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Investigating the impact of a constructivist teaching approach on Iraqi EFL students' performance

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Abstract

This study examines the impact of a constructivist teaching approach on Iraqi students' performance in English as a Foreign Language (EFL) via a pretest-posttest quasi-experimental research design. Eighty students were randomly sampled and divided into two groups (experimental and controlled groups). The experimental group received instruction through a constructivist approach, while the control group received instruction through a non-constructivist approach. The study used researcher-designed General English Language Test (GELT) as an instrument for a pretest and post-test, as well as Murphy's (1997) Constructivist Checklist for classroom observation as instruments to collect data. Independent Samples t-test and a Mann-Whitney U Test were used to analyze the data. The results showed that the two groups had similar English language skills and abilities before the experiment. The results also established that the participants in the experimental group in post-test situation showed higher academic achievements in GELT with statistical significance of ($t(78)=2.315, P=.023$) compared with those in the control group. The study concludes that using a constructivist approach to teaching Iraqi EFL students has a beneficial effect on their EFL performance. Consequently, it is recommended that a constructivist approach be implemented in the instruction of EFL students to improve their EFL performance and increase cognitive retention.

Keywords: Constructivist Approach, EFL students, Learning and Teaching, Iraqi EFL context

1. Introductions

Teaching approaches significantly influence learning abilities and outcomes. According to Podungge *et al.* (2020)^[15], high levels of teacher competence, including pedagogical content knowledge and self-efficacy, correlate positively with students' academic interest and achievement. Effective classroom management and supportive teaching climates further enhance these relationships, contributing to better learning outcomes. These studies collectively suggest that teaching approaches substantially impact learning outcomes, with student-focused and facilitative methods proving more effective in promoting deeper understanding and higher achievement.

Despite the multitude of learning theories (e.g., behaviorism, humanism, cognitivism, constructivism) and their associated teaching approaches (Ertmer & Newby, 1993)^[7], this study concentrates on the constructivist teaching approach. This approach emphasizes active knowledge construction based on learners' realities and experiences, particularly within EFL (English as a Foreign Language) contexts. Studies show that applying constructivist methodologies in EFL teaching significantly benefits learners by enhancing their engagement and understanding through interactive and reflective learning environments (Gembaruk, 2022)^[8]. Constructivist teaching, categorized among the leading educational theories is both a learning theory and an epistemology (Ugwuzor, 2020)^[21].

Numerous theorists and scholars have proposed various methods for conducting constructivist classes. Bybee *et al.*, (2006)^[5] suggests the 5E's instructional model-engage, explore, explain, elaborate, and evaluate-each serving a specific function to make teaching more coherent and helping students better understand the knowledge and skills they acquire. Moule (2007)^[13] propose a five-stage model: Introduction/review/feedback, development of concepts, guided practice, closure, and assigning independent tasks. Arpentieva *et al.* (2021)^[3] emphasize the dialogic nature of education and the focus on understanding the inner and outer worlds through interaction with significant others, fostering a creative rediscovery of human truths.

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Saragih (2017) ^[18] developed a character-based instructional model through a constructivist approach, enhancing students' instructional design abilities and creating a coherent and relevant instructional framework.

Murphy (1997) ^[23] provides an 18-item checklist for a typical constructivist learning context, forming the basis for many constructivist practices in education. Demir and Kaya (2022) ^[6] conducted a meta-analysis showing that constructivist learning models significantly improve student learning outcomes in elementary schools, highlighting their effectiveness across various educational settings.

The purpose of this study is to investigate whether Iraqi EFL students taught using a constructivist teaching approach achieve higher academic performance in an English language test compared to those taught using a non-constructivist approach. It is intended to provide learners with teaching methods that facilitate their language learning skills. The rationale behind this investigation is based on the hypothesis that employing a constructivist approach enables EFL students to produce enhanced and positive learning experiences, leading to improved learning outcomes. The fundamental belief is that, although all participants in the study engaged in some form of active learning, those in the experimental group exposed to the constructivist teaching approach will become more self-directed, learner-centered, and autonomous. Consequently, the following question guided this study.

