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Developing Saudi EFL Female Students' Listening Skills through Schema Theory

Fatma M. Al-Qahtani*

Assistant professor at the English Department, Faculty of Science & Humanities, Shaqra University, Shaqra, KSA
fmalqhtani@su.edu.sa

Abstract:

Listening comprehension is intricate and dynamic, as learners actively engage in reconstructing the original intention of the speaker by integrating new information with their existing knowledge. Schema theory plays a key role in emphasizing the importance of utilizing English as a foreign language (EFL) learners' existing knowledge to enhance their understanding of spoken discourse in English. This study aims to implement a suggested teaching strategy, rooted in schema theory, to enhance the listening skills of EFL university students. To examine the effectiveness of the suggested teaching strategy, a pre-post listening comprehension test was administered to both the experimental and control groups prior to and following the intervention. The results revealed that the teaching strategy based on schema theory effectively enhanced the experimental group students' overall listening comprehension, as well as their proficiency in each specific listening skill. It can be concluded that EFL teachers should possess a deep understanding of students' schemata when instructing listening comprehension skills. Therefore, when teaching Saudi university students listening comprehension, it is crucial to consider factors such as their familiarity with the subject matter and its relevance to their background knowledge.

Keywords: schema theory, listening comprehension, schemata, schema building and activation

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1. Introduction

Listening comprehension stands as a cornerstone of language acquisition, serving as the gateway through which learners receive rich and comprehensible input. This input fuels not only future speaking and writing endeavors, but also fosters the internalization of vocabulary, grammatical structures, and overall language proficiency (Bao, 2016). Beyond the realm of language mechanics, effective listening strengthens critical thinking and cultivates a deeper understanding of the world around us (Farangi & Saadi, 2017; Scarcella & Oxford, 1992).

In recent years, the significance of listening comprehension within the framework of language learning has garnered well-deserved recognition (Chung, 2002; Li & Sakulwongs, 2022). Consequently, the cultivation of this skillset has become a progressively central objective within second language (L2) programs. Listening comprehension, however, transcends the mere development of a multifaceted skill. It embodies a dynamic cognitive process, demanding listeners to actively draw upon pre-existing knowledge and contextual clues to decipher the speaker's intent (Vandergrift, 2003). This process encompasses a multitude of sub-processes, requiring listeners to engage in both physical and mental exertion. These sub-processes involve the cognitive tasks of perceiving spoken stimuli, attributing meaning to them, and formulating contextually appropriate responses (Farangi & Saadi, 2017).

It is paramount to acknowledge the inherent complexities that underpin listening comprehension in EFL contexts, which can contribute to the challenges faced by learners. Even within the realm of one's native language, listening can present a formidable hurdle for students (Oxford, 1993). Rubin (1995) emphasizes the substantial cognitive load placed upon L2 learners during listening tasks. This burden arises from the simultaneous demands of retrieving and processing information in short-term memory while striving to comprehend the ongoing spoken message. Further exacerbating this challenge, Oxford (1993) and Rubin (1995) highlight the distinct disadvantage faced by L2 learners compared to their L2 reading counterparts. Unlike readers who can revisit confusing passages, the nature of listening tasks typically precludes learners from revisiting missed or misunderstood information. This dynamic often leads to a decline in both student motivation and performance on listening tasks.

Underscoring the formidable challenges inherent in EFL listening comprehension, Underwood (1990) pinpoints the various obstacles encountered by learners during listening activities. These hurdles include difficulties with: (a) regulating the speaker's pace of delivery; (b) reproducing spoken phrases or sentences, particularly in authentic communication settings; (c) a limited vocabulary repertoire hindering comprehension; (d) inadequate grasp of context, impeding the interpretation of spoken discourse; and (e) challenges in maintaining focus for extended durations, especially when the listening

material lacks engaging qualities.

Jun (2000) affirms the widespread perception among EFL students that listening activities are arduous and demanding. Students often point to a prevalent pedagogical approach that emphasizes listening comprehension assessment over deliberate skill development. This approach typically involves completing comprehension tasks based on provided listening materials, without explicitly instructing students on how to engage in active and proactive listening strategies. This methodology neglects the crucial role of prior knowledge and strategic use of prediction in deciphering the meaning of spoken texts. Nunan (1999) reinforces this perspective, suggesting that the prevailing misconception of listening as a passive receptive skill fosters the erroneous belief among EFL instructors that students are merely passive recipients of language models presented in textbooks and audio recordings.

A comprehensive examination of the methodologies and strategies employed in L2 listening comprehension instruction reveals a discernible pattern, characterized by the dominance of two distinct perspectives in recent decades. Scholars such as White (1998) and Nunan (1999) have significantly contributed to the understanding of these two approaches. The first perspective, often referred to as the bottom-up processing approach, emphasizes the foundational role of decoding individual sounds and linguistic elements in building comprehension. This approach views activities like phonemic awareness exercises and recognizing word stress patterns as preparatory steps towards developing efficient listening skills. The bottom-up processing model posits that listening is a linear process of decoding sounds, progressing from the smallest meaningful units (phonemes) to complete texts. According to this view, listeners resemble tape recorders (Anderson & Lynch, 1988), with meaning construction occurring as the final step in the process.

Contrary to the bottom-up approach focused on decoding individual sounds, the top-down model emphasizes the active role of prior knowledge and context in listening comprehension. Proponents of this view argue that listeners constantly predict meaning, leverage background knowledge, and utilize contextual cues to understand spoken language. However, research suggests that effective listening comprehension requires an integration of both bottom-up and top-down processing. Schema theory provides a framework for understanding this interplay.

