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| RESEARCH ARTICLE

Implementation of Flipped Learning in Teaching Syntax Course from Digital Pedagogy Perspective: A Case Study of King Khalid University's Students

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| ABSTRACT
This study investigated the implementation of technology-enhanced models of flipped learning in teaching syntax courses to Saudi students majoring in English language bachelor's degree. The study used a quasi-experimental design, including a control group and an experimental group. Additionally, the researchers designed a questionnaire to evaluate the outcome of using flipped learning in accomplishing the course objectives and students' comprehension of the course. The findings display that the implementation of flipped learning in teaching syntax is more effective in terms of comprehension of the KKU specified material course properly and broaden syntax knowledge through searching and discussion aspects in terms of class discussion and presentational activities. Moreover, students reveal positive mental models, collaboration, positive interaction, and enjoyment of flipped learning. Hence, the students become researchers, and they change the class to a discussion platform and debating room. The study paper concludes that the integration of technology in teaching English courses should be implemented at KKU, and English instructors should be trained to use flipped learning in teaching English courses from a digital transformative perspective, copying with KKU's orientation.

| KEYWORDS

Flipped Learning, Integration of Technology, Syntax Course, Syntax Comprehension, Presentational Activities, Mental Model, Digital Transformation, KKU

| ARTICLE INFORMATION

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1. Introduction

In the English language and translation program, King Khalid University imposed many cogent microlinguistics courses to fulfill the requirement of the degree from a quality-based and updated progressive linguistics knowledge aspect. Thus, syntax is one course taught for students majoring in the English language. KKU designs a cogent syntax course entailing the fundamental knowledge about syntax and its theories. In addition, the course entails cognitive aspects in terms of analysis, critical thinking, and creative thinking. Most of the students commented that the syntax course is like mathematics, and they sense difficulty, particularly in sentence analysis and tree diagramming of cleft and embedded sentences composing of relativization. Syntax is a cognitive act for the purpose of studying and analyzing sentence structure in terms of grammar (Wyrick, 2014). Students who study a syntax course are required to focus on analyzing, parsing, generating and transforming sentence structure. In a typical syntax class, Saudi students usually struggle to analyze sentence structure and generate sentences relying on diagramming rules or bracketing rules because they are accustomed to rote learning rather than problem solving problems. Moreover, they faced problems with the consideration of grammar accuracy and the organizational structure of different structural sentence structures (Baranovichi, 2013). Syntax course is a crucial course for students majoring in the English language because it assists them in analysing sentence formation to its basic components, generating an infinite number of sentences using finite rules, applying transformation rules, distinguishing lexical categories from non-lexical categories, comprehending ambiguity in sentence formation, comprehending

inflectional factor in languages and absorbing grammatical rules that distinguish between grammatical and not grammatical correctness of sentence in terms of grammatical rules convention. To make Saudi students who are members of the digital age absorb the course of syntax comprehensibly, integration of technology must be considered and inquiring learning must be implemented in the syntax course. Teaching a syntax course using traditional methods such as lecture method enhancing with head projector does not lead to comprehending the course properly, though students can gain high marks in the course relying on memorization, and this does not match KKU's missions, orientation, and visions which strictly focus on a high degree of quality and linguistics competency for its graduates. Therefore, implementing Flipped teaching/learning can assist in accomplishing KKU's Languages and Translation College goals and learning outcomes-knowledge, skills, and values of the syntax course. A flipped classroom reverses the traditional teaching role where the lessons are first taught, and then homework is assigned. It involves the instructors creating courses, texts, or lectures that are watched or read at a student's own pace, and in-class teaching assists in practising the concepts learned in the videos or other course materials (Chang, Yu, Chen and Hsieh, 2013).

This study aimed to fill the research gap about how the implementation of flipped learning/ teaching stimulates inquiry learning and changes the student's role to be an active researcher in studying a syntax course. The study raises the following questions:

1. Is a discussion-oriented flipped classroom more effective than a traditional/conventional teacher-centered classroom in teaching a syntax course to KKU students majoring in the English language?

2. Does the implementation of a flipped classroom assist students in practising the English language through more effective discussion than the lecture method(teacher centeredness)?

3. How do KKU students evaluate the implementation of flipped learning/teaching in syntax courses?

The following hypotheses are proposed in this study:

- Flipped learning/teaching would motivate KKU students majoring in English to absorb a syntax course cognitively.

- Flipped learning/teaching would maximize KKU students' positive interaction in the classroom through research, discussion and argumentation.

- Flipped learning/teaching presents significant and positive effects on the cognitive component of learning from a high order thinking perspective.