1. What is the impact of using a constructivist teaching approach on the performance of Iraqi EFL students in a general English language test?
2. To what extent do the constructivist and non-constructivist Iraqi EFL student groups vary in their responses to the teaching approaches?

2. Literature Review

2.1 Constructivist Approaches in EFL Teaching

Constructivist theory suggests that humans build their understanding of the world by reflecting on their experiences rather than passively receiving knowledge (Hoagland, 2000) ^[11]. Iglesias Xamaní (2013) ^[12] argues that in constructivist contexts, knowledge is constructed by learners and continually reconstructed with new experiences and information. In such settings, students actively engage with the material, using their prior knowledge, experiences, beliefs, and insights as foundations for knowledge creation. Nugroho *et al.* (2020) ^[14] note that constructivist mentoring programs in EFL settings have proven effective in developing teacher professionalism and improving teaching practices, fostering more engaging and student-centered learning environments. Research in Saudi EFL contexts highlights the importance of student-centered learning and positive teacher attitudes towards constructivist approaches, though traditional teacher-centered methods still prevail in practice (Al-thresher, 2022) ^[24]. Constructivist teaching approaches create interactive, reflective, and student-centered learning environments, promoting deeper cognitive development and engagement in EFL contexts and beyond. Research highlights the significant advantages of applying constructivist approaches in English as a Foreign Language (EFL) contexts. Gembaruk (2022) ^[8] demonstrates that constructivist methodologies enhance learner engagement and understanding through interactive and reflective learning environments. Similarly, Iglesias Xamaní (2013) ^[12] argues that in constructivist settings, knowledge is

constructed by learners and continuously reconstructed with new experiences, fostering deeper learning.

Nugroho *et al.* (2020) ^[14] emphasize that constructivist mentoring programs in EFL settings have been effective in developing teacher professionalism and improving teaching practices, leading to more engaging and student-centered learning environments. In Saudi EFL contexts, Al-thresher (2022) ^[24] underscores the positive attitudes of teachers towards constructivist approaches despite the dominance of traditional methods.

2.2 Impact of constructivist teaching on learning outcomes

Numerous studies have documented the positive impact of constructivist teaching on learning outcomes. For instance, Podungge *et al.* (2020) ^[15] indicate that high levels of teacher competence, including pedagogical content knowledge and self-efficacy, are positively related to students' academic interest and achievement. Effective classroom management and supportive teaching climates further mediate these relationships, enhancing learning outcomes.

Demir and Kaya (2023) conducted a meta-analysis that shows constructivist learning models significantly improve student learning outcomes in elementary schools, underscoring their effectiveness across various educational settings. Al-khresheh (2022) ^[1] delves into teachers' perceptions of promoting student-centered learning in the Saudi EFL context, highlighting the discrepancy between theoretical approaches like constructivism and humanism and the prevalent behavioral approach in practice. The research underscores the importance of aligning teaching practices with student-centered approaches to enhance EFL learning outcomes. Additionally, the study emphasizes the significance of professional development opportunities for teachers to effectively integrate student-centered learning strategies in the classroom, resonating with the benefits of constructivist teaching in fostering deeper cognitive development and engagement in EFL contexts. The literature suggests that constructivist teaching approaches foster an interactive, reflective, and student-centered learning environment, promoting deeper cognitive development and engagement in EFL contexts and beyond. These approaches are shown to be effective in improving learner outcomes across different educational settings, highlighting their potential for broader application in EFL teaching.

3. Methods

3.1 Research Design

This paper employed a pretest-posttest control group quasi-experimental research design, often referred to as a classic controlled experiment or randomized pretest-posttest design. This design was selected for its robustness in comparing groups and accurately measuring the degree of change resulting from treatments or interventions. This method allows researchers to control for potential confounding variables and isolate the effect of the intervention by comparing the outcomes between the treatment and control groups.

3.2 Participants

Eighty EFL learner participants from two secondary schools were randomly selected from a larger population to ensure a

representative sample. They were then randomly assigned to either the treatment group, which received the intervention, or the control group, which did not. This randomization process is critical in experimental research as it helps to ensure that any differences observed between the groups can be attributed to the intervention rather than pre-existing differences. Randomization enhances the study's internal validity by reducing selection bias and ensuring that the groups are comparable at the start of the experiment.

