



Sensory Learning and Recalling Styles: A Qualitative Case Study of Yemeni EFL College Learners

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1. Sensory learning
2. sensory recalling
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Abstract:

This study aimed to explore the sensory learning and recalling styles of EFL learners in the English departments at Yemeni universities. The study sample consisted of 12 college students (3 males and 9 females) of the academic year 2022-2023. Sensory learning and recall styles-related interview questions were designed to assess students' ability to perceive and recall information from their senses. The validity and reliability of the instrument were ensured. The study results revealed that the majority (84%) of the participants preferred to use the visual learning style; however, 60% preferred to use the auditory learning style. Results also revealed that 72% of the participants preferred to use the sensory (visualization) speech and 60% preferred to use the sensory (verbalization) speech. The study showed the effective impact of sensory learning and recalling styles on improving students' performance regarding their speaking ability.

أساليب التعلم والتذكر الحسية: دراسة حالة نوعية لطلاب الجامعات في اليمن

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الكلمات المفتاحية

2. التذكر الحسي

1. التعلم الحسي
3. الدارسون في الجامعات اليمنية

الملخص:

هدفت هذه الدراسة إلى استكشاف أساليب التعلم الحسية (السمعية والبصرية) وأساليب التذكر الحسية (الكلام الذهني والتصور الذهني) لدى طلاب أقسام اللغة الإنجليزية في الجامعات اليمنية. تم استخدام المنهج الوصفي التحليلي، وتكونت عينة الدراسة من 12 طالب (3 ذكور و 9 إناث) من متعلمي اللغة الإنجليزية حيث تم اختيارهم عشوائيًا من بين 105 من الطلاب الملتحقين بقسم اللغة الإنجليزية للعام الدراسي 2022-2023م. وتم استخدام أسئلة المقابلة المتعلقة بأنماط التعلم والتذكر الحسي لتقييم قدرة الطلاب على إدراك المعلومات واسترجاعها من حواسهم وقد تم التحقق من صدق الأداة وثباتها.

كشفت النتائج أن غالبية المشاركين 84% فضلوا استخدام أسلوب التعلم البصري، ومع ذلك، فضل 60% من المشاركين استخدام أسلوب التعلم السمعي. وكشفت أيضًا أن 72% من المشاركين فضلوا استخدام التذكر الحسي (التصور الذهني) و 60% من المشاركين فضلوا استخدام التذكر الحسي (الكلام اللفظي). وكشفت الدراسة عن فعالية استراتيجيات التذكر الحسية في تحسين أداء الطلاب فيما يتعلق بمهارة التحدث.

Introduction:

Acquiring a new language involves not only learning how to use it to communicate with others but also developing the capacity to use that language covertly for private thinking and self-communicative purposes (Guerrero, 2018). That is, there is a need to join the use of sensory learning with that of sensory recalling (Wolfson, 2020). According to Wolfson, this includes not just the external, social uses of the L2, but also those internal, covert functions.

Remlaps (2024) claims that people appear to generate more verbal pictures during deliberate inner speech compared to when they intend to visualize sentences. That is, people tend to generate visual images regardless of whether they intend to visualize or think verbally.

This groundbreaking study into sensory learning and recalling styles might address the gap in research of applied linguistics. It seems necessary to identify Yemeni EFL sensory learning and recalling styles. Another aim of the study centers on the functional strategies of sensory recalling of Yemeni EFL learners.

Statement of the Problem

Language learners rely on at least two modes of learning: visual and auditory. But, the question is: Do language learners self-visualize what they read and self-verbalize what they hear in their heads?

The answer to this inquiry is provided by Farmer (1972) and Wolfson (2020), who stated that sensory recall of inner visualization and verbalization (speech) are partly dependent on sensory learning styles, that is, visual and auditory learning. This could raise the awareness, understanding, and acceptance of using inner speech and self-talk among college EFL learners.

Through random sampling and structured interviews, this study aims to analyze the participants' descriptions of their experiences with sensory learning styles, namely visual and auditory learning. It also aims to analyze the participants' descriptions of their experiences with sensory recalling styles and inner

(visualization & verbalization) speech. This gap highlights the need to investigate how these cognitive and sensory processes predict and enhance EFL college learners' task performance, memorization, communication, self-fulfillment, etc.

Research Objectives

The present study attempts to achieve the following objectives:

- 1- To identify the learning styles that Yemeni college EFL learners prefer to use.
- 2- To identify the recalling styles that Yemeni college EFL learners prefer to use.
- 3- To find what sensory recalling functional strategies are cited by Yemeni college EFL learners.

