Developing Aesthetics Assessment Skills in Bachelor of Design Programmes: An Introspective Account in UPSI

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Abstract

This paper elaborates how aesthetic assessment skills were developed among undergraduate students who were pursuing Bachelor of Design degree programmes in Sultan Idris Education University. Three assessment methods – criterion-referenced, norm-referenced and ipsative assessment were introduced to the students during their second or third semester of study. The students were guided to develop their aesthetic assessment skills, specifically in the Design Aesthetics Course. One of the intended learning outcomes for the course requires the students to analyse and criticise the aspects contained in art forms which would be learned according to robust verbal and written arguments and evidence. The paper presents how the learning outcome was attained by the students, from learning four principles of aesthetic pleasure and three levels of emotional design, to applying the knowledge in course assignments. They were guided to construct aesthetic criteria and assessment forms, and directed to assess design work for either fictional or real-life clients. The students were also instructed to write an individual assessment report and then present the report to clients through social media. For students who believed they could perform better if they were given a second chance, they could attempt to complete make-good assignments and determine whether they wanted their scores to be replaced or not. Three challenges were encountered by the lecturer in teaching aesthetic assessment skills, i.e. the need to match assignments' difficulty level with students' prior learning experience; the need to make the philosophical nature of aesthetics practical for design; and the urge for lifelong learning in order to teach design.

Keywords *design aesthetics, assessment, criterion-referenced, norm-referenced, ipsative.*

INTRODUCTION

In applied arts, design is the drawing or visualized plan created to present the appearance and function or mechanism of a structure, costume, or other commercialisable object before it is produced. This meaning was adapted from Oxford Dictionaries (2013) and it embraces a four-dimensional view of design, covering aesthetic, functional, economical and socio-political dimensions (see Figure 1). In a word, a good design should take issues related to these four dimensions into consideration. This paper focuses on the aesthetic dimension, particularly on aesthetic assessment skills development among students who study design. In this context, aesthetics is a set of principles concerned with the nature and appreciation of beauty, which deals with questions related to beauty

and artistic taste; whereas aesthetic assessment is the action of calculating or estimating the beauty of design (Oxford Dictionaries, 2013). When Alexander Baumgarten coined the term "aesthetics" in the early 18th century, it carried its original Greek meaning: I perceive, feel and sense (Wessell, 1972). Thus, developing the students' aesthetic assessment skills should involve the mastery of aesthetic principles for measuring and justifying the artistic quality of a design. This paper is an introspective account of a lecturer in Sultan Idris Education University (UPSI) after teaching aesthetic assessment for four semesters.
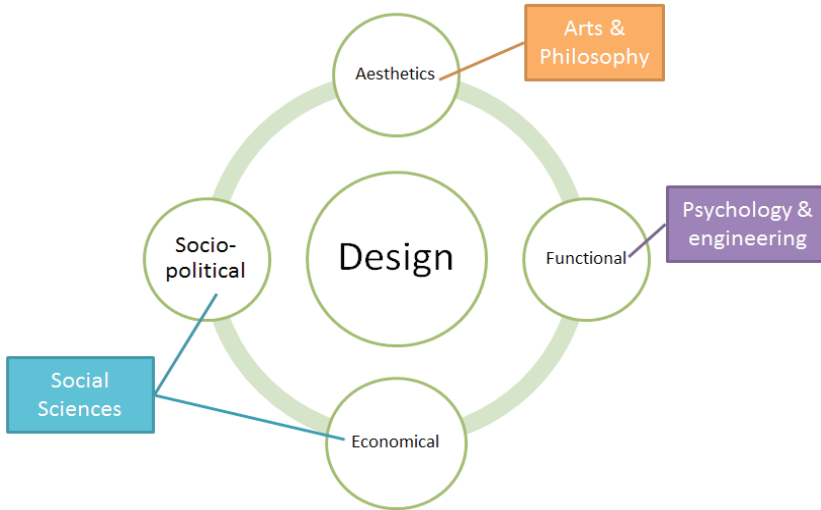

Figure 1 Four dimensions of design

THE BACHELOR OF DESIGN PROGRAMMES IN UPSI

The holistic view of design is the underlying belief held by academics in the Faculty of Art, Computing and Creative Industry (FACCI), UPSI when developing three Bachelor of Design programs with Honours, i.e. in animation, advertising and digital games respectively. In practice, both science stream and art stream students are eligible to enrol in these programmes. While the digital games programme is going to be offered in 2015, the animation and advertising design programmes have been offered since February 2011. To date, seven cohorts of students have been recruited. Students should take 30 credit hours through nine common core courses which are prepared to establish them with various aspects of design fundamentals (as shown in Table 1). Among these courses, the development of aesthetic assessment skills is covered in the syllabus of Design Aesthetics.