3.3 Procedures

The instructional task involved teaching Iraqi EFL students various English language skills, including vocabulary, reading, grammar, and writing. The study employed a quasi-experimental design with two groups: A treatment group and a control group. The treatment group received instruction through a constructivist approach, whereas the control group was taught using a behaviorist-based approach.

To establish baseline equivalence between the groups, a General English Language Test (GELT 01) was administered as a pretest before the intervention. This ensured that any subsequent differences in performance could be attributed to the instructional methods rather than pre-existing disparities in language proficiency.

The constructivist intervention (X) was implemented exclusively with the treatment group over three months, integrated into the regular school curriculum. This approach emphasized active learning, student-centered activities, and the construction of knowledge through experience and interaction.

After the three-month intervention, the same General English Language Test (GELT 02) was administered to the treatment and control groups as a post-test. This allowed for the assessment of the impact of the constructivist teaching approach on the students' academic achievements compared to the behaviorist-based approach used with the control group.

Table 1 presents the pretest and post-test results, providing a comparative analysis of the academic performance of both groups and highlighting the effectiveness of the constructivist approach in enhancing English language skills among Iraqi EFL students.

Table 1: Quasi-Experimental Research D

Group	Pretest	Investigation	Post-test
Experimental Group	0 ₁	X	0 ₂
Control Group	0 ₁	-	0 ₂

The research was conducted in two senior secondary schools, namely the Damascus Secondary School for Girls and Quteiba Secondary School for Boys at Dewanyah governorate in Iraq. The 80 students consist of 40 females and 40 males. A random sampling technique was used to select the 80 participants. The treatment group (N=40) was taught the ELCS course using a constructivist approach, while the control group (N=40) was taught the same course using a non-constructivist teaching approach. The mean age of the participants was 21, and they were final-year Iraqi EFL students. Regarding their English language skills, 80% considered themselves intermediate, upper intermediate, or proficient, and only 20% rated themselves as beginners. Almost 89% claimed that they had not taken any private

English courses, and only 11% had taken private English language courses.

The study employed two quantitative data collection instruments to assess the impact of the intervention. The first instrument was a researcher-designed General English Language Test (GELT), used as both a pretest and post-test. This test evaluated participants' English language skills in vocabulary, reading, grammar, and writing. The pretest and post-test were administered under identical conditions to ensure consistency. Scoring was conducted by experienced graders using a standardized answer key and a holistic rubric to ensure objectivity and reliability in assessing the participants' performance.

Murphy's (1997)^[23] Constructivist Checklist was the second instrument utilized, a quantitative classroom observation tool designed to verify adherence to the respective teaching approaches. The checklist includes 18 constructivist traits, which were synthesized and summarized from constructivist learning and teaching characteristics. A structured observation technique was employed, recognized for its versatility and widespread use in classroom research. Each class was observed three times by three different non-participant observers, with each observation session lasting between 30 and 40 minutes. During these sessions, one point was awarded for each observed or supported characteristic, while zero points were given for absent or unsupported characteristics.

To ensure the validity of the data collection instruments, a panel of experts reviewed them, and adjustments were made based on their feedback. The test-retest reliability coefficients for the pilot test were 0.78 and 0.80, respectively, indicating good reliability. For the primary research, the reliability coefficient was 0.87, demonstrating a high level of consistency in the measurement. These meticulous data collection and validation processes were essential in ensuring the reliability and validity of the research findings, providing a robust foundation for evaluating the effectiveness of the constructivist teaching approach compared to the behaviorist-based approach.

3.4 The Findings

To address the first research question, the researchers hypothesized that the Iraqi EFL students who are taught using a constructivist approach will have statistically higher academic achievements in a GELT than their counterparts who have been taught using a non-constructivist approach, two independent sample t-tests were performed to test this hypotheses. The data for these tests were collected through the pretest and post-test results of GELT. Nevertheless, certain measures were considered before conducting the tests.

