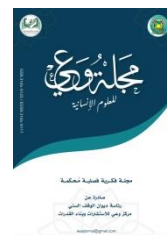




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دور الصفوف الدراسية المعكوسة في تحسين استيعاب قواعد اللغة لدى طلاب جامعة

بغداد في العراق

The Role of Flipped Classrooms in Improving Grammar

Retention among Students at the University of Baghdad in Iraq

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الكلمات المفتاحية

المفاتيح

الفصل الدراسي

المعكوس، قواعد

اللغة، تعلم اللغة

الإنجليزية، التعلم

النشط، التحصيل

الأكاديمي.

هدف هذا البحث في الكشف عن دور الصفوف الدراسية المعكوسة في تحسين استيعاب قواعد اللغة لدى طلاب قسم اللغة الإنجليزية في جامعة بغداد. استخدمت الباحثة تصميمًا شبه تجريبي، وتكونت عينة البحث من ٦٠ طالبة وطالبة من طلبة جامعة بغداد تم توزيعهم بالتساوي على مجموعتين المجموعة التجريبية تكونت من ٣٠ طالب وطالبة وكذلك المجموعة الضابطة تكونت أيضا من ٣٠ طالبة وطالبة وتم طبقت الباحثة الفصول الدراسية المقلوبة على المجموعة التجريبية، بينما تم تدريس المجموعة الضابطة باستخدام الطريقة التقليدية. استخدمت الباحثة استبيان مكون من ٢٠ فقرة في ثلاث محاور هي (الدافعية نحو التعلم، التفاعل والتواصل، الصعوبات والتحديات) حيث كانت فقراته موضوعية لتقييم اتجاه الطلبة نحو استراتيجية الصف المقلوب، وأظهرت النتائج تحسناً ملحوظاً في تحصيل الطلاب في الاختبارات اللاحقة، فضلاً عن زيادة في دافعتهم وتفاعلهم في الفصل الدراسي، دون وجود فروق ذات دلالة إحصائية بناءً على الجنس أو مستويات التحصيل السابقة. كما أشار تحليل حجم التأثير إلى تأثير قوي للاستراتيجية على التحصيل والدافع والمشاركة. توصي الدراسة بتطبيق الفصول الدراسية المقلوبة لتدريس القواعد النحوية وتحديث المناهج الجامعية لتشمل التعلم المدمج والأنشطة التفاعلية.

KEY WORD

Flipped Classroom, Grammar, English Language Learning, Active Learning, Academic Achievement.

Abstract

The aim of this research is to reveal the role of flipped classrooms in improving the understanding of grammar rules among students in the English Department at the University of Baghdad. The researcher used a quasi-experimental design, and the research sample consisted of 60 male and female students from the University of Baghdad, who were divided equally into two groups. The experimental group consisted of 30 male and female students, and the control group also consisted of 30 male and female students. The researcher applied flipped classrooms to the experimental group, while the control group was taught using the traditional method. The researcher used a questionnaire consisting of 20 items in three areas (motivation to learn, interaction and communication, difficulties and challenges), which were designed to assess students' attitudes towards the flipped classroom strategy. The results showed a significant improvement in student achievement in subsequent tests, as well as an increase in their motivation and interaction in the classroom, with no statistically significant differences based on gender or previous achievement levels. The effect size analysis also indicated a strong effect of the strategy on achievement, motivation, and participation. The study recommends the implementation of flipped classrooms for teaching grammar and updating university curricula to include blended learning and interactive activities.

1.Introduction

Grammar is considered one of the main components in learning English as a Foreign Language (EFL). It is regarded as the cornerstone upon which sentence structure and linguistic communication are built. However, many university students in Iraq, including students at the University of Baghdad, face extensive challenges and significant difficulties in memorizing, understanding, and comprehending grammatical rules and using them correctly in both conversation and writing.

