International Journal of Business, Human and Social Sciences
ISSN: 2517-9411
Vol:3, No:10, 2009

Creative Technology as Open Ended Learning Tool: A Case Study of Design School in Malaysia

Sri Kusumawati Md Daud, Fauzan Mustaffa, Hanafizan Hussain and Md Najib Osman

***Abstract*—**Does open ended creative technology give positive impact in learning design? Although there are many researchers had examined on the impact of technology on design education but there are very few conclusive researches done on the impact of open ended used of software to learning design. This paper sought to investigate a group of student's experience on relatively wider range of software application within the context of design project. A typography design project was used to create a learning environment with the aim of inculcate design skills into the learners and increase their creative problem-solving and critical thinking skills. The methods used in this study were questionnaire survey and personal observation which will be focus on the individual and group response during the completion of the task.

***Keywords*—**Learning Tool, Creative Technology, Software, Software Skills, Typography Design.

I. Introduction

THERE is no doubt that creative technology has greatly impacted design education. The issue of how creative technologies were used in learning design has been debated to see various portfolio results and how far students can learn. There is current concern that preference of software are dictate by pre-conceives idea over specific design area. Students may limit themselves within minimal number of software. This is seen as a source of some tension between design education and industry, as many employers require graduates to have knowledge of wider range of software prior to employment. Integrating these skills into the curriculum alongside developing creativity and theoretical/ contextual understanding has become difficult for design educators. Although technology plays an integral role in the production of designed products, it is an adjunct to the core content of courses which is an understanding of the knowledge and skills associated with design, their application to creative problem solving and contextual/ theoretical understanding of issues related to design and a broader field. It would be unrealistic and unwise for courses to ignore the increased requirement of technology in the industry. Consequently, the use of software and the number of computer workstations has increased, it is now generally accepted that a student will have access to a computer to produce finished work and that software skills will be included in courses [1].

Design and technology are two separate entities whereby in learning design these two things should not be separated. Design is the conceptual side and computer technology is the tool used to produce the design solution. This means "computer is just a tool to bring good creative ideas to life" [2].

This paper sought to investigate the student experience on open ended used of softwares within a design project context. A typography design project was used to create a learning environment with the aim of inculcating critical thinking into the learners and increase their creative problem-solving skills. The project was created using wide range of software for design such as Adobe Photoshop, Fractal Design Painter, Corel Draw, Adobe Illustrator, Macromedia Freehand, Adobe PageMaker, and Quark Express, industrial standard software tools for design application.

II. Software Technologies as Learning Tools

Sensitivity on software technologies is among important aspect that has to be in self development of young designers. In design computing, design exploration has greatly subjected by both a thinking designer and softwares (the enabler or software technologies). Softwares related to design are growing and continue to widen features offered in them. They serve as a vehicle that can be driven by designer's by far wider possibilities than conventional way. In most industrial standard design softwares, features were built based on specific objectives, characteristic and strength. In fact, in many cases, software can act as vernacular because each has specific strength through features to suggest option of expressions. Imaginative ability to handle multiple softwares can be a good addition to push possibilities in exploring typography.

Sri Kusumawati Md Daud is with the Faculty of Creative Multimedia, Multimedia University, 63100 Cyberjaya, Selangor, Malaysia (phone: 603-8312-5749; fax: 603-8312-5554; e-mail: kusuma.daud@mmu.edu.my).

Fauzan Mustaffa., is with the Faculty of Creative Multimedia, Multimedia University, 63100 Cyberjaya, Selangor, Malaysia (phone: 603-8312-5729; fax: 603-8312-5554; e-mail: fauzan.mustaffa@mmu.edu.my).

Hanafizan Hussain is with the Faculty of Creative Multimedia, Multimedia University, 63100 Cyberjaya, Selangor, Malaysia (phone: 603-8312-5604; fax: 603-8312-5554; e-mail: hanafizan.hussain@mmu.edu.my) and

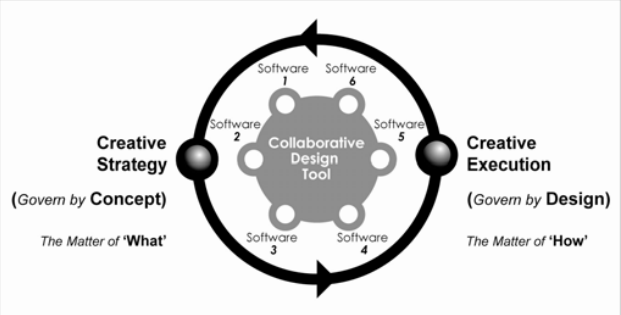
Md Najib Osman is with the Faculty of Creative Multimedia, Multimedia University, 63100 Cyberjaya, Selangor, Malaysia (phone: 603-8312-5765; fax: 603-8312-5554; e-mail: najib.osman@mmu.edu.my).

Understand multiple softwares and how it can contribute to design expression is one good way to expend students' capability in this discipline. Anchoring with just one software in delivering design need in typography means limiting one self. In general, the open ended used of software is a concept of versatility that supposes to enhance resourcefulness of second year design student.

