Transforming Project-Based courses to Blended Learning Environment: Case study Architectural foundation courses

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Project-based learning is a dominant method on the architecture education especially on the designing and foundation courses. But its student-centered identity requires spending more time by the professors .so that individual students are conducted concordant with the abilities and the rate of their development. However regarding the increasingly demand for higher education especially in the young populous countries –like Iran- the significant increasing of the students without the academic staff development of the university, the traditional classes do not fulfill the current needs. Hence, representing some strategies to reduce the stress on the classes seems necessary without damaging the quality of teaching these courses. Considering it's certain problems –including insufficiency of the faculty member, training space and wholly increasing of the students- at the Art University of Tabriz, using the multimedia instruments and web technology to solve the present problems was suggested. In this paper, it has been attempted that the experience of transforming some of the material of foundation courses which are taught as Project-based learning to be represented to the web space without damaging its methodology.

Keywords Project-based learning; Blended learning; architectural education; foundation courses

1. Introduction

Recently, the higher education systems have invested most of their resource to introduce the ICT into the classrooms,as the impact of the ICT on education increases, the programms of online learning being developed in all educational domain, and the higher education systems have to face the incorporation of e-learning advances into traditional classroom practices. However, in the architecture education area, due to its special modality, this attempt was rejected with the tutors. The architectural professors still use the traditional methods of the face to face tution. they believe trasfering information from master to student just be done during the face to face interaction and ICT mediums cant be placed. On the other hand , the face to face tution needs the full-time presence of a teacher for guiding and monitoring learning activities in the classrooms ,as a result of the significant increasing of the students' numbers in classrooms, it is being impossible.
Hence, the implementation of blended learning approaches, integrating face to face tuition with e-learning offers new possibilities to organiz education and opens new innovative perspective for architecture education. This hybrid approach, a combinition of traditional face to face classrooms learning and online learning, takes advantage of the best stategy for architectural education can offer.
This paper investigates how particular aspects of blended learning might impact upon the development of students' ability in architecture education..

2. Project based learning

Project based learning is a teaching and learning model (curriculum development and istructional approach) that emphasizes student- centered instruction by assigning projects. It allows students to work more automously to construct their own learning, and culminates in realistic, student-generated products.
Project-based learning has deep roots in education. As far back as the early 1900s, John Dewey supported "learning by doing."[1] This sentiment is also reflected in constructivism and constructionism. Constructivism [5] explains that individuals construct knowledge through interactions with their

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environment, and each individual's knowledge construction is different. So, through conducting investigations, conversations or activities, an individual is learning by constructing new knowledge by building on their current knowledge.
Constructionism takes the notion of individuals constructing knowledge one step further. Constructionism [2] posits that individuals learn best when they are constructing an artifact that can be shared with others and reflected upon, such as plays, poems, pie charts or toothpick bridges. Another important element to constructionism is that the artifacts must be personally meaningful, where individuals are most likely to become engaged in learning. By focusing on the individual learner, project-based learning strives for "considerable individualization of curriculum, instruction and assessment-in other words, the project is learner-centered" [4]

3. Architectural foundation courses

Much of architectural foundation courses is concerned with developing students in order for them to become well rounded, competent and imaginative designers of buildings and the spaces between them. The central pedagogic vehicle for this is project-based learning: students are expected to make proposals for the development of a piece of architecture, in response to a given brief. Unlike education in some other disciplines, design project work does not seek a single correct answer; rather the student is invited to make propositions which are often speculative and exploratory in nature. The student's responses are likely to be unique and individualistic, and owe more to interpretation and intuition than to a logical or formulaic process or the application of a rational body of knowledge [6]. Most students of architecture enter higher education with little experience of this form of learning, and therefore a large part of architectural education is concerned with the development of new abilities, values and conceptions, so that eventually they are able to think and do as architects. For new students in architecture, a move to a system where the answers are uncertain, and the route to that endpoint ambiguous [3] and not following any set methodology, may prove a frustrating and difficult challenge. As they progress, they will develop ways of countering these difficulties, which places a demand on schools of architecture to instil new ways of thinking and doing in their students from an early stage. Then the curriculum of the foundation courses must impact upon the students' development as designers.

