

Introducing Artificial Intelligence into University Classrooms: Chat GPT as an Example

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Abstract. *This paper aims to identify the role of Artificial Intelligence (AI) in learning grammar. It compares the traditional methods of learning grammar (i.e., learning with books, articles, online lectures, etc.) with the trend of 'Chat GPT'. The study tries to answer the following two questions: 1) Which kind of grammar learning sources can provide the students with the basic information related to a specific grammatical topic? 2) What areas of grammar does ChatGPT serve in the learning process? To answer the questions, 44 English major students are given a pre-post sheet with a time interval of almost fifteen days. They are exposed to either the traditional methods of learning grammar or those provided by the AI platform Chat GPT. Their produced grammar knowledge is analyzed based on predetermined criteria. The hypothesis defended is that traditional methods provide less effective grammar knowledge compared to that provided by Chat GPT which is rather real-life knowledge tailored to the students' needs. Students may consequently achieve learning due to the interactive learning nature of using Chat GPT.*

Key words: *Artificial Intelligence; Chat GPT; traditional methods; grammar learning; present simple.*

1. Introduction

Artificial Intelligence is a “branch of computer science” that requires human-like intelligence to achieve tasks. This “algorithm” can perform a variety of advanced duties such as reasoning, solving specific problems, teaching, and guiding (Saleh, 2019). Its role is becoming clearer in today's environments learning. Students admit that they have started to use it in their everyday learning experience. They use it mainly for translation, especially technical translation. They also use it to help them with their linguistic assignments and research papers. This is known as Computer Assisted Language Learning (CALL), and it is becoming more common among learners (Kite-Powell, 2017, as cited in Ali, 2020).

2. Literature Review

The concept of AI and its relation to language teaching and learning has received attention from scholars. Kushmar et al. (2020) went directly to what concerns the teachers when they asked their famous question, “What are we afraid of?” They made a questionnaire attempting to understand the students' knowledge about this revolutionary tool. They concluded that AI does develop the learning experience by customizing the academic content to fit the students' needs and abilities.

Ali (2020) arrived at an interesting conclusion when she conducted qualitative research on the uses of AI in language learning and teaching, especially listening and speaking. However, she was not able to reach a convincing conclusion concerning reading and writing. Her research findings are mostly based on its effectiveness with “human natural language” production and perception.

Dewi et al. (2021) reached a similar conclusion when they interviewed students at Airlangga University and found that AI technology (e.g., applications, websites, etc.) can indeed help students develop their language skills. The results show that students use AI in its various forms to complete their assignments and facilitate their learning process, for example, paraphrasing and translating. They also use applications such as Grammarly, Duolingo, U Dictionary, and Google Translate for unknown words.

Kohnke et al. (2023) discussed the introduction of ChatGPT as a technological tool to develop language learning and teaching. They believe that both students and teachers can employ this bot to “enrich” the learning process. Its engaging nature facilitates its adaptation as a tool to improve linguistic skills, such as reading, writing, and listening. In their research, they showed how the bot can respond to certain questions and further clarify any question asked by learners. This interactive nature makes this bot a good choice to use while learning a new language.

1. Artificial Intelligence

In the language learning arena, AI is manifested in different tools, including but not limited to Chatbots for languages, e.g., ChatGPT (“generative, pre-trained transformer”), Google Translate, Grammarly, and other language learning applications such as Duolingo, Rosetta Stone, and Babbel.

3.1 ChatGPT

The focus of this paper is ChatGPT. It is a technological bot that was developed by OpenAI and released in November 2020. This bot is prepared in a way that interacts with its users in a lively and realistic conversation. It allows the users to ask a variety of questions on different topics and in return, provides a well-structured answer that keeps the conversation open. This is exactly what makes ChatGPT a step forward in comparison to other language-learning technologies. It allows the user to tailor the given answer to his/her tendencies by modifying the final product. When ChatGPT was asked, “How can you help in language learning?” the answer was about the abilities of ChatGPT that provide help in “vocabulary expansion, grammar assistance, practice conversations, writing assistance, cultural insights, language exercises, text translation, and reading comprehension.” When the bot was asked “Concerning grammar assistance, how can you help?” the answer was “explanation of grammar rules, examples and usages, correction of sentences, practice exercises, comparative grammar, advanced grammar topics.” (Retrieved from ChatGPT 23/12/2024 3:54 p.m.).