Research Questions

- 4- What are the sensory learning styles of Yemeni college EFL learners, as measured by students' self-report?
- 5- What are the sensory recalling styles of Yemeni college EFL learners, as measured by students' self-reports?
- 6- What sensory recalling strategies are reported by Yemeni college EFL learners?

Limitations of the Study

This study uses only 12 students studying English as a foreign language in the English departments at Faculty of Education, Sana'a University and Al-Bydha University.

Literature Review

This section presents a review of some key studies that have been conducted on sensory learning and recalling styles over the last fifteen years or so.

Sensory Modes

This concept refers to the perceptual learning channels (e.g. visual, auditory, and kinesthetic) with which the student is most comfortable (Ehrman & Oxford, 1990). The present study focuses on two sensory perceptual learning styles (i.e., visual and auditory) which refer to the physiological

modes that students often manifest in learning contexts.

Sensory Learning Styles

The perceptual modes are classified into visual, auditory, kinesthetic, and tactile learners (Shabani, Khasrei & Bakhoda, 2018). Perceptual learning style is the way students learn through the use of their sense organs. In this study, the perceptual learning style comprises the visual and auditory modes based on Fleming's theory. Visual learners prefer learning through seeing, whereas auditory learners learn best through listening.

Sensory Recalling Styles

There is inner speaking and signing, which is accompanied by a sense of agency, and inner hearing or auditory imagery (Gauker, 2018). This category, inner speaking, involves the silent covert practice of the other language (Tomlinson, 2000).

Sensory recall—whereby something is remembered—is a modality-specific function of acoustic code—an inner voice (Baddeley, Gathercole, & Papagno, 1998). According to Feournouhg (2017), sensory recall is the sensory representational phenomenon of inner speech.

Kompa (2024) came to an understanding with Carruthers that an inner speech occurrence is a piece of a visual image of thinking if it plays the functional role of thought. Remlaps (2024) claimed that people appear to generate more robust verbal representations during deliberate inner speech compared to when they intend to visualize. Sensory inner (visualization & verbalization) speech is a “sensory forward model in auditory code processed by activated speech actions” (Carruthers, 2018, p. 35).

Previous Studies on Sensory Learning

Firissa (2024) carried out a study on perceptual learning styles in Addis Ababa, Ethiopia. The study aimed at shedding light on the roles of perceptual learning style preferences in EFL proficiency. The study

applied the quantitative approach and correlational design. Firissa used the perceptual learning style preference (PLSP) of Reid (1984) to measure learning styles and the students' semester final exam results to measure their foreign language acquisition (FLA).

The findings of the study revealed that the visual learning style was the most preferred one. Moreover, the results of one-way ANOVA confirm that PLSP is significantly related to the FLA scores. The researcher recommends that teachers be expected to identify students' ways of learning and apply accommodating strategies to address individual differences in the classroom.

Salam, Sukarti, and Arifin (2020) carried out a quantitative and qualitative study of Tanjungpura EFL College learners. The researchers used a questionnaire survey and semi-structured interview questions. The study focused on the major learning style preferences developed by Reid (1984). Further, these learning styles were utilized as guidelines for the conducting of the interview. The study findings revealed that the participants carried off two major learning style preferences: the visual learning style and the individual learning style.

In Saudi Arabia, a study was conducted by Alkhatnai (2011), employing Reid's perceptual learning styles questionnaire (PLSPQ) and in-depth interviews to examine the preferred learning styles of 100 Saudi students. In contrast to the findings of Salam, Sukarti, and Arifin's (2020) study, Alkhatnai reported that the auditory style was the most preferred one among the target learners, followed by the visual and kinesthetic styles. In addition, and in congruence with the findings of the present study, Alkhatnai found a significant positive relationship between the learners' use of their preferred learning styles and motivation to learn English. However, caution is required when interpreting the findings of Alkhatnai's (2011) study. The original target population of the PLSPQ

was learners of English as a second language (ESL) in the United States of America, rather than EFL learners. Alkhatnai (2011) made no mention of any cross-cultural validation of this instrument, which could have affected the validity of the results of his study.

Previous Studies on Sensory Recalling

Mok's (2023) study entitled "Inner and outer voices: L2 readers' experiences of silent reading, reading aloud and reading-while-listening" was carried out to explore L2 learners' reading comprehension and their experiences in three reading conditions—reading silently (RS), reading aloud (RA), and reading-while-listening (RWL).

