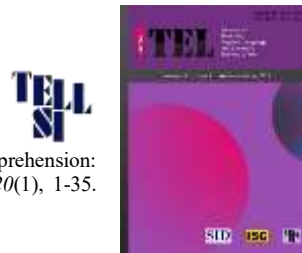


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**Research Paper**

**Test-Taking Strategy Instruction and TOEIC  
Reading Comprehension:  
Strategy-Use Differences in EFL College Students**

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**Abstract**

This study examines the effects of test-taking strategy instruction on reading comprehension in the TOEIC (Test of English for International Communication), thus addressing one of the biggest concerns of South Korean college students. The strategy choices of 48 college students, who were divided into a test-wise group and a test-naïve group, were examined through verbal reports. The students took a total of three mock tests while receiving test-taking strategy instruction. The changes in the scores were identified through repeated-measures ANCOVA and the effect size was compared. Results indicated that while there was an increase in scores for both groups, the test-naïve group showed a larger increase than the test-wise group. This paper illuminates the necessity of teaching test-taking strategies, which are particularly helpful for students who have academic potential but have difficulty employing it effectively to achieve their goals. In addition, it is necessary to continuously monitor learners' strategic abilities through an in-depth method like verbal protocol. It is expected that successful academic achievement experiences facilitate the learning process, allowing students to take ownership of their learning.

**Keywords:** Test-Taking Strategy, Test-Management Strategy, TOEIC, Verbal Report, Test Strategy Instruction, Test Preparation Course

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#### 1. Introduction

The TOEIC (Test of English for International Communication), a high-stakes standardized test that was developed by the US-based Educational Testing Services (ETS), measures the everyday English skills of nonnative speakers working in an international environment (Lertcharoenwanich, 2022). Test scores indicate how well test-takers can communicate in business English (Hsieh, 2017). This skill is recognized relatively easier than TOEFL and IELTS, which measure overall language proficiency (including speaking and writing), and it has the additional advantages of having a low administration fee and high quality due to its strictness, objectivity, and standardization (Im & Cheng, 2019; Nguyen & Gu, 2020). It is thus used as a university exit test and graduation requirement in many Asian universities (Pan, 2010). Nowadays, TOEIC scores are used extensively for employment and promotion by both domestic and multinational corporations and organizations (Hsieh, 2017; Pan & Roever, 2016, Shibata, 2018). According to the ETS report (2023), the majority of TOEIC test-takers in 2023 were from Asia. Among the test-takers, 55.7% were undergraduate college students and 44% were between 21 and 25 years old. The motivations for taking the test varied, with 28% taking it for learning purposes, 28% for graduation requirements, and 24% for job applications.

The TOEIC has thus become a major concern for university students, exerting a strong washback effect on English learning, the establishment of related courses, and English teaching practices in higher education (Masrul & Rasyidah, 2023). To achieve their target scores within a short period, many students turn to private tutoring (Charoenroop, 2021; Saengboon, 2019) or enroll in test-taking strategy courses offered by language institutions

(Chaisuriya & Shin, 2019). Korea is no exception, with many students attending private cram schools that specialize in TOEIC preparation (Booth, 2018). Moreover, many universities are now offering their own TOEIC courses to meet this growing demand. Although there is ongoing debate about whether it is appropriate to teach TOEIC in universities, since the TOEIC is a significant concern for college students, it has become an unavoidable issue.

However, there is often a gap between students' TOEIC scores and their actual English proficiency (Powers & Powers, 2014). Some students achieve their desired test scores, but these do not necessarily reflect their true language abilities (Yoon, 2014). In other cases, students with average English proficiency can end up with worse test scores. This suggests that standardized language tests like the TOEIC require more than just linguistic knowledge. To succeed, students need to develop specific skills for the test and increase their familiarity with its format, as practicing how to tackle various types of questions can significantly influence performance (Busa & Chung, 2024). Therefore, a strategic approach tailored to the characteristics of the exam is essential. Structured instruction in test-taking strategies, such as time management and problem-solving techniques, can help students take a test more effectively and ensure that their scores better reflect their actual English proficiency.

There is a need to differentiate TOEIC classes from general reading classes in that test-taking is a unique case of language use (Phakiti, 2016) and test-takers tend to focus on solving test questions (Hwang, 2015). Therefore, test-taking strategies, which differ from general reading strategies, are necessary for standardized tests like the TOEIC. Cohen (2006) and Cohen and Upton (2006) divided test-taking strategies used in the TOEIC into three types: language learner strategy, test-management strategy and test-

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deviousness. Language learner strategy involves using general language proficiency and comprehension skills, which are similar to typical reading strategies such as inferring meaning, skimming, or identifying main ideas. Test-management strategy refers to planning, monitoring, and evaluating one's performance during the test, closely aligned with metacognitive strategies. Test-deviousness strategy involves exploiting features of the test format and using other peripheral information—such as layout, distractor patterns, or answer length—to arrive at an answer without fully understanding the content. To increase learning outcomes, strategies are therefore necessary along with goal-directed efforts. Without an effective strategy, it can take more time to achieve goals and if learning outcomes are not achieved, interest in academia may decrease (Kil, 2021). In addition, test strategies are also part of learning strategies in general, and test strategies should therefore be appropriately taught, learned, and applied according to the type or characteristics of a given test (Green & Oxford, 1995; Seok, 2017).

