

Comparative analysis between virtual education and direct education in fundamental courses in architecture, case study: “introduction to architecture design studio”, in Shiraz University

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Suggested Citation:

Nikkar, M. & Bahtooe, R. (2017). Comparative analysis between virtual education and direct education in fundamental courses in architecture, case study: “introduction to architecture design studio”, in Shiraz University. *Contemporary Educational Researches Journal*. 7(3), 128-133.

Received March 5, 2017; revised June 18, 2017, accepted August 6, 2017.

Selection and peer review under responsibility of Prof. Dr. Gulsun Atanur Baskan, Hacettepe University, Turkey.

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Abstract

This paper attempts to demonstrate and compare challenges and opportunities in virtual and direct education in architecture in Iran, specifically in fundamental courses. Two different programs (direct and virtual education) have been run in two different branches of Shiraz University, in Shiraz and Dubai, for two successive fundamental courses. Both cases were observed accurately by the authors during two semesters and the result qualities were collected and assessed. The main questions of this paper are: what are the advantages and disadvantages of virtual and direct education? And which method ends to a better quality in result in architecture fundamental courses? The query is based on the case study method using a combination of strategies and content analysis techniques. The information is collected through library and fields studies, and completed through questionnaire and analyzing it's components by the statistical software.

Keywords: Architecture, virtual education, direct education, statistical software, Iran.

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1. Introduction

Nowadays, the architecture and construction industry is facing enormous technological and institutional transformations with their resultant difficulties and challenges. Lack of time within technology development persuades the educators to adopt e-learning as a means of education. Enhancing creative thinking through virtual education is another vital and emerging trend in this subject. It seems to be without difficulty in many courses of the studies, but how it would be in architecture education, due to its theoretical and functional aspects?

As a lecturer at Shiraz University with 16 years' work experiences, especially on fundamental courses such as "Introduction to architecture design studio (1&2)", teaching these courses online was a challenge at the beginning. This paper discusses the author's experiences of these 2 successive courses during 2 years, in two branches of Shiraz university (Shiraz& Dubai), which is accomplished with learner's aspects of mind.

2. Methodology

Since there is little empirical data regarding the short period of this curricula there are no benchmarks for further improvements; so a questionnaire survey methodology was implemented. In addition, the survey aimed to measure and understands the status of education quality and integration of multidisciplinary approaches to the teaching.

The survey was designed in a collaborative and iterative process between architecture students of two branches of Shiraz University.

The authors underwent two years of iteration regarding the type, amount and configuration of questions, between second September, 2012, and 20th June,2013, and even second September, 2013, and 20th June, 2014. The authors structured the survey into multiple sections designed to elucidate the core question and to get to the main purpose, which is achieving a perfect education quality.

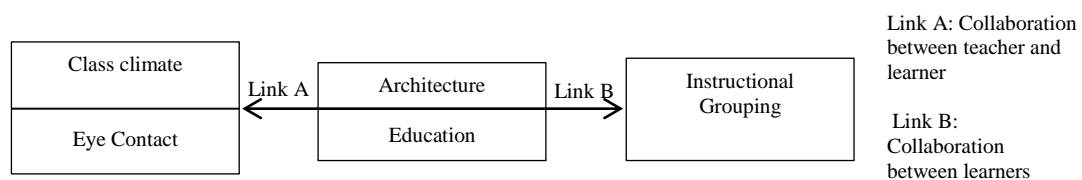
3. Survey Specifics

The survey focused on two main areas of education. These are:

Part I: Collaboration between teacher and learners.

Part II: Collaboration between learners.

Part I of the survey was structured to determine the level of collaboration between teacher and learners, which depends on two important items: class climate and eye contact.



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3.1. Classroom climate

Classroom climate refers to the atmosphere of the classroom- it's social, psychological, and emotional characteristics (Dunkin & Biddle, 1974). The importance of class climate as it relates to motivation derives from the notion that teaching is leadership intended to affect classroom behavior.

Classroom climate is often described using such terms as "warm", "cold", "permissive", "democratic", "autocratic", and "learner-centered". The climate in the classroom is largely established through teacher-student interactions (Pintrich & Schunk, 2002).