4. Empirical research

4.1 Participants

The research is comprised of 2005-2006 academic year freshman student of the department of architecture at Tabriz Islamic Art University, Iran. The resean for selecting the first year student is that they dont have any experience on project based learning. They were 50 students.

4.2 The research method

By selecting the new media of "web" due to its vastness and the familiarization of most students with this technology and the possibility of accessing to it in a place and time other than class hours caused that a study is started in the direction of using web in architecture foundation courses . In the beginning this plan was executed in two classes of "construction and materials studio" and "Architectural elementary design 1".
Also the work began with this assumption that weekly program of courses can be divided into five phases as follow:

- Description of program
- interaction between students and tutors
- Performing of work by the students
- Collecting the works and studying them
- Selecting a superior work

In the first semester of study, after the first studies and considering all of the negative aspects of the work, it was determined that only the first phase of class process, the description of program, is transferred to web site of courses, since this phase occupy the most time of class, and considering the theoretical aspect, it could be transferred to the environment out of studio with the least negative effect on class process. Then, in the beginning of week, the description of the week program including the works of past term students or other examples or the pictures showing the procedure and the proposed references publishes on the web site; and the students were encouraged to study the related page and performing the preliminaries before attending the class, afterward the rest of the curriculum process from second phase started and ended in class in presence of tutors.
After one term performing the class according to this method, the opinion obtained from the students and tutors and the comparison of the class results was satisfactory so the environment in the department is ready to accept this procedure, and there was arranged that through a slight review on curriculum which was necessary, the other phases of the curriculum which took more time can be transferred to the web site.considering the numbers of students in classrooms, accomplishment of the forth and fifth phases of curriculum during the class time was impossible and in most cases the class reach to end without final tantalization ,therefore the tutors decided to move these phases to website as well .
In the second semester, the method was such that in the beginning of week, the students studied the program of that week by referring to the web site, and attended to the studio as well as started working by help of individual or collective guidance's of tutors to promote the process and Finally the delivery of work was performed. In this case ,firstly the students up loaded the pictures of their work on a web page such that they can by the absolute representative of their work so that their individual work exposed to other tutors and students. In this phase the students were obliged to see the work of other classmates on the predetermined time, and write the pros and cons of individual works in a table and send it to the tutors by e-mail. After tantalization of the student's views and adding necessary descriptions, the tutors adds them to the student's page.
In this phase each student through referring to these pages and seeing the views of other students, give a mark out of 20 to each work and by there the superior work of class is determined. In the beginning next class, the students deliver the original work to the tutors, and if a student feels that the matter has not been considered fully, can take a 15- minute opportunity from the class to explain it orally by representing the original work. Through this method, the forth and fifth phases of the curriculum which are final phases and cannot be eliminated, and also take times in class was transfered to the times out of class .

5. Conclusion

After an academic year experience of the blended learning method in classes, cosidering the main goal of the research, the opinion of the tutors and feedback of the students, some results were achieved which were concordant with the predetermined and sometimes they were lateral and unexpected which are studied that drive authors to conclude them as follow:

- As mentioned before, the educator in architecture field insist on trasfering experience during the face to face classrooms. Since in the blended learning method, the interaction, collaboration and communication between tutors and the students is constant and web space is a secondary instrument that creating new opportunities.

- Through eliminating the first phrase of the curriculum which was the description of program and was performed by the tutors as one-way a lecture, more time was consumed for two way communication and interaction .

- Through moving the final phrases of the curriculum to web space, given more opportunity to the students toward the criticism of their which resulted in the quality of the students work.

- In face-to-face method during the project delivery, there was this possibility for the students that explain the project ideas and data to other verbally and the judgment was performed considering extra data. But in the blended method, elimination of the creator from the criticism his ideas in his/her work thoroughly and the critics evaluated the work just through what received from it. This reinforced the students for the rational statement and studying the works of others.

- In the face-to-face classes, there was no enough opportunity for overall speech of the students and some of them deprived of this phase compulsorily. But in blended method all of them were bound to participate this phase through sending their positive and negative views about the work of other classmate's. Hence in view of their capability in the analysis and evaluation of other's work than the previous groups, the final end student has a distinguishable superiority.

- Among these results which were predictable, during the study some lateral results were obtained including the enthusiasm of the students in using new media and designing web space which was obtained during representing the figure of students work results in their special pages which caused that the students perform some creatorship in planning the related pages.

6. Reference

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