Among the advantages of ChatGPT, is the reference to its availability 24/7. That is, the students can have full access to the information provided by the bot ‘anytime’ and ‘anywhere.’ (Haristiani, (2019; Winkler and Soellner, (2018) mentioned in Kohnke, etc. al., (2023). The bot can help the students learn the meaning of words in specific contexts. It can also give “authentic” examples and provide follow-up explanations concerning the examples (Kohnke etc., 2023). This is highly required in grammar because such examples will help the students internalize the grammatical rule by relating it to contexts.

Although the bot is being described as *intelligent* (i.e., “stimulates human-like conversations”), it has some defects. For example, the bot cannot answer questions that have not been included in its database. Therefore, it is limited to certain topics. Also, it is designed in a way that will not interact with sensitive topics. In addition to this, it has not updated since January 2022 and therefore any information after this date will not be answered (Retrieved from ChatGPT 3/1/2025 8:30 p.m.).

2. Methodology

4.1 Research Design

The concern of this paper is to 1) explore the role of ChatGPT in assisting students in understanding grammar and personalizing the learning experience and 2) compare the outcome of such an experience to traditional ways of learning grammar. Therefore, the research is based on a pre-post test within almost 15 day intervals between them. During these days, the students are divided into two groups:

1- **Group A;** Twenty-two students are asked to download the ChatGPT application and spend between 30 minutes to 1 hour interacting with the bot about grammatical topics. The students are asked to chat with the bot about topics related to the present simple tense (PS, henceforth) and/or indirectly target the tense. The plan goes as follows:

Day 1- The students are instructed to ask ChatGPT about PS and interact with ChatGPT about the topic for a while.

Day 2- The students are instructed to ask ChatGPT about the difference between PS and present continuous (PC).

Day 3- The students are instructed to ask ChatGPT to make stories for them using PS and modify the story to suit the Iraqi culture.

Day 4- The students are instructed to ask ChatGPT about learning grammar using AI platforms.

Day 5- The students are instructed to ask ChatGPT about the features that make it better than other AI platforms.

Day 6- The students are asked to ask ChatGPT about its role in education and whether or not we should be afraid of it.

Day 7- The students are asked to watch a video in addition to another task related to the conversations they had with the bot in the last few days.

Day 8- The students are asked to choose any conversation they had with the bot and read it out loud many times by focusing on a specific aspect each time (i.e., grammar, pronunciation, vocabulary, etc.).

Day 9- The students are asked to revise what they did in the last days.

Day 10- The students are asked to answer two questions.

Day 11- The students are asked to fill out a Google form.

Days 12, 13, and 14- the researcher discussed their answers with them, giving them helpful feedback.

Day 15- The students had the post-test done.

2- **Group B;** Twenty-two students are asked to follow a special schedule designed for them. It goes as follows:

Day 1- The students are given a link from the British Council website that fully explains PS.

Day 2- The students are given two pages to read from a grammar book.

Day 3- The students are given a link to a YouTube video where they have to watch somebody describe his daily routine.

Day 4- The students are given a link to another YouTube video where an instructor explains PS.

Day 5- The students are given, again, a link to the British Council website where they have to read a full article and do three different tasks related to the same article.

Day 6- The students are given a link to a YouTube video. The tense used in the video is PS, and the students had to summarize the video and elicit five sentences from the video that are in PS.

Day 7- The students are asked to write their own and their friends' routines.

Day 8- The students are asked to read what they wrote the day before five times; each time, they have to focus on a specific aspect (e.g., grammar, pronunciation, vocabulary, etc.).

Day 9- The students are asked to revise what they did in the last few days.

