The Effect of Constructivist vs. Conventional Teaching on Reading Comprehension

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Abstract: The present study aimed at investigating students' learning outcomes in a general English course which involved studying different texts of reading comprehension. They were first controlled for their homogeneity by a standard TOEFL test and randomly assigned to two classes; one constructivist and the other conventional. Both groups (n = 30) studied the textbook named "A General English Course for the University Students" written by Dr. Farhadi. In the constructivist group students were encouraged to work collaboratively in order to build their knowledge, while in the conventional group the knowledge was transferred to the students directly by the teacher. Also, the participants in both groups were given a pre-test and a Post-test of cloze and multiple choice item of reading comprehension. The analysis of results showed that constructivist group outperformed their conventional counterparts on the cloze test. In contrast, the conventional group outweighed their friends on multiple choice test of reading comprehension. It is concluded that students' performance on different tests is directly related to the methodology by which they are taught.

Key words: Constructivism, conventional teaching, cognitivism, behaviorism, discrete test, integrative test

INTRODUCTION

Second language teaching has been exposed to a lot of changes from the end of the 19th century until the end of the 20th century, following the impact of the different views on learning. These changes have gone through a gradual betterment in the realm of building knowledge among language learners. In here an attempt is made to explain that three selected instructional models namely behaviorism, cognitivism and constructivism have gone through a gradual betterment in how learning occurs and the way knowledge is built among language learners.

Learning and transferring of knowledge in behaviorism: In behaviorism learning is equal with changes in either the form or frequency of performances observed. Learning is considered as the presentation of a response demonstrated following a specific stimulus. The most important elements in behaviorism are the stimulus, the response and the relationship between these two. Behaviorists are primarily concerned with how this relationship is formed, strengthened, maintained (Ertmer and Newby, 1993).

In behavioral studies generalization is the basis of knowledge transfer. Knowledge is described merely as the application of learned relationship between stimulus and response in novel situations and the influence of previous knowledge on new learning. In this theory, identical features of different situations enable the learner to transfer already known relationship across new environment.

Learning and transferring of knowledge in cognitivism: In cognitivism acquisition of knowledge and internal structures are stressed. Learning is equal with changes in the state of knowledge. Cognitivists are mainly concerned with the conceptualization of students' knowledge and the process with which information is received, organized, stressed and retrieved by the mind. Acquisition is perceived to be a mental process of coding and structuring of knowledge by the learners. Therefore the learner has a very active role in learning process.

Transferring knowledge is considered to be the application of knowledge in different contexts. Prior knowledge is seen as a framework for categorizing and identifying the similarities and differences of new information. The stimulus in the real world environment

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will trigger a particular response on the condition that the learner perceives the knowledge to be useful for activating.

Learning and transferring of knowledge in constructivism: Constructivists emphasize the experience for creating meaning. In cognitive psychology, the real world is exclusively referenced to the mind while, in constructivism mind reshapes the real world experiences and creates a unique individualized reality.

In constructivism, transferring of knowledge is done by involvement in authentic tasks in meaningful situations. The main feature in transferring knowledge is that learning always takes place in a context; therefore transferring of knowledge should also take place in an authentic contextualized situation. Nobody learns to use a tool by following a set of rules. They must use these tools in real world situations for the learning to be appropriate and effective.

As an example Huber and Moallem (2001) conducted a research based on the principles of constructivism on 25 students to explore the difference in learning how to build series and parallel circuits. They concluded that students in constructivist class performed successfully on making both parallel and series circuit.

In another experimental research done by Barker (2002), two undergraduate courses in Ecology from a variety of departments, e.g., Mathematics, Computer Science, Biology, Chemistry, Physics, Statistics and Engineering were run differently, one through traditional Science Curriculum and the other through Constructivist Science Curriculum. The course objectives were to enhance all participants' understanding of the biodiversity and sustainable development. Barker did it to find out which teaching method could possibly enhance the participants' understanding. In conclusion, the use of constructivist teaching method particularly through a text-based computer conference and online resources significantly improved the quality of teaching in interdisciplinary bioscience courses and promoted sustainable development.