2. Review of Literature

2.1 Flipped Learning/Teaching

Flipped learning/teaching is a pedagogical approach in which the conventional notion of classroom-based learning is inverted so that students are introduced to the learning material before class, with class time then being used to deepen understanding through problem-solving activities, and it is based on discussion-oriented, and role-reversal flipped models employing technological tools with the aim of facilitating teaching and learning process. (Shih & Huang, 2020; Wang & Qi, 2018). In this model, the teacher is responsible for designing and presenting content such as educational video resources, and subsequent discussion with students on the video content or knowledge exchange happens in the classroom where topics are explored further (Nikitova, 2020). Zhang (2019) proposed a flipped classroom and requested that students read textbooks, handouts, or PPT before the class to preview relevant data in the lesson; a lot of class time was then saved for students asking questions and analyzing cases. Such a learning style received positive support from students, proving that students preferred the learning style of the flipped classroom compared to traditional learning styles. Aiming at teachers with the practice of flipped learning, Alexander (2018) considered that flipping enhanced job satisfaction, and students made progress in learning performance. Moreover, teachers noted the obvious improvement in students' learning attitudes; some pleased teachers revealed that they would continuously apply the flipped learning model. Karabulut (2018) indicated that the effectiveness of flipped learning was not simply on academic performance but could also enhance cooperation and thinking among students; meanwhile, it could change students' attitudes toward learning and teacher–student interaction. Flipped classroom is defined as what is traditionally done in class is now done at home, and what is traditionally done as homework is now completed in class. It changes the classroom's environment from a knowledge station to a place for learner engagement and formative assessment relying on students' learning at their own pace and strengthening the teacher-student relationship, in which learners benefit from using technology in learning (Anderson,2012).

[1]A flipped classroom is a type of blended learning where students are introduced to content at home and practice working through it in the classroom. In a common flipped classroom scenario, students might watch pre-recorded videos at home and then come to the classroom to do the homework armed with questions and at least some background knowledge.

The concept behind the flipped classroom is to rethink when students have access to the resources they need most (Mason, Shuman, & Cook, 2013). At home in Flipped Classroom, students watch an online lecture, review online course material, read physical or digital texts, participate in an online discussion and perform research. In the classroom, guided by the teacher, the students debate, construct in-person, face-to-face discussions with peers, present a presentation, peer assessment and review. Flipped classroom with the videos at home and again in the classroom, increasing the opportunity for personalization and more precise guiding of learning. In the flipped classroom model, students practice under the guidance of the teacher while accessing content on their own (Bergman and Sams, 2013).

The researchers believe that flipped learning engages students through responsive learning environments that motivate students to participate in the production and processing of knowledge. Providing students with a five to seven minute video, recording or PTT before coming to the class assists in providing students with the concept of the coming class as a pre-class activity, which makes students research and learn in a self-paced manner to engage in peer-led discussions during class that lead to synthesis and application of these key concepts. In the KKU context, researchers prepare a 6-minute PTT supported by recording on Blackboard explaining syntax course material before the class. For instance, a PTT supported by recording explains phrase structure in terms of lexical categories, non-lexical categories, and phrase components (specifier, head and complement). The PTT supported with recording provides students with a chunk explanation of the concept ''phrase structure'' and instructs them to broaden their horizons on it. Then, the students were asked to explain the types of phrases (NP, VP, AP, PP, Adv P, ..) with clear examples. As a result, the students search the database, textbook and references. In the coming class, the teacher stimulates them to discuss the topic elaborately. The instructor provides them with productive feedback and encourages productive interaction. The teachers deploy the PTT supported with recording before enough time for the coming class, and the students are motivated to do their work depending on themselves as researchers. Furthermore, a secure, amicable class environment is inculcated at the beginning of the semester by informing the students that the syntax course requires high-order thinking, not just memorization of information, so the students named the syntax course the mathematics of English. Collaboration and cooperation are inculcated from the beginning of the semester, and the gapping technique is explained to the students (we all learn from each other). The application of flipped learning in teaching syntax courses inverted the class, so students prepare the class material and study it before coming to the class. Hence, the class becomes a discussion platform that displays debating, augmenting, and exchanging information, correcting others, and producing knowledge. After the class, post assessment and feedback are provided by the teacher, and students create a handout or sheet consisting of the summary of the topic and answer to questions posed by the teacher. The researchers believe that implementation of flipped learning/teaching constructs active, productive class enhancing practice of the English language with prior preparation and organizing information.