Day 10- The students are asked to answer two questions.

Day 11- The students are asked to fill out a Google form.

Days 12, 13, and 14- the researcher discussed their answers with them, giving them helpful feedback.

Day 15- The students had the post-test done.

After these extensive days, the students were given another sheet to examine their *post-knowledge* about the topic. The evaluation is based on the following *criteria*:

- 1- A general understanding of the tense and its definition as well as the usages including:
 - ✓ the use of PS to talk about routines, habits, hobbies and story-telling (ROU),
 - ✓ the use of PS for timeless events or facts (FACT),
 - ✓ the use of PS to refer to future (FUT)
 - ✓ the use of PS for stative verbs (STAT),
- 2- A good understanding of the form of this tense (FORM).
- 3- A good understanding of the negative and question form (N-FORM) and (Q-Form)
- 4- Adverbs used with this tense (ADV),
- 5- Well-formed examples that syntactically match the requirement of the tense (Syn. EX),
- 6- Well-formed examples that semantically express this tense (Sem. EX)

These criteria were used to assess the students' knowledge. Furthermore, the students have expressed their written consent to participate in the paper¹.

4.2 Data Collection

Forty-four students were chosen from the Department of Translation, College of Arts, Aliraqia University and they were given a very simple question about a grammatical topic. The question was, "What do you know about simple present? Explain with examples." They were given the chance to express their knowledge about the topic in English or Arabic since the ultimate goal is to check their knowledge about the tense and they may feel more comfortable if they write in Arabic. After the collection of data, on the one hand, 22 of them were asked to study the topic by joining group A and following the plan designed for them. On the other hand, 22 of them were asked to join group B. After achieving the plan, they were given another sheet with one question: "Now, after spending fifteen extensive days, what do you know about present simple? Explain with examples." The collected data is analyzed in the following section.

4.3 Data Analysis

4.3.1 Pre-Test Result: Group A

One of the basic patterns noticed among the students² in group A is the confusion between PS and PC tense. That is, they confuse the use as well as the form of the two tenses. Consider:

- 1- Ali is playing football,

The student in the above example justifies his answer when he says that "the verb in the present simple should end with (ing)". The same pattern can be seen in:

- 2- He is eating his dinner,

The student in example (2) wrote five examples, all of which are syntactically correct (subject+ verb+ Object), but semantically the sentences do not refer to PS. This explicitly shows that he had difficulties in drawing a distinct line between the two types of present tenses in English. This is seen among 6 students in group A.

¹ Their consent can be found at: <https://drive.google.com/file/d/1lEnbYj4o9q06GkKH3qP2eB0-PaY79c3c/view?usp=sharing>

² The data of this group can be found at: <https://drive.google.com/file/d/1DkPjOoJy3cJ-luRzeEfgxfCCTS3Ulucl/view?usp=sharing>

Another problem is the fact that many students drop the 3rd person singular -s (3rd -s) in their examples. This means they have a good understanding of the tense when it comes to the usage, but they still suffer in syntax. Consider:

3- She play football*,

The other problem is the difficulties they had in making questions and negative sentences. Although most of them missed the reference to this information, the ones who mentioned it were not successful. Consider:

4- I am not go to the party,

The above example shows a basic problem that those students suffer from which is the addition of the auxiliary verb “am” to the sentence that is supposed to be PS because the main verb “go” is not inflected with the suffix “-ing.”

The following table shows the result of the Pre-test. The numbers mentioned have the following reference:

- a) Number 1 refers to the fact that the student has successfully demonstrated knowledge of the information mentioned in the heading of the first row.
- b) Number 2 refers to the fact that the student *either* didn’t mention the information in the first row or mentioned it wrongly.