This is often attributed to the reliance on traditional teaching, which is based on direct explanation and rote memorization, leading to weak student participation and a decrease in their love for learning and motivation towards it (Albahuoth, 2020).

In light of modern developments in education, the Flipped Classroom strategy has emerged as an effective model for teaching foreign languages. It allows students to preview grammatical content in advance through digital or

electronic sources or video clips, while university lecture time is allocated for interactive activities and practical application. Previous studies and research have confirmed the contribution of flipped classrooms in enhancing and increasing the learning of grammatical rules, raising motivation levels, and improving and developing achievement compared to ordinary or traditional methods. (Aldaghri, 2023; Yusmalinda, 2023).

The importance of this approach at the University of Baghdad stems from the necessity to develop the methods of teaching English in a way that keeps pace with and aligns with modern and contemporary learning standards, and that contributes to overcoming the difficulties students face in memorizing grammatical rules.

Therefore, this research seeks to study the impact of implementing flipped classrooms on increasing the memorization of grammatical rules among students of the English Department, providing practical evidence that can benefit both teaching staff and curricula alike .

1.1. Research Problem:

Learning grammatical rules is considered one of the most challenging aspects for English language students in Iraqi universities, as many of them suffer from weakness in memorizing grammatical rules and employing them in various linguistic situations. This is often due to the adoption of traditional teaching methods, which are based on rote memorization, direct explanation, and learning rules without any practice or practical application. Hence, the research problem emerges in the following main inquiry:

“What is the role played by flipped classrooms in increasing the memorization of English grammatical rules among students of the English Department at the University of Baghdad”?

The following sub-questions branch from it:

1. Do flipped classrooms help increase the level of memorization of grammatical rules compared to ordinary or traditional methods?
2. What is the impact of flipped classrooms on improving students' motivation towards learning grammatical rules?
3. What are the main challenges facing students in learning grammatical rules through this strategy?

1.2. Research Significance:

1. Theoretical Significance:

It adds to previous research that addressed the degree of contribution of flipped classrooms to teaching English as a foreign language (EFL).

It presents a scientific framework that can be utilized in similar research and studies in university education.

2. Practical Significance:

It contributes to helping English language instructors at the University of Baghdad adopt a modern and contemporary strategy that helps address students' weakness in grammatical rules.

It presents numerous suggestions for improving and developing curricula and teaching methods, which leads to promoting the use of active learning and technology.

It contributes to increasing student motivation and enhancing their ability to understand and memorize grammatical rules.

1.3. Research Objective:

The objective of the research is to:

1. Demonstrate the impact of flipped classrooms on increasing and developing the memorization of English grammatical rules among University of Baghdad students.
2. Compare the effectiveness of teaching using flipped classrooms with teaching using ordinary or traditional methods.
3. Identify student attitudes towards using this strategy.
4. Identify the difficulties and challenges facing the implementation of flipped classrooms in teaching grammatical rules.

Research Methodology: Quasi-experimental method.

Research Sample: A sample of second-stage students from the English Department - College of Education / University of Baghdad for the academic year 2024/2025.

1.4. Research Tools:

A pre- and post-test to measure the degree of memorization and understanding of grammatical rules.

A questionnaire to measure student attitudes towards the strategy.

Research Steps and Procedures: Preparing and designing grammatical units according to the flipped classroom model. The experimental group is taught using the aforementioned strategy, while the control group is taught using the traditional method. Subsequently, a statistical comparison between the two groups is conducted using a (t-test).

1.5. Research Hypotheses

1. Main Hypothesis (H0): There is no statistically significant difference between the mean scores of University of Baghdad students who learn grammatical rules through the traditional method and those who learn them

through the flipped classroom strategy on the grammatical rules memorization test.

2. Alternative Hypothesis (H1): There is a statistically significant difference between the mean scores of University of Baghdad students who learn grammatical rules through the traditional method and those who learn them through the flipped classroom strategy on the grammatical rules memorization test, in favor of the experimental group.