Flipped learning/ teaching involves students engaging with interactive content focusing on key concepts prior to class, allowing face-to-face time for collaborative activities that clarify concepts and contextualize knowledge through application, analysis, planning and problem solving (Anderson et al., 2001; Karanicolas & Snelling, 2010; Snelling et al., 2009). Moreover, it is based on the learning theory of Bloom's revised taxonomy, whereby students first obtain factual knowledge (the lower levels of cognitive activity), perhaps outside the classroom, and then focus on the application, interpretation, and evaluation (the higher levels of cognitive activity) during the class with guidance from their teachers and classmates (Yang, 2018). Nonetheless, flipped learning/ teaching is criticized from various aspects, such as reduced opportunity for self-directed critical thinking, decentering the role of the student, encouraging a lecture-driven march through curriculum, and, in general, simply streamlining an already industrialized approach to learning.

Basal (2012) implemented flipped classrooms in English language classes to teach writing skills, and he concluded that the attitudes of most of the students towards using a flipped learning model were positive. The researchers confirmed this conclusion with teaching syntax. Hung (2015) investigated the impacts of flipping the classroom on English language learners' academic performance, participation levels, and learning attitudes. He concluded that it enables learners to get better outcomes, develop better attitudes, and devote more effort to the learning process. The researchers confirm this conclusion, and they postulate that

[1] *Some of the benefits of a flipped classroom are: flexibility; students can learn at their own pace; students take responsibility for their learning; students learn rather than encounter material in class; there are more opportunities for higher level learning; it does not waste time transferring information to students when that information is available to them in books or online (Nikitova, Kutova, Shvets, Pasichnyk& Matsko,2020).*

implementation of flipped learning promotes students' comprehension, maximizes students' horizons in terms of knowledge, and stimulates students to exert great effort in searching and discussing. Furthermore, Perez and Riveros (2014) implemented flipped learning, and they found that students develop self-efficacy, self-regulation, personalized tutoring, and constant interaction. The researchers confirm this conclusion, and they notice that it maximizes self regulated learning and it maximizes productive interaction. Huang and Hong (2015) investigated the effects of [2]flipped English classrooms on students' reading comprehension, and they concluded that reading comprehension skills improved significantly subsequent to the flipped learning treatment process.

2.2 Digital Transformation

Digital transformation positively impacts student learning by opening a world of endless possibilities and collaboration. It is creating a world of difference by rethinking the digital tools that are used in the classroom. Digital tools are driving new levels of collaboration and innovation to create a campus of endless learning possibilities (Mason, Shuman, & Cook, 2013).

Digital transformation is a physical and philosophical change designed to meet the ever growing demands of your students, faculty and campus to create a learning environment where everything connects. This is an ecosystem that combines technology, services and security to bridge the digital gap to create collaborative, interactive and personalized learning experiences (Ekmekci, E. (2014).

Digital transformation is driven by campus security, information security, student success, IT strategy, data enablement, student centric services, affordability, digital integration and artificial intelligence. A digitally transformed campus can be created by building a strong IT foundation, fostering successful students, creating a safe campus, delivering state-of-the-art cybersecurity, and deploying operational efficiencies (Mason, Shuman& Cook,2013). McCammon, D. (2013) proposed that digital transformation starts with a clearly defined strategy that leverages opportunities presented by the new technology while meeting the objectives of your stakeholders. It involves four steps to help develop it for education: Connecting everything to support tomorrow's digital world, deploying analytics to automate, understand and save money, rolling out new business models and moving towards a single, simple platform.

3. Method

3.1 Participants

The study sample is composed of sixty Saudi male students studying a syntax course in the English language and translation program at KKU, and their ages ranged between 20 and 24. The participants were enrolled in the year (2023). The study uses a quasi-experimental design with intact classes as control and experiment groups. The students were assigned as the control group (n = 17). The other participants were assigned to the first experimental group (n = 19), and other students were assigned to the second experimental group classroom (n = 24).

3.2 Instruments

An English grammar test was used to confirm the participants' homogeneity in terms of their approximate English level. The test included three types of sections: a core grammar test section consisting of 50 multiple choice items assessing grammar, as well as separate oral and writing test sections. The test was validated through item analysis in a pilot study with 100 students majoring in English. Moreover, the internal consistency reliability index of the grammar test was .87, indicating the high reliability of the test. Also, two timed transformed question tests, including questioning, negation and passivation, were used as the pretest, and two timed transformed question tests were used as the posttest to assess the participants' grammar competency before and after treatment.

