISON OF TEACHING METHODS

The identification of comparison for lecturing (indoor learning) and case study visit (outdoor teaching) methods as follows;

Table 1: Comparison of teaching methods

Lecturing	Case study visit
Present factual teaching material in direct such as theory and logical method	Observing real project to expend depth of critical analysis and solving skill.
Inspired by contain experience and knowledge	Taught by example on site, issues, and natural spaces.
One way communication	Efficient of communication such as interview and discussion
Stimulates thinking to open discussion	Effective way to teach by problem solving skills and evaluation success and failure project
Should include clear example and summary.	Case study must be prepared to avoid insufficient result.
Practical for large group students.	Workable for individual or small group students.



### 3.3 Ecology Studio Design Project

Basically, studio design stages had devised into two projects shown in (Figure 2). The beginning of studio project started with minor project with duration in 7 weeks. The first assignment is the introduction to literature review ecological planning and design guidelines. Students had to review ecological landscape design principles through applicable ecology terminology, and reference study. The assignment findings also need to explained related study area such as ecosystem of river, mangrove, tropical rain forest, and coastal area.

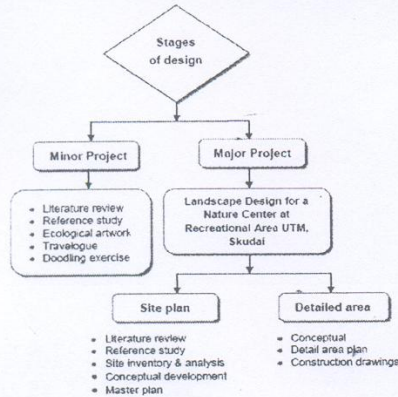


Figure 2: Ecology studio design project stages

Subsequently, the minor assignments also included individual ecological artwork which to express appreciation of coastal ecology (Figure 3.). Students are able to translate the ecological terminology and convey into landscape design concept by using material at coastal ecology and environment. The conceptual design process is the important part to create, to transform and constructed the art product.

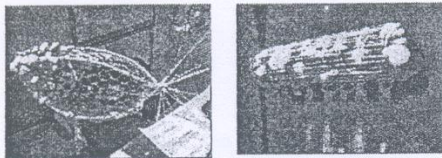


Figure 3: Ecological artwork

For the travelogue assignment, is to describe the journey and perception of landscape interpretation in West and Central of Java. This exercise is to expose student observation. Meining (1979) describes the selected landscape through identify by element, composition and meaning of viewing experiences Motloch (2001). Students are encouraged to prepare a descriptive travelogue which to include the ten categories of landscape interpretation as nature, history, habitat, places, aesthetic, cultural and many more.

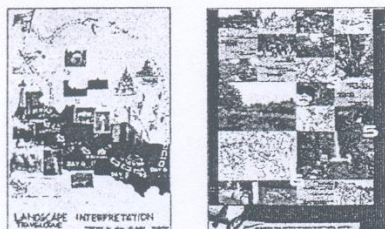


Figure 4. Travelogue

For the doodling and design exercise (Figure 4) is to introduce students on fast sketches skills to disseminate design ideas from lines, hatches, texture, tones, proportion, scale; and illustrated the comparative study of case study visit. This terrific of doodling had built the effective brainstorm design idea and as a studio art entertainment session which bring some leisure and enjoyment during this graphic exercise.

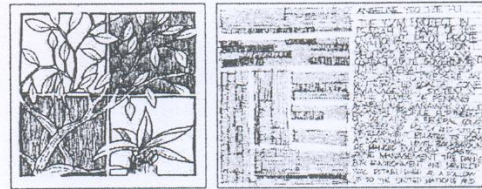


Figure 4: Doodling exercise

Next, students continued their major project completion in 8 weeks. Students had given an opportunity to design for real project. They learnt the design solution and planning consideration that fit to the behaviour needs of the client and users. The project was to integrate the outdoor learning and nature centre within natural spaces at UTM Recreational Forest. Students were requisite to implement a master site planning (by group project), detailed area design and construction drawing (by individual project). These design projects emphasizing their understanding and the structuring of site inventory and analysis, site synthesis, ecology site planning, sustainable design, literature review study, conceptual development and case study explorations. During this design process, studio master and practicing landscape architect monitored students' works via input lecturing and critique session. Here, students have opportunity to grasp additional technical knowledge and theoretical content through this critique session. They were responsible to guide and advised students on project scopes such as: site construction, hardscape detailing, softscape design, and ecological landscape planning and design methods.