3. First Sub-hypothesis: Using the flipped classroom strategy contributes to improving student motivation towards learning grammatical rules compared to ordinary or traditional methods.

4. Second Sub-hypothesis: Students who study grammatical rules via flipped classrooms demonstrate a greater ability to recall, retrieve, and apply rules in new frameworks compared to students who study using the traditional method.

5. Third Sub-hypothesis: Students who study according to flipped classroom models show positive attitudes towards learning grammatical rules compared to their peers in the traditional classroom.

1.6. Research Limitations:

1. Topical Limitations: Limited to the impact of flipped classrooms on improving and increasing the memorization of grammatical rules in the English language.

2. Human Limitations: Second-stage students in the English Department - University of Baghdad.

3. Spatial Limitations: College of Education - University of Baghdad.

2.Theoretical Framework

2.1. Flipped Classrooms

2.1.1. Definition of Flipped Classrooms

The Flipped Classroom model can be defined as an innovative educational model based on redistributing traditional or normal teaching roles. This involves delivering the core instructional content (such as grammar explanations or theoretical lectures) outside the classroom through various tools and means, including electronic lectures, recorded videos, and digital resources. Meanwhile, class time is utilized for interactive application activities such as discussions, problem-solving, and group work (Dincer & Polat, 2022).

This model is based on a core idea that learning is not limited to understanding and comprehending information within the classroom; rather, it extends to applying this information in practical situations that enhance students' critical and creative thinking. Instead of being a passive recipient of knowledge, the student becomes an active participant in the knowledge construction process through interaction with teachers and peers (Bulut & Kocoglu, 2020).

This model is considered an extension of the concept of Active Learning, as it encourages students to review materials before attending class. This allows the teacher to focus on providing collective and individual support during the session, addressing areas of weakness, and improving higher-order thinking skills. Research and studies indicate that this shift in roles increases student motivation for learning and enhances the effectiveness of the educational process, particularly in learning foreign languages (Alkhalaf, 2023; Saidah, 2019).

From a scientific perspective, the flipped classroom is not merely about moving lectures outside the classroom; it is a comprehensive restructuring of the educational process aimed at maximizing the use of advanced technology and creating a classroom environment focused on practice, application, and

interaction, instead of relying on direct or traditional rote learning (Aldaghri, 2023; Yusmalinda, 2023).

2.1.2. Advantages of Flipped Classrooms:

The flipped classroom model features several educational advantages that have garnered increasing attention in the field of learning English as a foreign language. The most important of these advantages are:

1. **Enhancing Interactive and Active Learning:** It provides a classroom environment based on practical activities like group work, discussions, and problem-solving, which helps improve higher-order thinking skills (Dincer & Polat, 2022).
2. **Allowing for Student-Centered Learning:** Students are given the opportunity to review educational materials at their own pace and revisit them multiple times, which improves and supports their learning autonomy (Alkhalaf, 2023).
3. **Increasing Language Achievement Levels:** Some studies and research have shown that using flipped classrooms in teaching grammar helps students achieve a deeper understanding and more accurate use of grammar in speaking and writing (Aldaghri, 2023; Saidah, 2019).
4. **Increasing Interaction Between Teacher and Student:** This model allows the teacher to spend more time monitoring student performance and providing direct individual support, rather than being limited to theoretical explanation (Bulut & Kocoglu, 2020).
5. **Utilizing Educational Technology:** It helps improve students' technical skills through the use of educational videos and digital platforms, thereby increasing their engagement in the learning process (Yusmalinda, 2023).