Table 1 Common core courses in Bachelor of Design programmes

Course title	Credit hours
Elements and Principles of Design	4
Pedagogy for Design	2
Creative Drawing	3
Graphic Design	3
Digital Photography and Imaging	4
Research in Design	4
Design Aesthetics	**4**
Design History	3
Professional Portfolio	3
Total	**30**

THE DESIGN AESTHETICS COURSE

As approved by the Malaysia Qualification Agency, the Design Aesthetics course aims to provide the students the ways of seeing, interpreting, comparing, analysing and appreciating beauty in arts, particularly applied arts (Sultan Idris Education University [UPSI], 2010a, 2010b). The students are expected to "explore new dimensions of thinking about aesthetics as manifested in different culture throughout the ages by reading a number of philosophers and interpreting a variety of creative works (UPSI, 2010a, 2010b)." In terms of transferrable skills, the course is structured to develop the students' aesthetic sense and skills in issues related to design for use in other courses across the Bachelor of Design programmes by achieving the following learning outcomes:

1. To explain the principles and the appreciation of beauty in the form of arts.
2. To relate the issues to do with the various form of traditional art and modern art which include the visual arts, music and performing arts from various cultures.
3. To demonstrate and formulate the concept of beauty based on certain principles, system and techniques, concept and criteria.
4. To analyse and criticise the aspects contained in art forms which would be learned according to robust verbal and written arguments and evidence.

When mapping to Bloom's (1956) taxonomy, the first two learning outcomes are set at the comprehension level of cognitive domain in learning; while the third is positioned at the synthesis level and the fourth is placed within the analysis level. Students who attained the fourth learning outcome are also expected to nurture a positive attitude in valuing design aesthetics and to acquire the soft skill of lifelong learning.

Students are generally encouraged to take the Design Aesthetics course in the second semester of their eight-semester degree programme. However, as there is no prerequisite for enrolling in the course, some have chosen to take the course in either the third or the fourth semester. In UPSI, one semester of study consists of fourteen weeks of lessons and two weeks of examination. Four two-hour lessons were planned for developing aesthetic assessment skills in two weeks, commonly after the one-week

mid semester break. Table 2 shows the position of lessons on aesthetic assessment in the overall course structure.

Table 2 Content outline of the Design Aesthetics course and the student learning time per topic (L: Lecture; P: Practical; O: Others)

Week	Topic	L	P	O	Total
1	Overview of Design Aesthetics	2			2
2	Understanding Design • Meanings of design in three languages • Four dimensions of design • Three levels of design • Being a designer	4	2		6
3	Understanding Aesthetics and Beauty • Meanings of aesthetics and beauty • The study of aesthetics • Arguments in beauty	2	2		4
4 – 5	Pure Art vs Applied Art • What is art? • Four possible criteria of art • Criticisms of the criteria of art • Inexhaustibility • Two types of creativity • How to evaluate creativity?	6	2		8
6 – 7	Understanding Forms and Meaning • Metaphor, Analogy, Symbiosis, Semiosis & Imitation • Plato's idealist thinking • Four principles of aesthetic pleasure	6	2		8
8 – 9	Aesthetic Evaluation and Assessment • Criterion-referenced, Norm-referenced & Ipsative • Subjectivism, Objectivism, Relativism & Emotivism	6		2	8
10 - 11	Aesthetics in Virtual Reality, Augmented Reality & Mixed Reality • The rise of VR and AR • Uncanny valley • Avatarism and aesthetics	6	2		8
12	Glocalisation in Design Aesthetics • Localised design & globalised design • Glocalised design vs universal design	4			4
13 - 14	Presentation			8	8
	Total	36	10	10	56

Demographic Profile of Students

To date, 260 students had taken the Design Aesthetics course in the first four semesters of the Bachelor of Design programmes, as shown in Table 3. The overall gender ratio was 4 male students to 6 female students. More than half (139 or 53.5%) of the students took the animation degree programme while 121 or 46.5% of the students pursued the advertising degree programme. The total student count varied from one semester to another, ranging from 26 in the first cohort to 123 in the fourth cohort.