Table 1. Leadership role in architecture education enhancement

Leadership	Yields ordering	Leader approach	Students function	Strength and weakness
Autocratic	1	<ul style="list-style-type: none"> • Cold • Taking control by leader • No permission to participate for students 	<ul style="list-style-type: none"> • Following the orders • Good yields in leader presence, and drop in leader absence 	<ul style="list-style-type: none"> • Good result but Showing Anxiety, stress, surrender and disobedience
Democratic	2	<ul style="list-style-type: none"> • Collaboration with students • Persuading students • Sharing ideas with others • Taking the responsibility of final result • Persuading students to solve problems and decision 	<ul style="list-style-type: none"> • Tending to collaborate with each other • Friendship among students 	<ul style="list-style-type: none"> • Taking more initiative to their works • Working actively even in leader absence • Bearing failures
Permissive	3	<ul style="list-style-type: none"> • Non-interference in students work • Not taking the responsibility of students work • No recommendation for finishing work 	<ul style="list-style-type: none"> • Disagreement in goals • Working individually and without organizing 	<ul style="list-style-type: none"> • Lack of leadership • Seems to be working with pleasure, but there is animosity between them.

3.2. Eye contact

It is well known that speech is only one part of the communication. One aspects of non-verbal communication is the use of the eyes to convey the messages. The eyes are a powerful tool for both the teacher and the learner (Ledbury et al., 2004). Indeed many communication experts believe that most interpersonal communication is nonverbal. People's faces disclose emotions and telegraph what really matters to them (Santrock, 2001). Two aspects of non-verbal communication are the use of eyes and the facial expressions; both of which are powerful tools to convey messages. Ergin and Birol (2005) indicate that the real communication between two persons begins when two of the persons establish eye contact; so, eye contact has an important role and meaning in communication. Part II of the survey focused on the way learners concern with each other, which is derived from instructional grouping.

3.3. Instructional grouping

A critical component of planning is deciding what activities students will work on, which also involves deciding how students will be grouped. Much research has examined the effects of grouping on student motivation (Webb & Palincsar, 1996). Three types of grouping structures are "competitive", "cooperative", and "individualistic".

Table 2. Instructional grouping, Ref: (Pintrich & Schunk, 2002)

Arrangement	Description	Example
Competitive	Students' goals negatively linked: one attains one's goal only if others do not attain theirs.	Teachers grades "on the curve" and gives 15% of the students A's, 25% of the students B's, and so on.
Cooperative	Students' goals positively linked: one attains one's goal if others attain theirs.	Teachers form small group to work on project; each student is responsible for completing a part and all students put part together to form final product.
Individualistic	Students' goals not linked: Attainment or nonattainment has no effect on goal attainment by others.	Students work on computer software programs individually and record completion on their progress sheets.

4. Interviewee's characteristics

The statistic notion of this article made up with these groups: Architecture student of Shiraz University in Shiraz branch, and Architecture student of Shiraz University in Dubai branch, altogether 70 person. The students are mostly between 19 and 25 years old and attend Shiraz faculty of Art and Architecture, and as it is said before this survey is undertaken during the years 2012 and 2014, for two successive courses "Introduction to architecture design studio".

Table 3. Interviewee's characteristics

		Shiraz branch	Dubai branch
Gender	Male	48%	40%
	Female	52%	60%
Age	18-21 years	85%	38%
	21-25 years	15%	62%
Year	2012-2013	50%	60%
	2013-2014	50%	40%
Final Grade	A	60%	40%
	B	25%	30%
	C	11%	20%
	Less than C	4%	10%

To compare the online and direct education quality of fundamental courses in the two branches of Shiraz university, the students of each branch, in each course where asked to answer some question through "Likert exam".

To easily deal with the subject a tree diagram is defined. For easily assessing each part some keyword are described at the bottom of the diagram. Further, these keywords are given to the interviewees and they were asked to choose one of the five options of the defined *likert* spectrum, due to their point of view.