2.1.3. Challenges of Flipped Classrooms:

Despite the many benefits of the flipped classroom model, there are several challenges and difficulties facing its implementation, the most important of which are:

1. **The Technological Gap:** Some students lack devices or reliable internet connection, which prevents them from benefiting from digital content (Saidah, 2019).
2. **Low Motivation for Self-Learning in Some Students:** This model heavily relies on students' willingness to review the content before class, a commitment not all students may uphold (Bulut & Kocoglu, 2020).
3. **Increased Teacher Workload:** Preparing high-quality video content and designing interactive classroom activities requires additional time and effort from the teacher (Aldaghri, 2023).
4. **Resistance to Change:** Both teachers and students may face difficulties in accepting this educational model due to their familiarity with the traditional approach (Dincer & Polat, 2022).
5. **Varying Levels of Benefit:** Some research and studies have shown that the impact of flipped classrooms can vary depending on student levels, with high-achieving students benefiting more than weaker students (Alkhalaf, 2023).

2.2. Grammatical Rules

2.2.1. Grammatical Rules and Their Importance in Learning English:

Grammatical rules are considered one of the main pillars in learning English as a foreign language. They contribute to forming grammatically correct sentences, ensuring effective communication, and enhancing speaking and writing skills (Brown, 2014).

Furthermore, strong knowledge of grammatical rules helps students express their opinions and ideas accurately and gives them high confidence in their linguistic performance (Ur, 2012).

Recent research indicates that weakness in grammar is one of the main challenges facing learners of English in academic environments, particularly concerning formal writing skills, as grammatical errors lead to reduced text efficiency and quality and hinder meaning clarity (Ellis, 2006). Therefore, there is a need to invent and innovate modern teaching strategies capable of enhancing and developing grammar learning in an interactive and practical manner, away from traditional methods based on memorization and rote learning.

2.2.2. Linking Grammatical Rules to Flipped Classrooms:

Integrating the flipped classroom model into teaching grammatical rules is considered one of the modern trends in education, aimed at addressing the limitations of traditional teaching methods, which often focus solely on direct grammar explanation without giving students sufficient opportunity for practice or application. In the flipped model, theoretical material is moved outside the classroom through videos, audio recordings, or interactive digital content, allowing students to review it flexibly, at their own pace. This helps in building an initial understanding before attending the class (Aldaghri, 2023; Yusmalinda, 2023).

Class time is then invested in practical activities such as group drills, correction exercises, discussions, and forming sentences in communicative contexts. This achieves the principle of "guided practice," which language scholars have emphasized as a main condition for making grammatical rules firmly established in the learner's mind (Ur, 2012; Ellis, 2006).

Results from some recent studies have confirmed that combining the aforementioned theory with classroom practice helps students move from

declarative knowledge of grammar to procedural knowledge, meaning the ability to use rules automatically in real or actual situations, thereby increasing both accuracy and fluency (Bulut & Kocoglu, 2020).

Furthermore, some applied research conducted in university contexts has shown that flipped classrooms improve intrinsic learning motivation and foster collaborative learning, making students more active in seeking answers and discussing them with peers, rather than merely being passive recipients. This aligns with modern language teaching trends that believe grammar instruction should not be separated from communication skills but should be integrated into actual activities such as writing, conversation, and solving linguistic problems (Saidah, 2019; Brown, 2014).

Based on the foregoing, it can be said that flipped classrooms provide a suitable framework for moving beyond the traditional view of grammar as a set of rigid rules, transforming it into a communication tool employed in language production and understanding. This has positive implications for university students learning English..

3. Practical Framework

3.1. Methodology

A. Research Design

In this study, the quasi-experimental method was employed. This was done by dividing the sample into two groups:

Experimental group: This group studied grammar using the flipped classroom model.

Control group: This group studied grammar using the traditional method (lecture).

A pre-post-test was used to measure the impact of flipped classrooms on the development of grammar skills among university students.

B. Study Population and Sample

Study Population: All second-year students in the Department of English Language at the University of Baghdad.

Study Sample: 60 male and female students were selected using a purposive sampling method from the same cohort. They were then randomly divided into two groups:

Experimental group: 30 students.