In the pretest, one of the tests was about applying transformation rules to construct the surface structure and non-kernel sentence, and the other one was about applying transformation rules to construct the deep structure and kernel sentence. To score the test based on a grammatical rubric and to increase the dependability of the data, both the pretest and the posttest were scored by two raters, and interrater reliability was computed. The interrater reliability coefficients were .91 and .92 for the pretest and posttest essays, respectively. Also, the intrarater reliability coefficients with a subset of six essays were .98 and .97 for the pretest and

[2]*In terms of Bloom's revised taxonomy (2001), in flipped classroom , students are doing the lower levels of cognitive work (gaining knowledge and comprehension) outside of class, and focusing on the higher forms of cognitive work (application, analysis, synthesis, and/or evaluation) in class, where they have the support of their peers and instructor. This model contrasts from the traditional model in which first exposure occurs via lecture in class, with students assimilating knowledge through homework.*

posttest essays, respectively. A researcher-made questionnaire was used to evaluate the proposed models of implemented flipped learning/ teaching, and it included 11 statements on a 5-point Likert scale, ranging from 0 (Strongly disagree) to 4 (Strongly agree), with a score of 0 to 4 for each item. The questionnaire was piloted on 50 KKU students majoring in the English language. Item and multivariate analysis were used to validate the questionnaire. The test-retest reliability and intra-observer reliability estimates (Cronbach's alpha) for the items were employed. Both the test-retest reliability (Kappa =.94) and Cronbach's alpha (α = .91) were high.

3.3 Data Collection and Analysis Procedures

This study was carried out in 2023- 2024 with 60 male students majoring in English language and studying a syntax course, and they included one control group and two experimental groups testing grammar. Additionally, a researcher-made evaluation questionnaire was utilized in the posttest stage to address the last research question of the study.

As illustrated in Table 1, this research was conducted over a period of 15 weeks. After administering the grammar test in the first week, the pretest grammar was administered to all three groups in the second week. Then, the groups received instructions from the same teacher. During the research study, transformational syntax was used by the participants in the three groups as their textbook for course fulfilment. The general scheme of the procedures is presented in Table 1.

Table 1: General Scheme of Syntax

Week	Focus	Session
1	Administering English grammar test	1
2	Pretest transformation	1
3	Overview of transformational syntax	1
4	Overview on transformational syntax development by exemplification	1
	How to apply transformational rules in kernel sentences writing this type of essay	1
5	Overview of transformational syntax development by sentence structure analysis	1
	How to develop transformational syntax by process of analysis	
6	How to develop transformational syntax (based on the surface structure) process essay)	1
7	How to develop transformational syntax (based on the deep structure)	1
8	Overview on transformational syntax focusing on phrase structure	1
	How to analyses sentence into phrases	
9	Application of transformation rules	1
10	Elaborating phrases with modifiers	1
11	Elaborating noun phrase with relativization	1
12	Overview on inversion	1
13	Overview on WH question form	1
14	Overview on ambiguity	1
15	Posttest essay and questionnaire	1

In the control group, the traditionally taught session met for a total of 250 minutes per week. The teacher utilized the traditional lecture format, delivering instruction using the whiteboard. The teacher-fronted lecture classroom was designed to seat the students in orderly rows, allowing direct visual interactions among all students in the class. The teacher was the authority and directed the discourse in the classroom. The location and time of the class for the control group were fixed during the research. In- and out-of-class learning materials, if any, were presented in the print format and were delivered during in-class activities.

In the experimental groups, the instruction was accompanied by the PTT supported by recording. That is, the main point of each session was addressed by PTT, supported by recording they read and listened to before class, but the details were explained and discussed in the classroom. The students in both experimental groups gained their first exposure to new materials out of class via reading PTT and listening to the recording. The teacher in both experimental groups was responsible for engaging the participants in learning and applying the transformation rules to sentence structure through in-and-out classroom activities. Also, in discussion-oriented and role-reversal flipped classrooms, an interactive blackboard forum was in which the teacher and learners could have chats/talks, ask questions, share videos, and take quizzes. The discussion-oriented flipped classroom met for a total of 250 minutes each week. In addition, they watched a PTT supported by a 7-minute recording each day before class, together with taking a quiz after watching each video. The teacher himself was responsible for creating the PTT supported by recording.

In the role-reversal flipped classroom, the time interval was like the other flipped group, a total of 250 minutes in a week. Additionally, they watched and listened to a 7-minute PTT supported with recording each day before class, together with answering quiz items after reading PTT and listening to the recorder. They were asked to take a quiz to make sure that the students had read the PTT and listened to the recorder.

Table 2 shows the procedure before, in, and after class time.

