

CREATIVE DESIGN TEACHING-LEARNING METHODS: A REFLECTION FROM THE PROFESSORS

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ABSTRACT

The main purpose of this article is to identify teaching and learning strategies that enhance creativity and decision making in Design Education. The experiences of the instructors are used as the main input to the process. Each instructor in the Department of Design was interviewed to detect his/her needs in their own teaching activities. All of the instructors who were interviewed expressed their desire to learn and apply diverse educational strategies. We then sent out a survey to each one of them and asked them to describe their best learning strategies to share them with their colleagues. We found that their preferred strategies were short duration exercises where the student makes design-related decisions through the application of the concepts he/she has learned. These exercises foster the ability of rapid decision-making and effective communication on a short time frame. The results of this process call for improvements in the strategies that were presented, to promote learning activities that contribute in the development of higher-level cognitive skills and improve the performance of designers in their work environment.

Keywords: Learning process, strategies, creativity

1 INTRODUCTION

To design means to develop methods to solve problems with different levels of complexity. Students usually acquire this ability rather quickly, but they are less apt to be good decision makers. Applying diverse strategies and criteria to explore candidate solutions over a search space is an important ability to make good decisions [1]. This qualitative study aims to identify teaching and learning strategies that boost creativity and decision making in design education, drawing from the experiences of the instructors in subject areas as diverse as manual and digital graphical expression, prototype building and the theory and practice of design in general.

In this paper we will present techniques or strategies devised by our design instructors to enhance creativity and decision-making. We will present these strategies in the following manner:

1. The strategies that each instructor has developed and that are recognized by them and by their students as the best ones.
2. The type of learning that the instructor is looking to develop with a given strategy (memorization, comprehension, analysis, etc.)
3. The activities a student needs to do to prepare before class and what the instructor does to close a learning activity, such as evaluation or application of results by the students.
4. The description of the general strategy employed and its contribution to the professional practice of the designer making decisions in real environments.

This university considers three elements for the design and execution of learning strategies that promote active learning amongst the students [2]. The first one is the commitment the students show towards active learning experiences administered by the instructor. The second one relates to the recognition that not all students learn in the same way because they have different learning styles. The third one is the encouragement to students to exercise higher-level cognitive operations, such as analysis, synthesis and evaluation. The exercise that was conducted with the instructors allows us to compare the learning strategies employed by them with respect to the three elements presented before. This paper aims to present the results of a compilation of the techniques employed by instructors in their classes and the possible conclusions and effects of these techniques on the future professionals.

For this exercise has been considered as a strategy the art of combining activities and resources to achieve a goal.

2 TECHNIQUES AND INSTRUMENTS

The compilation of educational strategies in design was born out of a personal interview with the instructors of the Department of Design. These instructors teach classes offered to the undergraduate programs of International Marketing and Publicity, Industrial Design and Design of Interactive Media. During this interview we asked the instructors what they thought they could do to improve their class performance. We suggested them to express their weaknesses and desires for improvement in their classes by summarizing the learning experiences they used. When the collected information was analysed, we found that all of the instructors would like to receive training related to learning strategies specific for design areas to implement them in their classes. The instructors recommended us to hold some activity to share and discuss with their colleagues everyone's experiences related to learning strategies. We then constructed a matrix and sent it out via e-mail, to collect the contributions of every instructor to organise and prepare them for their socialisation in a group activity.

Table 1. Matrix of Learning Strategies (example)

Digital Graphic Design (for International Marketing and Advertising)		
1	Name of the Strategy	Identity search and technological appropriation
2	Type of learning advanced by the activity	The progression here is Research - Action - Appropriation. In this course, the instructor uses workshops that foster creativity through the use of digital tools. These workshops are based on learning models where research (supported on historic elements and the use of analogue and digital tools) opens the mind to individual positions.
3	Tasks to do before class	Research about symbolic representations of characters that have been recognised graphically through simple imagery.
4	General description of the strategy	Comprehend conceptual elements and relate them to the use of digital tools.
5	Duration	Eight hours.
6	Instructor activities	Initial guidelines for the comprehension of the exercise. Historical example with the analogue processes of representation - abstraction of the image of a historical character. Basic guide or tutorial video to re-interpret the same steps with the use of the digital tools provided by the University.
7	Student activities (if there are different assignments, please describe them separately)	Appropriation of the research, identification of abstraction and representation elements. Inner search through self-portraits with digital photography and re-interpretation with the aid of digital tools for simplification and abstraction with proven recognition (quantitative element).
8	What does the instructor do to close the activity?	Each member of the teams shares the result of the exercise and this input is used for the final revision of self-identity and recognition.
9	What do students do with the results of the activity?	Students sign their work with their representation or personal brand. This is also one of the first exercises that prepare them for their final project of construction and definition of a brand that will result in a Manual of Corporate Identity.
10	Evaluation	This exercise weighs 15% in the final grade of the course.

The matrix of learning strategies is divided in ten fields related to the type of learning that the instructor wants to enhance, instructor and student involvement before, during and after the activity, as well as the form of evaluation (Table 1).

3 SAMPLE SIZE

The Department of Design currently has 40 instructors teaching more than 90 courses each semester and they shared with us 43 strategies. Each instructor could send one or more forms, depending on the number of strategies they wanted to share with their colleagues, with emphasis on those that were aligned with the University's educational project.

4 FINDINGS

The sample size is not statistically significant, but its validity resides in the fact that all of the instructors design activities that foster active learning, the most important pillar in the University's teaching strategy, regardless of the type of course offered. The instructor has to design and manage learning experiences, motivate and guide students towards the construction of their own knowledge, and the student has to be active and engaged with his own learning process [3]. Now the main findings of this exercise will be presented.

