The Effect of Source-Use Strategies on Summary Completion in IELTS Academic Reading

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Article info	**Abstract**
	Learning source-use strategies can affect summarizing and reading comprehension in many ways. This study examined the effect of paraphrasing, patch writing, and discourse synthesis on summary completion in the IELTS academic reading test. Participants were 60 female and male upper-intermediate Iranian English language learners at a language institute in Karaj, Iran, all of them having previously taken the IELTS academic test and achieved 5.5 to 6 at the start of the study. Random assignment was used to place them into three groups. Two IELTS academic reading mock tests were given to the participants as the pretest and the posttest, and one-way analysis of co-variance (ANCOVA) was used to compare the outcomes. The findings indicated that the group using paraphrasing techniques demonstrated a notably superior performance compared to the patch writing group, the discourse synthesis group, and the control group. Moreover, paraphrasing, as a source-use skill, assisted students to achieve a higher score in the IELTS academic reading test. Implications for test takers are discussed.

1. Introduction

Student writers may have trouble summarizing source information. They need to be able to understand the text, pick out the important ideas, and then integrate those ideas into the text (Kato, 2018). In addition, summarization tasks, specifically when it comes to language testing, are less researched (Yu, 2013). Based on the current knowledge of the researchers, the effect of strategies such as patch writing and discourse synthesis in summary completion task has rarely been the main area of the recent papers. In contrast, paraphrasing has been investigated in some studies (e.g., Hirvela & Du, 2013; Keck, 2014; Shi et al., 2018) since it is a useful strategy and directly reduces the possibility of plagiarism.

Using information from sources is necessary. Authors should rely on the information from several sources to answer their writing tasks. Composing an integrated piece of writing that draws on various documents requires students to not only understand the materials but also incorporate them into a cohesive written text (McNamara et al., 2024). Choosing important information from sources, synthesizing and transforming ideas and concepts, as well as organizing and connecting these ideas in texts are the requirements (Knoch & Sitajalabhorn, 2013). Moreover, when L2 authors create their own text, they always refer to source materials to use the language in their writing, as well as supporting ideas (Plakans & Gebril, 2012). Also, since integrated tasks are being used, it is important that the language in the provided source texts be used appropriately (Weigle & Parker, 2012). The use of read-to-write assignments to assess students' English competence for academic purposes has risen, with the most popular forms of integrated tasks being summaries and argumentative writing (Delgado-Osorio et al., 2023).

While there has been extensive research on summary writing and text integration, the specific focus on the utilization of patch writing, paraphrasing, and discourse synthesis in the context of summary completion tasks has been limited. Despite the significance of these strategies in academic writing, recent papers seem to have placed less emphasis on their application and effectiveness within the specific framework of summary completion tasks, particularly in assessments like the IELTS academic reading test. Therefore, the study primarily analyzed the differential effects of three types of source use on the summarizing tasks in IELTs academic reading among Iranian EFL students.

1. Do patch writing, paraphrasing, and discourse synthesis help students achieve a higher score in summary completion task in the IELTS reading test?
2. Do source use skills help students achieve a higher score in IELTS academic reading test?

2. Literature Review
2.1. Source-Text Use in Summary Writing

Academics have indicated that L2 students struggle to analyze, summarize, and alter sources (Plakans, 2009). Paraphrasing, summarizing, understanding, and integrating information, as well as writing a coherent text, may be problematic for some inexperienced writers (Uludag et al., 2019). Moreover, teaching students how to paraphrase might help them not to copy from the source text since paraphrasing is a crucial strategy in academic writing (Keck, 2006).

In a summary assignment, the use of paraphrases by L1 (n = 79) and L2 (n = 74) undergraduate students in a U.S. university was analyzed by Keck (2006), who identified four major types of paraphrases: near copy, moderate revision, and substantial revision. Compared to other text-responsible writing tasks, summary writing has a higher chance of using a paraphrasing strategy. The results of Keck's study showed that L2 authors employed much more near copies than L1 writers, despite the fact that both groups employed around five paraphrases per summary. Moreover, L1 writers' summaries included many more moderate and substantial revisions compared to the L2 group. Both groups used paraphrasing as the main strategy in summarization. Later, Keck (2014) found that both first- and second-language writers employed a lot of the same passages in their summaries, allowing them to identify the key problem and clarify the major idea of the author. It was found that novice authors in both L1 and L2 groups relied on the source samples more than their experienced peers. The study also showed that when writing their summaries, most of the students had a strong preference to write their summaries in the same order as the source text paragraphs, suggesting that both groups thought the arrangement of ideas should be the same as in the original source.