Another similar study was conducted by Marttunen's (1998). In here the use of e-mail communications as a study method was compared to traditional teaching. In this comparison the traditional group achieved better learning outcomes when measured by a traditional examination, but the e-mail group performed better in tasks requiring argumentation skills that are considered to test students' performance.

Tynjala (1998) also studied students' learning outcomes in a psychology course which involved studying three textbooks. She compared a constructivist class without a final examination and a traditional class with an examination. Tynjala (1998) concluded that constructivist learning environment proved more successful than a traditional learning environment in producing the kind of learning outcomes that corresponded to the general aims of higher education.

Among the small number of empirical studies cited by Brown *et al.* (1989) as support for constructivism was a study of vocabulary acquisition conducted by Miller and Gildea (1987). This study showed that children learned little about words from dictionary definitions (preconstructed and transmitted knowledge), but learned much from wresting the meanings of new words out of natural sentence contexts (knowledge constructed from data), particularly if the goal was to use the words productively in novel sentences (transfer). Admittedly, Miller and Gildea's participants were children learning English, their first language; however, their finding has been replicated with both adults (Gildea *et al.*, 1990) and adults learning a second language (Nesi and Meara, 1994). Such second language studies have also demonstrated the significance of constructivism over traditional mode of teaching.

Most of the researches on constructivism have been seriously focused on science, math, physics, chemistry and biology, but not language (Barker, 2002; Moallem, 2001). To bridge the gap, this study was conducted to explore which method of teaching, namely, constructivist or conventional teaching would lead to better performance in reading evaluated through different tests. The study made use of two types of tests: cloze test as an integrative and multiple-choice as a discrete-point test of reading comprehension.

MATERIALS AND METHODS

Subjects: The participants were all male students of architecture at associate level with the age range of 18-20. They were 180 students studying at of Azad university, Shahin Shahr Branch, Isfahan, Iran. After they were given a test of English as a foreign language (TOEFL), the top 60 of them were randomly assigned to 2 groups of control and experimental. The participants were, then, given a pre-test including a multiple choice of 40 items of reading comprehension and a cloze test of 20 items. The same tests were later repeated after the treatment.

Treatment: The subjects in the experimental group were treated and taught through a constructivist mode where knowledge is considered to be acquired through the

collaboration and cooperation among learners. Thus, to teach this group we closely followed the five E's suggested by Bybee (2001). The five E's are: engage; explore; explain; elaborate and evaluate. These procedures were followed for teaching constructivist group strictly one after another. In other words, teacher in the classroom had the role of a facilitator and collaborator, making learners go through the steps to learn. However, in our conventional class, the whole responsibility of teaching was assumed by the teacher through reading out the texts, explaining the necessary grammar points and giving vocabulary definitions. The students in this class had rarely the chance to look for the solutions to their problems independently. Every problem posed was clearly addressed by the teacher.

Instrumentation: To control for the homogeneity of the subjects' initial state, they were given a version of TOEFL test. Based on the results, subjects were divided into 2 groups. Also, two tests of reading comprehension, a cloze to represent integrative and a multiple-choice to represent discrete point test were used in this study.

RESULTS

As stated above, this study was conducted to explore which method of teaching, namely, constructivist or conventional teaching would lead to better performance in reading evaluated through different tests. Also the study made use of two types of tests: cloze test as an integrative and multiple-choice as a discrete-point.

As it is depicted in Table 1, there is no significant difference between the pre-test and post-test of the participants in conventional group in cloze test, the observed $t = 1.435$ is far less than the critical value $t = 2.045$. However, in Table 2, it is shown that the t-test between the pre-test and post-test of the constructivist group in cloze test is statistically significant. The observed $t = 8.171$ is greater than the critical value $t = 2.045$.

