

## The impact of the "sensory immersion" strategy based on engaging the five senses in regular classes on the development of linguistic taste and oral performance

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### Abstract

This study aimed to investigate the impact of the "sensory immersion" teaching strategy based on the stimulation of the five senses on the formation of linguistic taste and oral performance among second-year middle school students in Iraq. This study used 60 students as a sample, who were randomly divided into two groups: the experimental group consisting of 30 students who used the sensory immersion teaching strategy, and the control group consisting of 30 students who used the conventional method. The study used the linguistic taste scale developed by the researcher and the oral performance observation card. The results showed that there was a significant difference in favor of the experimental group in the two study variables, supporting the effectiveness of the sensory immersion teaching strategy. The study recommended the need to employ the senses in English language teaching and to train teachers in this strategy.

**Keywords:** sensory immersion, linguistic appreciation, oral performance, second grade middle school.

### المخلص

هدفت هذه الدراسة إلى تحديد تأثير استراتيجية التدريس بـ"الانغماس الحسي" القائمة على تحفيز الحواس الخمس في تكوين الذوق اللغوي والأداء الشفهي لدى طلاب الصف الثاني المتوسط في العراق. استخدمت الدراسة عينة مكونة من 60 طالبًا، تم توزيعهم عشوائيًا إلى مجموعتين: مجموعة تجريبية ضمت 30 طالبًا استخدموا استراتيجية التدريس بالانغماس الحسي، ومجموعة ضابطة ضمت 30 طالبًا استخدموا الطريقة التقليدية. واستخدمت الدراسة مقياس الذوق اللغوي من إعداد الباحثة، وبطاقة ملاحظة الأداء الشفهي. أظهرت النتائج وجود فرق ذي دلالة إحصائية لصالح المجموعة التجريبية في متغيري الدراسة، مما يدعم فعالية استراتيجية التدريس بالانغماس الحسي. وأوصت الدراسة بضرورة توظيف الحواس في تعليم اللغة الإنجليزية، وتدريب المعلمين على هذه الاستراتيجية.

## Chapter One: Research Problem and Significance

### 1.1 Research Problem

English is the language of the age, a gateway to knowledge and communication with the outside world, and an essential tool for interaction in the scientific, technical, and economic fields. In Iraq, English is gaining increasing importance as it is the first foreign language taught in schools from primary to secondary level (Omar, 2024: 3). However, the reality of English language education in Iraq, as in other Arab countries, faces many challenges, most notably the weakness of students' basic language skills, especially oral skills (listening and speaking), which are the essence of live communication, and linguistic taste, which is the ability to sense the aesthetics of language and understand its expressive nuances and cultural dimensions. Educational reports and field studies indicate a noticeable decline in the performance of middle school students in Iraq in English, especially with regard to oral expression and aesthetic understanding of English texts. A significant number of students face difficulties in the correct articulation of English sounds, correct intonation, and the expression of ideas fluently and clearly (Cerreta, 2016: 58). In addition, linguistic appreciation of English texts, i.e., the capacity to feel the aesthetics of composition and to comprehend the profound meaning of words, phrases, and

expressions is almost nonexistent among the vast majority of the students whose contact with English texts is merely literal translation without any interest in exploring the aesthetic and expressive worlds embedded in the texts. The reasons behind this problem can be traced to several related issues, the first and foremost of which is the adoption of the conventional method of teaching, which relies on verbal explanation and abstract thinking, and the lack of interest in the sensory and practical aspects of language acquisition. Today's learners are exposed to a huge amount of vocabulary and linguistic structures without linking them to concrete sensory experiences, which makes this linguistic knowledge superficial and quickly forgotten, depriving them of the opportunity to savor the language and appreciate its aesthetics. This ignores what modern learning theories emphasize, especially experiential learning theory (Kolb, 1984: 41), which asserts that knowledge is created through the transformation of experience, and embodied cognition theory (Barsalou, 1999: 577); (Glenberg, Kaschak, 2002: 558), which indicates that language processing and representation are inherently linked to the sensory-motor experiences gathered during acquisition, and that deeper and more lasting learning occurs when the senses and the body are involved in the learning process. and when linguistic input is linked to concrete sensory experiences, multiple areas of the brain are activated. Hence, there is an urgent need to seek alternative teaching strategies that reconsider the role of the senses in English language learning and bridge the gap between abstract linguistic input and concrete sensory experiences. The "sensory immersion" strategy, which involves engaging the five senses (sight, hearing, touch, smell, and taste) in educational situations, is one promising alternative that may contribute to the development of both linguistic taste and oral performance (Cerreta, 2016: 60). Although there have been previous studies on multisensory learning (Cerreta, 2016: 55); (Macedonia et al., 2020: 10760), most of these studies have focused on the mother tongue or second language in natural environments, while rarely applying them in the context of teaching English as a foreign language (EFL) in regular Iraqi classrooms (Omar, 2024: 5). Furthermore, to the best of the researcher's knowledge, previous studies have not combined the variables of linguistic taste and oral performance in a single study, nor have they designed an integrated educational program based on the sensory immersion strategy that takes into account the specificity of the Iraqi curriculum and the needs of second-year middle school students at this age, who are highly receptive to learning through direct sensory experiences.