Shi (2004) discovered that Chinese university students were more likely than English speakers to employ closely copied original text strings. Thirty-nine native English speakers and 48 Chinese EFL students participated in the study, and the results showed that task types and participants' mother tongue affected paraphrasing. Uludag et al. (2019) investigated the performance of 111 EAP students in the Canadian Assessment of English (CAEL) integrated writing task. Source-text ideas, linguistic changes, and content accuracy were all taken into account during the review of their written work. The quantity and accuracy of source ideas were both found to predict participants' CAEL writing band results.

Doolan (2021) compared similarities and differences in L1 and L2 students' witting from sources. This investigation looked into two major aspects of source use: Source integration forms and conceptual units. Despite lower overall writing quality, the analysis of data revealed that L2 writers used various types of source integration more responsibly than L1 writers. In

addition, the study found that synthesis writing occurred at very low rates for both groups.

Thanks to the flexibility of read-to-write activities, there are a variety of methods to ask test-takers to respond to the reading material. Participants in a research study by Pan and Lu (2023) were asked to explain the main topic of the reading before providing evidence to support whether they agree or not with the text's perspective. The findings showed that writing in L2 academic Chinese has a substantial place for summarizing. The reading passage provides the participants with relevant ideas to interact with during the writing process along with useful learning resources

2.2. Theoretical Model

The summarization process involves the extraction and abstraction of key content from multiple sources, aligning with the principles of schema theory, which emphasizes the role of existing knowledge in cognition and language acquisition. Information processing theory (Pratiwi et al., 2019) is a cognitive approach that focuses on how individuals acquire, process, and store information. This theory suggests that humans are active learners who use strategies to make sense of incoming information and integrate it with their existing knowledge. By summarizing, individuals are able to condense and simplify complex information, making it easier to understand and remember. This aligns with the information processing theory's emphasis on the use of strategies to effectively process and store information.

Information processing theory offers crucial insights into the summarization process. Mirroring a computer's data processing, it comprises key components. Sensory memory handles initial intake, crucial in summarizing diverse information sources. Working memory temporarily holds and organizes data actively, playing a pivotal role in summarization. Long-term memory stores pertinent information for future retrieval. Attention, a critical component, selects information for further processing. Encoding and retrieval involve initial intake and subsequent recall, enabling individuals to create coherent summaries by organizing key content from multiple sources.

2.3. Test-Taking Strategies

Examinees can improve their performance on standardized tests by developing and implementing test-management methods. On the other hand, test-wise-ness strategies are mostly used to boost test scores without using any knowledge or skills relevant to the test (Cohen, 2021). Regarding test-taking strategies, results have shown that participants' IELTS listening and speaking scores improve after making a positive change to their test-management skills. Similarly, a decrease in the usage of test-taking strategies results in a fall in IELTS reading results (Estaji & Banitalebi, 2023; Zohrabi & Nasirfam, 2024).

Teng and Zhan (2023) found that the cognitive demands of the multiple document assignments were greater for student writers because they had to manage more factors, such as reading, selecting, locating resources, and synthesizing ideas. The results demonstrated that task complexity affected writing performance, showing that writing output was dramatically reduced as complexity increased.

2.4. Summarization Tasks in Reading

In the field of EAP, read-to-write assignments have become very popular because of their resemblance to real-life situations (Ajideh et al., 2024; Delgado-Osorio et al., 2023; Hirvela, 2016; Weigle, 2004). Reading comprehension is definitely important for developing effective summary writing skills (Chew et al., 2019). For both study and assessment purposes, summarizing has regularly been utilized as a measure of reading comprehension (Cohen, 1994; Yu, 2008). On top of that, summarizing involves a recursive read-to-write ptocess, which can place a heavy cognitive load on students (Daneshfard & Saadat, 2023; Kirkland & Saunders, 1991).

The importance of reading methods in integrated writing assignments is discussed by Cohen (1994). Five Portuguese speakers of English participated in Cohen's study that investigated the effect of reading strategies on summary writing tasks. Cohen found that two students with greater competence employed more techniques, but another two students with average proficiency used fewer and more damaging tactics. The student with the lowest proficiency employed the greatest number of tactics but did so ineffectively. It seems that the reading methods used in the course of writing integrated assignments are influenced by their degree of proficiency. However, much earlier, Taylor (1986) argued that to summarize, one needs more than just reading skills, and some other skills are involved in this process.

Kim (2001) conducted a research study on 70 Korean EFL students' ability to summarize an English text. Two texts with two different difficulty levels extracted from reading materials designed for college-level ESL learners were chosen. According to the results, the deletion rule was found to be the most commonly used rule, while the transformation rule was shown to be the least frequently used rule. Additionally, the outcomes of the research indicated that the complexity of the text might have an impact on the behavior of the summary writer. Korean EFL students do not have good summarizing skills, according to the findings, and they need proper education and practice to develop their abilities.