Various studies (Abebaw & Nuru, 2024; Busa & Chung, 2014; Lertcharoenwanich, 2022; Rochmawati & Kusumayati, 2023) have explored the effectiveness of teaching these strategies. Most research suggests that test-taking instruction helps students improve their standardized English test scores. However, findings are mixed depending on the learners' language proficiency. Some studies, such as those by Alavi and Bordbar (2012) and Tavakoli and Hayati Samian (2014), have found no direct relationship between test-takers' proficiency levels and their strategy use. However, other studies have indicated that high-proficiency students tend to use strategies more frequently and effectively compared to low-proficiency students (Ghafournia, 2013). Carrell and Grabe (2002) also concluded that strategy use and efficacy are influenced by the reader's proficiency level. Despite this,

there are few studies that closely examine how well learners apply known strategies in real-time using methods like think-aloud protocols. For instance, Singh et al. (2021) conducted a qualitative study with Malaysian students to investigate the strategies they used while completing a TOEIC reading comprehension (RC) section. They found that, regardless of language proficiency, students struggled to apply strategies effectively, highlighting the need for instruction on strategy use.

These prior studies present mixed findings on the relationship between test-takers' language proficiency levels and their strategy use. A common limitation, however, is that most have relied on self-report questionnaires to assess strategy use. While such surveys can reveal whether students are aware of certain strategies, they do not capture whether learners can apply these strategies appropriately in real test conditions. Therefore, it is important to monitor how students actually apply strategies during test situations. To address this gap, the present study employs think-aloud protocols to examine whether students' knowledge of test-taking strategies is reflected in their actual performance. The uniqueness of this study is its observation of students' strategy use prior to intervention. Using the think-aloud method, students were divided into two groups, test-wise and test-naïve, based on their ability to use strategies effectively. The study then tracked the effects of test-taking strategy instruction over time. This approach provided valuable insights into the specific guidance learners need to improve their strategic approach to standardized tests. The findings of this study are anticipated to offer valuable insights into the refinement of TOEIC-related courses at universities. By highlighting the importance of tailored test-taking strategy instruction and its effects based on student proficiency levels, this study can guide educators in designing more effective curricula. The research question for this study is therefore as follows: after test-taking strategy instruction,

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how much do the resulting scores change in both test-wise and test-naïve students?

## 2. Literature Review

### 2.1 Test-taking Strategy Types and Language Performance

Test-taking strategies are “processes that the respondents have selected and are conscious of” to deal with any testing situation (Cohen & Upton, 2006, p. 5). They are found to correlate positively with language-testing performance (Huang, 2016) and help students score better on tests (Gebriel, 2018). To obtain the best outcome in a standardized language test such as the TOEIC, learners must tackle both language issues and the specific item-response demand.

Cohen (2022) identified three types of strategies used by test-takers when attempting to respond to language test items: language learner strategy, test-management strategy, and test-deviousness strategy. The latter two are classified specifically as test-taking strategies (Amer, 2007). Language learner strategies are thoughts and actions, consciously chosen and operationalized by language learners, to assist them in carrying out a multiplicity of tasks from the very onset of learning to the most advanced levels of target-language performance (Cohen, 2011, p. 7).

While the classification of language learner strategies may differ depending on the test situation, however, it is generally based on function: cognitive, metacognitive, social, and affective (Cohen & Wang 2018; Oxford, 2017). In other words, respondents make use of their basic language skills such as listening, speaking, reading, writing, vocabulary, and grammar and they infer, monitor, and evaluate at the same time.

Test-management strategies are “the processes consciously selected to assist in producing a correct answer responsibly” (Cohen, 2022, p. 374). This

includes reading the questions first to search for the answer in the passage, eliminating options in multiple-choice tests, completing easier questions first, and allocating time to questions based on their difficulty or length.

Finally, test-deviuousness strategies refer to strategies that students execute to maximize their score by using peripheral information beyond their linguistic knowledge. The original term was “test-wiseness” (Allan, 1992), but Cohen (2022) dropped the term “wise” as it sounds positive, arguing that these kinds of strategies are construct-irrelevant and circumvent the expected process. Examples of test-deviuousness include “I randomly chose the answer because I did not understand the passage and the options,” “If the correct answer with the same number was repeated consecutively, I reconsidered the answer choice,” “The longer option was selected as the correct answer [rather] than the shorter option” (Han, 2018).

Test-taking strategies, including test-management strategies and test-deviuousness strategies, therefore need to be distinguished. Test-management is a pedagogically sound approach to exam preparation that contributes to the overall language development of L2 learners, while the latter consists of tricks aimed solely at artificially increasing one’s score (He et al., 2024). Similarly, Fulcher (2010) categorized test preparation types into construct-relevant and construct-irrelevant strategies. The former includes strategies that familiarize learners with the test format, item types, and overall test structure. In contrast, the latter is focused only on scores while failing to improve language proficiency. In this study, the test-taking strategies taught focus on construct-relevant strategies, specifically test-management strategies, which enhance language skills and help test-takers become familiar with the test format while excluding test-deviuousness.

