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SciVerse ScienceDirect

Procedia - Social and Behavioral Sciences 51 (2012) 115 – 119

Procedia
Social and Behavioral Sciences

ARTSEDU 2012

Assessment of basic design course in terms of constructivist learning theory

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Abstract

Design education is a process that allows multiple solutions and different points of views, where individuality in interpretation and expression are encouraged. Design courses take place in a studio environment where students deal actively with projects related to everyday life and evaluation is an indispensible part of learning. Due to its structure, design education appears to be compatible with constructivist learning theory. Basic Design is the common course of different design departments, which establishes the required foundation for any kind of professional design training. The purpose of this study is to analyze the Basic Design course from a constructivist point of view.

Keywords: Design education, basic design course, constructivism, constructivist learning theory

1. Introduction

Design education is defined as a process that allows multiple solutions and different points of views, where individuality in interpretation and expression are encouraged (Saranlı, 1998; Sausmarez, 1983; Teymur, 1998). Design courses take place in a studio environment where students deal actively with projects related to everyday life and evaluation is an indispensible part of learning. Due to its structure, design education appears to be compatible with constructivism.

Basic Design is the common course of different design departments such as Graphic Design, Industrial Design and Interior Design, which establishes the required foundation for any kind of professional design training. The purpose of this study is to analyze the Basic Design course from a constructivist point of view by applying to design students the scale on assessing constructivist learning environments developed by Arkün and Aşkar (2010). The first stage of the study is to investigate the appropriateness of the scale for the field of design education and then to assess the Basic Design course according to the 6 factors in the scale: whether the course is student centered, thought provoking, collaborative, life relevant, enables different viewpoints, concurs learning and assessing.

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 doi:10.1016/j.sbspro.2012.08.128

2. Literature

2.1. Constructivist Learning Theory

The traditional teacher-centered method of educational systems has been changed; modern education theory has focused on skills like creative thinking and problem solving which are today's needs. It seems the most appropriate approach for gaining these skills is the use of constructivist environments (Tse-Kian, 2003).The growing influence of constructivism and increase of research studies on the subject have affected the teaching approaches of universities as well (Herrington, & Herrington, 2005).

Constructivism provides an alternative epistemological aspect to the objectivist tradition, which suggested that the goal of instruction is help the learner to find 'the' correct (Duffy, & Jonassen, 1992). In objectivism, the world exists independently of us, experiences don't have any role in understanding the world and knowledge exists independently of instruction (Duffy, & Jonassen, 1992). Wilson (1996) emphasizes how the perception of knowledge influences the view on instruction. In constructivist view, knowledge is made by learners, in other words, learners construct their own understandings, and knowledge cannot simply transfer from one person to another because it is not a pure copy of the external world (Baki, & Bell 1997; Jonassen, Peck, & Wilson 1999; Phillips, 2000). Therefore learners may express what they have learned in different ways, even if they have shared the same learning process (Phillips, 2000).

Wilson (1996) defines constructivist learning environment as:

'a place where learners may work together and support each other as they use variety of tools and information resources in their guided pursuit of learning goals and problem-solving activities'

According to Jonassen (1999) constructivist learning environments' components are: a question, case, problem or project as focus of the environment; related cases, information resources, and cognitive tools for supporting to understand the problem; conversation/collaboration tools for negotiation of the problem; social/contextual support systems.

2.2. Basic Design Education

Basic Design is the common foundation course of different design departments such as Graphic Design, Industrial Design and Interior Design. The idea that a foundation course is needed for a professional design training was introduced in 1919 by the founders of the famous and very influential design school Bauhaus (Westphal, 1991). Before Bauhaus, transfer of knowledge and experience from master to apprentice, known as the "Beaux-Arts System", was the common practice in most art and design schools (Güngör, 2005). As a result, the students were usually adopting the style, work methods and aesthetic sensibilities of their teachers, with little chance of developing their personal approaches and producing creative and unique works (Çekil, 1989). In order to overcome the problems of the traditional method, Basic Design was established as a course where students deal actively with projects in a studio environment, where only knowledge gathered through experience is valued (Sausmarez, 1983) and students are "no longer passive receivers of knowledge from their teachers or manuals but rather acquired their knowledge through experimenting, creating, discovering" (Boucharenc, 2008).

The discipline of design is multivariate, versatile, relies fundamentally on creativity and deals with multiple subjects and data (Teymur, 1998). Furthermore, design is closely related to human life which is ever changing (Sausmarez, 1983), therefore designers need the ability to creatively solve problems of various kinds, for various situations and in various mediums. In order to give the students this degree of versatility and flexibility, Basic Design is not considered "as an end in itself, but as a tool that helps the student realize the expressive possibilities at his/her command" (Sausmarez, 1983). With this tool, students' way of thinking, defining problems, searching for solutions and achieving creativity is reshaped and reinforced.

Creativity, which is an essential element of successful design, can be defined as "producing a new idea or object by reorganizing old or familiar elements" (Odabaşı, 2006). In Basic Design, to stimulate their creative abilities, students are encouraged to look at the problem from different points of view, generate as many ideas as possible in a

given time, to search for what hasn't been done and to be flexible enough to change course. Since, individuality is considered as fundamental for creativity and originality (Sausmarez, 1983), Basic Design aims to encourage students to be more courageous, to decide independently and take risks in their experimentations in order to realize and express their individuality (Saranlı, 1998).