Group	Types of Material Delivery	Teaching Method Before class	Teaching Method In class	Teaching Method After class
Contr. Non-	In- and out-of-class learning materials were presented in the print format and were delivered during in-class activities.	Topic of the class is presented in PTT, and a 7-minute recording explain the topic and ask students to broaden their knowledge on it.	A 50-minute lecture based on discussion and exchange information	Application of the material taught in the lecture
Group Flipped Classroom	Out of the classroom, the materials were presented electronic and in the classroom format, the worksheet related to electronic material is provided	Students read the PTT and, listen to the recording and do the task	Discussion and application	Interactive feedback and recap
Ex. Group 1	Discussion oriented classroom	Students prepare their information and be ready for discussion	Discussion and students defend their information	Scaffolding activities and problem solving
Ex. Group 2	Role Reversal Classroom	Students do research on the topic	Sharing ideas and information with classmates	Interactive and productive feedback and recasting

Note. Contr. = Control; Exp. = Experimental

The material and topic are presented in PTT, supported by a 7-minute recording before the class. During the class, discussion and argumentation are conducted reasonably in terms of proven evidence and refutation. Moreover, the topic is applied in terms of free practice and control practice in the form of drilling, activities, tasks, and exercises. After the class, productive, interactive feedback is done. In the last week, the posttest was administered to all three groups in the same condition as the pretest. Additionally, the questionnaire was administered to the participants in the two experimental groups. In the end, discussion-oriented and role-reversal flipped groups are achieved pedagogically. The data were analyzed in several steps. To investigate the first, second, and third research questions, a one-way analysis of covariance (ANCOVA) was conducted. To answer the fourth research question, the descriptive statistics of the questionnaire data were used.

4. Results

Descriptive and inferential statistics were conducted to address the first research question, that is, to examine whether a discussion-oriented flipped classroom is more effective than a traditional/conventional teacher-centred classroom in teaching a syntax course to KKU students majoring in English language or not. Descriptive statistics of the groups' data were computed to check the normal distribution of data and obtain an estimate of both groups' achievements in transformational syntax.

Table 3: Descriptive Statistics of Pre and Posttests in the Control and Discussion-Oriented Groups

Tests	Groups	M	SD	Skewness	Kurtosis
Pretest	Control (N = 17)	13.06	2.51	-.03	-.09
	Discussion-oriented (N = 19)	13.05	2.84	.39	.87
Posttest	Control (N = 17)	13.47	2.43	-.42	-.13
	Discussion-oriented (N = 24)	16.16	2.01	.54	.82

As displayed in Table 3, the kurtosis and skewness values in the pretest and posttest were small and within the range of ±2, suggesting normal distribution of the data (Bachman & Kunnan, 2005). Also, the application of transformational syntax mean scores in the pretest were close to each other, indicating that both control and discussion-oriented groups were rather homogeneous before treatment in terms of transformational syntax rules. However, the difference between the transformational syntax mean scores looked rather large in the posttest, which was submitted to inferential statistical analysis. Because the samples were small, the normality and homogeneity tests were performed as prerequisite testing before conducting parametric or nonparametric inferential tests (Bachman & Kunnan, 2005). The normality test used in this study was the Shapiro-Wilk test, the results of which demonstrated that the expository writing scores were normally distributed both in the pretest [D(17) = .98, p = .605 and D(19) = .96, p = .530] and in the posttest [D(17) =.95, p = .464 and D(19) =.94, p = .277] for the control and discussion-oriented groups, respectively. Moreover, Levene's test for homogeneity of variances (see Table A2 of the Appendix) demonstrated no significant difference in the variances between the two groups (F =.16, p = .693), which all supported the use of a parametric test for further analysis. Then, a one-way ANCOVA was conducted after checking its assumptions to address the first research question, that is, to compare the effects of both instruction types in the control and discussion-oriented groups on the learners' posttest transformational syntax application performances.

Table 4: Analysis of Covariance on the Posttest Transformational Syntax Scores of the Control and Discussion-Oriented Groups

Source	Sum of squares	df	Mean square	F	Sig.	Eta squared
Corrected model	195.64	2	97.82	89.89	.000	.854
Intercept	38.81	1	38.81	35.66	.000	.519
Pretest	130.85	1	130.85	120.23	.000	.785
Group	65.01	1	65.01	59.74	.000	.644
Error	35.91	33	1.09			
Total	8212	36				

The ANCOVA results, as displayed in Table 4, demonstrated that the difference in the post-instruction transformational syntax scores between the two groups was statistically significant with a high effect size, $F(1, 33) = 59.74$, $*p < 0.05$, $\eta^2 = .644$. In conclusion, the discussion-oriented flipped instruction was more effective than the instruction in the control group.

To answer the second research question, descriptive statistics were first calculated in the control and role-reversal groups (see Table 5). Second, the normality and homogeneity tests of variance were conducted before proceeding with parametric/nonparametric tests to address the second question.