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#### **2.2 Measuring Strategy Use: Verbal Reports**

Previous research has often relied on self-report questionnaires to measure test-takers' strategy use (Huang, 2016; Hwang, 2015; Lee, 2019). However, such instruments may not accurately capture whether learners can apply these strategies effectively in real testing conditions (e.g., Alavi & Bordbar, 2012; Ghafournia, 2013; Tavakoli & Hayati Samian, 2014). An alternative approach is the use of verbal reports, which reveal test-takers' cognitive processes as they articulate their thoughts while tackling test questions. This method is widely recognized as a valuable tool for gaining insight into the mental operations of test-takers during task performance (Cohen & Upton, 2006; Green, 1995).

Verbal reports have been widely used in research on foreign language testing. Cohen defined them as the "stream-of-consciousness disclosure of thought processes while the information is being attended to" (2000, p. 128). Verbal reports can be elicited in either an introspective or retrospective way. Introspective verbal reports gather information as test-takers are processing the questions, while retrospective verbal reports typically gathered immediately after the given task. This study adopted retrospective verbal protocols to review how test-takers approached questions and what strategies they used. The aim was to identify learners who understood effective learning strategies but struggled to apply them during the testing process. After receiving verbal report training and completing the sample test in silence, participants described their thought processes for each question. The transcribed data were coded to classify learners as test-wise or test-naïve, ensuring that mere guessing was not counted as successful strategy use.

#### **2.3 Effects of Test-Taking Strategy Instruction**

Research on the effectiveness of test-taking strategy instruction has yielded mixed results. Plonsky (2011) has pointed out that few papers address the

issue of test-taking strategy instruction, and Lee (2019) has indicated that this is especially the case for the TOEIC. That said, there are a few works that are relevant to the present study. Winke and Lim (2017) examined the differences in listening test scores among three different types of IELTS test preparation groups: explicit, implicit, and none. They found little or no significant correlations between the type of preparation and the test scores. However, compared to the pretest, all groups' posttest scores increased by an average of four points. Winke and Lim therefore argued that only four hours of classes over two weeks are too short to yield significant results. However, they noted that simply becoming familiar with a test's format and item types can lead to better performance. This builds on Bessette (2007), who also found that familiarity with test items and formats helped decrease anxiety and boosted students' confidence. Even taking a mock test beforehand can therefore be helpful.

Familiarity has been highlighted elsewhere as the most important aspect of test preparation. Rochmawati and Kusumayati (2023) gave TOEIC test-taking instruction to Indonesian students, finding that those who received strategic training showed significant improvements in their TOEIC scores. In-depth interviews revealed that these students were able to guess answers effectively, overcome anxiety, and gain confidence in managing their time. Lee (2019) similarly examined the effects of test-taking strategy instruction for college students in Taiwan. The results showed that the experimental group who received instruction not only outperformed the control group in TOEIC reading tests but strongly approved of the instruction. Lee thus concluded that test-taking strategy instruction is effective in that it can empower students to use their knowledge to the fullest.

Pan (2010) objected to test preparation classes that are teacher-centered with test-oriented activities. To elicit beneficial washback, he designed

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metacognitively-based instruction and suggested specific activities to improve both communicative competence and test-taking skills: bottom-up instruction for declarative knowledge, interactive instruction for procedural knowledge, and test-taking strategy instruction for conditional knowledge. Pan defined these different types of knowledge: Declarative knowledge refers to knowledge about knowing something, procedural knowledge refers to how to do something, and conditional knowledge refers to one's awareness of what to do in order to complete the task (p. 82). Pan (2010) added this approach would be beneficial for both communication skills and test-taking skills as students learn a language from the test. More recently, Lertcharoenwanich (2022) reported that students taught using the Communicative Language Teaching (CLT) method achieved significantly higher scores than those instructed with direct teaching methods. High-scoring students responded positively to discussions and integrated activities, while lower-scoring students preferred the teacher-centered, direct approach to test preparation. This suggests that explicit instruction from teachers is necessary for students with lower English proficiency. In the case of Korea, Hwang (2015) pointed out that many Korean learners are aware of strategies but have difficulty using them. He also found a positive correlation between test-taking strategies and TOEIC scores and reported that students who were particularly good at time management had higher TOEIC results.

Despite the growing body of research on test-taking strategies and instruction, several important gaps remain. First, most studies rely on self-report questionnaires or surveys to measure strategy use, which may not accurately reflect how learners apply strategies in real testing situations. Second, there is limited research that distinguishes between test-wise and test-naïve students and examines their score changes following strategy instruction, especially using qualitative methods like verbal protocols. Third,

existing studies often focus on learners' general awareness of strategies rather than their actual performance and strategic decision-making during testing. Therefore, this study aims to address these gaps by combining retrospective verbal reports with score analysis to investigate how test-wise and test-naïve EFL college students differ in applying test-taking strategies and how their reading comprehension scores change after targeted instruction. This approach will provide a more nuanced understanding of the effectiveness of test-taking strategy instruction in authentic test contexts.

### **3. Methods**

#### **3.1 Research Design**

This study employed a quasi-experimental repeated-measures design to investigate the effects of test-taking strategy instruction on TOEIC Reading Comprehension (RC) scores among EFL university students. Participants were divided into two groups based on their initial use of test-taking strategies before intervention, identified through verbal report analysis: the test-wise group and the test-naïve group.