Li (2014) looked into what part reading and writing play in 64 Chinese college students' summary assignments. Two source texts from a college English textbook were selected for the summary exercise. To evaluate the extent to which students' English reading and writing capabilities impacted

their English summarizing performance, connections between different language skills and summary ability were investigated. The findings indicated that ignoring unknown words, rethinking the information to clarify meaning, and rereading for clarity were the most frequently used strategies in reading.

Another study by Chiu (2015) analyzed the impact of online summarizing exercises on EFL learners' reading comprehension and summarization skills. Working with an internet-based educational assistance platform known as Write-To-Learn, 35 EFL learners summarized the given passages, and immediate automatic feedback, and many revision chances were given to the learners. In another group, 34 learners as the comparison group answered several comprehension questions about the passages. At the beginning and the end of a 4-week training, both groups participated in reading comprehension and a summary assessment. After training, the online summary group did a lot better at both summarizing and understanding what they read.

2.5. Summarizing Skills Versus Summary Performances

Summarizing can be considered a complicated cognitive activity (Kirkland & Saunders, 1991). As Kato (2018) argued, in summarization, students first need to understand the text, then find and rewrite the key points and ideas. Some researchers have investigated the influence of writing summaries on summary performances. Johns (1985) studied the difference between the summaries written by eighth-grade students and adults. In addition, many researchers have suggested that receiving the appropriate instructions improves summary writing skills.

Kato (2018) investigated the effect of summary writing skills in L1 on summary performances in L2. After a brief explanation of summary writing, 47 low-intermediate Japanese university students wrote two summaries in their L1 and L2 of a text written in both languages. The summaries were compared and scored. The results of the study showed that the ability to summarize in first language (L1) has an impact on the quality of summarization in second language (L2). Also, the ability to summarize in L1 is more important than the ability to communicate in English. Later, Kato (2021) investigated the effect of summary writing skills and vocabulary size in L1 on summary performance in L2. In the study, 40 Japanese EFL university students from different proficiency levels were to write a summary in their L2. The effect of summary writing skills in L1 on summary performances in L2 was demonstrated. The participants' performance in English summaries was positively correlated with the amount of their vocabulary. According to the findings, the L1 summary performance was not related to the L2 summary performance.

As the review of previous literature reveals, several researchers have examined different dimensions of source use from various perspectives. The researchers have built on various research methodologies to unpack the

complexities of source use across a wide variety of settings—most notably English for academic settings. Despite the research studies, experimental studies are still missing, and more needs to be done to unravel the nuances of source use across language skills. The present research study fills this gap.

3. Method

3.1. Participants

Sixty Iranian English language learners at the upper-intermediate level, comprising both male and female, participated in this study. The EFL learners ranged in age from 22 to 43 years old, at a minimum held bachelor's degrees, with their academic backgrounds spanning various majors. They had taken the IELTS test and scored 5.5 or 6 in the test by the time the experiment began. The participants were living in Iran at the time this research was conducted. Four groups of participants were formed: three experimental groups and one control group. Simple random sampling was utilized to randomly select participants and assign them randomly to four different groups.

3.2. Instrumentation

As the pre-test, a mock IELTS reading exam was given. The purpose for administering the pre-test was to determine the proficiency level of the participants in the study. The IELTS mock exam closely resembled the actual IELTS exam in every respect. The test was completed in one hour and consisted of 40 questions based on three passages. Reading comprehension, detail-oriented reading, diagramming and summarizing, and identifying the author's point of view are all tested in these 40 questions. The students were given a score out of 40. A conversion table was then used to turn this raw score into a band score.

After administering the treatment to the groups, students were given an IELTS mock reading post-test as difficult as the pretest. To answer one of the study questions, the researchers examined the responses to the summary completion task. The purpose of summary completion questions on IELTS academic reading tests was to measure the candidate's comprehension of the passage. In this type of question, students were given a summary of a part of the text and had to fill in the blanks using information from the text. Every blank had one mark. In both the pre- and post-test, the summary completion task was graded based on a scoring procedure.

3.3. Procedure

The present researchers asked IELTS holders of 5.5 or 6 to participate in this study. They were students in language institutes. Sixty participants were chosen through random sampling and divided into four groups. In the present study, the pre-test and the posttest both were given on an online platform called

Google form. The link to the tests was distributed through social networks such as Telegram.

After receiving the link to the pre-test, participants took it in 60 minutes, and their scores were submitted in Google form. Afterward, the experimental groups received the treatment. During a thirty-minute session, participants focused on understanding the meaning and definition of that source-use strategy. The session also included examples and practical exercises related to each strategy, as explained in the following paragraph.