Schema theory posits that knowledge is organized into mental structures called schemata, which are built from past experiences. These schemata allow us to comprehend new information by fitting it into existing knowledge frameworks. Successful listening comprehension, according to schema theory, arises from the interaction between a listener's background knowledge (schemata) and the spoken message itself. This study investigates the potential of schema theory to improve listening

comprehension among Saudi EFL learners. Specifically, the study aims to explore the effectiveness of instructional strategies grounded in schema theory. By examining the impact of these strategies on learners' performance, the study seeks to develop and implement a schema-based instructional strategy to enhance the listening skills of Saudi EFL university students.

2. Aim and Objectives of the Study

This study centers on the development of listening skills in Saudi university students studying EFL. It draws upon schema theory, which posits that prior knowledge structures significantly impact language comprehension. Meanwhile, effective listening comprehension necessitates the active construction of meaning by integrating new information with established knowledge frameworks. Given the pivotal role of schemata in listening comprehension, the study aims to investigate the efficacy of a schema-based instructional strategy designed to enhance the listening skills of level-one EFL university students. This overarching aim is further delineated into the following specific objectives:

1. To assess the impact of the schema-based instructional strategy on the overall listening comprehension skills of level-one EFL university students.
2. To evaluate the effectiveness of the proposed teaching strategy in developing specific listening sub-skills among level-one EFL university students. By analyzing performance on tests designed to assess distinct listening sub-skills (e.g., identifying main ideas, recognizing details, following arguments), the study examines the strategy's impact on each facet of listening comprehension.

3. Questions of the study

1- To what extent does the implementation of a teaching strategy grounded in schema theory contribute to the enhancement of total listening comprehension skills among level-one EFL university students?

2- To what extent does the proposed teaching strategy demonstrate efficacy in enhancing each listening comprehension skills of level-one EFL university students?

4. Literature Review

The concept of schema theory, with its roots in Bartlett's (1932) exploration of cognition, posits that prior knowledge is organized into mental frameworks called schemata (Landry, 2002). These schemata are not simply repositories of information, but rather dynamic structures that guide comprehension and interpretation of new information, be it written or spoken (Nunan, 1999). In essence, schema theory highlights the role of past experiences and background knowledge in shaping how individuals make sense of the world. Learners exploit these pre-existing mental structures, schemata, to assimilate and integrate new information (Scarcella & Oxford, 1992). Schemata themselves are complex knowledge structures, functioning as a type of ideational scaffolding (McNeil, 1987). They are abstract in the sense that a single schema can encompass a range of experiences, and

structured in that they represent relationships between constituent concepts (Armbruster, 1986). These mental frameworks, built from past experiences, knowledge, memory, and individual processes, allow learners to connect new information to what they already know (Anderson & Lynch, 1988; McCarthy, 1991).

The significance of schema theory in EFL listening comprehension is undeniable. The lack of relevant schemata can significantly hinder comprehension, even when the language itself presents no difficulty (Anderson & Lynch, 1988). Recognizing this, scholars have explored ways to leverage the facilitative effect of prior knowledge. Ellermeyer's (1993) teacher-facilitated model, for instance, draws on schema theory and whole-language principles to improve students' listening comprehension by activating their existing schemata.

A growing body of research underscores the efficacy of schema theory in fostering EFL students' listening comprehension. Qiu and Huang (2012) demonstrated that employing dynamic picture schemata led to significant improvement. Their research suggests that building active visual schemata helps students organize and process listening content more effectively. This enhanced information processing leads to better understanding and knowledge retention.

However, Mahmoudi (2017) found limitations in activating cultural schemata for low-level learners. Their study suggests that learners with limited proficiency may struggle to connect unfamiliar concepts to existing knowledge structures. Despite this, other studies have shown positive outcomes. Haiyan (2018) observed improved listening comprehension when using a schema-based three-stage instructional strategy. Similarly, Li and Sakulwongs (2022) reported significant gains in listening skills for vocational high school students following the integration of schema theory into the curriculum. These studies highlight the overall effectiveness of schema theory in enhancing EFL listening comprehension, with the potential to increase student engagement and motivation.

In conclusion, the reviewed literature provides compelling evidence for the positive impact of schema theory on EFL listening comprehension. By activating and building upon existing knowledge structures, schema-based instructional strategies demonstrably enhance students' ability to process and comprehend spoken language. These findings highlight the importance of incorporating schema theory into EFL pedagogy to facilitate the development of effective listening skills.

5. Method and Procedure

This part presents the experimental part of the study. It provides description of the design, subjects, tools, and duration of the study. It also includes description of the proposed teaching strategy employed for instructing the study participants.

5.1 Design of the study

The study utilized the quasi-experimental design referred to as the non-equivalent group design. Two classes were selected at random to serve as the control and experimental groups, respectively. A proposed teaching strategy grounded in schema theory was utilized to instruct the experimental group in order to enhance their listening skills. The students in the control group, conversely, were exposed to routine instruction. Both groups were administered a pre-post listening test prior to and following the intervention.

5.2 Participants of the study

Seventy-six undergraduates were selected at random to participate in this study. Specifically, two groups were selected from level-one students at the English Department, Faculty of Science and Humanities at Shaqra University, Kingdom of Saudi Arabia. The participants in this study were in the first semester of the academic year 2024. The experimental group consisted of 38 students, and the control group comprised the same number of students. Specifically, the individuals who took part in this study were assigned at random to either the experimental group or the control group. Participants in both groups ranged in age from eighteen to twenty-one years old. First-year college students typically attend three listening classes per week, each lasting fifty minutes. Over the course of three months, the experimental group was instructed in an EFL listening comprehension strategy that was based on schema theory. Conversely, the students in the control group continued to receive their customary classroom instruction.

5.3 Description of the Instructional Manual

The instructional manual for the textbook *Tapestry Listening and Speaking 1*, authored by Benz and Dworak and published in its 2nd edition in 2000 by Heinle & Heinle, provides a comprehensive guide for both educators and students. This manual serves as an essential resource that accompanies the main textbook, offering detailed instructions on how to effectively use the materials and exercises within the book.