The study focused on comparing the effects of the instructional intervention between these two groups. The quasi-experimental nature of the study stems from the lack of random assignment, as participants were recruited from an existing TOEIC course and volunteered for the study. The participants were 48 volunteers enrolled in a TOEIC preparation course at a university in Seoul during the 2023 spring semester.

#### **3.2 Participants**

The participants were 48 university students enrolled in a mandatory online TOEIC preparation course at a university in Seoul. To establish the minimum required sample size for hypothesis testing, an a priori power analysis was

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conducted using G\*Power version 3.1.9.7 (Faul et al., 2009). This analysis utilized a two-way repeated-measures ANOVA framework with a significance level set at  $\alpha = 0.05$ , a target power of 0.95, and an assumed medium effect size of  $f = 0.25$ . The findings suggested that at least 44 participants were needed; nonetheless, this study included 48 participants, ensuring adequate statistical power to identify possible effects. After reviewing the study's objectives, procedures, and their own rights, all participants provided informed consent. In addition, participants were told that their participation was voluntary, and they could withdraw from the study at any time.

Participants who had enrolled in the TOEIC course watched one-hour long videos for TOEIC preparation once a week for 14 weeks and took a one-hour extracurricular in-person class provided once a week by the researcher for nine weeks. Out of 48 students, 34 (71%) students were female. Most were freshmen ( $n = 40$ , 84%) and 41 (85%) had no prior experience with TOEIC tests. Their scores for the TOEIC mock test ranged from 275 to 675 points with an average score of 483, which placed them at the pre-intermediate level (A2) according to ETS Global (2021). The students' majors varied (social sciences, language, history, business, law, engineering, arts and sports) with the majority being business majors ( $n = 20$ ; 42%). Students were divided into a test-wise group ( $n = 26$ , 54%) and a test-naïve group ( $n = 22$ , 46%) based on the verbal report results. Table 1 provides the demographic information of the participants.

**Table 1.**

#### *Demographic Data*

Categories	Items	<i>N</i>	%
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Gender	Male	14	29%
	Female	34	71%
Year	1	40	84%
	2	0	0%
	3	4	8%
	4	4	8%
TOEIC test-taking experience	Yes	7	15%
	No	41	85%
Major	Social Sciences	7	15%
	Language	11	23%
	History	1	2%
	Business	20	42%
	Law	3	6%
	Engineering	3	6%
Strategy use	Arts and Sports	3	6%
	Test-wise	32	67%
	Test-naïve	16	33%

### 3.3 Research Instrument

This study employed two main instruments: verbal reports and TOEIC mock tests. Verbal reports were collected based on the procedures of Cohen and Upton (2006). L1 verbal reports were used to investigate the students' responses to tasks and their descriptions of strategies they used. Through verbal training, students were given explanations and a demonstration of the verbal report protocol method in advance. Participants then took a sample test of TOEIC Part 5 (incomplete sentence questions) and Part 6 (text completion) in silence, after which they were asked to describe aloud (in their

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native language) everything that they had been thinking about and doing as they dealt with each multiple-choice item.

The TOEIC mock test was produced by YBM, the Korean branch of ETS. This is a condensed version of the actual TOEIC test consisting of 100 total questions (50 for Listening Comprehension and 50 for Reading Comprehension) in total, administered in a one-hour timeframe. The maximum score of the mock test remained the same as the actual TOEIC (990 points). Three sets of test items with similar difficulty were administered. Three sets of test items were developed by the test development research center at YBM. YBM is a reputable and authorized organization that not only publishes official TOEIC preparation materials but also conducts extensive item development and validation. The research center calibrates difficulty using statistical analyses from large-scale administrations, including data from students across multiple universities in Korea. This ensures that the sets are equivalent in difficulty, maintaining the reliability and validity of the assessments.

### 3.4 Data Collection

Data collection began with a verbal report session and the first mock test administered in week 1. In the first week, the researcher/instructor recruited participants for an in-person test-taking strategy class from students in an online TOEIC course. 48 volunteers were given experiment orientation including verbal report procedures and signed an informed consent form. For the preintervention verbal report, participants took a sample test in silence, after which they described their methods aloud. After a short break, they took the first TOEIC mock test. From week 2 to 13, students watched instructional videos about the TOEIC, which included both language explanations for TOEIC test preparation and strategy instructions. For nine weeks, students

received explicit test-taking strategy instruction for the RC section, as the main emphasis of this study was on the strategies and outcomes related to that section. The researcher designed the instruction based on previous research (Chang, 2009; Trew, 2008; Widnorad & Hare, 1988). The test-taking strategy instruction encompassed various types of strategies and provided guidance on when, where, and how to use these strategies effectively.

Among Cohen's (2022) three strategy types, the test-taking instruction in this study focused on two: language learner strategies (which aim to enhance language skills) and test-management strategies (which help test-takers familiarize themselves with the test format), while excluding the construct-irrelevant test-deviousness strategies. Examples of strategies are shown in Figure 1 below.