Table 1. Pre-test for group A

	Uses Rou.	Uses Fac.	Uses Fut.	Uses Stat.	Form	N- form	Q- form	Adv.	Syn. EX	Sem. EX
Studnet 1	1	1	0	0	1	1	0	1	1	1
Srudent 2	1	1	0	0	1	1	0	0	1	1
Student 3	0	0	1	1	1	0	0	1	1	1
Student 4	0	0	0	0	0	0	0	0	0	0
Student 5	0	0	0	0	1	1	1	0	0	0
Student 6	1	1	0	1	1	0	0	1	1	1
Student 7	0	0	0	0	0	0	0	0	0	0
Student 8	0	0	0	0	1	0	0	0	0	1
Student 9	1	1	0	0	1	0	0	0	1	1
Student 10	0	0	0	0	1	0	0	0	0	0
Student 11	1	1	0	0	1	0	0	0	1	1
Student 12	0	0	0	0	0	0	0	0	0	0
Student 13	1	1	0	0	1	1	1	0	1	1
Student 14	0	0	0	0	0	0	0	0	0	0
Student 15	1	0	0	0	1	0	0	1	1	1
Student 16	0	0	0	0	0	0	0	1	0	0
Student 17	0	0	0	0	1	0	0	0	1	1
Student 18	1	1	0	0	1	0	0	0	1	1
Student 19	1	1	0	0	1	0	0	0	1	1
Student 20	0	0	0	0	0	0	0	0	0	0
Student 21	0	1	0	0	1	0	0	0	1	1
Student 22	0	0	0	1	1	1	1	0	1	1
Total	9	9	1	3	16	5	3	5	13	14

The above table demonstrates that many students, except one, missed the point that PS can be used to refer to future time. They, except three students, didn’t mention that stative verbs are usually used with this tense. However, the correct form of the affirmative sentence is mentioned by 16 students out of 22.

4.3.2 Pre-test result: Group B

Among this group³, the same problem (confusion between PS and PC) can be seen. The students fully explained PC while they wanted to explain PS. It is noteworthy that even the examples are imperfect. This shows that some students are not mastering the form of either of the sentences. Consider the following examples:

5- I am liking play football,

6- She is not reading,

7- We are eats food,

8- I am not read story,

In addition to the form, the students misrefer to the adverbs used in this tense. For instance, they refer to *now* and *at the moment* as part of the adverbs used in the PS tense.

The reference to the past tense can be seen in this group regarding its adverbs *last*, *ago*, *yesterday*. Consider:

9- She saw the movie,

The following table shows the result of the pre-test for group B.

Table 2. Pre-test for Group B

	Uses Rou.	Uses Fact.	Uses Fut.	Uses Stat.	Form	N- form	Q- form	Adv.	Syn. EX.	Sem EX
Student 1	0	0	0	0	0	0	0	0	0	0
Student 2	1	1	0	0	0	0	0	0	0	0
Student 3	1	1	0	1	1	1	1	1	1	1
Student 4	1	0	0	0	0	1	1	0	0	0
Student 5	1	1	0	0	1	1	0	0	1	0
Student 6	0	0	0	0	1	0	0	0	1	1
Student 7	0	0	0	0	0	0	0	0	0	0
Student 8	1	1	0	0	1	0	0	0	1	1
Student 9	0	1	1	0	0	0	0	0	1	1
Student 10	0	1	0	0	1	0	1	0	1	1
Student 11	1	1	0	0	1	0	0	1	1	1
Student 12	1	1	0	0	1	0	0	1	1	1
Student 13	1	0	0	0	1	0	0	0	1	1
Student 14	0	1	1	0	1	1	1	1	1	1
Student 15	0	1	0	0	1	1	1	1	1	1
Student 16	0	0	0	0	0	0	0	0	0	0
Student 17	1	0	0	0	0	1	1	1	0	0
Student 18	1	1	0	0	1	1	1	1	1	1
Student 19	0	0	0	0	0	0	0	0	1	1
Student 20	1	0	0	0	1	1	0	1	1	1
Student 21	1	0	0	0	1	0	0	1	1	1
Student 22	0	0	0	0	1	1	1	0	1	1
total	12	11	2	1	14	9	8	9	16	15

³ The data of this group can be found at:

https://drive.google.com/file/d/1Hd7oz8hXtPUGNq_DhLAXoLTLd7xOUW3P/view?usp=sharing