The study results in all three reading conditions, oral reading in RA, and perceived affordances and challenges for each of these conditions were analyzed. Results indicated that while some learners performed best in reading while listening (RWL) and liked it most, others found it difficult to do so. All respondents reported hearing an inner voice while reading silently. Their comprehension generally suffered in RA, and they experienced difficulties in phonological translation to a varying extent in this condition.

Some studies dealt with inner L2 speech and its development among L2 learners (cf., Kato, 2009; Shigematsu, 2010). While Kato highlighted the role of the inner voice in reading L2 texts, Shigematsu explored the concept of the inner voice and its development among L2 learners. Kato (2009) investigated the impact of inner speech in ESL reading. Kato's study highlighted the role of the inner voice in reading L2 texts, claiming that when the ability of the participants to use the inner voice (covert articulation) was suppressed, reading comprehension was affected negatively. The effect was greater among learners with lower reading proficiency levels.

Kato is of the view that less proficient readers rely more on covert phonological activation and articulation during reading.

Unlike less proficient readers, advanced readers developed an ability to derive meaning directly from visual orthographic symbols (bypassing the phonological route).

Shigemitsu (2010) conducted a study to explore the notion of inner voice and its development among L2 learners. Shigemitsu defined inner voice as the conscious "use of the L2 for thinking as a way of helping one mediate the ways of the L2 and culture" (2010, p. 2). Shigemitsu's study findings revealed that an L2 inner voice tends to develop with increased proficiency and exposure to naturalistic L2 settings.

Another study was conducted by Scott (2013) to explore the auditory component of inner speech. Results revealed that EFL learners' experience of hearing the sound of their inner speech is due to a brain tool known as a corollary discharge. The results also revealed that the involvement of auditory speech imagery in silent reading or writing is an area that has shown conflicting results.

Research Design

The study design employed a qualitative approach to gain a deep understanding of the use of sensory learning and recalling styles. The analytical descriptive method was used to examine the data of the study, where the researchers strike a balance between the analytical and descriptive qualitative data.

Study Population and Sample

The population of this study is the Yemeni government colleges EFL learners at two Departments of English in the Faculty of Education, Sana'a and Rada'a Universities, in the academic year 2022-2023. The sample of the study was drawn from two Yemeni colleges, urban and rural, that are Sana'a University and Al-Bydha University. 12 EFL university students were chosen randomly out of 105 students.

Study Instrument

The study adopted Alkhatnai (2011) and Gerureou's (1999) structured interview questions. To ensure clarity and participants' comprehension, the interview was conducted in the Arabic language, that is, the participants' mother tongue.

Validity and Reliability

The validity of the instrument was evaluated by experts in the Department of English and Educational Psychology at the Faculty of Education, Sana'a University, and a pilot study was conducted to ensure reliability. A debriefed expert checked the data to ensure that it had not overlooked or overemphasized certain points. He believed that adequate weight was given to the learning and recalling style dimensions that the study aimed to examine.

Primary Analysis

The interviews were transcribed, coded, and translated into the English language. Then, the qualitative data were thematically analyzed and were grouped, and then classified into different themes. The significant themes identified in the data were discussed thoroughly under the relevant questions.

Result and Discussion

Interviews were conducted to address four research questions. For ease of reference, these questions are repeated here, and then are followed by a brief discussion of the answers elicited from participants, as follows:

Answer to the First Question

The first research question asked is: What are the sensory learning styles of Yemeni college EFL learners, as measured by students' self-report? Answering this question, eight out of twelve participants frequently cited visual, and five of them cited auditory as their best learning style. Thus, the visual learning style appears to be more preferred than the auditory learning

style among the subjects of the study. The data showed that 84% of the interviewees expressed a preference for the sensory learning style, mainly visual learning, while 72% of the interviewees preferred the auditory learning style. A pseudonym, Safa, who preferred the visual style, said, "I liked visual learning...I always like to learn through looking and watching." "I didn't like it when professors only lectured without written demonstrations," she added.

These findings show that Yemeni college EFL learners are more likely to prefer the visual learning style. Oxford (1995) believes that 50% to 80% of students in any classroom are predominantly visual learners. Reid (1987) claims that learning styles can vary across cultures; thus, Arab students have been said to be strongly visual.