Table 3 Demographic profile of Design Aesthetics students

Cohort	Program Type	Student count		
		Male	**Female**	**Total**
Semester 1, 2011/2012 Academic Year	Advertising	5	4	26
	Animation	9	8	
Semester 2, 2011/2012 Academic Year	Advertising	14	18	66
	Animation	18	16	
Semester 1, 2012/2013 Academic Year	Advertising	5	22	45
	Animation	7	12	
Semester 2, 2012/2013 Academic Year	Advertising	22	31	123
	Animation	30	40	
Grand Total		110	157	260

Developing Aesthetic Assessment Skills

The education assessment methods commonly used in UPSI were adapted for teaching aesthetic assessment. The knowledge and skills of applying these methods, i.e. criterion-referenced assessment (CRA), norm-referenced assessment (NRA) and ipsative assessment (IA) are included in a two-week teaching and learning certification programme which has been made compulsory to all UPSI academics as a requirement for job confirmation. UPSI academics are expected to conduct CRA, NRA and IA in their professional practices when they see fit.

In the context of the Design Aesthetics course, these three assessment methods were taught sequentially in two weeks, starting with CRA, and then followed by NRA and ended with IA. This sequence was set as such due to the hierarchical comprehension needed for practicing aesthetic assessment. In other words, the knowledge and skills of CRA are the basis for conducting NRA, while mastering CRA and NRA would facilitate the learning of IA.

Criterion-referenced Assessment

In education, criterion-referenced assessment is a form of assessment that examines whether or not one performed well or poorly on a given task by referring to predetermined criteria (Smith, 1973). A criterion could be a principle or standard by which something is judged or decided ("Criterion," 2013). Wallendorf (1980) argued that "aesthetic criteria or preferences of individuals are not genetically determined, or even rigidly formed as a result of early childhood experiences". Instead the criteria are formed through "an ongoing process which is psychological and sociological in nature" (Wallendorf, 1980).

In the context of the Design Aesthetics course, aesthetic criteria are set objectively prior to the assessment, by referring to Hekkert's (2006) four principles of aesthetic pleasure: (1) maximum effect for minimum means, (2) unity in variety, (3) most advanced, yet acceptable (MAYA), and (4) optimal match. A brief description of each of these principles is shown in Table 4. These principles were preferred in the Design Aesthetics course because the argument made by Hekkert (2006) is parallel to the four

dimensions of design adhered to by the Bachelor of Design programmes. According to Hekkert (2006), human beings "aesthetically prefer environmental patterns and features that are beneficial for the development of the senses' functioning and our survival in general." The four general principles of aesthetic pleasure were proposed to be working across the senses based on this argumentation.

Table 4 Description of four principles of aesthetic pleasure

Principles	Descriptions
Maximum effect for minimum means	Human beings like to invest a minimal amount of means, e.g. effort, resources, brain capacity, to attain the highest possible effect, in terms of survival, reproduction, learning or explaining (Hekkert, 2006). In expressing emotional feelings, metaphors are used as an economical, efficient and stylistic way to say something that is difficult to express in words (Forceville, Hekkert, & Tan, 2005; Ramachandran & Hirstein, 1999).
Unity in variety	Human beings like to perceive connections and make relationships because the perceptual tendency of grouping and discovering relations allows human to detect objects and meaningful wholes. In order to determine what belongs together and what not, the human sensory systems must detect order in chaos or unity in variety (Hekkert, 2006).
Most advanced, yet acceptable	Human beings prefer the most typical examples of a category as it will lead to safe choices instead of risking the unknown (Whitfield & Slatter, 1979). Nonetheless, they have always been attracted by new, unfamiliar and original things, partly to overcome boredom and saturation effects (Martindale, 1990). Thus MAYA aims to increase the novelty of a design while preserving its typicality, because human beings tend to prefer products with an optimal combination of both aspects (Hekkert, 2006).
Optimal match	Human beings prefer designs that convey similar messages to all five senses because the ease of identification has survival value (Hekkert, 2006). Also, consistency of impressions will lead to elevated identification accuracy (Zellner, Bartoli & Eckard, 1991), thus making all the sensory messages congruent with the intended, overall experience is therefore an important matter in design.