### 3.4 Presentation and Evaluation of Students' Work

After accomplished every assignment and design projects, students have to present their works verbally and its will be evaluated. Students have to perform and capture audience attention with their voice expression, body language, clarity and precise conclusion. Studio master and landscape architect contributed to share their opinions and reviewed students' work. The evaluation form was distributed while assessing students' works based on five important criterias noted in evaluation form (Figure 5). The total marks and grades to assess students' work considered on the design aspects of clarity, contents, conceptual development, verbal presentation skill, graphic composition, and rationalize on ecological design. This assessment not only judged students' work but it was a part of the constructive criticism to improve students' practical design ideas especially in sustainable ecology design and landscape construction.



EVALUATION SITE SYNTHESIS, CONCEPTUAL DEVELOPMENT AND FINAL MASTER PLAN (10%)			
CONTENTS	75%	50%	25%
1. SITE SYNTHESIS			
2. CONCEPTUAL DEVELOPMENT			
3. MASTER PLAN			
4. CONCEPTUAL DEVELOPMENT			
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Figure 5: The evaluation form assessment of site synthesis, conceptual development, and master plan.

#### 4. FINDINGS AND DISCUSSION

The integration of lecturing (in-class or indoor) and case study visit (outdoor learning) is equally important. Cooperating two teaching methods enable students to gain most learning resources from theory and outdoor learning experiences. Without both teaching methods, it becomes a learning constraint that due to the lacking knowledge in ecological design process. Figure 6 demonstrates the student's major project to illustrate the achieving on applying ecological principles at site development. They are be able to further self learning, design practice, development ideas and the increasing of sensitivity in creating consequential ecology's design. Based on overall performance, students have achieved their learning outcomes as follows;

- Inspired students in the creativity design philosophy through developing landscape ecology terminology, ecology principles and design concept.
- Students capable to broaden the design thinking and design process which embraced analytical skill, problem solving, site survey, conceptual idea, and preliminary design development to expanded as landscape master plan and detail area plan.
- Moreover, they had improved on graphic presentation, student able to translate the primary data form site inventory, site analysis data, schematic plan into appropriate and clarify graphic composition.
- Meanwhile, the students had improved communication skill during open discussion, and project presentation.
- The benefit of allocated students in a team work is leading closely to work as a team during site survey and peer discussion for design project.

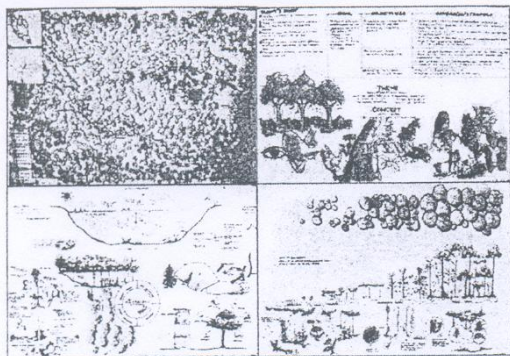


Figure 6: Student's major project: Master plan, conceptual diagram, ecology implementation: water filtration treatment, section and sketches.

#### 5. CONCLUSION

As conclusion, case study is an important part of the course teaching method. The engaged of lecturing and case study was to assure the ecology design theory can be carried out through outdoor learning experiential. This method is highly appropriate for integration in the landscape ecology studio mainly in developing design cognitive and ideas. Especially for case study learning which is advantage for direct learning experience through visiting, visualizing, analyzing, and comparative study on site projects. It was the best teaching tool to justify either the real project is successful and failure on site. The studio learning adaptation also develops students' key skills in team working, collaboration, communication practice and responsibility. However, for this paper we addressed there are some aspects of teaching approach should be reconsider and suggested while consecutively the ecology studio as follows;

- Create a learning environment that incorporated the classroom lecturing, outdoor and environmental educational. The outdoor experiences had shown the clear sense to attain the confidents and rationalise on design work.
- On the other hand, the learning experience created by studio master connected to wider disciplinary or broader study field such as design workshop and seminar. It means that some of the studio programmes needed interaction of altering idea, discussion and exchange and share learning information with their peers.

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