Consequently, an independent sample t-test was conducted on the pretests of the two groups to confirm that there were no pre-existing academic differences between them prior to the intervention. The pretest GELT findings of the two groups did not show any statistically significant differences, as indicated in Table 2 ($t(78)=.059, P=.953$). Despite the fact that the constructivist group had a slightly higher mean value ($M=62.57, SD=5.298$) than the non-constructivist group ($M=62.50, SD=6.008$), the mean difference (0.07) was numerically minor and statistically insignificant. Thus, the null hypothesis was determined to be valid. The high standard deviation in both categories indicated a high degree of variability in the scores. However, the control group's

scores exhibited a greater degree of variability. Schwartz, *et al.* (1992) [25] estimated the effect size to be 0.012, which is a very modest effect. This result led to the conclusion that the two groups possessed comparable English language skills and capabilities before the treatments. Subsequently, any modification in their post-test mean score could be attributed to the treatment's effect.

Table 2: Results of the Post-test Writing Performance Test

Source of Variance	Group	N	Mean	SD	SEM	T	DF	Sig.
Pre=Test	Experiments	40	62.57	5.295	.837	.059	78	.953
	Control	40	62.50	6.008	.950			

Having established that the two groups were homogenous before the experiment, another independent sample t-test was run to identify whether there were statistically significant differences in the results of the two groups in the GELT given the three months long intervention to the treatment group. The findings revealed that the treatment group obtained statistically significant higher post-test mean scores than the control group, $t(78)=.023$, as indicated in Table 3.

Table 3: Post-test Independent Samples t-test results

Group	Sources of Variance	Mean	SD	T	DF	Sig. (2-tailed)
Experimental Group Control Group	Post-Test	65.27	5.373	2.315	78	.023
		62.27	6.189			

An investigation of the means of the two groups showed that the experimental group ($M=65.27, SD=5.373$) had a higher post-test mean score than the control group ($M=62.27, SD=6.189$). The mean difference (3.00) was both numerically high and statistically significant. Therefore, the null hypothesis was rejected. Considering the standard deviations, it could be understood that even though the variability of the scores within both groups was high, there was a much higher variability in the control group. As for the effect size, Schwartz, Cohen, Dailey, Rosenfeld, Deutsch, was estimated at 0.517, a medium effect according to Schwartz, *et al.* (1992) [25] guidelines. This suggests that the magnitude of the difference was medium and should not be ignored. According to this finding, it could be contended that the constructivist intervention has had a positive effect on the English language skills and abilities of the participants in the treatment group.

To address the second research question, data was collected from Murphy's (1997) [23] constructivist Checklist. For the experimental group, out of 18 constructivist characteristics on the Checklist, the most commonly observed ones were learner control, authentic activities and contexts, knowledge collaboration, alternative viewpoints, and authentic assessments with a 100% implementation rate each. This suggests that the class was student-centered, and they were actively engaged. The students moved around the classroom freely and had some control of the learning process. They were also considered critical thinkers who could make informed decisions.

Similarly, authentic real-life learning environments and learning materials were provided. Skills, content, and tasks were relevant to the needs of the learners. The teacher put students in groups and allowed them to discuss and debate issues collaboratively. By so doing, dialogues were fostered,

and broad multi-dimensional thinking and perception were promoted. Again, learning for knowing rather than passing a test was encouraged. The EFL students were tasked to perform in the class demonstrate skills and knowledge acquisition. Through that, the teacher and students measured learning in multiple ways. The least observed traits were scaffolding, concept interrelatedness, previous knowledge constructions, and problem solving, with 66% implementation rate each.

Meanwhile, the control group was the complete opposite. Key constructivist traits, such as teachers' as coaches' multiple perspectives, alternative viewpoints, and consideration errors, were recorded with a 0% implementation rate each. The class was not democratic, having the teacher as the only source of knowledge. The EFL students were not allowed to explore or offer alternative viewpoints. There was more TTT (teacher talk time) than STT (student talk time). Errors were not tolerated and were instantly corrected by the teacher.

Similarly, interdisciplinary learning was not so much encouraged, and relationship between different aspects of knowledge. The teacher rarely produced learners' previous knowledge by asking probing questions, which build and connect the new knowledge to the previous one. High-level thinking and problem-solving skills were not promoted. EFL students were rarely allowed to perform tasks that were challenging and slightly beyond the limits of their ability without the teacher's guidance or assistance. Even the most observed traits in the class, like student-directed goals, knowledge construction and exploration, recoded just a 33% implementation rate.