In the instructional manual, readers find thorough descriptions of the teaching strategies and methodologies employed in the textbook. It provides guidance on how to structure lessons, facilitate classroom activities, and assess student progress. The manual may also include additional resources such as supplementary materials, assessment tools, and answer keys to aid in the teaching and learning process. Furthermore, the instructional manual offers insights into the theoretical foundations of the textbook, explaining the pedagogical principles that underpin the content and activities. It also provides tips and suggestions for adapting the materials to suit the specific needs of different learners or teaching.

5.4 Procedures for Listening and Speaking Tests at the English Department, Shaqra University

The English Department at Shaqra University employs standardized procedures for the administration of listening and speaking assessments. These examinations are typically conducted under controlled conditions to ensure test validity and reliability.

- **Test Format:** Listening and speaking tests are typically composed of discrete-point and integrative tasks, designed to evaluate a wide range of language skills.
- **Test Materials:** Standardized test materials, including audio recordings and prompts, are utilized to maintain consistency across test administrations.
- **Test Environment:** Tests are administered in designated language laboratories equipped with audio and visual technology, providing an optimal environment for test delivery.
- **Test Proctoring:** Trained faculty members or qualified language specialists proctor the examinations to ensure adherence to testing protocols and to address any test-related inquiries.
- **Test Scoring:** A rubric-based scoring system is employed to assess student performance consistently and objectively. Trained raters evaluate speaking tests, while automated scoring systems may be utilized for listening components.
- **Test Security:** Rigorous measures are implemented to safeguard the integrity of the tests, including secure storage of test materials and the prevention of unauthorized access.

Language Laboratory Facilities. The language laboratories at Shaqra University are specialized learning environments designed to facilitate language acquisition and skill development. These facilities are equipped with modern technology to support interactive and communicative language learning.

- **Audio and Visual Equipment:** Laboratories are furnished with high-quality audio and visual equipment, including computers, headphones, microphones, and projectors.
- **Language Learning Software:** A variety of language learning software applications are installed to provide students with access to authentic language materials and interactive exercises.
- **Acoustics:** The laboratories are acoustically treated to optimize sound quality and minimize distractions, creating an immersive language learning environment.
- **Seating Arrangements:** Flexible seating arrangements are incorporated to accommodate different teaching and learning activities, such as individual, pair, and group work.
- **Technical Support:** On-site technical support is available to address any equipment malfunctions or software issues promptly.

By adhering to standardized procedures and utilizing the capabilities of well-equipped language laboratories, the English Department at Shaqra University strives to conduct accurate and equitable assessments of students' listening and speaking skills.

5.5 The Listening Test

Adopted from the instructor's manual, a pre-post listening comprehension test was conducted with both groups. Before the experiment commenced, it was verified that students in both groups possessed comparable levels of listening comprehension. As a result, the experimental group's progress can be ascribed to the study to which they were exposed prior to its implementation. It was utilized as a post-test to determine whether the proposed schema-based instructional strategy succeeded in enhancing the listening comprehension skills of the students.

5.6 The instructional strategy

This schema-based instructional strategy targeted the development of listening comprehension skills among Saudi EFL level-one university students. It expanded upon their existing knowledge to support the participants' ability to derive meaning from spoken language. The approach is structured around three distinct phases: before listening, while listening, and after listening.

Before Listening

The researcher activated participants' schemata related to the subject, context, and cultural aspects of the spoken text. This readied them for the listening task by encouraging them to anticipate content based on accompanying visuals and titles. Pre-teaching vocabulary was employed strategically to facilitate comprehension and ensure understanding of key terms.

Participants then engaged in various schema-activation techniques, including brainstorming, reading relevant passages, and completing graphic organizers. These activities were conducted individually, in pairs, or in small groups, and targeted the subject matter, cultural context, and specific spoken language features crucial for understanding the upcoming text. The researcher emphasized that the information gleaned during this phase would be used later to complete graphic organizers or expand knowledge during the after-listening phase.

Finally, the researcher assisted participants in constructing and activating pre-existing knowledge regarding specific spoken language features. This involved previewing minimal pairings, perplexing sounds, or specific intonation patterns that will be encountered in the text. This activity aimed to enhance participants' bottom-up processing of the spoken text.

While Listening

Participants actively listened to verify their predictions and gather details to complete their graphic organizers or address their inquiries. They employed active listening and monitoring techniques,

utilizing their schemata knowledge, syntactic and semantic cues, and phonological features within the text to infer meaning of unfamiliar words or expressions. The researcher emphasized understanding the entirety of the spoken text for overall meaning-making.

After Listening

A series of after-listening activities are designed to solidify understanding and enhance comprehension of the spoken texts. These activities focus on:

- **Identifying the main idea:** Participants analyzed key messages from the spoken texts, focusing on essential details and summarizing the central idea.
- **Identifying specific information:** Participants utilized graphic organizers like KWL charts, semantic maps, and theme comparison charts to extract and organize relevant details, further enhancing comprehension. Additionally, grading exercises based on the speaker's viewpoint sharpened participants' ability to identify explicit information.
- **Identifying organizational patterns:** Participants utilized graphic organizers and theme comparison charts to analyze the structure and organization of the spoken discourse, such as cause-and-effect relationships, chronological sequences, and compare-and-contrast structures.
- **Guessing unknown words:** Participants practiced inferring the meaning of unknown words or phrases using context clues, prior knowledge, and visual cues.
- **Making inferences:** Collaborative tasks like multiple-choice questions, open-ended responses, and evaluating inferences promoted participants' ability to make logical inferences based on the information presented.
- **Interpreting intonation and stress:** Participants analyzed intonation patterns, tones, and stresses to infer meaning, determine social settings, and discern speaker attitudes.
- **Drawing conclusions:** Participants synthesized information from the spoken texts and their prior knowledge to draw accurate conclusions. They were encouraged to provide evidence from the text to support their conclusions, further refining their understanding through facilitated discussions and collaborative activities.
- **Differentiating facts from opinions:** Participants actively engaged with the information by completing fact/opinion charts and analyzing written texts related to the spoken discourse. This deepened their understanding and strengthened critical listening skills.