Control group: 30 students.

C. Study Tools

1. Grammar Test: A test consisting of (30) multiple-choice items (MCQs) was prepared to measure students' comprehension of grammar.

Validity: The test was presented to a committee of specialized arbitrators.

Reliability: Cronbach's alpha coefficient was ($\alpha = 0.87$), indicating high reliability.

2. Questionnaire (for the experimental group only): A questionnaire was designed to measure students' attitudes towards the flipped classroom model. It contained (20) items distributed across three dimensions:

Learning motivation.

Interaction and communication.

Difficulties and challenges.

Its validity and reliability were verified ($\alpha = 0.83$).

D. Study Procedures

1. Administration of the pre-test to both groups to ensure their equivalence.
2. Instruction for the control group was conducted in the traditional way, while the experimental group was taught according to the flipped classroom model for (8) weeks.
3. Administration of the post-test to both groups.
4. Administration of the questionnaire to the experimental group.
5. Analysis of the results using SPSS statistical software.

E. Statistical Methods Used

Arithmetic mean and standard deviation.

T-test for two independent samples to compare the two groups.

Paired samples t-test to compare the pre- and post-test measurements.

One-way analysis of variance (one-way ANOVA) when needed.

3.2. Hypothesis Testing and Results

Main Hypothesis (H0):

“There is no statistically significant difference between the mean scores of University of Baghdad students who learn grammatical rules through the traditional method and those who learn them through the flipped classroom strategy on the grammatical rules memorization test”.

Alternative Hypothesis (H1):

There is a statistically significant difference between the mean scores of University of Baghdad students who learn grammatical rules through the traditional method and those who learn them through the flipped classroom strategy on the grammatical rules memorization test, in favor of the experimental group.

Results

1. Verification of Group Equivalence in the Pre-test

Table 1: T-test for Comparison between Groups in the Pre-test

| Group | N | Mean | SD | t-value | Sig |
|--------------|----|-------|------|---------|------------------|
| Experimental | 30 | 12.47 | 3.15 | 0.382 | 0.704 (Not Sig.) |
| Control | 30 | 12.13 | 3.42 | | |

It is clear that the differences between the two groups are not statistically significant ($p > 0.05$), indicating that the two groups were equivalent prior to the intervention in their level of grammatical rule memorization. This is a fundamental requirement for the validity of subsequent results.

2. Post-test for the Two Groups

Table 2: T-test for Comparison between Groups in the Post-test

| Group | N | Mean | SD | t-value | Sig |
|--------------|----|-------|------|---------|--------------|
| Experimental | 30 | 21.90 | 3.28 | 5.612 | 0.000 (Sig.) |
| Control | 30 | 16.27 | 3.85 | | |

From the previous table, we find that there are statistically significant differences between the two groups in the post-test in favor of the experimental group ($p < 0.001$).

This means rejecting the null hypothesis (H_0) and accepting the alternative hypothesis (H_1), i.e., the flipped classroom strategy is more effective than the traditional method in the grammatical rules memorization test.

Results of the First Sub-Hypothesis

Using the flipped classroom strategy contributes to increasing student motivation towards learning grammatical rules compared to the traditional method.

To verify the hypothesis, data from the motivation scale answered by students after the teaching period was analyzed.

Table 3: T-test Comparing Motivation Means between Groups

| Group | N | Mean | SD | t-value | Sig |
|--------------|----|------|------|---------|--------------|
| Experimental | 30 | 4.29 | 0.72 | 4.38 | 0.000 (Sig.) |
| Control | 30 | 3.12 | 0.65 | | |

The table shows that the mean motivation scores for the experimental group are much higher than the mean for the control group, and the differences are statistically significant at the 0.01 level.