**Figure 1.**

*Strategies for Language Learning and Test Management*

<Language learner strategies>

- 1) Identify the necessary part of speech for the blank and skim the answer choices to find it.
- 2) Learn about suffixes and prefixes.
- 3) Familiarize yourself with phrasal verbs.
- 4) Use clues in the question to choose the correct verb form (e.g., future, present perfect).
- 5) Practice skimming and scanning.
- 6) Use context to infer the meaning of unfamiliar vocabulary.

<Test-management strategies>

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- 1) Manage time wisely by answering easy questions first.
- 2) For Parts 5 and 6, spend no more than 30 seconds on each question.
- 3) The directions for Listening Parts 1 and 2 are two minutes long. Use this time to start answering the easy questions in Part 5.
- 4) If you cannot remember all the details in the triple-passage questions, read and answer one passage at a time, as questions often follow the passage order.
- 5) Scan the questions first and mark proper nouns (e.g., names) while reading the passage.
- 6) If you do not know all the words, focus only on the words that help answer the question.
- 7) Even if you are unsure, make an educated guess rather than leaving a blank.
- 8) Practice identifying precise clues to avoid attractive distractors.

Participants were also engaged in guided practice and actively discussed and shared their strategy use with the whole class. During the test-taking strategy instruction, students took a TOEIC mock test two more times. Table 2 summarizes this study's procedures.

**Table 2.**

*Procedures*

Week 1	Recruited students for the study, Experiment orientation verbal report demonstration, Test 1	
Week 2	Online instruction (LC + RC)	
Week 3-7	Online instruction (LC + RC)	In-person class (RC)

Week 8	Test 2
Week 9–12	Online instruction (LC + RC)      In-person class (RC)
Week 13	Online instruction (LC + RC)
Week 14	Test 3

Note: LC = listening comprehension, RC = reading comprehension

### 3.5 Data Analysis

Quantitative data from three TOEIC mock tests were analyzed using repeated-measures ANCOVA to compare score changes over time between test-wise and test-naïve groups and the effect size was compared by eta squared. A Bonferroni-adjusted post hoc test was performed to determine whether there were any differences between time points. The collected data were analyzed using SPSS 25.

Verbal reports were transcribed and analyzed by two coders to classify participants based on the appropriateness and effectiveness of their strategy use. When discrepancies occurred between the two coders' evaluations, we first discussed the specific cases to reach consensus through discussion. According to ETS Global (2021), scoring above 55% in each section is considered indicative of intermediate proficiency, reflecting the distinction between intermediate and lower-intermediate levels. In this study, a slightly more conservative cutoff of 60% was used: participants who scored 60% or higher and applied appropriate strategies were classified as test-wise, while those scoring below 60% or using inappropriate strategies were classified as test-naïve. Even if students selected the correct answer, it was treated as incorrect if the selection was random, if erroneous decoding occurred, or if they failed to explain the evidence aloud.

#### 4. Results

Shapiro–Wilk normality test results for the three test scores for both groups are shown in Table 3. A  $p$ -value greater than 0.05 indicates that the data do not significantly deviate from a normal distribution, which satisfies the normality assumption; therefore, as all  $p$ -values were greater than 0.05, the normality assumption was met for both groups in all the tests.

**Table 3.**

*Shapiro–Wilk Normality Test for the Test Scores*

Test	Group	Shapiro–Wilk Statistic	$df$	$Sig.$
RC 1	Test-wise	0.933	32	0.274
	Test-naïve	0.941	16	0.081
RC 2	Test-wise	0.985	32	0.990
	Test-naïve	0.975	16	0.632
RC 3	Test-wise	0.954	32	0.554
	Test-naïve	0.971	16	0.528

A Box’s M test was conducted to assess the equality of covariance matrices across groups. The result was not significant ( $p = 0.081$ ), indicating that the assumption of equality of covariance matrices was met. A non-significant result ( $p > .05$ ) means the assumption is met, so differences in variances and covariances across groups are unlikely to bias the results. To examine whether the correlations among the measurements over time were equal, a Mauchly’s Test of Sphericity was conducted. The assumption of sphericity was not violated:  $\chi^2(2) = 3.904$ ,  $p = 0.142$ .

The homogeneity of the two groups was assessed using an independent samples t-test based on the RC1 score, as shown in Table 4. The results

indicated a statistically significant difference in RC1 scores between the two groups ( $t(46) = -2.789$ ,  $p = 0.008$ ). This means that before the intervention, the two groups already had different Reading Comprehension scores in the first test (RC1). Such a difference could confound the results, so we statistically controlled for it by using the pre-test scores as a covariate. Therefore, to control for initial differences, pre-test scores from the beginning of the semester were used as a covariate and the intervention effects were evaluated while accounting for this variable.