6. Results of the study

To ensure baseline equivalence between the experimental and control groups, an independent samples t-test was conducted to compare their pre-test scores on total listening comprehension. This statistical test is appropriate for evaluating the mean differences between two independent groups assuming normality of the data (Field, 2013). The results of the t-test, presented in Table 1, revealed no statistically significant difference between the pre-test scores of the experimental and control groups. This finding suggests that both groups entered the study with comparable levels of listening comprehension, strengthening the internal validity of the subsequent analysis.

Table 1

Pre-test total listening comprehension for the experimental and control groups

Group	N	M	S.D.	D.F.	t value	Significance level
Control	38	16.18	4.04	74	0.11	Not significant at 0.05 level
Experimental	38	16.08	4.22			

According to the data presented in Table 1, the pre-test scores of the two groups were subjected to an analysis that resulted in an estimated t-value of 0.11. This estimated t-value was deemed not statistically significant when compared to the tabulated t-value of 1.99 at a significance level of 0.05. This statistical analysis suggests that there is no substantial difference between the two groups in terms of their performance on the pre-test. In order to further explore the comparability of the groups, independent samples t-tests were employed to compare the performance of both groups on the pre-test, with a specific focus on their listening comprehension skills as well as each individual listening sub-skill. This comprehensive analysis aimed to ensure that there were no significant differences between the two groups in terms of their overall performance on the pre-test, as well as in each specific listening sub-skill.

Table 2

Pre-test total for the experimental and control groups in each listening skill

Listening comprehension Skills	Experimental Group pre-test		Control group Pre-test		DF	t-value	Significance level at 0.05
	M	SD	M	SD			
Recognizing the principal idea articulated in the spoken text	2.00	0.69	1.93	0.58	74	0.11	Not significant
Identifying specific stated information or details	2.24	1.10	2.35	1.03	74	-0.10	Not significant
Identifying organizational patterns within spoken discourse	1.87	0.91	2.32	1.23	74	-0.41	Not significant

Guessing the meaning of unknown words or phrases in the spoken text.	1.74	0.86	1.45	0.92	74	0.32	Not significant
Making inferences	1.68	1.12	1.79	0.84	74	-0.11	Not significant
Interpreting the uses of different intonation patterns and stresses.	2.68	1.83	2.21	1.96	74	0.24	Not significant
Differentiating facts from opinions	1.97	0.79	1.68	0.53	74	0.43	Not significant
Drawing conclusions	1.39	1.00	1.55	0.76	74	-0.18	Not significant

Table 2 shows that there were no statistically significant differences between the mean scores of the experimental and control groups on the pre-test in listening comprehension skills. This means that the two groups were approximately at the same level of listening comprehension at the beginning of the experiment. It can be also noticed from the previous two tables that the mean scores of both groups are low.

6.1 Results related to the study questions

Question 1: To what extent does the implementation of a teaching strategy grounded in schema theory contribute to the enhancement of total listening comprehension skills among level-one EFL university students?

To answer the first research question, a t-test for independent samples was performed, analyzing the mean scores of the two groups on the post-test. The t-test demonstrated a statistically significant alignment with the first question. This implies that there was a noticeable difference between the mean scores of the experimental and control groups, with the experimental group exhibiting superior performance on the post-test compared to the control group.

Table 3

Post-test total listening comprehension for the experimental and control groups

Group	N	M	SD	DF	t-value	Significance Level	Effect Size
Control	38	20.29	2.97	74	14.83	Significant at 0.01 Level	3.45
Experimental	38	28.03	1.24				Large

The results from Table 3 indicate a statistically significant difference between the experimental and control groups in terms of total listening comprehension on the post-test. The calculated t-value of 14.83 indicates a statistically significant result at a significance level of 0.01. Therefore, the findings indicate that the experimental group exhibited superior performance compared to the control group in terms of their listening comprehension skills. In order to confirm the dependability of the acquired outcomes and assess the efficiency of the suggested teaching strategy on students' listening comprehension skills, the impact magnitude of the teaching strategy was computed using Dunlap's

equation (1994) that calculates effect size (d) for paired-samples designs by subtracting the mean of the control group (M_c) from the mean of the experimental group (M_a) and dividing by the pooled standard deviation (SD). This provides a standardized measure of the mean difference between the groups, independent of the scale of the data itself.

Equation: d = (M_a - M_c) / SD

- d = effect size
- M_a = mean of the experimental group
- M_c = mean of the control group
- SD = pooled standard deviation

The referential framework for identifying the effect size of t- values is as follows:

Effect size (d value)	Interpretation
From 0.2 till less than 0.5	Small
From 0.5 till less than 0.8	Medium
0.8 or more	Large

The impact size value for the experimental group's total listening comprehension was estimated to be 3.45. The significant effect size indicates that the suggested teaching strategy had a considerable influence on the experimental group students' overall listening comprehension in the post-test, as compared to the control group students who got standard training. In summary, these data provide strong evidence supporting the usefulness and superiority of the suggested teaching strategy in improving students' listening comprehension skills.

In order to evaluate the mean results of the experimental and control groups in overall listening comprehension, as well as their respective sub-skills, t-tests were conducted. This statistical significance is clearly illustrated in Table 4.