In practice, students were guided to construct criteria for aesthetic assessment after learning Hekkert's (2006) principles. Each of the criteria should fulfil the ABCD format, which is a modification of Mager's (1997) tool in preparing instructional objectives. The description of each component in the modified ABCD format is shown in Table 5. Once the students learned the skills of criteria construction, they were directed to develop an assessment form and conduct aesthetic assessment. Table 6 is an actual form created by a male student who took the course in Semester 1 of 2012/2013 Academic Year. The form was used by the student to assess the aesthetics of a website called KNeoWORLD (accessible at www.kneoworld.com) that sells games for education in the United States. Once the students knew how to conduct CRA, they were instructed to write individual assessment report and then present their reports to either fictional clients (cohort 1 & 2) or real-life clients (cohort 3 & 4) through YouTube or Bloggers.

Table 5 The ABCD format of aesthetic assessment criteria

Acronym	Description
A (Assessee)	A person or a design work that is chosen to be assessed.
B (Behaviours)	Observable behaviours or functions performed by the assessee. The verbs used to specify a behaviour should be parallel to the Bloom's (1956) taxonomy.
C (Conditions)	Statements that define the context and limitations where an assessee should be able to perform the behaviours or functions which are being assessed.
D (Degree)	Statements that define how well the assessee performs the behaviours or functions being assessed.

Table 6 Actual assessment form created by student to assess the aesthetics of a website

Aesthetic principles	Assessment criteria	Yes / No	Comment /observation
Maximum effect for minimum means	Each component in the website has metaphors of animation for kids	No	There are no animation for children included in the website
	The website consists of metaphors for children users.	Yes	The interface of the website looks very colourful and attractive. The interface is eye catching.
	There are advertisements with metaphors that are congruent for children users.	No	There is only advertisement with metaphors specified to adult.
Unity in variety	Each component has practicality of aesthetics that brings good design.	Yes	The website components are easy to handle and each component displays its function to be used in simple manner.
	Each label included in the website is linked to other websites which is related to game-based learning (GBL)	No	The website is only linked to social-networking website. The website does not link to other website which is related to GBL.
	The website is linked to a social-networking site.	Yes	The website is linked to famous social-networking website like Facebook and Twitter. This website should also link to other social-networking website.
MAYA	The interface of the website is designed in 3D.	No	The interface of the website is totally designed in 2D.
	The website consists of future technology features.	No	The website only consists of interface metaphors for children users.
	Each game sold by the website has novel introduction to representing the game.	Yes	The introduction of the games is shown in a video. The introduction of the games is too short.
Optimal match	All components of the website must be congruent to each other.	Yes	All the components are well structured and easy to understand.
	All products offered in the website have free trial.	Yes	The free trial should be included in the game section. The requirement for email is not necessary.
	The interface of the website makes users feel excited to browse the website.	Yes	The interface of the website is catchy for children users.

Norm-referenced Assessment

Norm-referenced assessment is a form of educational assessment that compares one to his or her peers (Smith, 1973). The underlying doctrine behind NRA is relativism, in which attainment in education exists in relation to culture, society, or historical context, and is not absolute ("Relativism," 2013). Harré and Krausz (1996) argued that there are two different interpretation of relativism. One interpretation asserts that there is no true description, privileged approach and valid assessment of the value of human conduct, i.e. there is no absolute truth in points of view. Another interpretation claims that all descriptions are equally true, in which all approaches have the same standing and all considerations of value are equally valid (Harré & Krausz, 1996). In design aesthetics, the judgment of beauty is relative to individuals, culture, time periods and contexts. In other words, there is no universal criterion of beauty, hence the saying "beauty is in the eye of the beholder".

In the Design Aesthetics course, NRA was taught after students learned Norman's (2004) three levels of emotional design: (1) visceral, (2) behavioural, and (3) reflective. In particular, the visceral design deals with the appearances of design outputs, and it is the automatic, prewired layer of the brain which determines human attributes. According to Norman (2004, p.22), "it makes rapid judgments of what is good or bad, safe or dangerous, and sends appropriate signals to the muscles and alerts the rest of the brain." The second level is behavioural, which denotes the pleasure and effectiveness of use—very similar to the observable behaviours mentioned in Table 5. The third level is reflective, that is the rationalisation and intellectualisation of a design output (Norman, 2004).

The multi-level NRA in design aesthetics could be started with the visceral level by rejecting a design which is not appealing auditorily or visually (see Figure 2). Aesthetically appealing design works will be ranked based on the first impression of assessors. After that, rejection of appealing but unusable or impractical designs will be carried out at the behavioural level assessment. The 'survived' design would be ranked according to the degree of ease of use. This is followed by the reflective thought assessment, which will be conducted by analysing a design through the assessor's past experience. The ranking of design at this level is based on reasoning, as opposed to the intuitive judgment of the assessor.