Each experimental group received tasks related to patch writing, paraphrasing, and discourse synthesis. The students in patch writing group were presented with sample reading tasks in which the original words were deleted and replaced with synonyms. Students carefully analyzed them to familiarize themselves with this strategy. When they were clear about it, the lead researcher provided them with similar tasks, asking them to replace underlined words with synonyms. The paraphrasing group analyzed the paraphrased versions of the original text. They had to carefully examine both the original and the paraphrased versions. The lead researcher explained to them that paraphrasing required them restate the ideas using their own language. They had to paraphrase the reading tasks after seeing those sample paraphrases. For the discourse completion group, students were given at least two one-page reading passages to read, and they were assigned a similar topic related to those passages. The lead researcher asked them to use the information in those two passages and draft a paragraph. Following the completion of the treatment materials, the participants proceeded to undertake the post-test.

3.4. Design of the Study

This study was quantitative, and a true experimental research design was used. A pre-test and a post-test were given to each group in a true experimental design (Hatch & Lazaraton, 1991, 2012). True experimental designs analyze or take measures to control for group differences prior to the start of the experiment. Each group has an equal chance of being placed in either the experimental or control group. When comparing treatments, true experimental designs call for random group assignment and selection (Hatch & Lazaraton, 1991). To observe the effects of source use strategies on summary completion task, the researchers gave a post-test and a pre-test while utilizing random grouping of participants to prevent external factors from influencing the outcomes.

3.5. Data Analysis

SPSS was used for analyzing the data. Google form scored every participant, and the researchers calculated their reading scores based on the

correct answers they had out of 40 questions using the IELTS reading mock test's conversion table. The responses to the summary completion task were imported to Excel, so the present researchers could compare the pre-test results with the post-test results. Since the pre-test was a covariate in this study, the researchers used one-way analysis of covariance (ANCOVA) to examine the research questions.

4. Results and Discussion
4.1. Results
4.2.1. Assumptions of ANCOVA

The results of the summary completion task on the IELTS reading test and the IELTS academic reading test, as well as the skewness and kurtosis indices and the ratio of these values to the standard errors, are displayed in Table 1. The computed ratio values were lower than ±1.96; thus; the assumption of normality was maintained. The ±1.96 criterion was suggested by Raykov and Marcoulides (2008), Coaley (2014), Field (2018), and Abu-Bader (2021), which is usually used in other similar studies as well.

Table 1
Normality Test

Group		N	Skewness Statistic	Std. Error	Kurtosis Statistic	Std. Error	Ratios Skewness	Kurtosis
Paraphrase	PreCompletion	15	.149	.580	-.844	1.121	0.26	-0.75
	PostCompletion	15	-.101	.580	-.676	1.121	-0.17	-0.60
	PreReading	15	-.484	.580	-.943	1.121	-0.83	-0.84
	PostReading	15	-.810	.580	.043	1.121	-1.40	0.04
Patch Writing	PreCompletion	15	-.578	.580	-.006	1.121	-1.00	-0.01
	PostCompletion	15	.070	.580	-.224	1.121	0.12	-0.20
	PreReading	15	.091	.580	.029	1.121	0.16	0.03
	PostReading	15	-.080	.580	-.931	1.121	-0.14	-0.83
Discourse Synthesis	PreCompletion	15	-.168	.580	-.546	1.121	-0.29	-0.49
	PostCompletion	15	-.019	.580	-1.346	1.121	-0.03	-1.20
	PreReading	15	.403	.580	1.212	1.121	0.69	1.08
	PostReading	15	.137	.580	-1.082	1.121	0.24	-0.97
Control	PreCompletion	15	.128	.580	-1.348	1.121	0.22	-1.20
	PostCompletion	15	.092	.580	-.669	1.121	0.16	-0.60
	PreReading	15	.657	.580	-.492	1.121	1.13	-0.44
	PostReading	15	.226	.580	-.875	1.121	0.39	-0.78

Note. Pre = Pretest, Post = Posttest, Completion = Summary completion task in IELTS reading test, and Reading = IEFLTS academic reading test.

4.2.2. KR-21 Reliability Indices

Table 2 shows the pre-test and post-test KR-21 reliability indices at .74 and .92. According to the standards laid out by Fulcher and Davidson (2007), these reliability indices are "appropriate" (p. 107). Fulcher and Davidson stated that "tests that do not achieve reliabilities of 0.7 are normally considered to be

too unreliable for use, and high-stakes tests are generally expected to have reliability estimates in excess of 0.8 or even 0.9" (p. 107).

Table 2
Descriptive Statistics and Reliability Coefficients

	N	Mean	Std. Deviation	Variance	KR-21
PreReading	60	16.03	6.045	36.541	.74
PostReading	60	24.25	9.700	94.089	.92

As shown in Table 3, the pretest (7 items) and posttest (5 items) of summary completion task in IELTS reading test had limited number of items, which consequently resulted in low variances. Table 3 presents the reliability indices, measured by Cronbach's alpha, for the pretest and posttest of summary completion tests. These indices are considered appropriate based on the standards suggested by Harrison et al. (2021), who consider a Cronbach's alpha value of .70 to be a sufficient reliability measure for an instrument.