Table 4

Post-test total listening comprehension for the experimental and control groups in each listening skill

Listening comprehension skills	Experimental Group pre-test		Control group Pre-test		DF	t-value	Significance Level at 0.01	Effect level
	M	SD	M	SD				
Recognizing the principal idea articulated in the listening text.	2.89	0.31	1.90	0.37	74	2.86	Significant	0.66 Medium
Identifying specific stated information or details.	3.92	0.27	2.79	0.04	74	9.24	Significant	2.15 Large

Identifying organizational patterns within a spoken discourse.	3.97	0.16	3.47	0.83	74	3.65	Significant	0.85 Large
Guessing the meaning of unknown words or phrases in the spoken text.	3.00	0.00	2.13	0.74	74	7.22	Significant	1.68 Large
Making inferences	3.76	0.54	2.03	0.85	74	10.59	Significant	2.46 Large
Interpreting the uses of different intonation patterns and stresses.	5.63	0.49	3.66	1.65	74	7.08	Significant	1.65 Large
Distinguishing between facts and opinions in the spoken text.	3.00	0.00	2.53	0.56	74	5.24	Significant	1.22 Large
Drawing conclusions.	2.84	0.44	1.84	0.82	74	6.62	Significant	1.54 Large

The statistically significant differences between the average scores of the control and experimental groups on the post-test for every auditory comprehension sub-skill are illustrated in Table 4. The estimated t-values demonstrate that these distinctions consistently favored the experimental group. The sub-skill of identifying the main idea expressed in the listening texts had an approximate t-value of 2.86. In a similar fashion, the estimated t-value for distinguishing particular stated information or particulars was 9.24. The estimated t-value for identifying organizational patterns in spoken discourse was 3.65 as well. Moreover, the effect size values provide insight into the effect of the suggested strategy on the academic achievement of the experimental group. In comparison to the regular instruction received by the control group, the experimental group demonstrated substantial improvement in their second and third literal listening comprehension sub-skills on the post-test, with the effect size for the first literal listening comprehension skill being moderate.

An identical pattern was observed with the three inferential listening comprehension skills: 7.22 for determining the significance of unfamiliar words or phrases, 10.59 for deriving conclusions, and 7.08 for interpreting applications of various intonation patterns, stresses, and tones. At the 0.01 level of statistical significance, these estimated t-values favored the experimental group. The findings from the effect size analyses indicated that the experimental group's performance in the three inferential listening comprehension skills was significantly impacted by the suggested teaching strategy, in comparison to the control group.

Further, the critical auditory comprehension skills, namely the ability to differentiate between facts and opinions and to draw conclusions, exhibited estimated t-values of 5.24 and 6.62, respectively. At

the 0.01 level of statistical significance, these estimated t-values favored the experimental group. In comparison to the control group, the effect size values of 1.22 for the initial critical listening comprehension skill and 1.54 for the subsequent skill indicated that the study had a significant impact on both abilities in the experimental group.

Overall, these findings provide substantial evidence supporting the efficacy of the proposed teaching strategy in enhancing various listening comprehension sub-skills among the experimental group students compared to the control group.

Question 2: To what extent does the proposed teaching strategy demonstrate efficacy in enhancing each listening comprehension skills of level-one EFL university students?

A paired samples t-test, also known as a dependent samples t-test, was employed to evaluate the effectiveness of the proposed teaching strategy in enhancing the performance of the experimental group (Field, 2013). This inferential statistical technique is specifically designed to compare the means of two paired samples obtained from the same group (Pallant, 2016). In the present study, the paired samples consisted of the pre-test and post-test scores of the experimental group on the overall listening comprehension assessment. By analyzing the differences in scores between these two time points, the paired samples t-test allowed for a statistical evaluation of the magnitude of improvement experienced by the participants in the experimental group as a result of the implemented teaching strategy.

Table 5

Pre-test vs. post-test total listening comprehension for the experimental group

Test	N	M	S.D.	D.F.	T value	Significance level at 0.01	Effect Size
Pre-test	38	16.08	4.22	37	-21.80	Significant	-5.07
Post-test		28.03	1.24				Large

Table 5 presents essential data regarding the efficacy of the suggested strategy in augmenting the experimental group's overall listening comprehension skills. A significant difference, as determined by statistical analysis, exists between the mean scores of the experimental group on the pre-test and the post-test with regard to overall listening comprehension, at the 0.01 level. The difference is supported by the estimated t-value of -21.80, which indicates that the post-test scores were more favorable. In addition, the calculated effect size value of -5.07 indicates a substantial impact of the instructional approach on the experimental group's post-test auditory comprehension abilities in comparison to their pre-test performance.

Statistically significant differences are anticipated to arise between the mean scores of the experimental group on the pre-test and the post-test for every individual listening comprehension skill.

It is expected that the post-test scores will reflect an enhancement in these particular skill domains subsequent to the application of the suggested strategy, as these differences are expected to benefit the latter.

Paired-samples t-tests were performed, and the results from validated the presence of statistically significant differences between the experimental group's mean scores on the pre-test and the post-test for listening comprehension as a whole and for each specific skill.

Table 6

Pre-test vs. post-test total listening comprehension for the experimental group in each listening skill

Listening comprehension skills	Pe-test		Post-test		DF	t- value	Significance level at 0.01	Effect level
	M	SD	M	SD				
1. Recognizing the principal idea articulated in the listening text.	2.00	0.69	2.89	0.31	37	-3.58	Significant	-1.18 Large
2. Identifying specific stated information or details.	2.24	1.10	3.92	0.27	37	-9.72	Significant	-3.20 Large
3. Identifying organizational patterns within a spoken discourse.	1.87	0.91	3.97	0.16	37	-14.05	Significant	-4.77 Large
4. Guessing the meaning of unknown words or phrases in the spoken text.	1.74	0.86	3.00	0.00	37	-9.05	Significant	-2.98 Large
5. Making inferences	1.68	1.12	3.76	0.54	37	-13.22	Significant	-4.35 Large
6. Interpreting the uses of different intonation patterns and stresses.	2.68	1.83	5.63	0.49	37	-9.48	Significant	-3.12 Large
7. Distinguishing between facts and opinions in the spoken text.	1.97	0.79	3.00	0.00	37	-8.03	Significant	-2.64 Large
8. Drawing conclusions.	1.39	1.00	2.84	0.44	37	-9.39	Significant	-3.09 Large

To evaluate the impact of the schema-theory based teaching strategy on the experimental group's listening comprehension skills, a paired-samples t-test was implemented (Field, 2013). This analysis commenced with data preparation, compiling pre-test and post-test scores for each skill. Normality of the data distribution was then visually assessed using techniques like histograms to determine the suitability of parametric tests like the paired-samples t-test. This test, assuming normality, calculates a t-statistic reflecting the mean difference between pre-test and post-test scores relative to their standard error. A two-

tailed significance level of 0.01 was established to assess statistical significance. Finally, Cohen's d was computed to quantify the effect size, providing an additional measure of the intervention's magnitude on each listening skill.