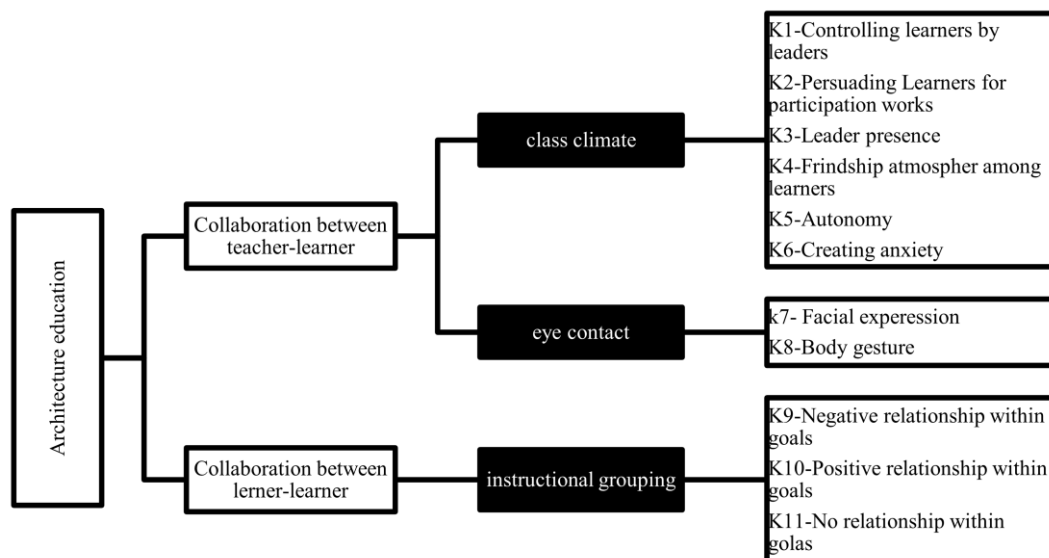


Figure 1. Tree diagram of assessment characteristics, Ref: Authors

The answers to each question among students are demonstrated in percentage, and it is showed in table 4.

Table 4. Likert exam result

	Keyword number	Very important	Important	Neutral	Unimportant	Very unimportant
Classroom climate	K1	63%	35%	7%	0%	0%
	K2	75%	12%	5%	5%	1%
	K3	72%	20%	8%	2%	0%
	K4	77%	30%	7%	4%	5%
	K5	78%	35%	10%	0%	0%
	K6	25%	18%	4%	1%	0%
	Total	65%	25%	7%	2%	1%
Eye contact	K7	71%	44%	16%	7%	10%
	K8	25%	20%	4%	3%	0%
	Total	48%	32%	10%	5%	5%
Instructional Grouping	K9	14%	10%	17%	16%	5%
	K10	72%	63%	45%	0%	0%
	K11	28%	23%	28%	14%	0%
	Total	38%	32%	15%	10%	5%

5. Discussion

To show the difference between the direct and online education methods, the independent t-test is employed. The reason of using this test is the independency of two methods.

Table5. The comparison between the two methods of education

Lions Test	Independent t-tests							
	F Statistics	Significant level	Variables	t-statistic	Freedom degree	Significant level.	Lower bound of confidence band	Upper bound of confidence band
Equality of variance	60.31	0.732	Direct	7.83	68	0.0010	2.49	8.56
Inequality of variance	23.86	0.564	online	4.88	67	0.0017		

Due to Table 5 the test statistic is 83/7, and the significant level is close to zero, which is lower than 0.05. So the assumption of equality between the two methods is rejected. Also due to equality in signs of confidence band the assumption of mean parity is rejected. This table contains two parts. In Independent t-tests, first of all the similarity of the variances of two group should be checked. The first part of table 5 is to reach this goal. In Lions test, assuming the equality of variances, the significant level is 0.732, which is more than 0.05. So the assumption of equality between variances is accepted.

6. Conclusion

In terms of educational psychology, specially in architecture education, democratic leadership is more accepted than two other ways of leading. But some items in this method of leading which is related to collaboration between learners, is not completely effective.

Architecture education is somehow clinical; and due to lack of supervision of students by the teacher in virtual education, the possibility of leading to a permissive climate becomes more. In addition, since architecture education is more training than educating, and much activities of learners are practical, so in grouping, cooperative instructions are seem to be more appropriate. In the next places are individual and competitive.

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Overall, in architecture education field, friendship should be replaced with competition, so learners can move along without any concern.

Due to artistic aspects of architecture and its involvement in learners emotions, a need for a much comprehensive relationship between teacher and learners, and also between learners, is needed. So making "eye contact" and "Body gesture" would help to have a more effective communication.

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