Table 3
Cronbach's Alpha Reliability Statistics for Pretest and Posttest of Summary Completion Tests

	Cronbach's Alpha	N of Items
Pretest	.712	5
Posttest	.761	7

4.3. Exploring the First Research Question

After adjusting for the influence of the pretest, the researchers gave the IELTS reading posttest summary completion task to all four groups, and then compared their means using a one-way ANCOVA. In addition to the previously mentioned assumptions of normality and reliability, this analysis relies on three additional assumptions: the homogeneity of regression slopes among groups, equality of variances, and a linear correlation between the pretest (covariate) and posttest.

One-way ANCOVA assumes that the covariates should not have high correlations and that the pretest should be given before the posttest. The posttest of summary completion task in IELTS reading test included a single covariate; moreover, the pretest was administered prior to the posttest. The summary completion task on the IELTS reading exam must have a linear relationship between the pretest and posttest in order to use one-way ANCOVA. According to the findings of the linearity test, $F(1, 59) = 26.03$, p <.05, $\eta2 =.335$ reflecting a large effect size), the results are significant, as shown in Table 4.

Table 4

Test of Linearity of Relationship Between Pretest and Posttest of Summary Completion Task in IELTS Reading Test

			Sum of Squares	df	Mean Square	F	Sig.
PostCompletion PreCompletion	Between Groups	(Combined)	43.267	4	10.817	6.912	.000
		Linearity	40.744	1	40.744	26.037	.000
		Deviation from Linearity	2.523	3	.841	.537	.659
	Within Groups		86.067	55	1.565		
	Total		129.333	59			
	Eta Squared		.335				

The linearity assumption was also tested though Scatter Plot, as shown in Figure 1. Since the fit lines for the four groups were linear, the assumption of linearity was maintained.

Figure 1

Linearity of Relationship Pretest and Posttest of Summary Completion Task in IELTS Reading test
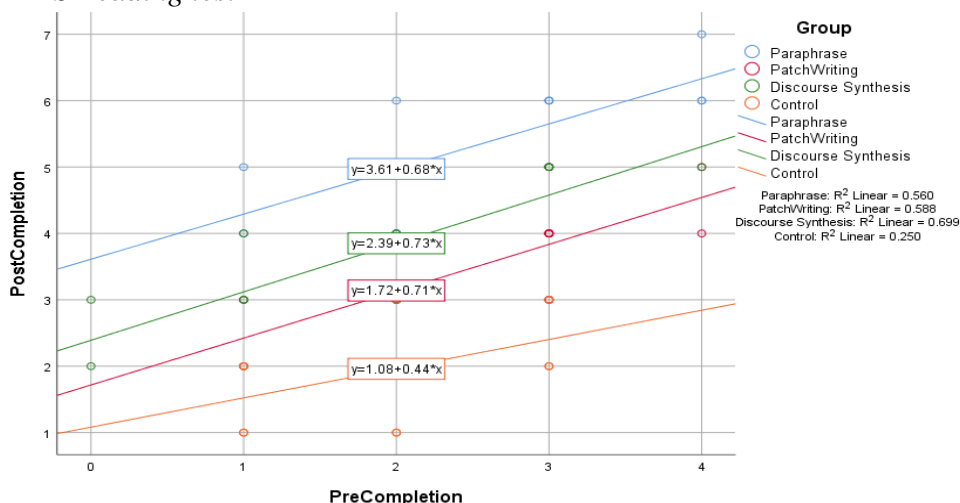
The second assumption of one-way ANCOVA; i.e., homogeneity of regression slopes, is closely related to the linearity assumption. It necessitates that the pre- and post-test linear relationship of summary completion task in IELTS reading test should be roughly equal across the three groups. The pretest's (covariate) non-significant interaction with the independent variable (Table 5), $F(3, 52) = .516$, $p > .05$, $p\eta^2 = .029$ showing a weak effect size, showed that the statistical assumption as the relationships between pretest and

posttest of summary completion task in IELTS reading test were roughly equal all groups was supported.

Table 5
Testing Assumption of Homogeneity of Regression Slopes for Pretest and Posttest of Summary Completion Task in IELTS Reading Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	6.767	3	2.256	6.345	.001	.268
Pretest	20.031	1	20.031	56.346	.000	.520
Group * Pretest	.550	3	.183	.516	.673	.029
Error	18.486	52	.356			
Total	936.000	60				

Lastly, for the one-way ANCOVA to work, the groups' posttest variances on the IELTS reading summary completion task must be homogeneous. Results from Levene's test that did not reach statistical significance, $F(3, 56) = .262$, $p > .05$), as shown in Table 6, stated variance homogeneity was maintained.