Statistical analysis of the results presented in Table 6 reveals significant improvements in the experimental group's listening comprehension skills following the intervention. This is evidenced by statistically significant differences ($p < 0.01$) between the pre-test and post-test mean scores across various listening skills. For literal listening skills, estimated t-values ranging from -3.58 (identifying the main idea) to -14.05 (identifying organizational patterns) coupled with effect sizes between -1.18 and -4.77 indicate substantial improvement. Similar findings are observed for inferential listening skills, with t-values ranging from -9.05 to -13.22 and effect sizes from -2.98 to -4.35. Finally, critical listening skills, measured by the ability to distinguish facts from opinions and draw conclusions, also demonstrate significant gains (t-values: -8.03 and -9.39; effect sizes: -2.64 and -3.09).

These findings provide compelling evidence in support of the research questions. The experimental group's post-test scores on overall performance as well as all listening comprehension skills, were significantly higher compared to the pre-test scores. This improvement underscores the effectiveness of the schema-theory based teaching strategy in enhancing the listening comprehension skills of level-one university students.

7. Discussion and and Implications

The study investigated the efficacy of a schema-based instructional strategy in fostering listening comprehension among Saudi EFL students. This strategy employed a three-phase approach: pre-listening, while-listening, and post-listening activities, promoting collaborative learning and active listening.

Listening materials addressed familiar and engaging topics, aligning with participant proficiency and presented at a natural pace. Informative visuals complemented the audio, facilitating understanding for visual learners and stimulating overall interest. Participants received three listening opportunities, each encouraging the use of monitoring, selective attention, and focusing on key ideas.

Prediction exercises aligned with accompanying visuals and titles significantly improved comprehension. These activities not only activated prior knowledge but also increased motivation and critical thinking. The implementation of diverse graphic organizers, including KWL charts and semantic maps, proved particularly effective for visual learners. These organizers facilitated knowledge activation and comprehension by enabling participants to establish connections between spoken text segments.

Vocabulary pre-teaching strategies targeted challenging terms encountered in titles. This strategy, encompassing contextualization, image use, and synonyms, enhanced participant engagement in reconstructing spoken discourse. The strategy specifically addressed the unique characteristics of spoken language, including stress, intonation, and minimal pairs. Pre-listening activities equipped participants with the necessary foundation for effective comprehension, while post-listening activities ensured integration with existing knowledge.

Cooperative learning, with participants working in pairs or groups, was employed throughout the sessions. This collaborative approach aimed to address potential challenges and foster a sense of shared responsibility. Participants with stronger comprehension abilities assisted their peers, leading to increased overall motivation and improved listening skills.

The study's findings align with previous research emphasizing the importance of schema activation in listening comprehension (Al Bao, 2016; Huang, 2014). The study further underscores the value of prediction as a method for activating schemata (Mai et al., 2014; Li & Sakulwongs, 2022; Nihei, 2002; Lingzhu, 2003). Additionally, the study supports the beneficial effects of using diverse visual organizers on listening comprehension (Mahmoudi, 2017; Mai et al., 2014; Huang, 2014) and the efficacy of semantic mapping in activating schemata (Stepp-Greany, 2003). Furthermore, the study demonstrates that collaborative activities have a positive impact on motivation and engagement, leading to improved listening comprehension. These activities foster active participant participation and enhance listening comprehension skills.

The study offers several significant implications for language education. A key implication is the shift in the instructor's role from authority figure to facilitator. This fosters a more relaxed and motivating learning environment, promoting active participant participation and language acquisition. Language educators should strive to create supportive and anxiety-free environments that encourage participant engagement in the listening process.

The study also emphasizes the importance of listening materials. Using familiar and engaging topics, matched to participant proficiency, effectively activates prior knowledge and facilitates comprehension. Incorporating visual aids further enhances understanding by visually depicting content and stimulating existing knowledge.

The study underscores the importance of employing diverse schema-based techniques and activities. Providing multiple listening opportunities and encouraging the use of specific strategies equips participants with the necessary sub-skills for effective comprehension. Language educators should

incorporate various learning strategies to cater to different learning styles and enhance participant listening performance.

Another significant implication is the integration of prediction-based activities. Engaging participants in prediction activities prior to listening not only activates prior knowledge but also increases motivation and critical thinking. Instructors should incorporate prediction activities to enhance overall comprehension and foster a deeper level of understanding.

The study highlights the effectiveness of graphic organizers in supporting the listening process. These visual representations assist participants in organizing and connecting information, improving their ability to identify key ideas, specific details, and underlying connections. Language educators should consider integrating graphic organizers to enhance participant listening comprehension skills.

The study also emphasizes the importance of vocabulary pre-teaching strategies. Pre-teaching difficult vocabulary terms not only enhances motivation but also actively engages participants in reconstructing spoken discourse. Language educators should incorporate diverse vocabulary pre-teaching strategies to support participants' listening comprehension development.

Finally, the study highlights the benefits of cooperative learning in developing listening comprehension skills. Collaborative activities promote a sense of shared responsibility and offer opportunities for peer assistance, thereby enhancing motivation and overall listening comprehension processes. Language educators should consider incorporating cooperative learning strategies to foster participants' listening comprehension skills.