Table 5: Descriptive Statistics of Pre and Posttests in the Control and Role-Reversal Groups

Tests	Groups	M	SD	Skewness	Kurtosis
Pretest	Control (N = 17)	13.06	2.46	-.21	-.43
	Role-Reversal (N = 24)	13.00	3.11	.26	.34
Posttest	Control (N = 17)	13.47	2.43	-.52	-.82
	Role-Reversal (N = 24)	20.29	2.01	.56	.64

As demonstrated in Table 5, unlike the posttest transformational syntax mean scores, the participants' pretest transformational syntax mean scores were close to each other in the control and role-reversal groups, indicating that both groups were homogeneous before treatment. Moreover, as displayed in Table A3 and Table A4 in the Appendix, the Shapiro-Wilk test and Levene's test indicated no significant violation of normality and unequal variances across both groups ($p > .05$), all suggesting the safe use of a parametric test.

A one-way ANCOVA was conducted to address the second research question and compare the effects of both instruction types in the control and role-reversal groups on the learners' posttest transformational syntax application performances. As displayed in Table 6, the results demonstrated that the difference in the post-instruction transformational syntax scores between the two groups was statistically significant, $F(1, 38) = 78.79$, $*p < .05$, $\eta^2 = .675$. In other words, the role-reversal flipped instruction was more effective than the instruction in the control group in improving the students' transformational syntax application performances.

Table 6 Analysis of Covariance on the Posttest Transformational Syntax Scores of the Control and Role-Reversal Groups

Source	Sum of squares	df	Mean square	F	Sig.	Eta squared
Corrected model	521.77	2	260.89	52.53	.000	.734
Intercept	138.85	1	138.85	27.96	.000	.424
Pretest	135.18	1	135.18	27.22	.000	.417
Group	391.28	1	391.28	78.79	.000	.675
Error	188.72	38	4.97			
Total	13566	41				

To address the third research question, descriptive statistics of the transformational syntax scores in the two experimental groups were first obtained (see Table 7). Second, a one-way ANCOVA was run after checking the normality of distribution and conducting Levene's test for homogeneity of variances in the experimental groups (see Table A5 of the Appendix).

Table 7: Descriptive Statistics Pre and Posttests in the Discussion-Oriented and Role-Reversal Groups

Tests	Groups	M	SD	Skewness	Kurtosis
Pretest	Discussion-	13.05	2.84	.456	.356
	oriented				
	(N=19)				
	Role-	13.00	3.11	.389	678
	Reversal				
	(N=24)				
Posttest	Discussion-	16.16	2.01	.457	465
	oriented				
	(N=19)				
	Role-	20.29	2.01	.657	654
	Reversal				
	(N=24)				

According to Table 7, the difference between the mean scores in the two groups was noticeable in the post-test. ANCOVA was conducted to see the differential effects of discussion-oriented and role-reversal instruction types on the students' transformational syntax application performances after treatment (see Table 8).

Table 8: Analysis of Covariance on Posttest Transformational Syntax Scores of the Discussion-Oriented and Role-Reversal Groups

Source	Sum of squares	df	Mean square	F	Sig.	Eta squared
Corrected model	354.06	2	177.03	67.67	.000	.772
Intercept	177.37	1	177.37	67.80	.000	.629
Pretest	172.84	1	172.84	66.07	.000	.623
Group	184.38	1	184.38	70.48	.000	.638
Error	104.64	40	2.62			
Total	15120	43				

As displayed in Table 8, the difference in the post-instruction transformational syntax scores between the two experimental groups was statistically significant, $F(1, 40) = 70.48$, $*p < .05$, $\eta^2 = .638$. The role-reversal group with a higher mean score performed significantly better than the discussion-oriented group in the posttest, supporting the greater effect of role-reversal instruction on the learners' transformational syntax application performances.

The fourth research question was answered through both qualitative and quantitative statistical procedures. Table 9 shows the descriptive statistics of the participant's responses to the evaluation questionnaire in the discussion-oriented and role-reversal flipped classrooms.

As demonstrated in Table 9, in both discussion-oriented and role-reversal groups, almost all the mean scores of the items were above 3.00, indicating that the participants in the two groups in the post-treatment period expressed their agreement with most of the statements in the questionnaire. This means that they generally evaluated the models positively. The highest means in the discussion-oriented group were for item 10 (M

= 3.64), and 3 (M = 3.63). In the role-reversal group, the highest means were for items 8 (M = 3.75) and 1 (M = 3.61). These results show that the participants highly agreed with the instructor's ability to engage them in learning to apply transformational syntax rules in sentence structure by doing pre-class activities, using the digital platform, and having flexibility in the class.