4.3.3 Post-test: Group A

All of the students⁴ of this group were able to reflect on the knowledge they got in sentences that were syntactically and semantically well-formed. They could recognize the basic structure of PS and make sentences that fully satisfy the requirements (i.e., adding (3rd -s) to the verb if it is singular). Furthermore, the meaning of the sentences expressed the basic uses of this tense. Consider:

- 10- They play tennis everyday,
- 11- He goes to the gym every night,
- 12- He scores (a sport commentator),
- 13- I do like spicy food,
- 14- I drive to work,
- 15- Birds eat seeds,
- 16- Is she a students?

However, few students mentioned the fact that this tense can be used to refer to status although some of them wrote examples that have stative verbs. Consider:

- 17- She doesn't understand,
- 18- I own a car,

The results show that almost all of the students mastered the basic form of PS in the affirmative but only less than half of them wrote sentences regarding negative and question forms (10 and 12 students respectively). Consider the table below.

Table 3. Post-test for Group A

	Uses Rou.	Uses Fact.	Uses Fut.	Uses Stat.	Form	N- form	Q- form	Adv.	Syn. EX.	Sem EX
Student 1	1	1	0	0	1	0	0	0	1	1
Student 2	1	1	0	0	1	1	1	0	1	1
Student 3	1	1	0	0	1	0	0	1	1	1
Student 4	1	1	0	0	1	0	0	1	1	1
Student 5	1	1	0	0	1	1	1	1	1	1
Student 6	1	1	1	1	1	1	1	1	1	1
Student 7	1	1	0	0	1	1	1	1	1	1
Student 8	1	1	0	0	0	0	1	1	1	1
Student 9	1	1	1	0	1	0	0	1	1	1
Student 10	1	1	0	0	1	0	1	0	1	1
Student 11	1	1	1	1	1	1	0	1	1	1
Student 12	1	1	0	0	1	0	0	0	1	1
Student 13	1	1	0	0	1	1	1	1	1	1
Student 14	1	1	1	0	1	1	1	1	1	1
Student 15	1	1	0	0	1	0	0	1	1	1
Student 16	1	1	0	0	1	0	1	0	1	1
Student 17	0	0	0	0	1	0	0	0	1	1
Student 18	1	1	0	0	1	0	0	1	1	1
Student 19	1	1	0	1	1	1	1	0	1	1
Student 20	1	1	0	0	1	0	0	0	1	1
Student 21	1	1	0	1	1	1	1	1	1	1

⁴ The data of this group can be found at: <https://drive.google.com/file/d/14Fa4EA8AcO8k5Irn23JoF3isg4pg-FaC/view?usp=sharing>

Student 22	1	1	0	1	1	1	1	0	1	1
total	21	21	4	5	21	10	12	13	22	22

4.3.4 Post-test: Group B

One of the most obvious observations among the participants⁵ of this group is the fact that they have semantically built a really good knowledge about this tense, yet they syntactically suffer to form well-formed sentences. Consider:

19- I doesn't draw every often,

The student has well described the tense theoretically, but she failed to use the negative construction "doesn't" in the correct structure. Also see:

20- she will travels soon,

Again, the student in the above sentence described the uses of the tense semantically, and she seems to know that the pronoun "she" needs (3rd -s), but she was not able to form a syntactically correct sentence.

Another student explained that the affirmative form of the sentence goes as follows: "S+ is/ are/ am+ (s) V." This student is still confusing PS with PC by adding the verbs to be to sentences that have (3rd -s). However, her examples show that she both syntactically and semantically understands the tense. Consider the table below.