The study offers valuable recommendations for language educators, emphasizing the effectiveness of schema-based instructional strategies. These recommendations include creating a supportive learning environment, using engaging listening materials with visual support, implementing diverse learning strategies and pre-listening techniques, integrating graphic organizers and vocabulary pre-teaching strategies, and encouraging cooperative learning. By incorporating these implications, language educators can significantly enhance participants' listening comprehension skills and facilitate their overall language development.

While the research demonstrates significant contributions to the field of EFL education, several limitations have been identified that should be addressed to strengthen its generalizability and applicability. The relatively small sample size (76 students) limits the generalizability of the findings. Future research should involve larger and more diverse samples to ensure the robustness and broader relevance of the results across different EFL populations. Expanding the sample size would provide a more reliable assessment of the effectiveness of schema-based instruction in varied contexts and settings.

Moreover, the study does not sufficiently explore the role of cultural factors in shaping listening comprehension and the application of schema theory. Given the focus on Saudi female students, a more in-depth examination of how cultural complexities influence learning processes and instructional effectiveness is needed. Future research should integrate discussions on the intersection between cultural context and schema theory, particularly in diverse educational environments. This would help in understanding the cultural dimensions that may either enhance or hinder the effectiveness of schema-based teaching.

Additionally, while the quantitative data derived from the pre- and post-tests provides valuable insights, the inclusion of qualitative data such as interviews or surveys would enrich the findings. This would offer a deeper understanding of students' experiences, perceptions, and challenges in using schema-based interventions. Qualitative insights would also help capture the students' engagement with the instructional method, providing a more holistic view of its effectiveness.

In conclusion, while the study presents significant findings regarding the effectiveness of schema theory in improving listening comprehension skills, addressing the limitations related to sample size, cultural context, and qualitative insights would further enhance its academic rigor and applicability to broader educational settings.

المستخلص

تنمية مهارات الاستماع لدى الطالبات السعوديات الدراسات للغة الإنجليزية كلغة أجنبية من خلال نظرية البنية المعرفية

فاطمة مريع علي القحطاني

تُعد مهارة الاستماع باللغة الإنجليزية من المهارات المعقدة، حيث يشارك المتعلمون بفعالية في إعادة المعنى الأصلي للحديث من خلال دمج المعلومات الجديدة مع معارفهم السابقة. وتلعب النظرية البنية المعرفية دورًا رئيسيًا في التأكيد على أهمية الاستفادة من المعلومات السابقة للطلاب لتعزيز فهمهم للخطاب المنطوق باللغة الإنجليزية. وتهدف هذه الدراسة إلى تطبيق استراتيجية تدريس مقترحة، قائمة على نظرية البنية المعرفية، لتحسين مهارات الاستماع لدى طالبات الجامعة من الدارسات للغة الإنجليزية لغة أجنبية. ولتقييم فعالية استراتيجية التدريس المقترحة، تم إجراء اختبار استماع قبل وبعد الدراسة لكل من المجموعة التجريبية والمجموعة الضابطة. وأظهرت النتائج أن استراتيجية التدريس المقترحة قد حسنت بشكل فعال مهارات الاستماع الكلية لطالبات المجموعة التجريبية، بالإضافة إلى إتقانهم لكل مهارة استماع على حدة. لذا، يجب على معلمي اللغة الإنجليزية أن يكون لديهم فهم عميق للمعلومات المسبقة للطلاب عند تدريس مهارات استيعاب اللغة الإنجليزية، وعند تدريس الطلاب مهارات الاستماع، من الضروري مراعاة عوامل مثل معرفتهم بموضوع الدراسة وارتباطه بخلفيتهم المعرفية.

الكلمات المفتاحية: نظرية البنية المعرفية، مهارات الاستماع، المعرفة المسبقة، بناء وتفعيل المعرفة المسبقة.

References:

Ableeva, R., & Lantolf, J. P. (2011). Mediated dialogue and the microgenesis of second language listening comprehension. Assessment in education: Principles, policy and practice, 1(8), 133-149. https://doi.org/10.1080/0969594X.2011.555330.

Anderson, A. & Lynch, T. (1988). *Listening*. Oxford: Oxford University Press.

Armbruster, B. (1986). Schema Theory and the Design of Content- Area Textbooks. *Educational Psychologist*, 21(4), 253-267.

Bao, X. (2016). A study on schema theory-based listening teaching mode for English majors. *International Journal of English Linguistics*, 6 (4), 207–212.

Bartlett, F. (1932). *Remembering*. Cambridge: Cambridge University Press.

Benz, C., & Dworak, K. (2000). *Tapestry Listening and Speaking 1 (2nd ed.)*. Boston, MA: Heinle & Heinle.

Chung, J. (1999). The Effects of Using Video Texts Supported with Advance Organizers and Captions on Chinese College Students' Listening Comprehension: An Empirical Study. *Foreign Language Annals*, 32(3), 295-308.

Doff, A. & Becket, C. (1999). *Listening 2, 8th edition*. Cambridge: Cambridge University Press.

Dunlap, W. P. (1994). Generalizing the common language effect size indicator to bivariate normal correlations. *Psychological Bulletin, 116*(3), 509-511. https://doi.org/10.1037/0033-2909.116.3.509

Ellermeyer, D. (1993). Improving Listening Comprehension through a Whole-Schema Approach. *Early Child Development and Care*, 93(1), 101-110.

Espeseth, M. (1999). *Academic Listening Encounters: Listening, Note-Taking and Discussion*. Cambridge: Cambridge University Press.

Farangi, M., & Saadi, Z. (2017). Dynamic assessment or schema theory: The case of listening comprehension. Cogent Education. 4. 10.1080/2331186X.2017.1312078.

Field, A. P. (2013). *Discovering statistics using SPSS (4th ed.).* SAGE Publications.

Goh, C. (1997). Meta-cognitive Awareness and Second Language Listeners. *ELT Journal*, 51(4), 361- 369.