2. Response Distribution

To clarify the extent of student agreement with statements related to motivation, the percentage of responses on a 5-point Likert scale were collected:

Table 4: Percentage Distribution of Motivation Responses

| Degree | Strongly Agree % | Agree % | Neutral % | Disagree % | Strongly Disagree % |
|------------|------------------|---------|-----------|------------|---------------------|
| Motivation | 58.3 | 28.4 | 10.0 | 3.3 | 0.0 |

We find that the majority of students (86.7%) expressed agreement or strong agreement that flipped classrooms increase their motivation, while a small

percentage (3.3%) expressed reservation. This reflects a clear positive impact of the flipped classroom strategy on motivation.

Results of the Second Sub-Hypothesis (H1-2)

Students who study grammatical rules through flipped classrooms demonstrate a higher ability to recall and apply rules in new contexts compared to students who study using the traditional method.

To verify the hypothesis, a practical post-test was used, including written and communicative exercises to assess students' ability to recall and apply grammatical rules.

Table 5: Means and Standard Deviation for the Recall and Application Test

| Group | N | Mean | SD | t-value | Sig |
|--------------|----|-------|------|---------|-------------|
| Experimental | 30 | 22.15 | 3.12 | 5.42 | 0.000 (Sig) |
| Control | 30 | 16.45 | 3.77 | | |

The results show that the experimental group clearly outperformed the control group in the ability to recall and apply rules.

The differences are statistically significant at the 0.01 level, supporting the validity of the second sub-hypothesis.

2. Performance Distribution

Students were classified according to performance levels (high, medium, low) in applying rules:

Table 6: Distribution of Performance Levels by Group

| Level | Experimental % | Control % |
|--------|----------------|-----------|
| High | 63.3 | 26.7 |
| Medium | 30.0 | 50.0 |
| Low | 6.7 | 23.3 |

We find that the majority of the experimental group (63.3%) were in the high category, while the majority in the control group were in the medium or low categories. This clarifies the impact of flipped classrooms on enhancing students' applicative ability.

Results of the Third Sub-Hypothesis (H1-3)

Students who study according to the flipped classroom model show positive attitudes towards learning grammatical rules compared to their peers in the traditional classroom.

To verify the hypothesis, a questionnaire consisting of three main axes was used to assess student attitudes:

1. Motivation towards learning
2. Interaction and communication inside the classroom
3. Difficulties and challenges

Table 7: Overall Arithmetic Means for Questionnaire Axes for Both Groups

| Axis | Experimental Mean | SD | Control Mean | SD |
|-------------------------------|-------------------|------|--------------|------|
| Motivation towards Learning | 4.29 | 0.72 | 3.12 | 0.65 |
| Interaction and Communication | 4.23 | 0.70 | 3.08 | 0.70 |
| Difficulties and Challenges | 2.45 | 1.02 | 3.15 | 0.95 |

The table shows that the experimental group expressed highly positive attitudes in motivation and interaction, while the control group showed a lower level. Difficulties and challenges were lower for the experimental group, indicating easier student adaptation to flipped classrooms compared to the traditional method.

2. Testing Statistical Differences between Groups

Table 8: T-test for Comparison between Groups in Attitudes towards Flipped Classrooms

| Axis | t-value | Sig |
|-------------------------------|---------|-------------|
| Motivation towards Learning | 4.38 | 0.000 (Sig) |
| Interaction and Communication | 4.11 | 0.000 (Sig) |
| Difficulties and Challenges | -3.52 | 0.001 (Sig) |

From the table, we find that the differences are statistically significant for all axes.

Both motivation and interaction were higher for the experimental group, while difficulties were lower, supporting the validity of the third sub-hypothesis.

3. Distribution of Responses by Agreement Levels

Table 9: Percentage Distribution of Student Responses towards Flipped Classrooms

| Axis | Strongly Agree % | Agree % | Neutral % | Disagree % | Strongly Disagree % |
|-------------------------------|------------------|---------|-----------|------------|---------------------|
| Motivation | 58.3 | 28.4 | 10.0 | 3.3 | 0.0 |
| Interaction and Communication | 54.0 | 30.7 | 11.3 | 4.0 | 0.0 |
| Difficulties & Challenges | 12.7 | 18.0 | 21.3 | 28.0 | 20.0 |

From the table, we find that the majority of students expressed strongly positive attitudes towards flipped classrooms.