"Computers permits designers to accomplish numerous possibilities and computers can do much to enhance an existing concept but computer cannot create a concept" [3]. In relation between designer and software, there's always question 'who control who in determines what is possible'. If a design student says 'I can't do this because my software can't do it' at that instance, that student is control by software. Some potential sketches produced by students deserve further development in design softwares one way or another. Swann (2000) [4] finds that students like to use technology because it makes producing highly finished work simple. He describes students concentrating on computer skills and vocational knowledge to enable them to get jobs as junior designers. He considers current students on visual communication courses to be computer literate and keen to explore and exploit the potential of new technological tools: the problem with this is that the risk becoming dependent on the capabilities of software packages.

Figure 1 demonstrates utilization of softwares as creative technology which governs by two important factors; creative strategy and creative execution.

FIGURE 1
TABLE OF COLLABORATIVE SOFTWARES



III. DETAILS OF THE STUDY

The Faculty of Creative Multimedia is one of six faculties at the Multimedia University, Malaysia. At the time of the study, the faculty was home to approximately 850 undergraduate students (full time equivalent). The faculty has four wholly in-house undergraduate design programmes: Media Innovation, Digital Media, Film and Animation & Interface Design. The design programmes integrates academic study with extensive creative digital technology production work which approach has placed Multimedia University at the forefront of Malaysian creative multimedia education.

The study was conducted in Trimester 3, in the academic year 2003/2004. Subjects consisted of 234 first year undergraduate student enrolled in the Design Process course participated in this study. The students were brief on the requirements, specifications and the objective of the project during the project briefing occurred simultaneously to all the students during the lecture.

IV. PROCEDURES

The students were given six weeks to complete the project (as the final assignment in the course) whereby they were required to work in a group of two by self-selection. Thus, there were 117 groups of students participated in this study and were actively responsible for their own learning process. Smaller groups (of three) contain less diversity; and may lack divergent thinking styles and varied expertise that help to animate collective decision making [5]. Conversely, in larger groups it is difficult to ensure that all members participate. An article [6] stated that 'small group work, used both in and out of class, can be an important supplement to educators, helping students master concepts and apply them to situations calling for complex applications of critical thinking skills.

V. PROJECT AS FACILITATION MECHANISM

Design project is not totally similar like exams because mistakes are permitted to expend possibilities especially in the process. Design process carries milestones which not only record 'learning history' on a particular project but most importantly act as guide path in making design decision. Projects can be designed as mechanism to facilitate student's development at various levels.

VI. THE PROJECT

A project was designed to study the dynamic usage pattern of open ended design software to achieve vast element of typographical play and its behavioral expression. The project was assign to first year design student as group task to maximize learning out come and increase their problem-solving and critical thinking skills. The project was geared on appreciation of letterform and aim to build their understanding on possibilities of composition and manipulation of purely types based on type personality.

Three nature of software were suggested to be used in this project. They were:

i) Vector Softwares (Adobe Illustrator, Macromedia Freehand and Corel Draw)
ii) Raster Software (Adobe Photoshop & Fractal Design painter)
iii) DTP Softwares (Page Maker & Quark Express)

Students were encouraged to use two or more softwares in developing and executing their artworks. During the collaborative learning activities the team had to work closely to enable them to plan and execute their idea according to the design process acquired.

Earlier, in the foundation year in the faculty, this batch of student was already been thought all the above softwares in design computing class. In this class, there was no specific tutorial on softwares. Lecturers and tutors were paying attention in their facilitation mostly on design process as demonstrated in figure 2.

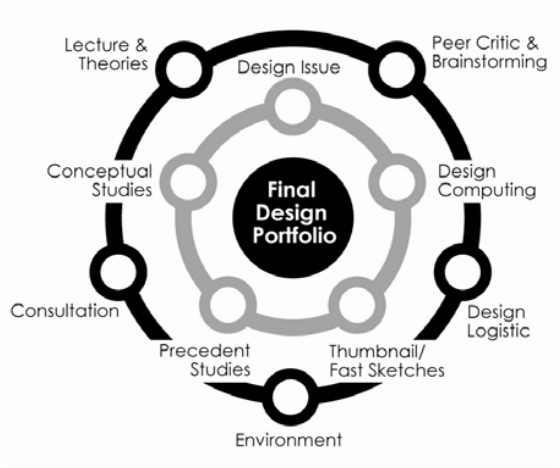


Fig. 2 Conclusive Design Education Propeller

VII. RESULTS AND FINDINGS

Table 1 summarises the result on the softwares used during their project execution and Table 2 seeks feedback on students general perceptions on using software technologies as learning tools. They were asked to answer the questionnaire distributed to them during the submission day.