Table 9: Descriptive Statistics for Items in Discussion-Oriented and Role-Reversal Groups

Items	**Discussion-oriented**		**Role-reversal**	
	M	SD	M	SD
1. The flexible arrangements in the classroom (positioning of the chairs for a group activity, etc.) were conducive for me to learn writing skills better.	3.13	.92	3.61	.97
2. The instructor was able to teach me in a way that I could focus more on writing skills.	3.36	.89	2.97	.71
3. Pre-class materials (e.g., PTT and recording) which were available on the platform before class could raise my consciousness in learning transformational syntax rules.	3.63	1.01	3.50	1.03
4. I could concentrate more when the instructor and classmates cooperated in problem-solving activities.	3.26	.92	3.02	.95
5. Pre-class activities were useful for the class, and I could get the main points, helping me in applying transformational syntax	3.21	.79	3.33	1.05
6. I think the instructor was able to provide help and clarification on difficult concepts when necessary.	3.50	.97	3.32	.85
7-Applying the transformational syntax rules was more fun with the instructor's approach in the syntax course.	3.58	1.00	3.54	1.21
8. The class was based on an activity-oriented approach, which helped me learn transformational syntax better.	3.09	1.01	3.75	.93
9. I became interested in writing because the instructor helped me through the app, and I had negotiations with my classmates.	3.13	1.03	3.54	.94
10. The instructor was able to engage me in the classroom activities in different ways.	3.64	.89	3.01	.87
11. The digital platform used in the course was very helpful in my comprehension of transformational syntax development.	3.24	.91	3.32	.88
Total	3.33	.94	3.36	.94

The analysis of the questionnaire data indicated that the students described their evaluative experiences about the instructions in different ways, categorized into four emerging themes: (a) teacher support, (b) peer support, (c) personal feeling/perception, and (d) activities within and outside the classroom. In both groups, the respondents showed positive opinions towards their teacher, especially in giving them feedback, answering their questions, and encouraging them when they faced problems in the process

of application of transformational syntax rules. They further described how their practice helped them develop their understanding of the transformational syntax course. Additionally, the students' engagement with their peers and active engagement with their peers assisted them in learning better and having a friendly relationships with their classmates. Moreover, they reported that they felt good about their instructional method and changed their perceptions about seeing syntax as a daunting course. Moreover, there were many instances of agreement with the discussion-oriented and role-reversal group approach in and out of the classroom, especially with the classroom discussion and classmates' ongoing discussion outside the class.

5. Discussion

The results revealed that KKU students studying a syntax course and receiving discussion-oriented instruction achieved better gains in their application of transformational syntax rules than those who did not receive any type of flipped classroom instruction. This indicates that a discussion-oriented flipped classroom is a more powerful approach than the traditional one. As Hung (2017) states, flipping the classroom through technology integration can create a learning culture where learners feel more motivated to communicate. It is obvious that the KKU students who study a syntax course recognize that implementing flipped learning is motivating and facilitates the learning process. When the students accessed the coming lecture content via technological means before the lecture, they tended to search for more information and broaden their knowledge. Thus, when they come to the class, they come with a load of knowledge, and they embark on discussion interactively. According to Shurville (2008), flexible education affords learners with choices about where, when, and how learning happens. Thereby, the current study assumes that flexible learning in the discussion-oriented group assisted the learners in promoting the quality of their comprehension of syntax courses. The results showed that those learners who were in the role-reversal flipped classroom had better performances than those who were in the control group. The learner-centered format of the role-reversal flipped classroom might be an important reason. This kind of format placed the learners at the center of their learning by making them responsible for their prior experiences, processing information via discussion and finding answers to their own questions about different parts of transformational syntax rules. Hence, learner autonomy was enhanced by the choice of presenting content in the flipped classroom. Learner autonomy is viewed as the learner's stand towards taking responsibility for their own learning and taking control of the language learning process (Smith, 2008). Moreover, in addition to taking responsibility for personal learning, these learners had the opportunity to cooperate with their classmates, share the PTT and recording content with others, and exchange information. The results demonstrated that the role-reversal group performed significantly better than the discussion-oriented group on the posttest. The main reason might be related to the more learner-centered approach to role-reversal instruction. By reversing the traditional instructional procedures, the learners became more responsible for their own learning, which might have increased their autonomous attitudes toward learning transformational syntax. The results obtained from the questionnaire showed that the participants' attitudes were positive about the flipped model. The role-reversal flipped classroom helped build up peer support and a positive atmosphere in and outside the classroom, hence creating positive attitudes towards the syntax course. The highest mean scores were for items 8 and 1 in the questionnaire, indicating that the flipped model and activity-oriented approach were highly favored and could afford a sense of autonomy.