In the second phase of the study the results of the multiple choice tests were analyzed. As it is displayed in Table 3, there is a significant difference between the pre-test and post-test scores of the participants in conventional group in multiple-choice tests. The

Table 1: Paired samples test for cloze test in conventional group

	Paired differences							
	Mean	S.D	S.E mean	95% Confidence interval of the difference		t	df	Sig. (2-tailed)
				Lower	Upper			
pre_cloz - post_cloz	0.65000	2.48148	0.45305	-0.27660	1.57660	1.435	29	0.162

Table 2: Paired samples test for cloze test in constructivist group

	Paired differences							
	Mean	S.D	S.E mean	95% Confidence interval of the difference		t	df	Sig. (2-tailed)
				Lower	Upper			
pre_cloz - post_cloz	-2.66667	1.78757	0.32636	-3.33416	-1.99918	-8.171	29	0.000

Table 3: Paired samples test for multiple choice test in conventional group

	Paired differences							
	Mean	S.D	S.E mean	95% Confidence interval of the difference		t	df	Sig. (2-tailed)
				Lower	Upper			
pre_multi - post_multi	-2.13333	1.70665	0.31159	-2.77061	-1.49606	-6.847	29	0.000

Table 4: Paired samples test for multiple choice test in constructivist group

	Paired differences							
	Mean	S.D	S.E mean	95% Confidence interval of the difference		t	df	Sig. (2-tailed)
				Lower	Upper			
pre_multi - post_multi	-0.23333	0.77385	0.14129	-0.52230	0.05563	-1.651	29	0.109

observed t = 6.867 is more than the critical value of t = 7.045. In contrast, the results in table 4, reveals that there is no significant difference between the scores of the participants in pre-test and post-test in constructivist group. The observed t = 1.651 is less than the critical value, t = 2.065.

DISCUSSION

The results of this study show that learning best occurs within the real social contexts where learners have the chance to find access to one another's ideas and viewpoints. Since, in constructivism learners can negotiate meaning and resolve the problems through group interaction and individual queries they can retain and learn the materials much more efficiently. Lots of other studies which have applied the principles of constructivism to teaching different subjects to learners have almost reached the same result and conclusion (Barker, 2002; Martunen, 1998; Tynjala, 1998; Hueber and Moallem, 2001). As an example, Tynjala (1998) demonstrated that constructivist learning environment was more successful than a conventional context in producing the results which were more practical and less based on the rote-learning. The results of our study are also in line with those concluded by Brown *et al.* (1989). They also showed that constructivism whereby learners can construct their own conceptions and conceptualizations led to more productive results in vocabulary learning.

Overall, the findings of the study give support to the consideration for the global features of education. In this perspective, education is not viewed in terms of short-term training or apprenticeship, rather in terms of the chance provided for the achievement of underlying capabilities. Widdowson (1985), Wolff (1994) and Grabe and Stoller (2002) argue that learning programs should be designed such that they can bring about life-long and practical results for learners.

With regard to the crucial role the constructivist approach played in the reading comprehension in this study, it may sound justified to admit the claim that a shift of emphasis from one of instruction (conventional teaching paradigm) to one of learning (constructivist paradigm) should be an essential part of any modern curriculum (Dochy *et al.*, 2003), especially in the context of English language pedagogy in Iran.

Moreover, the results of the present reveal that learning conditions affiliated with 'constructivism', can produce positive effect arising from the social aspects of instruction and their influence on cognitive outcomes (Mayer, 2001). As the results reached in this study are attributed to the discussion of the problems through the class interaction they can be considered as the enrichment of the sociocultural theories of language learning as well, especially Vygotsky's socio-cultural and activity theory that stresses the role of learning environments where learners can exchange views on the learning issues.

CONCLUSION

The purpose of the present study was to compare the learning outcomes from a constructivist class and a traditional class. Learning outcomes were investigated as the students' performance on a cloze and multiple choice tests of reading comprehension. As it was shown above, the students taught through the principles of constructivism outperformed the conventional group in cloze test as an integrative test. In contrast, the conventional group outweighed their friends in multiple choice items of reading comprehension as a discrete-point test.

It must be noted that in constructivism students are encouraged to form a reality by themselves; therefore their productive skill, as indicated by our subjects' performance on cloze test, will be boosted. In contrast, in conventional teaching, reading skill is fixed and conventional teachers think that students should see the world as they see. In traditional mode, students are obliged to understand the reality of the world as what their teachers understand; consequently their receptive skills will be enhanced; hence, they perform better on multiple choice tests.

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