In the Design Aesthetics course, the students were guided to conduct NRA through fictitious handsome man contests and beauty contests. The activity began with a group discussion in which the students would determine the criteria for both the most handsome male and the prettiest female students in the course. Next, ten male and ten female students were randomly selected from the students who attended the class. These students played the role as contest participants and stood in front of the lecture hall; while students who were not chosen played the role of judges. The judges were facilitated to carry out visceral, behavioural and reflective levels of assessment, in which they were guided to eliminate contestant level-by-level by referring to the criteria they proposed prior to the contests. The rank of contestants was determined in an ascending order at the end of each contest. At the end of the lesson, students reflected the in-class events by answering the question of: 'how would you assess beauty?'
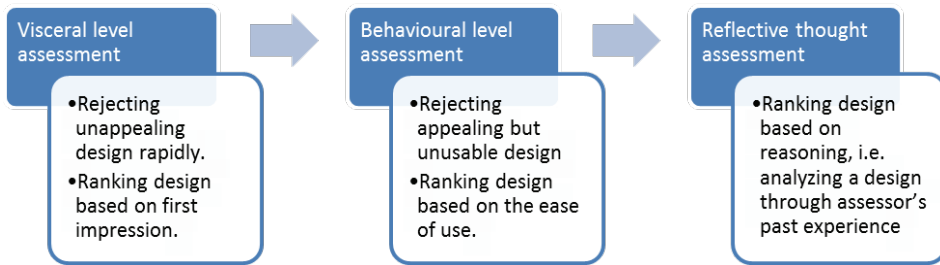
Figure 2 The three-level flow of NRA in design aesthetics

Ipsative Assessment

Ipsative assessment is a form of assessment that compares one to him or herself through time, which is comparing to his or her previous performance (Hughes, 2011). In the context of design, IA would be accomplished by comparing the aesthetics of assesses with his, her or its past recorded attainments, collected through CRA, NRA or a combination of both.

In the Design Aesthetics course, students were encouraged to keep breaking their personal best score. For instance, make-good assignment was given to those who intended to achieve better scores in their assignments. The improvement of scores could be reflected through their individual learning journal or creative works. The awareness and option of the make-good assignment directed the students to insist on seeking for greater perfection in design.

DISCUSSION

Matching assignments' difficulty level with students' prior learning experience
The inconsistency in prior learning experience among the students has been a challenge in teaching Design Aesthetics, particularly in cultivating the skills of conducting aesthetic assessment. Since no prerequisite was set for taking this course, students can take Design Aesthetics at any semester of their four-year study. Therefore, students who had taken fundamental courses like Elements and Principles of Design, Creative Drawing or Graphic Design before enrolling themselves to the Design Aesthetics course would possess better prior knowledge, skills and attitudes towards design and aesthetics, as compared to those who have taken limited or no fundamental courses. The situation became worse when there were two enrolments per academic year, resulting in more variety of students' prior learning experience. As a result, balancing the difficulty level of assignments related to aesthetic assessment and the level of students' prior knowledge becomes a challenging task in every semester.

To resolve this issue in practice, a recommended semester-by-semester academic plan was prepared by consulting the chairperson of Malaysia Design Council, Prof. Dato' Dr. Ahmad Zainuddin, who is also the former and first Dean of FACCI. Students were advised to follow the academic plan and those who needed to repeat or defer a particular course must meet and discuss with their personal academic advisor. A remedial learning plan might be set for these students in order to cope with any

accumulated study workload. For instance, repeating students may be asked to sign a learning contract that specifies their expected grade in the course and the expected learning outcome attainment through personalised assignments (Greenwood & McCabe, 2008).

As for the lecturer, the pedagogy for teaching diverse learners was applied, in which all students must keep their personal learning journal throughout the semester. This learning journal was made as the first assignment for the course. In terms of content, students were instructed to record meaningful in-class events and answer questions posted to them at the end of each lecture through critical reflection. A task completion checklist was marked and personalised feedback was given to individual students by commenting on their learning journal twice in the semester, i.e. at the end of Week 4 and Week 7 or during the mid-semester break. Students who were found facing learning difficulties were contacted in-person for one-to-one consultation. Those who failed to comprehend most of the essential learning contents, including aesthetic assessment, were warned before Week 9, as the chances of them failing the course during the final written examination would be very high.