6. Conclusion

The study accentuates the positive effectiveness of the flipped classroom, entailing role-reversal and discussion-oriented teaching syntax courses. It concluded that the role-reversal and discussion-oriented flipped classrooms are effective in promoting KKU students' comprehension of syntax courses. Based on the results of the current study, discussion-oriented activities in the class, the use of instructional recording or video before class and previous preparation, as well as a learner-centered classroom environment, can have an effect on comprehending transformational syntax better than a traditional lecture.

The study recommends the following:

- Flipped learning composing discussion-oriented and role-reversal flipped models should be implemented in teaching micro linguistics courses instead of the conventional teacher-fronted instruction, which is teacher centered with high teacher talking time.

- Transforming the role of students from passive receivers of knowledge to participants in knowledge production and processing as active learners and researchers should be considered by KKU, which focuses on high quality education.

- Technology should function positively in terms of increasing interaction and facilitating the learning process; hence, technology should not be regarded as an end but as a means.

- English teachers should keep training on updated technology and change their traditional teaching strategies to cope with a digital transformative approach.

- Maximizing students' discussion in English should be stimulated in the class because it provides them with a good time to practice English and display their potential capabilities.

- English teachers teaching micro-linguistics courses should train students to make class preparations and make them to be researchers and make them debaters in the class.

- The classroom should be converted to a discussion platform where students discuss the topic and content of the lecture, relying on their prior preparation based on searching and video or recording delivered to them by the teacher.

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References

[1] Anderson, D. (2012). *The Flipped Classroom for EFL*. Retrieved June 24, 2013, from http://photos.state.gov/libraries/thailand/591452/relo/030612_english_roundt able.pdf
[2] Baranovic, K. (2013). Flipping The First-Year Composition Classroom: Slouching Toward The Pedagogically Hip. (Master's dissertation). School of Graduate Studies of Southeast Missouri State University, Missouri.
[3] Bergman, J. and Sams, A. (2013). Flip Your Students' Learning, *Educational Leadership, 70*(6), 16-20.
[4] Chang, B., Yu, F-Y., Chen, Y-Y., Hsieh, H-T. (2013). Thinking from an opposing position: A framework for a role-reversal pedagogy using technology. Research and Practice in Technology Enhanced Learning, 8(3), 347–362.
[5] Chen, Y., Smith, T. J., York, C. S., &. Mayall, H. J. (2020). Google Earth virtual reality and expository writing for young English learners from a funds of knowledge perspective. Computer Assisted Language Learning, 33(1-2), 1–25. https://doi.org/10.1080/09588221.2018.1544151
[6] Huang, Y. N., & Hong, Z. R. (2015). The effects of a flipped English classroom intervention on students' information and communication technology and English reading comprehension. *Educational Technology Research and Development*, 1-19.
[7] Hung, H. T. (2015) Flipping the classroom for English language learners to foster active learning, *Computer Assisted Language Learning*, *28*(1), 81-96.
[8] Hung, H. T. (2017). The integration of a student response system in flipped classrooms. Language Learning & Technology, 21(1), 16–27. https://www.lltjournal.org/item/2982
[9] Jensen, J. L., Kummer, T. A., & Godoy, P. D. D. M. (2015). Improvements from a flipped classroom may simply be the fruits of active learning. CBE-Life Sciences Education, 14(1), 5–23.
[10] Mason, G. S., Shuman, T. R., & Cook, K. E. (2013). Comparing the Effectiveness of an Inverted Classroom to a Traditional Classroom in an Upper-Division Engineering Course. *Ieee Transactions On Education, 56*(4), 430-435.
[11] McCammon, D. (2013). *Flipped Classroom Training Program – Efficient, Reflective and Mastering Relationship*. Online video clip. YouTube.
[12] Nikitova, I., Kutova, S., Shvets, T., Pasichnyk, O., & Matsko, V. (2020). "Flipped learning" methodology in professional training of future language teachers. *European Journal of Educational Research, 9(*1), 19–31. https://doi.org/10.12973/eu-jer.9.1.19
[13] Nguyen, B., Yu, X., Japutra, A., & Chen C-H. S. (2016). Reverse teaching: Exploring student perceptions of "flip teaching". Active Learning in Higher Education, 17(1), 51–61.
[14] Wang, Y. H. & Liao, H. C. (2008). The application of learning portfolio assessment for students in the technological and vocational education system. Asian EFL Journal, 10(2), 132–154.
[15] Wyrick, J. (2014). Steps to writing well (12th ed.). Monica Eckman.
[16] Yang, J., Yin, C. X., & Wang, W. (2018). Flipping the classroom in teaching Chinese as a foreign language. Language Learning & Technology, 22(1), 16–26. https://scholarspace.manoa.hawaii.edu/bitstream/10125/44575/1/22_01_yangyinwang.pdf