Table 4. Post-test for group B

	Uses Rou.	Uses Fact.	Uses Fut.	Uses Stat.	Form	N- form	Q- form	Adv.	Syn. EX.	Sem EX
Student 1	1	1	0	0	1	1	1	1	1	1
Student 2	1	1	0	0	1	0	0	0	1	1
Student 3	1	1	0	1	1	1	1	1	0	0
Student 4	1	1	1	1	1	1	1	1	1	1
Student 5	1	1	0	0	1	1	1	0	1	1
Student 6	1	1	0	1	1	1	1	1	1	1
Student 7	1	1	0	0	1	0	1	1	1	1
Student 8	1	1	0	0	1	0	0	1	1	1
Student 9	1	1	0	1	1	0	0	1	0	1
Student 10	1	1	0	0	1	1	1	1	1	1
Student 11	1	1	0	0	1	0	0	1	1	1
Student 12	1	1	1	0	1	1	1	1	1	1
Student 13	1	1	0	0	1	1	1	1	1	1
Student 14	1	1	1	1	1	1	1	1	0	1
Student 15	1	1	1	1	1	1	1	1	1	1
Student 16	1	1	1	0	1	0	0	1	1	1
Student 17	1	1	0	0	0	1	1	1	0	1
Student 18	1	0	0	0	1	1	1	1	1	1
Student 19	1	1	1	0	1	0	0	1	1	1
Student 20	1	1	0	0	1	0	1	1	1	1
Student 21	1	1	1	1	1	0	0	0	1	1
Student 22	1	1	0	0	1	1	1	1	0	1
total	22	21	7	7	21	13	15	19	17	21

⁵ The data of this group can be found at:

<https://drive.google.com/file/d/1bqMUXs80gu4KbsLSa0Jrz7A5utlzu0gA/view?usp=sharing>

3. Discussion of Analysis

5.1 Analysis of Group A

The results of this group show that almost all of the students have understood the basic uses of PS which is the use of this tense to talk about routines and facts. However, the information that this tense can be used to refer to future events and current status (i.e., stative verbs) is not demonstrated well. The results show that only 4 students expressed their knowledge that this tense can be used with future events and only 5 students mentioned the stative verbs.

Concerning the form of the tense, almost all of the students have built a better understanding of the form of this tense and the same students were able to write well-formed sentences that are syntactically correct and semantically express the uses of PS. half of the students mentioned the adverbs that can be used; whether they are adverbs of frequency or other adverbs of time. The negative and question forms are mentioned by 10 and 12 students respectively. The following table summarizes the results.

Table 5. The results of Group A

	Uses Rou.	Uses Fact.	Uses Fut.	Uses Stat.	Form	N-form	Q-form	Adv.	Syn. EX.	Sem EX
Pre test	9	9	1	3	16	5	3	5	13	14
Post test	21	21	4	5	21	10	12	13	22	22

5.2 Analysis of Group B

The results show that almost all of the students in this group have developed a good knowledge of the basic uses of this tense (i.e., routines and facts) as well as the form of the sentence. They also improved their semantic understanding of this tense by writing examples that reflect this tense. The use of adverbs has noticeably increased among this group (from 9 to 19). Furthermore, the students were able to write well-formed sentences that reflect the negative and question form of this tense. See the following table.