**Table 4.**

*Independent Samples t-Test for RC1 Score*

Test	Group	<i>N</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>
RC1	Test-naïve	16	199.38	62.766	-2.789	0.008
	Test-wise	32	252.34	61.670		

The descriptive statistics of the RC scores across the three tests for each group are shown in Table 5. The test-wise group's third RC (RC3) score ( $M = 340.47$ ,  $SD = 47.013$ ) was higher than the second (RC2) score ( $M = 288.75$ ,  $SD = 74.693$ ), and the second score was higher than the first (RC1) score ( $M = 252.34$ ,  $SD = 61.670$ ). Additionally, the test-naïve group's third RC score ( $M = 346.56$ ,  $SD = 71.478$ ) was higher than the second score ( $M = 295.63$ ,  $SD = 55.132$ ), which was higher than the first score ( $M = 199.38$ ,  $SD = 62.766$ ). Both groups showed consistent improvement in their RC scores over the three testing points. For the test-wise group, scores increased steadily from RC1 to RC2 to RC3, indicating gradual progress. For the test-naïve group, there was a large jump between RC1 and RC2, followed by further improvement from RC2 to RC3. This pattern suggests that strategy instruction had a more immediate effect for the test-naïve group.

**Table 5.***RC Score Descriptive Statistics by Strategy-Use Group*

	Test-wise			Test-naïve		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
RC 1	32	252.34	61.670	16	199.38	62.766
RC 2	32	288.75	74.693	16	295.63	55.132
RC 3	32	340.47	47.013	16	346.56	71.478

The graph below shows the change in RC scores across the three tests by group. The increase in scores for the test-wise group appeared to be more gradual compared to the test-naïve group, whose scores rose rapidly, particularly between RC1 and RC2, indicating the immediate effects of strategy instruction. In other words, the line graph visually confirms that while both groups improved, the slope for the test-naïve group between RC1 and RC2 is steeper than that of the test-wise group, indicating a faster initial gain. The test-wise group's more gradual slope suggests steady but less dramatic improvement over time. Ultimately, both groups showed a continuous rise in RC scores and reached a similar level by the final test. This suggests that test-taking strategy instruction was especially effective for the test-naïve group.

**Figure 2.**

*Change in RC Mean Scores*

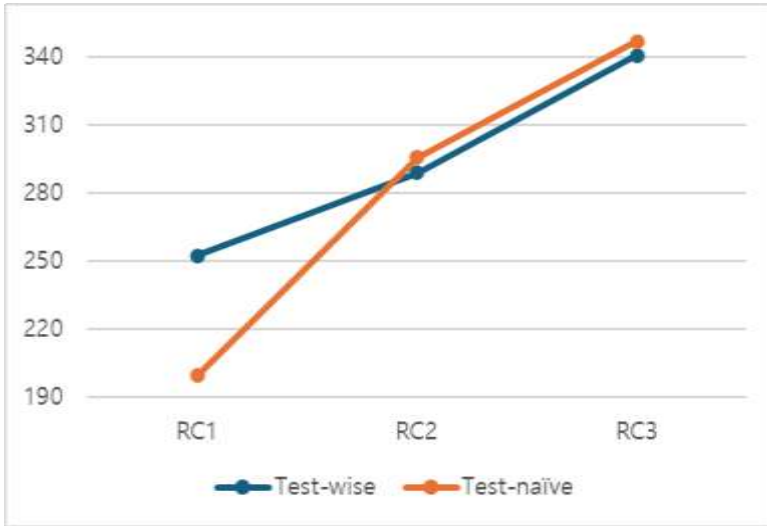


Table 6 shows whether there was a difference between the groups' test scores over time.

**Table 6.**

*Repeated-Measures ANCOVA Results for RC Scores*

Variable	Sum of squares	df	Mean square	F	p	Effect Size ( $\eta^2$ )
Within Groups						
Time	123753.683	2	61876.841	22.655	0.000	0.335
Time*pre-test	79226.844	2	39613.422	14.504	0.000	0.244
Time*Group	25202.344	2	12601.172	4.614	0.012	0.093

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Error	245811.176	90	2731.235			
Between Groups						
Intercept	181750.940	1	181750.940	68.380	0.000	0.603
Pre-test	96045.105	1	96045.105	36.135	0.000	0.445
Group	6176.774	1	6176.774	2.324	0.134	0.049
Error	119607.499	45	2657.944			

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A repeated-measures ANCOVA was conducted with pre-test scores set as the covariate to examine the effects of time, the interaction with pre-test, and the interaction with the group on RC scores. The effects of time were significant ( $F = 22.655$ ,  $p = 0.000$ ,  $\eta^2 = 0.335$ ), indicating that scores significantly increased over time. This means that, regardless of group, students' RC scores increased significantly from one testing point to the next across the semester. The  $\eta^2$  value indicates that time accounted for about 33.5% of the variance in scores, which is a large effect, supporting the conclusion that the instruction contributed meaningfully to performance improvement. This suggests that as the strategy instruction progressed, students' performance improved, providing evidence for the effectiveness of the strategy instruction.

The interaction between time and pre-test scores was also significant ( $F = 14.504$ ,  $p = 0.000$ ,  $\eta^2 = 0.244$ ), indicating that pre-test scores influenced the change in RC scores over time. Additionally, the interaction between time and group showed a statistically significant difference ( $F = 4.614$ ,  $p = 0.012$ ,  $\eta^2 = 0.093$ ). The significant interaction between time and pre-test scores means that the amount of improvement over time depended on students' initial proficiency; students starting with higher pre-test scores may have improved at a different rate compared to those starting lower. The significant

interaction between time and group means that the pattern of score changes across the three testing points was different for the test-wise and test-naïve groups.