4.1 Types of Strategies

The most common exercises are the project-type activities or the development of design proposals (41%) and the problem-based situational analysis (Figure 1).

These activities foster the ability to propose design solutions rapidly. Students have to conduct research related to a situation presented by the instructor prior to the activity. The instructor then will have the students apply concepts they know and comprehend. These activities promote in the students the ability to present arguments to support their solution in front of their peers, to discuss it and receive feedback from the instructor.

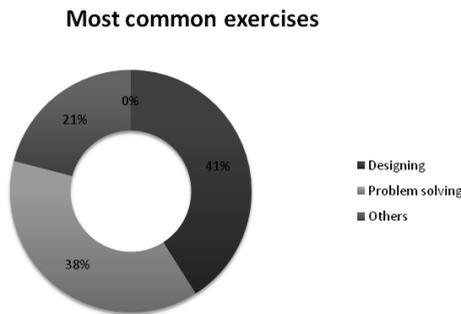


Figure 1. Most common exercises

The duration of the learning strategies varies greatly. More than half of the instructors (56%) conduct short-duration exercises or activities that last a fraction or a full class session (ranging from one to four hours). These exercises foster rapid decision making, in a matter of minutes. The rest of the instructors (44%) conduct activities that span over more than one session, promoting more complex activities that require the use of diverse methodologies.

4.2 Cognitive skills

According to Bloom's taxonomy [4], skills in the cognitive domain can be classified in several categories (in increasing order of complexity). One of them is memorization, only used in one of the history courses in the Department of Design. The learning type that most instructors wanted their students to achieve with their teaching strategy were comprehension, and 50% of the instructors promote it. The other strategies were distributed between Application, Analysis, Synthesis and Evaluation. The skill that was favoured by most instructors was Comprehension, which is considered a low level cognitive operation whereas Analysis, Synthesis and Evaluation are higher-level operations.

4.3 Preparation for the learning strategy

The activities that a student has to perform before class are distributed between research (41%), exercises done beforehand in order to prepare for the activity and complementary readings (Figure 2).

Tasks to do before class

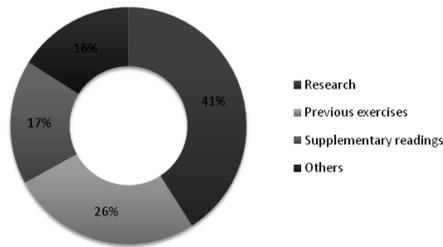


Figure 2. Activities the student has to perform before class

The instructor's role during the activity implies advising the student (50%), and presenting the exercise (44%). All activities close with the instructor's feedback with group discussions and conclusions (figure 3).

Instructors role

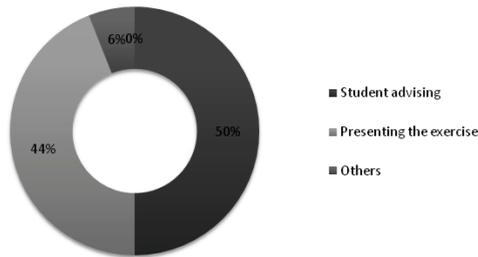


Figure 3. What does the instructor to close the activity?

Of all the student activities, 76% do not have a numerical grade and therefore do not affect the student's course grade, most of them help the students to prove their own capacity to apply learned concepts, analysis ability and communication skills (figure 4).

Objective of the activity

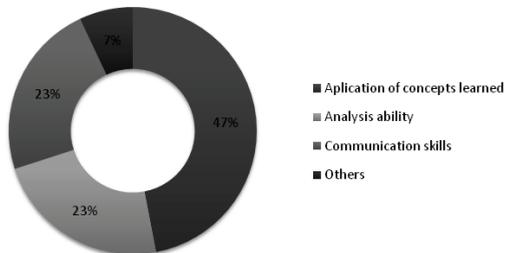


Figure 4. Objective of the activity

4.4 General description of the learning strategies

All the strategies have similarities in their approach, development and objectives regardless the course to which they belong. A good starting point is for the student to research a theory or specific subject, and to perform related exercises before coming to the learning activity. This preparation is considered

vital for active learning. It is then expected that the student is able to use the information acquired previously to state or solve a design problem and then present it and discuss it with a group expressing its opinions around it. The active character of the instructor's work is given by his/her ability to design and conduct varied experiences so the students can participate and learning is a positive experience. The instructors must have the capability to reduce dramatically the use of lectures, focusing instead on activities of the type described before. Play, competition and fun in the learning process are some of the aspects that have higher acceptance amongst instructors and students.

5 CONCLUSIONS

The inputs obtained in the survey conducted with the instructors bear a great contribution to design education. We found that the most commonly used learning strategies were short duration exercises (one session), where the students solve problems and present their design solutions in a rapid manner during class. In these exercises, play and team-based competition emerged as the preferred activity for students and instructors.

These exercises foster the development of various competencies, such as: the ability to formulate and solve problems, the ability to present an idea graphically for rapid and effective communication, and the argumentative ability that empowers the student to analyse and present a situation in a short time.

The professional competency that was fostered in more than half of the learning strategies implies the rapid solution of design problems. This competency enhances rapid and assertive decision making, which is a very desirable attribute for a professional designer.

There are a wide variety of learning and application strategies, which is in itself and very positive outcome. However, it is necessary to enrich learning using strategies that foster higher-level cognitive skills, such as Analysis, Synthesis and Evaluation in students, transcending Comprehension, which only implies knowledge of a certain material.

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