TABLE 1
SOFTWARES USED IN THE PROJECT

Designs Tools	Frequency	%(p)
Adobe Photoshop + Adobe Illustrator	86	73.0
Adobe Photoshop + Macromedia Freehand	15	13.0
Adobe Photoshop + Adobe PageMaker	2	2.0
Adobe Photoshop + Adobe Illustrator + Adobe PageMaker	3	3.0
Adobe Photoshop + Adobe PageMaker + Macromedia Freehand	5	4.0
Adobe Illustrator + Adobe Photoshop + Adobe PageMaker + Macromedia Freehand	4	3.0
Others	2	2.0
Total:	117	100

Pattern in Table 1 shows that after trying all softwares suggested for the project, 86 percent of students choose to combination one vector and one raster software to execute their final typography artwork. 12 percent of students include DTP software in their execution. 98 percent students include Adobe Photoshop and 95 percent students include Adobe Illustrator in their design computing process. The pattern shows that selection of software by majority of students are appropriate based on their design objectives. However, the unpopular combination of softwares choose by minority of students derives to unique design outcomes.

Fig. 4 Sample of Sudents' Works

Based on submitted artworks, not only the students understand the concept of different software faster, they start demonstrating imaginative use of those softwares. Artworks show that they alert on different characteristic and features even when collaborating software of same nature. (i.e. Adobe illustrator and Macromedia Freehand).

TABLE II
GENERAL FEEDBACK ON USING OPEN ENDED SOFTWARE AS LEARNING TOOLS

	3) Strongly agree and 4)Agree
Open ended design tools/ softwares allows me to reach wider typography design spectrum and solution in the project	178 (76%)
Open ended design tools/ softwares allow me to solve more typography design challenges in the project.	151 (64.5%)
Open ended design tools/ softwares stimulate my imagination in executing the project	133 (56.8%)
During the execution of this typography project and utilizing Open ended design tools, there were executioner ideas that extended from my original sketch	119 (50.8%)
The major influence of my design in this project was my precedent studies and idea development and NOT the features offer in the design tools/ software.	102 (43.5%)

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree, 5=Not Sure

There are patterns that students who anchor more on DTP sofwares (i.e. Adobe Page Maker) has more sensible used of grid system in establishing relationship between typographical elements. Students who anchor more on Vector software (i.e. Adobe illustrator and Macromedia Freehand) have tendencies to deconstruct grids and artworks become more organic. Students who anchor more on Raster software, have tendencies to explores tonal values, and create illusion of shallow space and special effects.

On the whole, majority of the students (73%) were using Adobe Photoshop and Adobe Illustrator. These applications are the best software suits for this project. It proofs the increased of the students understanding towards the usage of the design software tools and it was also evidenced by the quality of their final work submitted.

The survey found that more than half of the class (76%) strongly agree or agree that open ended used of software allow them to reach wider typography design spectrum and solution in their project. A larger number of them (64.5%) strongly agree or agree that open ended used of software solved more of their typography design challenges and stimulate their imagination during their project execution. In general we can summarize that the students' are very positive on using software technologies as a learning tool for this project.

While the acceptance of the use of software technologies as learning tool was encouraging there are some challenges to be considered. Drawing from the findings of this study, the feedback also revealed that 56.8% of the respondent strongly agree or agree that there were executioner ideas extended from their original sketch and 43.5% strongly agree or agree that precedent studies and idea development is the major influenced on their project. Less than half percentage of respondents given their opposite feedbacks whereby they either disagree or strongly disagree with the statement. Most probably this group of student found that they were more comfortable experiment with the software and implementing their concept directly on the screen rather than spend more time on paper.

On the other hand, during the critic session, we observed that the students were able to discuss wider spectrum of typo play because there were large amount of groups briefly present their findings. Two in a group resulted in forcing each member to be more active and less complains of non participative members.

VIII. CONCLUSION

Overall, the results of this study indicate that the students' are positive over open ended used of software in learning typography design. We need learning activities to stimulate the students' level of consciousness on both conceptual and technical exposures. Good design thinking is developed through investigation and experimentation. Playing with typography is one good technique to gain sensible control over integral parts of this discipline. Software as creative technology can play it role to stimulate opportunity in exploring and polishing students' typography ideas. Imaginative ability to handle multiple softwares can be a good addition to push possibilities in exploring typography.

Especially to first year student, facilitations are strongly needed to avoid students' tendencies to jump to conclusion prematurely because at this point, process is more important than result. Enrichment of learning process requires certain level of openness to develop their importantly senses of design. Therefore, the role of an instructor is still needed in able to help the students to build their well rounded skills.

REFERENCES

[1] Marshall, L. & Austin, M, Design is theory and practice, not theory with practice, in Gale, H (ed) Learning and Teaching Projects 2002/03. University of Wolverhampton
[2] Johann Ross, 2000, "Common mistakes for a graphic designer" an article ranked and rated #7 from # Helium's members. Available:http://www.helium.com/items/1158839-poor-graphic-design-mistakes
[3] Webb, N, Verbal interaction and learning in peer-directed groups. International Journal of Theory into Practice. 24 (1), 2001, 32-39.
[4] Swann, C. (2000) Meanwhile back on the Ranch. Conference paper for Foundations for the Future: Doctoral Education in design. La Clusaz, France 8-12 July.
[5] Vygotsky, L.S, Mind in society: The development of higher psychological processes (Cambridge MA: Harvard University Press, 1978).
[6] B.G.Davis, Cooperative learning : Students working in small groups, Stanford University Newsletter on Teaching, Winter 199 Vol.10, No.2