For those who completed other assignments by the designated deadline would be given the opportunity to do make-good assignments. If the score in the make-good assignment was better than the preceding assignment, the students could propose to revise their scores in the UPSI student performance management system or MySIS, hence a manifestation of learner-centred learning (Yilmaz, 2008).

Making the philosophical nature of aesthetics practical for design

Aesthetics is essentially a branch of philosophy, and teaching any subject matter or topics related to philosophy is indeed a challenging task in Malaysia. According to a report published by UNESCO (2007, p.42), "philosophy is still not taught as a school subject in primary or secondary schools in Malaysia...neither is taught at universities as a field of study: it is taught as philosophy of education, of science, etc., but there is no Department of Philosophy". Thus, Malaysian students who took Design Aesthetics generally did not have any prior formal engagement with philosophy or branches of philosophy, and this required additional teaching on fundamental concepts associated to philosophy before explaining key concepts and issues related to aesthetics. Alternatively, the contents of Design Aesthetics could be structured to become less philosophical.

Instead of highlighting the philosophical nature of aesthetics, the Design Aesthetics course was tuned towards applied aesthetics, especially when dealing with assessment skills that involve scientific and psychological approaches, as demonstrated in Hekkert's (2006) four principles of aesthetic pleasure and Norman's (2004) three levels of emotional design. The list of bibliography was also changed to include texts related to applied arts, like Brown's (2009) *Change by design: How design thinking transforms organizations and inspires innovation*, while discarding references to fine arts, such as Valentine's (2006) *Beginning aesthetics: An introduction to the philosophy of art*.

The delineation of the aesthetics in pure arts and applied arts was clearly introduced to the students at the beginning of each semester, based on Han's (2012) argument, in

which the characteristics of aesthetics have been adapted for practical usage in design thinking and process, rather than pure artistic arousal of senses. In a way, the assessment methods introduced to the students are grounded on psychological and social research studies, as opposed to classical works in arts and humanity.

Teaching design courses is lifelong learning

Learning aesthetic assessment is hard but teaching aesthetic assessment is twice as hard. Lecturers who teach design courses should keep exploring both the contents and pedagogy for design, apart from holding the fort of classical school of design. The dynamic nature of design aesthetics creates constant pressure for the lecturers to acquire novel knowledge and skills from the latest discovery and innovation in design research studies while balancing the relationship between arts and design. Lifelong learning seems to be a mandatory matter instead of an option, therefore the lecturers need to demonstrate passion not only in teaching but also in learning design.

In UPSI, tenured lecturers are given the opportunity to take six-month or nine-month sabbatical leave for every three or five years of continuous teaching. The sabbatical leave could be done by conducting a short-term study in other educational institutions to enrich if not refresh design and pedagogical knowledge and skills. For those who already possess a doctorate, one to two year post-doctorate research opportunity might be given to academics who intend to conduct research overseas. Design lecturers should take the challenge of working in other countries, either in academia or in the creative industry during their sabbatical or post-doctorate study leave.

Academics must also reflect critically for pedagogical reasoning of their teaching, and share their reflection and experience with peers, either through presenting papers or posters in academic conferences or publishing articles in academic journals. To publish, they need to conduct research in design practice or in design education, not only to fulfil the requirements set by the university they serve, but also to contribute to the body of knowledge in the field of design.

CONCLUSION

Three aesthetic assessment methods were taught to four cohorts of students who pursued the Bachelor of Design programmes in UPSI. The teaching began with CRA, in which the students acquired knowledge and skills to construct criteria based on Hekkert's (2006) four principles of aesthetic pleasure. The constructed criteria became the basis of the aesthetic assessment form, which was used to assess the aesthetics of design work. Once the students mastered the practice of CRA, they were guided to conduct NRA using Norman's (2004) three levels of emotional design. The students practiced eliminating and ranking techniques in each level of NRA, accumulating the foundation of making systematic relative, emotive and subjective judgments. The grasp of CRA and NRA skills facilitate the acquisition of knowledge in IA, in which students would insist on seeking for greater perfection in design.

The aesthetic assessment methods used in this course were pragmatic and relevant to the design programmes. They have become important building blocks in the Design

Aesthetics course. However, three challenges were encountered in the four cohorts of teaching experience: (1) matching the assignments' difficulty level with students' prior learning experience, (2) making the philosophical nature of aesthetics practical for design, (3) teaching design courses is lifelong learning. These challenges should be overcome accordingly in future semesters in order to maintain if not enhance the quality of teaching aesthetic assessment knowledge and skills in the Bachelor degree programmes.

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