Table 6
Levene's Test of Homogeneity of Variances for Pretest and Posttest of Summary Completion Task in IELTS Reading Test

F	df1	df2	Sig.
.262	3	56	.852

After checking the assumptions related to one-way ANCOVA, the main results are discussed. For each of the four groups, we can see the posttest descriptive statistics in Table 7. The findings indicated that the data obtained from the paraphrase group (M = 5.15, SE = .153) had the highest mean on posttest of summary completion task in IELTS reading test. This was followed by the discourse synthesis (M = 4.02, SE = .154), patch writing (M = 3.33. SE = .155), and control (M = 2.15, SE = .154) groups. Following the pretest effect control, these mean scores were adjusted, as shown in the footnote to Table 7.

Table 7
Descriptive Statistics for Posttest of Summary Completion Task in IELTS Reading Test by Groups with Pretest

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Paraphrase	5.157	.153	4.849	5.464
Patch Writing	3.335	.155	3.024	3.646
Discourse Synthesis	4.021	.154	3.712	4.330
Control	2.154	.154	1.845	2.463

As shown in Table 8, the results showed that the four groups' means differed significantly on the summary completion task posttest, $F(3, 55) = 66.98$, $p < .05$, $p\eta2 = .785$, indicating a strong effect size). Thus, the first null hypothesis stating that patch writing, paraphrasing, and discourse synthesis did not significantly help students achieve a higher score was rejected.

Table 8

Between-Subjects Effects Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Pretest	23.231	1	23.231	67.119	.000	.550
Group	69.553	3	23.184	66.985	.000	.785
Error	19.036	55	.346			
Total	936.000	60				

The information in Table 9, the results of the Bonferroni post-hoc comparison tests, and the mean values shown in Table 7 indicate that compared to the patch writing group (M = 3.33) (MD = 1.82, p <.05), the discourse synthesis group (M = 4.02) (MD = 1.13, p <.05), and the control group (M = 2.15) (MD = 3.00, p <.05), the paraphrase group had a much higher performance (M= 5.15) than every other group. In contrast to the average performance of 3.33 in the patch writing group (MD = 1.18, p <.05), the control group's mean score was 2.15. Also, the outcome was considerably better for the discourse synthesis group (M = 4.02) compared to the control group (M = 2.15) (MD = 1.86, p <.05). The performance of the discourse synthesis group (M = 4.02) was significantly better than that of the patch writing group (M = 3.33) (MD =.86, p <.05).

Table 9

Post-Hoc Comparisons Tests for Posttest of Summary Completion Task in IELTS Reading Test by Groups with Pretest

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference Lower Bound	Upper Bound
Paraphrase	Patch Writing	1.822	.215	.000	1.233	2.410
	Discourse Synthesis	1.136	.220	.000	.533	1.739
	Control	3.003	.220	.000	2.400	3.605
Patch Writing	Control	1.181	.223	.000	.571	1.791
Discourse Synthesis	Patch Writing	.686	.223	.020	.076	1.296
	Control	1.867	.215	.000	1.279	2.455

4.4. Exploring the Second Research Question

Employing a one-way ANCOVA for the IELTS academic reading exam requires a linear connection between the pretest and posttest. The linearity test yielded significant results, $(F(1, 59) = 14.96, p < .05, \eta2 = .517,$ denoting a substantial effect size) as shown in Table 10. These findings provide support for rejecting the null hypothesis that the academic reading pre- and post-tests did not show a linear relationship.
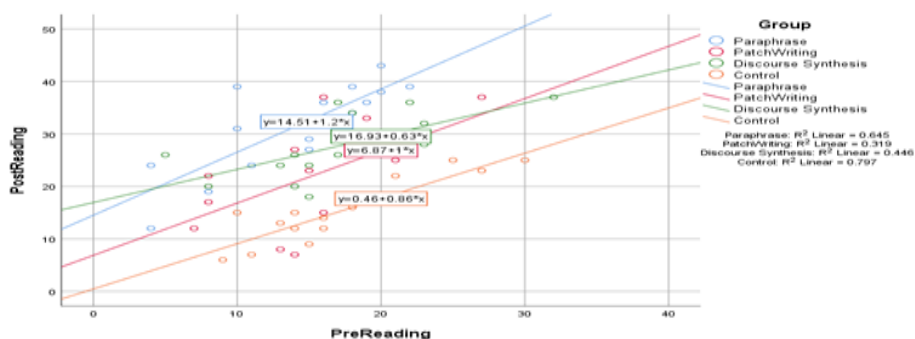
Table 10

Linearity of Relationship of IELTS Academic Reading Test

			Sum of Squares	df	Mean Square	F	Sig.
PostReading * PreReading	Between Groups	(Combined)	2867.750	21	136.560	1.934	.038
		Linearity	1056.893	1	1056.893	14.966	.000
		Deviation from Linearity	1810.857	20	90.543	1.282	.249
	Within Groups		2683.500	38	70.618		
	Total		5551.250	59			
	Eta Squared		.517				

The linearity assumption was also tested though scatter plot, as shown in Figure 2. The assumption of linearity was found to be valid after it was determined that the fit lines for the four different groups were linear.