The data from the structured observation was analyzed by adding up all the points collected by the different observers during the three observations and calculating their means. The higher the mean score, the more constructivist the learning context was assumed to be. In other words, the more constructivist-compliant that learning context was assumed to be.

Table 4: Comparison between the Mean Scores of the Experimental and the Control groups on the Classroom Observation

Group	First Observation	Second Observation	Third Observation	Mean
Experimental	10	12	13	11.66
Control	6	5	5	5.33

As shown in Table 4, the findings of the repeated classroom observations showed that the experimental group ($M 11.66$) consistently scored higher points on the constructivist checklist than the control group ($M=5.33$). The higher mean of the experimental group reveals compliance with the constructivist approach. Conversely, the lower mean of the control group indicates its compliance with the traditional approach.

According to Parsi (2017) [26], descriptive statistics are useful for analyzing data intended to describe a sample without making inferences. In this study, inferential statistics were also employed to determine whether the differences observed were statistically significant. This approach aligns with Wetherell (2016) [27] recommendation that data derived from structured observations are quantitative in nature. Such data can subsequently be used to test the validity of the hypothesis. Consequently, a Mann-

Whitney U Test was conducted, based on the argument by Sultana and Abeyasekera (2008) [28] that non-parametric tests are more appropriate for analyzing ranked data. The results of the test indicated a statistically significant difference between the two groups in their implementation of constructivist principles, favoring the experimental group ($Z=-1.993$, $P=.046$), as shown in Table 5. The treatment group had an average rank score of 5.00 and a sum of ranks of 15.00, whereas the control group had an average rank score of 2.00 and a sum of ranks of 6.00. These findings suggest that the experimental class closely adhered to the constructivist teaching approach, while the control class adhered more to the non-constructivist approach.

Table 5: Results of the Mann-Whitney U Test to compare the Two Learning Contexts on their Implementation of the Constructivist Traits

Groups	N	Rank Average	Sum of ranks	U	Z	P
Experimental Class	3	5.00	15.00	.000	-1.993	
Control Class	3	2.00	6.00	.046*		

* The difference is significant since $P=.050$.

4. Discussion

The first finding of this paper reveals that the constructivist group, which was taught the English Language and Communication Skills (ELCS) course using the constructivist approach, had a statistically significant higher post-test mean in the GELT ($t(78)=2.315$, $P=.023$) compared to the non-constructivist group, which was taught the same course using a non-constructivist approach. This result suggests that the intervention positively affected the academic achievements of the participants in the treatment group. The second finding indicates a statistically significant difference between the two groups in implementing constructivist principles, favoring the experimental group ($z=-1.993$; $P=.046$). These findings suggest that the experimental class closely adhered to the constructivist teaching approach, while the control group adhered more to the non-constructivist approach.

These findings align with the results of Ayaz and Sekerci (2015) [4], Arik, & Yılmaz, (2020) [2], and Ugwuozor (2020) [21]. These studies suggest that students exposed to a constructivist learning approach generally demonstrate a higher and better capacity to learn than those exposed to rote learning approaches. For instance, Ayaz and Sekerci (2015) [4] conducted a meta-analysis demonstrating the significant positive impact of constructivist learning approaches on student achievement. Similarly, Arik and Yılmaz, (2020) [2] found that constructivist methods significantly improved student outcomes in science education.

The superior academic achievement of the participants in the treatment group in the post-test can be attributed to several factors. Firstly, their exposure to a constructivist approach may have encouraged them to take responsibility for their learning and be active participants rather than passive recipients and active thinkers, knowledge creators, and collaborators. This approach contrasts with the traditional view of students as empty vessels to be filled by teachers. As Roy and Saha (2021) [16] argue, a constructivist learning context involves students being active participants capable of creating knowledge.

Furthermore, Von Glasersfeld (2012) [22] explains that the democratic nature of the constructivist learning context, the

freedom of discovery and exploration, the emphasis on collaborative rather than individualized learning, and the use of technological tools that facilitate learning contribute to the higher achievements of students in constructivist classes. These constructivist learning environments empower students to explore and question freely, fostering more profound understanding and retention of knowledge.