The pre-test scores used as the covariate had a significant effect on RC scores ( $F = 36.135$ ,  $p = 0.000$ ,  $\eta^2 = 0.445$ ). This means that students' initial proficiency (measured by pre-test scores) had a strong and significant impact on their later RC scores; about 44.5% of the variance in final scores could be explained by their starting point. This suggests that learners' initial proficiency was an important factor in their score improvement and highlighting the need for a tailored education that takes this initial proficiency into account. The lack of a significant group effect ( $F = 2.324$ ,  $p = 0.134$ ,  $\eta^2 = 0.049$ ) indicates that both groups benefited similarly from the instruction. This means that, overall, there was no significant difference in the average improvement between the test-wise and test-naïve groups. In other words, both groups benefited similarly from the instruction, suggesting that strategy training can be effective for learners regardless of their initial classification. This suggests that anyone who receives the training in test-taking strategies could experience similar improvements.

## **5. Discussion & Implications**

This study addresses the question: after test-taking strategy instruction, how much do the resulting scores change in both test-wise and test-naïve students? The findings indicate that strategy instruction produced significant gains in reading comprehension (RC) scores for both groups, with the test-naïve group exhibiting a steeper increase over time. These results suggest that while strategy instruction benefits all learners, it has a particularly transformative impact on those previously unfamiliar with such strategies.

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The results of this study have demonstrated the effectiveness of strategy instruction for improving RC scores. Both groups showed improvements in their scores as they received strategy instruction, indicating that students internalized and applied these strategies effectively. This supports the role of strategy instruction in enhancing reading performance. Notably, after receiving test-taking strategy instruction, both groups exhibited score increases over time, with the test-naïve group showing greater improvement than the test-wise group.

The greater improvement in the test-naïve group can be explained in two ways. First, it is possible that an increase in confidence resulting from the instruction led to a subsequent improvement in their TOEIC scores. Nam's (2016) study, which investigated perceptions of the TOEIC among Korean university students, found that those with lower scores expressed less interest in TOEIC preparation. They were less likely to invest effort in tasks they believe will lead to failure. They saw the TOEIC as a mere requirement for graduation or job applications and lacked clear learning objectives related to it. However, through test-taking strategy instruction, students reported improved problem-solving abilities and observed score improvements, which boosted their confidence and contributed to better English outcomes. This aligns with research showing that increases in self-efficacy mediate gains from strategy instruction to performance improvement in reading tasks (Cai, 2024).

Another reason for the dramatic score increase in the test-naïve group could be that they had potential but were unfamiliar with test-taking strategies. Their previous scores likely did not fully reflect their actual language proficiency. Over the course of seven weeks, their scores rose sharply, which is a remarkable outcome. Irawan (2014) also underscores the importance of teaching effective test-taking strategies—such as leveraging

topic familiarity and making inferences—particularly for test-naïve students. Hong and Phan (2020) reported that for learners at the 200-level, gaining 100 points on the TOEIC test typically requires 100 hours of instruction. Considering how difficult it is to improve English proficiency in a short time, it is plausible that the score increase in the test-naïve group was due to the strategy instruction. As they became accustomed to the test format, learned how to manage time effectively, and applied strategies to find cues for answers, they likely used these strategies more efficiently during the test. By learning how to identify key contextual clues and eliminate distractors, they enhanced their ability to make informed answer choices rather than relying on guesswork. This strategic approach likely improved their overall test-taking efficiency and accuracy, leading to the observed rapid increase in scores.

The significant interaction between time and pretest scores suggests that learners' basic English proficiency influenced RC score improvements. While strategy instruction is beneficial, it may therefore be more effective when learners have a solid foundation in English. Rezaee (2006) also found that the impact of strategy instruction varies according to test-takers' English proficiency levels; specifically, beginner learners tend to have slower language processing speeds, which limits their cognitive resources for focusing on test content and using strategies effectively. This implies that educators should plan differentiated instruction based on both learners' proficiency and their ability to use strategies. This aligns with Elsheikh Hago Elmahdi et al. (2024), who emphasized the necessity of tailoring instructional approaches to learners with specific needs, along with the importance of ongoing evaluation of strategy effectiveness to ensure sustained and equitable learning outcomes.

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Despite the positive washback effect, concerns about test validity remain. Specifically, construct validity refers to how well a test measures what it is intended to assess. If the effectiveness of test-taking instruction is demonstrated, questions may arise regarding whether the test truly evaluates overall reading ability as intended from a construct validity perspective. Although the TOEIC reading section is meant to evaluate overall reading ability, factors such as time management strategies can influence scores, raising the possibility that students may focus too much on the skills needed to improve their test scores rather than on broader language development.