Figure 2

Linearity of Relationship Pretest and Posttest of IELTS Academic Reading Test

The second assumption, homogeneity of regression slopes (Table 11), is connected to the linearity assumption. The linear relationship between the pretest and posttest scores of the IELTS academic reading test is approximately equal across all three groups. Based on the weak effect size ($p\eta2 = .052$) and the non-significant interaction between the pretest and the independent variable (grouping variable), $F(3, 52) = .946, p > .05$), the statistical assumption

that the relationships between the pretest and posttest of the IELTS academic reading test were approximately equal for all groups was confirmed.

Table 11
Testing Assumption of Homogeneity of Regression Slopes for Pretest and Posttest of IELTS Academic Reading Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	294.146	3	98.049	3.062	.036	.150
Pretest	1713.103	1	1713.103	53.495	.000	.507
Group * Pretest	90.840	3	30.280	.946	.425	.052
Error	1665.221	52	32.023			
Total	40835.000	60				

Finally, the groups must also have homogenous variances on the IELTS academic reading posttest in order to use one-way ANCOVA. The Levene's test yielded significant results, $F(3, 56) = 4.29$, $p < .05$) (Table 12), indicating that it was not upheld. The results can be disregarded if the groups' samples are equal, which is the case in this study (Field, 2018).

Table 12
Levene's Test of Homogeneity of Variances for Pretest and Posttest of IELTS Academic Reading Test

F	df1	df2	Sig.
4.295	3	56	.008

After checking the assumptions related to one-way ANCOVA, the main results are discussed. With the effect of the pretest controllable, the descriptive statistics for the four groups on the posttest of the IELTS academic reading test are shown in Table 13. On the posttest of the IELTS academic reading test, the paraphrase group had the highest mean (M = 33.16, SE = 1.48) according to the results. After that, there were three groups: discourse synthesis (M = 26.79, SE = 1.46), patch writing (M = 22.80, SE = 1.45), and control (M = 14.23, SE = 1.46).

Table 13
Descriptive Statistics for Posttest of IELTS Academic Reading Test by Groups with Pretest

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Paraphrase	33.166	1.481	30.198	36.134
Patch Writing	22.804	1.459	19.879	25.729
Discourse Synthesis	26.795	1.464	23.862	29.729
Control	14.235	1.469	11.291	17.178

The main results of the one-way ANCOVA are displayed in Table 14. The significant results, $F_{(3, 55)} = 28.58$, $p < .05$, $p\eta^2 = .609$, representing a large effect size, showed that there existed significant differences among the means of the four groups.

Table 14

Posttest of IELTS Academic Reading Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Pretest	1666.072	1	1666.072	52.182	.000	.487
Group	2738.296	3	912.765	28.588	.000	.609
Error	1756.061	55	31.928			
Total	40835.000	60				

Table 15 shows the results of the Bonferroni post-hoc comparison tests. On the posttest of the IELTS academic reading test, the performance of the paraphrase group (M = 33.16) was substantially higher than that of the patch writing group (M = 22.80), as demonstrated by the results of the post-hoc comparison tests and the mean values displayed in Table 14. (MD = 10.36, p < .05). On the posttest of the IELTS academic reading test, the paraphrase group had a considerably higher score (M = 33.16) compared to the discourse synthesis group (M = 26.79) (MD = 6.37, p <.05). The paraphrase group had significantly higher posttest results on the IELTS academic reading test (M = 33.16) compared to the control group (M = 14.23) as shown by MD = 18.93, p <.05. On the posttest of the IELTS academic reading test (MD = 8.56, p <.05), the patch writing group had a significantly higher score (M = 22.80) compared to the control group (M = 14.23). On the posttest of the IELTS academic reading test (MD = 12.56, p <.05), the discourse synthesis group had a significantly higher score (M = 26.79) compared to the control group (M = 14.23). On the posttest of the IELTS academic reading test (MD = 3.99, p >.05), there was no significant difference between the discourse synthesis (M = 26.79) and patch writing (M = 22.80) groups.

Table 15

Post-Hoc Comparisons Tests for Posttest of IELTS Academic Reading Test by Groups with Pretest

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Paraphrase	Patch Writing	10.362	2.075	.000	4.684	16.041
	Discourse Synthesis	6.371	2.097	.022	.631	12.110
	Control	18.931	2.106	.000	13.166	24.697
Patch Writing	Control	8.569	2.074	.001	2.893	14.245
Discourse	Patch Writing	3.992	2.069	.353	-1.672	9.655
Synthesis	Control	12.561	2.064	.000	6.912	18.209

4.5. Discussion

Regarding the first research question, the results from one-way ANCOVA showed significant differences. Further analysis with post-hoc comparison tests indicated that the paraphrase group (M= 5.15) considerably outperformed the patch writing group (M = 3.33) (MD = 1.82, p <.05), the discourse synthesis group (M = 4.02) (MD = 1.13, p <.05), and the control group (M = 2.15) (MD = 3.00, p <.05). This is in line with some previous investigations (e.g., Baleghizadeh & Babapur, 2011; Chiu, 2015; Shokrpour et al., 2013), which confirmed the utility of paraphrasing.