The findings of this paper also concur with those of other relevant studies reviewed, such as Ugwuozor (2020) [21], who studied the impact of constructivism on poetry learning among junior high school students in Western Africa. They reported significant achievement in poetry by the students in the treatment group compared to those in the control group. A study by Arik and Yılmaz, (2020) [2] also corroborates these findings, showing that students in constructivist classrooms outperform their peers in traditional settings due to increased engagement and personalized learning experiences.

Contrarily, some studies suggest that the effectiveness of constructivist approaches may vary depending on contextual factors such as cultural settings, resources available, and teacher preparedness (Gold, 2001) [9]. For instance, in contexts where teachers are not adequately trained in constructivist methods, the expected positive outcomes may not be realized, underscoring the need for comprehensive teacher training programs. Saraçoğlu (2020) [17] reported that the physical conditions and resource availability significantly impact constructivist approaches' implementation. In areas with limited resources, such as lower socioeconomic settings, the effectiveness of these methods is diminished due to inadequate materials and infrastructure. Gusango, Maani, and Ssetumba (2021) [10] highlighted the challenges in implementing constructivist teaching in teacher preparation programs in Uganda. Their study revealed that many tutors continue to rely on traditional methods due to a lack of training and familiarity with constructivist principles, which hampers the effectiveness of these approaches in practice. These studies highlight that while constructivist approaches have the potential to enhance learning, their effectiveness is contingent upon various contextual factors, including resource availability and teacher preparedness. Therefore, this study concludes that using a constructivist approach in teaching and learning prepares and produces higher achievers. However, it is essential to consider the context and implementation fidelity to realize the benefits of constructivist teaching fully.

5. Conclusion, Implications, Limitations, and Suggestions for further research

This study examined the impact of a constructivist teaching approach on the academic performance of Iraqi EFL students at Damascus Secondary School for Girls and Quteiba Secondary School for Boys in Dewanyah governorate, Iraq. Using a pretest-posttest quasi-experimental research design, the study investigated the effect of the constructivist teaching approach on the academic performances of Iraqi EFL students in a General English Language Test (GELT). The study aimed to identify the most suitable teaching approach for enriching the learning experiences of Iraqi EFL students. Data were collected using two tools, the GELT and Murphy's Constructivist Checklist, and analyzed through both descriptive and inferential statistics. The findings revealed

that Iraqi EFL students taught using the constructivist approach had statistically significantly higher academic performances in the GELT than those taught using a non-constructivist approach. Consequently, the study concludes that the constructivist teaching intervention had a considerable positive impact on the academic achievements of the participants in the treatment group.

The study also found a statistically significant difference between the two groups in implementing constructivist principles, favoring the experimental group ($Z=-1.993$, $P=.046$). This indicates that the experimental class adhered closely to the constructivist teaching approach, while the control class followed the non-constructivist approach. The implications of these findings are substantial for educational practices and policies. Promoting constructivist teaching approaches can significantly enhance students' academic performance and cognitive retention, making it a valuable strategy for educators and policymakers. It is recommended that stakeholders promote implementing constructivist teaching approaches at all levels of education, particularly in senior secondary schools in Iraq, due to their effectiveness and positive impact on EFL students' academic performances. Educators are encouraged to utilize the constructivist teaching approach in their EFL classes due to its positive effects on students' cognitive retention and academic performances.

Despite the positive outcomes, the study had several limitations. The research was confined to two secondary schools in one governorate, which may limit the generalizability of the findings to other regions or educational levels. Additionally, the study focused solely on Iraqi EFL students, which may not account for variations in student responses due to cultural or linguistic differences. The quasi-experimental design, while robust, cannot eliminate all potential confounding variables.

Future research should address these limitations by expanding the study to include a broader range of schools and educational levels across different regions. Researchers should also explore the impact of constructivist approaches in diverse cultural and linguistic contexts to enhance the generalizability of the findings. Additionally, examining the long-term effects of constructivist teaching methods on students' academic performance and cognitive development would provide deeper insights into their effectiveness. Future research should explore the impact of various teaching approaches to understand further the academic achievements of Iraqi EFL students at different educational levels and in diverse learning contexts.

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