Answer to the Second Question

The second question of the study is: What are the sensory recalling styles of Yemeni college EFL learners, as measured by students' self-report? The statistic data showed that 72% of the participants frequently cited inner visualization speech, while 60% frequently cited inner verbalization speech as their best way of recalling styles. Therefore, the inner visualization speech-recalling style preference appears to be more preferred among the participants than does the inner verbalization speech-recalling style.

To elaborate, quotes can be taken from students' answers. For example, Safa stated that "my sensory recall is of a visual image; so I highlight important details with different colors," and added, "I recall information in my mind in clear images."

Discussing the notion of visual recall, Bailey and Hortin (1982) stated "it is likely that mental rehearsal can happen anywhere and anytime, with 'some form of solitude'" (p. 5) as the necessary condition for it to occur. Unlike Safa, Shaima's statement was that "if any of us is waiting [to be called for the oral task], she becomes silent, gets into herself, and starts sensory recalling of what she would say." Even though some of the

participants said they engaged in sensory rehearsal to some extent, some others said they did not know what it was or what it was for in their comments. Lyla said, "I realize now that I used to think in English without being aware of it," and went on to say, "This interview clarified something for me... I thought I was crazy whenever I talked to another person in my mind."

Vinney (2022) pointed to this idea, stating that some people experience no inner speech at all and have no mental illness. Vinney further suggested that both inner speech and a lack of inner speech are part of natural, normal development.

Answer to the Third Question

The third research question asked is: What sensory recalling strategies are reported by Yemeni college EFL learners? On one hand, the students elaborated more in the area of self-reporting during the

interview. They veered into functions that brought sensory recalling style into the picture. As stated by some of them, some people's thoughts are like sentences they "hear," and some people just have abstract, non-verbal thoughts and have to consciously verbalize them. So, if I am not misunderstanding, and some people don't visualize their thoughts, how do they think? I've yet to see one person explain how they think without language/words/images. "I like to know my brain won't shut up about it."

The thematic analysis revealed seven inner speech characteristic themes: instructional, textual, evaluative, interpersonal, intrapersonal, mnemonic, and affective. Each theme is subdivided into organizational themes and basic themes. Table (1) below shows the central theme, sub-theme, and general structures.

Table (1) Central theme, sub-theme, and general structures

Central	Sub-theme	General structures
Instructional	Repeating pronunciation	Repeat to imitate the accent
Textual	Experiencing playback	Replay words in silence
Evaluative	Mental assessment of L2 use.	To retrieve correct L2 use and use it as a benchmark.
Interpersonal	Self-correction of Pronunciation	To talk to oneself
Intrapersonal	Mental engagement with Others	To imagine conversations with others
Mnemonic	Use of devices such as rhyme and acronyms	Rhymes or acronyms are intended to be used to enhance the recall
Affective	Rehearsal for self- for ideal self-image	For ideal self-image fulfillment.

Descriptive Explanation of Themes

As can be seen in Table (1) above, the themes extracted from the participants were categorized into seven types. At that point, each theme has been explained in detail as follows: Central themes into which the meaning units are paraphrased; Sub-themes into which several related central themes are organized and general structures that explain each general theme.

Instructional Theme

One-third of the participants (36%) provided evidence of having imitated or imaged English speeches in their minds to sound more like L2 native speakers. Ola commented, "I imitate L2 native speakers' accent in my head." Ola's comment was also supported by Safa's statement that "I visualize pronouncing English better in my mind...but don't when it comes to reality."

Unlike Safa, Bushra reported, "I always listen to the words in my head," which implies

she is an inner verbalizer. The sensory (visualization & verbalization) recalling instructional function as it emerged could be related to what Boyle (2022) called "Its role in the encoding, storage and retrieval of the type of information more standardly associated with semantic memory" (p. 227).

Textual Theme

At least 36% of the study participants repeatedly expressed their belief in the importance of experiencing playback of words in their minds. A factor was cited by Nemah, who said, "On my way home, I reviewed and mentally pronounced some new words I learned," adding, "They were the words that I remembered; I repeated them silently several times. Yeah, she said the words repeated in my head." Looking at the students' comments, one can say that deliberate rehearsal remained a purely cognitive strategy as long as it involved involuntary repetition or recall of language material (Schmidt, 1990). Moreover, it aligns with Krashen's phenomenon of 'the din in the head,' which originates subconsciously and becomes a metacognitive behavior as the learner exercises control over it and is capable of utilizing it voluntarily to accomplish certain tasks.