According to Choy and Lee (2012), the identification of crucial concepts within the materials and the subsequent application of paraphrasing to produce a succinct summary that accurately reflects the original emphasis pose a formidable challenge. Working on paraphrasing strategies assisted paraphrase group to enhance their understanding of texts and developed their writing performance. This, in turn, improved their performance in summary completion task in the IELTS reading test. Another possible explanation might be the point that when undertaking the task of summarizing a written piece, individuals partake in a cognitive procedure which entails the identification of the main concepts within the passage, the differentiation between significant and insignificant details, and the rephrasing of the principal ideas with the objective of conveying the essence of the passage (Chiu, 2015). This may attract students' attention to the text.

Information processing theory (IPT) can be used to explain the efficacy of the paraphrasing strategy (Pratiwi et al., 2019). The theory describes how people receive, process, and react to information. IPT states that information is processed by the human mind in four stages: input, processing, storing, and output (Wang et al., 2023). This theory places a strong emphasis on how perception, memory, and attention influence cognitive functions and behavior. It implies that new knowledge must be encoded in order to fit within our

existing cognitive structure. Paraphrasing requires the original text to be processed, encoded by recognizing its meaning, and then transformed into new terms. According to the theory, information is first kept in short-term memory before being moved to long-term memory. This process is aided by paraphrasing, which requires a person to focus on the key information and repeat it, which can reinforce neural pathways and facilitate the transition from short-term to long-term memory storage. Individuals must actively pick which elements of the information are most significant as they paraphrase.

In contrast to patch writing and synthesizing, paraphrasing encourages l2 learners to actively engage with the content by rephrasing it in their own words, which improves memory retention and deeper processing. This aligns with IPT principles, which stresses the value of paraphrasing in the summary process and promote active manipulation of data for successful encoding and retrieval.

The thorough analysis of the data using one-way ANCOVA showed statistically significant differences among the means of the four groups in posttest of IELTS academic reading test. Post hoc comparison tests also showed that the paraphrase group (M = 33.16) significantly outperformed the other groups. This means that paraphrasing, as a source use skill assisted students to achieve a higher score in IELTS academic reading test. This finding confirms what Kato (2018) and Soleimani and Nabizadeh (2012) observed.

Another equally important point for the superior performance of the paraphrase group is the acknowledgment of the point that students greatly benefited from instructions in paraphrasing skills when it came to recognizing problematic phrases or sentences, reviewing the texts' essential ideas, and engaging in lengthy discussions on ways to improve their summaries. When reading, it is crucial to employ the problem-solving method in order to acquire reading comprehension (Habók et al., 2024). Improvements in students' reading comprehension and summary abilities were seen after the revision phase of the summarizing process.

IPT states that paraphrasing improves reading comprehension by speeding up the mental processes necessary for encoding and remembering information. Paraphrasing facilitates deeper processing and improves memory retention. The fact that paraphrasing can improve reading comprehension is in line with IPT's emphasis on actively manipulating information for efficient encoding and retrieval. By manipulating language and reorganizing information, paraphrasing stimulates working memory functions and makes it easier to incorporate new information into preexisting knowledge systems.

In addition, actively rewriting information in one's own words is what paraphrasing entails, and it calls for a greater comprehension of the source material. Semantic encoding, which involves processing the meaning of information rather than just the words themselves, is encouraged by

paraphrasing. According to information processing theory, active involvement with materials results in more effective information encoding. This active involvement does not happen when patch writing or synthesizing is used.

5. Conclusion and Implications

The results of one-way ANCOVA procedures revealed that the paraphrase group significantly outperformed the other three groups. Moreover, it was revealed that paraphrasing, as a source use skill, assisted students to achieve a higher score in IELTS academic reading test.

Pedagogically speaking, the implementation of strategic instruction can yield positive outcomes for EFL students who are facing challenges in comprehending and producing complex academic texts. Teachers should keep in mind that in order to achieve the highest level of outcome, it is essential to provide explicit and incremental instruction on reading comprehension strategies. They should encourage students who are facing difficulties to freely express their opinions without the fear of making errors or being judged or criticized for the challenges FL learners face in expressing themselves in English. This study reminds us that the ultimate objective is to transform struggling readers into individuals who are enthusiastic, strategic, and capable of independent reading.

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