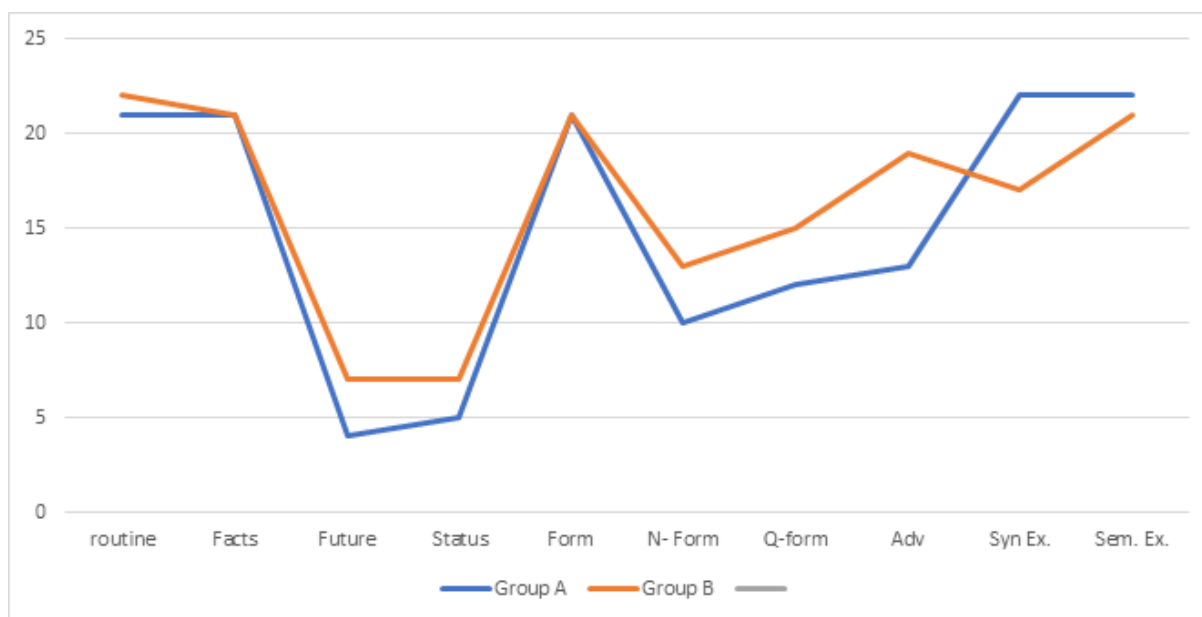
Table 6. The results of Group B

	Uses Rou.	Uses Fact.	Uses Fut.	Uses Stat.	Form	N-form	Q-form	Adv.	Syn. EX.	Sem EX
Pre test	12	11	2	1	14	9	8	9	16	15
Post test	22	21	7	7	21	13	15	19	17	21

5.3 Comparing the results of the two groups

After analyzing the results of the two groups, it has been found that group B (which followed a traditional plan away from AI) scored better in all areas except the syntactic form of the sentences. That is, all the students who interacted with ChatGPT were able to write well-formed sentences that fully satisfy the syntactic components of an English sentence in PS. They were able to correctly place (3rd -s) where necessary as well as forming negative and question sentences. This may indicate that the real-time interaction with the bot equipped the students with the necessary knowledge to compose correct sentences. However, the rest of the areas align with group B students. This can be seen in the area of forming negative and question examples as well as the use of adverbs. In addition to this, the fact that this tense can be used to refer to future actions as well as status is not demonstrated clearly. This information is not greatly comprehended, as the results show. The following figure shows how Group B has improved their knowledge following the plan designed for them in comparison to Group A. Consider the following figure.

Figure 1. Demonstrating the results of groups A and B



Author Contribution

The author conceived, designed, collected, and analyzed the study. By having only one author, there were no decisions to make regarding the order or corresponding authors.

Data Availability Statement

The data gathered from the students are available and are included in the paper as links.

Conclusion

The main hypothesis of this paper: “traditional methods provide less effective grammar knowledge,” is refuted. The results show that traditional methods of learning grammar, manifested by group B, are more effective than AI tools. Almost all of the students were able to recognize and recall the basic uses of this tense and they reflected this knowledge in their semantically well-written examples. It seems that traditional methods of learning grammar are more obvious when it comes to the explanation of the grammatical forms of PS in negatives and questions in comparison to that provided by ChatGPT. This can be seen in the number of students in each group (group A=4,5), (group B=7). In addition to this, the results show that traditional methods of learning grammar provide a better foundation for grammatical topics in comparison with AI tools manifested by ChatGPT. However, one exception to this is the ability to make syntactically well-formed sentences. All of the students of group B who interacted with the bot were able to make correct sentences. This can be attributed to the interactive nature of the bot which forced the students to *chat* and eventually *write* sentences. Based on the results, it can be concluded that ChatGPT can serve the students in the area of sentence forming. Moreover, the traditional methods of designing a program for the student’s development in grammar can help the student lay the basic foundation of any grammatical topic more than AI platforms represented by ChatGPT.

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