Haiyan, X. (2018). Schema Theory on ESL Listening Teaching in College. Advances in Social Science, Education and Humanities Research, 14(5), 264-286.

Hasan, A. (2000). Learners' Perceptions of Listening Comprehension Problems. *Language, Culture and Curriculum*, 13(2), 137-153.

Huang, Z. (2014). Application of Schema Theory to English listening teaching in junior high school. Shanghai Normal University, Shanghai, China.

Jun, Z. (2000). Warm- up Exercises in Listening Classes., *The Internet TESL Journal*, 6(10), 1-3.

Kingen, S. (2000). *Teaching Language Arts in Middle Schools. Connecting and Communicating*. New Jersey: Lawrence Erlbaum Associates.

Landry, K. (2002). Schemata in Second Language Reading. *The Reading Matrix*, 2(3), 1-14.

Li. C., & Sakulwongs, N. (2022). Learning management using schema theory for English listening skill: a case study of Chinese vocational high school students in Zhejiang province. journal on global socio-economic dynamics, 5(36), 83-93. DOI: https://doi.org/10.35678/2539-5645.5(36).2022.83-93

Lingzhu, J. (2003). Listening Activities for Effective Top- down Processing. *The Internet TESL Journal*, 9(11) 1-5.

Mahmoudi, S. (2017). Investigating the Effect of Cultural Schemata Activation on EFL Learners' Listening Comprehension. *English Language, Literature & Culture*, 2(6), 99-104. doi: 10.11648/j.ellc.20170206.12

Mai, L. H, Ngoc, L. T. B, & Thao, V. T, (2014). Enhancing listening performance through schema construction activities. *Journal of Language Teaching and Research*, 5 (5), 1042–1051.

Matthews, C. (2002). Understanding the Process of Reading Comprehension, accessed on January 2nd, 2023 from home.gwu.edu/~cmatt/Understanding%20the%20Process%20of%20Reading%20Comprehension.pdf.

McCarthy, M. (1991). *Discourse Analysis for Language Teachers*. Cambridge: Cambridge University Press.

McDonough, J. & Shaw, C. (1994). *Materials and Methods in ELT. A Teacher's Guide, 2nd edition*, Oxford: Blackwell.

McNeil, J. (1987). *Reading Comprehension: New Directions for Classroom Practice, 2nd edition*, Glenview: Scott, Foresman and Company.

Mendelsohn, D. (1995). Applying Learning Strategies in the Second/ Foreign Language Listening Comprehension Lesson. In D. Mendelsohn & J. Rubin (Eds.), *A Guide for the Teaching of Second Language Listening*. (pp: 132- 150). San Diego, CA: Dominie Press, Inc.

Mendelsohn, D. (2000). *Learning to Listen: A Strategy- Based Approach for the Second-Language Learner. Carlsbad*, CA: Dominie Press, Inc.

Mendelsohn, D. (2001). Listening Comprehension: We've come a long way but … *Contact*, 27(2), 33- 40.

Nihei, K. (2002). How to teach listening, accessed on December 5th, 2022 from http://files.eric.ed.gov/fulltext/ED475743.pdf

Nunan, D. (1999). *Second Language Teaching & Learning. Boston*. Heinle & Heinle Publishers.

Olaofe, A. (994). Teaching Listening Comprehension in Large Classes. English Teaching Forum, 32(4), 10- 12.

Oxford, R. (1993). Research Update on L2 Listening. *System*, 21(2), 205- 211.

Pallant, J. (2016). *SPSS survival manual: A step by step guide to data analysis using SPSS (6th ed.)*. McGraw-Hill Education.

Qiu, A., and Huang, J. (2012). The Effects of Dynamic Image Schema on ESL Students' Systematic Improvement of Listening Comprehension: A Dynamic System Theory Perspective. *International Journal of Learning & Development*, 2(1), 241-254.

Robbins, J. (2000). Teaching Listening and Speaking Strategies in Japan- CALLA Style. *Explorations in Teacher Education*. 8(2) 1-7.

Rubin, J. (1995). The Contribution of Video to the Development of Competence in Listening. In D. Mendelsohn & J. Rubin (Eds.), *A Guide for the Teaching of Second Language Listening*. (pp: 151- 165). San Diego: Dominie Press.

Rumelhart, D. (1980). Schemata: the Building Blocks of Cognition". In: R. Spiro et al. (Eds.), *Theoretical Issues in Reading Comprehension. Perspectives from Cognitive Psychology, Linguistics, Artificial Intelligence and Education*. (pp. 33- 57), New Jersey: Lawrence Erlbaum Associates.

Scarcella, R. & Oxford, R. (1992). *The Tapestry of Language Learning*. The Individual in the Communicative Classroom. Boston: Heinle & Heinle Publishers.

Stepp-Greany, J. (2003). Designing Instructional Technology for Language Learning. *Language Learning & Technology*, 7(4), 1-7**.**

Stott, N. (2001). Helping ESL Students Become Better Readers: Schema Theory Applications and Limitations. *The Internet TESL Journal*, 7(11),1- 6.

Underwood, M. (1990). *Teaching Listening, 2nd edition*. London: Longman.

Vandergrift, L (1998). Constructing Meaning in L2 Listening: Evidence from Protocols. In S. Lapkin (Ed.), *French as a Second Language in Canada: Recent Empirical Studies*. (pp. 89-109). Toronto: University of Toronto Press.

Vandergrift, L. (March 2003). From Prediction through Reflection: Guiding Students through the Process of L2 Listening. *The Canadian Modern Language Review*, 59(3), 425-440.

White, G. (1998). *Listening*. Oxford: Oxford University Press.

Zarie, A. A., & Mahmudi, M. (2012). The effects of content, formal, and linguistic schema building activity types on EFL reading and listening comprehension. TELL, 6(2), 79-101. doi: 10.22132/TEL.2012.54902