Critiques of works produced are an essential part of the education in Basic Design. Critiques give a student the chance to learn from the experience of the other students by discussing in class different outcomes and possible solutions to a design problem, (Güngör, 2005). Apart from demonstrating that the same problem can be approached from multiple perspectives, critiques also show that the design process is never ending and give the student a chance to improve his/her work (Saranlı, 1998). Even if the critiques received are not positive, they are constructive comments nevertheless, with the purpose of improving the work produced (Odabaşı, 2006).

The Basic Design course, due to its student centered, thought provoking and life relevant approach to education, as well as its acceptance of different viewpoints, the emphasis on the research process through experimentation instead of the final result and finally, the collaborative class critiques, appears to be highly compatible with the constructivist learning theory.

3. Method

At the beginning of the study, how the Basic Design course in conducted was examined through literature review, in class observation and conversation with instructors. Furthermore, a scale was chosen to be applied to design students, in order to obtain quantitative results measuring the compliance of the course with constructivist learning theory. The scale developed by Arkün and Aşkar (2010) is a 7-point Likert type scale on assessing constructivist learning environments. The scale has 6 factors as; student centered thought provoking, collaborative, life relevant, concurrent learning and assessing, different viewpoints.

To evaluate the validity of the scale for the design education, and especially for Basic Design course, the opinion of a design education expert was taken on the factors and the items. The expert approved the validity of the scale, but pointed out two issues. The first issue was due to a difference in educational terminology between the faculty of education where the scale was initially developed and the faculties of architecture and fine arts where Basic Design courses are conducted. Terms such as "classroom" and "exam" are irrelevant for Basic Design, which is a studio course where the evaluation is done through critiques and jury presentations. The second issue that the expert mentioned was the confusion that may arise from the concept of "collaboration" that the scale measures. Collaboration is an inherent process of Basic Design, since students interact, converse and get feedback from each other, even though they usually work on individual projects. On the other hand, students also work on group projects from time to time. The expert forewarned that the items questioning collaboration in class, might be understood by some students as referring only to the less often group projects, while others might understand the general collaborative atmosphere created by the work environment.

Data was gathered from 134 design students based on their Basic Design courses. The reliability analysis of the scale was made with SPSS (Statistical Package for the Social Sciences). After reliability analysis, opinions of two experts were taken on the factors and results once again.

4. Results

Through class observations, conversations with instructors and literature review, the educational approach of the Basic Design course was compared with the factors in the scale developed by Arkün and Aşkar. Since knowledge is not transferred from teacher to students, but, searched an explored by students themselves, the course was found to be student centered. This explorative aspect as well as the encouragement of new ways of thinking, of creativity and the search for new solutions to different design problems, shows that the course is thought provoking. The education is done through hands-on projects, with physical objects as the final outcome, often relating to existing design problems in the world and therefore, life relevant. Projects are conducted in studios, critiques are given publicly, creating a communal environment for production and discussion and students are especially encouraged to

participate in this collaborative learning. As the class critiques shows, the inherent never ending aspect of design emphasizes the importance of process rather than the final result, allowing student to improve themselves by concurrent learning and assessing. Finally, the search for creative and alternative solutions to life relevant problems in the non-deterministic field of design makes different viewpoints valid as well as valued. As a result, Basic Design appears to comply with the constructivist learning theory in all aspects of its educational approach.

The scale was applied to get a quantitative measurement of this deduction. The reliability analysis, Cronbach's Alfa coefficient of the whole scale has been determined as .893 and Cronbach's Alfa of the factors have been found as .667, .768, .550, .820, .500 subsequently. Values above .65 are acceptable for reliability (George, &Mallery, 2003). As seen in the Table1, two of the six factors, "collaborative" and "different viewpoints", are not in the acceptable range.

Table 1. Cronbach Alfa Coefficients

Factor	Coefficient
student centered	,667
thought provoking	,768
collaborative	,550
life relevant	,820
concurrent learning and assessing	,686
different viewpoints	,500
Scale	,893

As mentioned before, the inconsistency in the "collaborative" factor was a suspected result, however, the results of the "different viewpoints" was unexpected, therefore two expert opinions were taken to explain this reliability issue. The experts claimed that the main reason behind this issue might be the critique and evaluation process that is part of the Basic Design course: the negative critics students receive, cause some of them to wonder whether only the teachers' point of view is valid. The experts pointed out that these students misunderstand the constructive nature of design critiques and don't realize how evaluation of their work is still depended on certain concerns such as design principles and production constrains.

Concerning the other factors that are student centered, thought provoking, life relevant, concurrent learning and assessing, the factor means are respectively67, 79, 69 and 68 out of hundred. In this context, the learning environment in Basic Design course seems to stand out most dominantly as thought provoking. Since the scale did not appear reliable in its entirety, the scores were not evaluated in detail.

5. Conclusion and Discussion

In this study the Basic Design course was analyzed to assess its compatibility with constructivist learning theory, through class observations, experts' opinions and the scale developed by Arkün, &Aşkar (2010). As a result of this assessment the course was found to comply with constructivism as expected from the literature review. However, two factors of the scale were found to be problematic in terms of reliability: the "collaborative" and the "different viewpoints" factors. Furthermore, the scale also appeared problematic in terms of the educational terminology that is not appropriate to the design discipline. Considering the experts' options' on these issues, an adaptation study of the scale to design education is needed to provide a quantitative assessment of constructivism in design courses.

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