To promote a more desirable washback that enhances communicative competence, some changes are necessary. The implications and suggestions drawn from this study are as follows. First, this study provides evidence of the lasting impact of strategy instruction on RC score improvement. This is consistent with Razkane et al. (2023) demonstrating that the explicit teaching of strategies not only facilitates language acquisition but also helps learners become independent and strategic learners. Educators should therefore consider incorporating strategy-based learning into their curricula to improve RC skills. It is important to note that while teaching test-taking strategies is essential, the burden of applying these strategies effectively should not fall solely on the students. Teachers play a critical role in helping learners understand not only how to use strategies, but also when and to what extent they should be applied. As Cai (2024) found, both excessive and insufficient strategy use can negatively affect language learning outcomes, underscoring the need for balanced and context-sensitive application. This aligns with Cohen's (1988) assertion that "the frequency of strategy use is not necessarily an indication of success, nor is success at using a given strategy in a given context a guarantee that the next use of that strategy will also be successful" (p. 220). Together, these findings emphasize that strategy

instruction should be accompanied by ongoing guidance and feedback to ensure effective and appropriate use. In other words, just because students have learned a strategy and used it in one situation does not mean they will always succeed with it in different contexts. This variability in strategy success highlights the importance of metacognitive awareness, which enables learners to evaluate the effectiveness of their strategy use and adapt it to new or changing tasks. Therefore, educators must ensure that students are not only familiar with various strategies but also understand the nuances of when and how to apply them effectively.

Robillos and Bustos (2022) noted that strategy instruction is usually focused on a repertoire of strategies believed to be appropriate to complete a given task. However, teaching strategies alone does not help students improve their language skills. It is therefore necessary to both teach strategies and continuously monitor learners' application of those strategies through in-depth methods such as verbal protocol. Evaluating the appropriateness of strategy use should also be included in test-taking instruction. Continuous feedback and reflection enable learners to refine their strategic approach, fostering flexible and context-sensitive application rather than rote or mechanical use. Such evaluation can be facilitated through methods like verbal protocols, which provide rich data on learners' cognitive processes and help instructors tailor guidance accordingly.

One method for closely examining students' problem-solving processes is through verbal reports. The internalization of strategy use will eventually lead learners to become effective self-directed learners and ultimately help them become independent and efficient test-takers. This will also support successful language learning experiences and academic achievements, accelerating their learning process. Furthermore, by developing learning strategies and solving problems on their own, students will become more

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capable of self-directed learning. Such learners are better equipped to monitor their own progress and adjust their strategies according to task demands. Becoming self-directed learners can enhance motivation, strategic use, and problem-solving skills, which in turn positively impact overall learning outcomes.

The second finding, which was that students' initial proficiency played a crucial role in benefiting from strategy instruction, highlights the importance of differentiated teaching. Before beginning lessons, teachers should assess students' basic English proficiency and strategy-use ability, then adjust the pace and difficulty of instruction accordingly. Given the importance of basic English proficiency, educators should also prioritize enhancing students' overall language skills alongside strategy instruction. Basic vocabulary knowledge, grammar, and reading comprehension skills need to be sufficiently developed for strategies to be effectively integrated into learning.

Finally, the findings of this study indicate a need to explore more comprehensive ways of assessing English proficiency. The TOEIC primarily evaluates receptive skills through multiple-choice questions, and while there is currently no alternative, a more holistic assessment would ideally include productive skills, such as speaking and writing. Incorporating these productive skills into assessment frameworks would offer a more balanced and holistic evaluation of learners' overall language abilities and better reflect their real-world communicative competence. This would provide a fuller picture of learners' language abilities.

## 6. Conclusion

This study explored one of the standardized English proficiency tests, the TOEIC, and the test-taking strategies used for it. These topics are, as noted above, of great interest to Asian college students due to common employment

and graduation requirements. Forty-eight university students taking online TOEIC courses at a university in Seoul were divided into two groups (test-wise and test-naïve) based on retrospective verbal reports. The changes in the scores of the ensuing three tests were evaluated during and following test-taking strategy instruction. The analysis revealed that the test-wise students' RC1 scores were significantly higher, but over time, the test-naïve group showed a much larger score increase. In RC2 and RC3, the test-naïve students' RC scores were higher.

This study was significant as it demonstrated that test-naïve students may not necessarily have low language proficiency, and their potential can be greatly enhanced through targeted strategy instruction. The findings suggest that test-taking strategy instruction plays a crucial role in score improvement, supporting the idea that it should be integrated into university curricula alongside language skills instruction. However, simply teaching strategies is not enough; teachers must actively monitor and evaluate the practical application of these strategies, ensuring that their students internalize and apply them effectively during tests. This can be achieved through detailed methods such as verbal protocols, which provide insight into students' thought processes and allow teachers to evaluate the strategies utilized during tests. Moreover, combining strategy instruction with regular feedback could promote deeper learning and long-term benefits, helping students develop not only their test-taking skills but also their overall language proficiency.

However, it should be noted that the limitations of this study include the relatively small sample size and the possibility that learners may have difficulty in verbalizing their strategies during verbal protocols. Additionally, this study did not account for individual variables such as test anxiety and learner styles that influence the learning effect were not considered. Another limitation is that it did not examine differences in the types of strategies used

by test-wise and test-naïve students after receiving instruction, which could provide valuable insights into tailoring strategy training. Further research should be aimed at improving practical communication skills and acquiring target scores by dealing with different English accents (such as American, British, Canadian, Australian, or New Zealander), colloquial forms, text messages, and online chat dialogues, which are reflected in the revised TOEIC test. Furthermore, the development of test-taking strategy instructions that address these diverse language features and improve both communicative competence and test performance should be a key area of exploration.

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