Evaluative Theme

One of the participants explained his experiences of actively making use of his L2 sensory verbalization speech to assess his pronunciation in a similar way to L2 native speakers. Ali was quoted as saying, "Yeah, I try to make sure . . . I'm trying to use (correct) expressions." "Sometimes my voice would lower quite a bit when I spoke in English I think, just because I wanted to be corrected." Looking at Ali's quotes, one can say that it might depend on the situation Ali was in. Therefore, he thought about English expressions in his head before he spoke.

Interpersonal Theme

The theme emerged as used by the interviewees; some students prepared what to talk about with others in mind, revealing that they tried to recall what they were going to say

to others in their minds. Buthaina's comment exemplifies a use of mental recall of what she intended to say to her professor: "I always recall in mind what I'm going to say to my professors."

Like Buthaina, Zarah commented about her rehearsal device before speaking overtly, saying that "If I was waiting [to be called] for the oral task] I became silent, went into myself and started sensory recalling of what I would say." According to the students, on some occasions, spontaneous sensory verbalization speech was accompanied by recalling a visual image, particularly when the communicative task involved pictures.

Mnemonic Theme

The literature's emphasis on mnemonics' role in helping students remember new words matches with what emerged from data analysis, in which few students indicate that the use of recall rubrics facilitates learning and recalling. Among quotations marked by the participants, Muhalla claimed the use of devices such as rhyme and acronyms would help her to recall what she learned, saying that "I use acronyms and sometimes rhymes and this way help me to learn and remember things." The idea of a mnemonic, such as a rhyme or acronym, is intended to be used to enhance the recall of the components of any lesson for which memory is needed (Mastropieri & Scruggs, 1998).

In the following quotation, Nawaf stated, "I use rhymes in my Arabic language to help me remember things in English words more easily." Ease, however, is the factor that is emphasized most when discussing the value of mnemonics. Researchers like Mastropieri and Scruggs (1989) claimed that their subjects' grades were significantly enhanced when using mnemonics compared to when not using them. In addition, Costuchen (2023) went on to say, "Mnemonic strategies may count on rhymes, chunking, and use of acronyms, encoding, and linking, among other options" (p. 4).

Affective Theme

As mentioned before, the participants of the study engaged not only in task-related rehearsal but also in self-related rehearsal. The learners used

the inner speech to better know themselves when speaking in the L2. In self-related rehearsal for self-fulfillment, the learners rehearsed to feel good or please their sense of self. Shaima, for example, said she rehearses because she loves English and enjoys practicing it. In her own words, "my self-image tells me that I want to learn English no matter what."

Thus, overall, theory-based views of the most important inner speech functions seem to partially, but substantially, match those self-reported in the study sample. However, participants did not self-report some literature-based inner speech contents and functions do not necessarily mean that they didn't use inner speech for these purposes: it remains possible that they were unaware of them.

Conclusion

The results show that the visual style modality was dominant under the sensory learning style category. Results also show that more than half of the interviewees expressed a preference for the sensory recalling style, mainly inner visualization speech, while inner verbalization speech under the category of sensory recalling style came next. The thematic analysis revealed that peer work, teacher's style, and environmental technology had an impact on students' learning style preferences. Moreover, it revealed that many themes seemed to boost students' English language performance.

The implication of the findings on different specific functions of sensory recalling in the current study, especially the sensory verbalization speech, can also be applied in EFL learning classrooms for different memory-enhancing-related learning purposes.

Guerrero (2018) recommends raising awareness about the nature of mental rehearsal and the possibilities of manipulating it for the advantage of learning a second language. However, sensory recalling is recommended if more autonomous, self-controlled language learning is desired.

The results of this research ought to be of wide interest and can offer some broad guidelines to other academics at higher education institutions in Yemen and other academics on how to make the most of

multisensory learning and recall-style teaching supplement techniques and strategies so that students can enjoy and benefit from it.

Suggestions for Further Research

Based on the findings of the study, the researchers suggest the following recommendations:

1. Future research studies may involve replication of the study on a higher number of subjects across different educational settings, including participants from other educational settings in Yemen and probably even in other Arabic-speaking countries. That would allow the findings to be more generalizable to a wider population of Arab EFL learners.
2. In addition to the variables investigated by the present study, future research may explore other variables, such as kinesthetic learning style.
3. The current study was carried out exclusively with EFL university-level learners. Future research may involve a longitudinal study that tracks the development of Yemeni students' learning and recalling styles and the influence of different factors on the students' choice of learning styles throughout their academic study.

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