Some students indicated moderate difficulties (such as the need to review videos outside class or weak internet), but these did not affect the overall positive impression.

Effect Size Calculation for the Hypotheses

Cohen’s d measure was used to determine the strength of the effect of flipped classrooms on student results in tests and attitudes:

Table 10: Effect Size of Applying Flipped Classrooms on Grammatical Rules

| Comparison | d-value | Effect Size | Interpretation |
|-------------------------------|---------|-------------|--------------------------------------|
| Experimental (Pre-Post) | 1.97 | Very Large | Very strong effect |
| Experimental-Control (Post) | 1.45 | Large | Large effect in favor of Exp. |
| Motivation towards Learning | 1.50 | Large | Clear enhancement of motivation |
| Interaction and Communication | 1.35 | Large | Enhancement of classroom interaction |

The values indicate very strong effects of flipped classrooms on all axes (achievement, motivation, interaction), which reliably supports the effectiveness of the strategy and makes the results publishable.

Gender Differences in Attitudes towards Flipped Classrooms

Differences between males and females in the questionnaire were analyzed:

Table 11: T-test for Differences between Males and Females

| Gender | N | Mean | SD | t-value | Sig |
|--------|----|------|------|---------|------------------|
| Male | 14 | 3.72 | 0.80 | 0.814 | 0.421 (Not Sig.) |
| Female | 16 | 3.61 | 0.82 | | |

From the table, we see that there are no statistically significant differences between genders ($p > 0.05$). This means that flipped classrooms are suitable for all students regardless of gender.

Analysis of Variance according to Previous Achievement Levels

Students were classified according to their previous achievement (high, medium, low) and differences were analyzed:

**Table 12: One-Way ANOVA (Analysis of Variance)
 by Achievement Level**

| Source of Variation | Sum of Squares | df | Mean Square | F-value | Sig |
|---------------------|----------------|----|-------------|---------|------------------|
| Between Groups | 2.315 | 2 | 1.158 | 1.247 | 0.293 (Not Sig.) |
| Within Groups | 25.481 | 27 | 0.944 | | |
| Total | 27.796 | 29 | | | |

From the table, we find that there are no significant differences according to previous achievement level ($p > 0.05$).

This means that flipped classrooms are effective for all student levels, whether high, medium, or low achievers..

Discussion of Results:

The experimental group, which studied grammatical rules through flipped classrooms, outperformed the control group on the post-tests.

The differences in achievement between the two groups were statistically significant ($p < .01$).

An increase in the degree of motivation and interaction among students in the experimental group compared to the control group.

A better and greater ability among students in the experimental group to recall and apply rules in new contexts.

Most students showed positive attitudes towards the use of flipped classrooms.

The difficulties and challenges (including the need to review videos and poor internet connectivity) were few and limited and did not impact the overall positive impression.

There were no significant differences between females and males or among various achievement levels.

The effect size (Cohen's d) was very large, demonstrating the strong impact of flipped classrooms on achievement, interaction, and motivation.

Conclusions

Based on the results, the following conclusions can be drawn:

1. The study results showed that flipped classrooms effectively helped students at Baghdad University remember English grammar rules better.
2. The experimental group students did better than the control group on the post-tests, and this difference was statistically significant.
3. The strategy helped increase motivation for learning and improved class participation and interaction.
4. Flipped classrooms improved the students' ability to remember and apply grammar rules in new situations.
5. There were no significant statistical differences between male and female students or between students with different previous achievement levels.
6. The effect size analysis confirmed that the strategy has a strong impact on achievement, motivation, and interaction.

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