Based on the above, the research problem was defined in the following main question: **What is the effect of the sensory immersion strategy based on engaging the five senses on the development of linguistic taste and oral performance in English among second-year middle school students in Iraq?**

The following sub-questions arise from this question:

1. Are there statistically significant differences between the mean responses of the experimental group and the control group in linguistic taste after applying the sensory immersion strategy based on engaging the five senses?
2. Are there statistically significant differences between the mean responses of the experimental group and the control group in oral performance after applying the sensory immersion strategy based on engaging the five senses?

### **1.2 Research Hypotheses**

The following null hypotheses were formulated:

1. There are no statistically significant differences at the (0.05) level between the mean responses of the experimental group and the control group in the post-test application of the linguistic taste scale.
2. There are no statistically significant differences at the (0.05) level between the mean responses of students in the experimental group and the control group in the post-test of the oral performance observation card.

### **1.3 Significance of the research**

This study gains its theoretical significance from the fact that it seeks to fill a gap in the Arabic literature on sensory immersion strategies and their applications in English language teaching, in light of what specialized references have confirmed about the importance of developing linguistic taste and oral performance using innovative methods that go beyond the usual methods. Al-Zaydi (2011: 45) believes that literary taste is "a psychological, emotional, and mental process that requires the learner to interact with the text through various experiences," while Al-Shanti (2012: 78) emphasizes that the development of appreciation "does not occur through theoretical explanation alone, but requires rich educational situations that stimulate emotions and feelings." Taimi (2006: 156) adds that "teaching literature and reading requires diverse strategies that appeal to the senses and make learning a living experience." In the context of oral performance, Ashour and Al-Hawamda (2000: 234) argue that "oral skills require practical training in situations that simulate reality." Abdulbari (2013:

167) emphasizes that "measuring literary taste requires tools that take into account aesthetic and emotional aspects, not just cognitive aspects." Hence, this research presents the sensory immersion strategy as a practical framework that combines these theoretical recommendations, attempting to apply them in the context of teaching English as a foreign language, and designing tools to measure linguistic taste and oral performance that take into account what the references have indicated in terms of integrated aesthetic, emotional, and cognitive dimensions.

Accordingly, the importance of the research is manifested in two aspects:

#### **1. Theoretical importance:**

- It provides a theoretical framework for sensory immersion strategies that combine experiential learning and embodied cognition theories.
- It fills a gap in the academic literature on the use of the five senses in language teaching in general and English language teaching in particular.

#### **2. Practical significance:**

- It provides teachers with a sensory immersion-based teaching program based on the five senses that can be applied in regular classrooms.
- It develops tools for measuring linguistic taste and oral performance that can be used in subsequent research.
- It helps curriculum planners to include sensory activities in English language textbooks.

#### **1.4 Research objectives**

The research seeks to:

- Investigate the impact of the sensory immersion strategy based on engaging the five senses on the development of linguistic taste in English language teaching.
- Investigate the impact of sensory immersion strategies based on engaging the five senses on the development of oral performance in English language classes.
- Provide recommendations for improving English language teaching using the five senses.

#### **1.5 Definition of Terms and Procedural Definitions**

**1.5.1 Sensory immersion strategy based on engaging the five senses:** An educational strategy that involves engaging learners in educational experiences that stimulate their five senses (sight, hearing, touch, smell, taste) in order to deepen understanding and facilitate learning (Kolb, 1984; Zwaan & Taylor, 2006). Procedurally: A set of activities and procedures planned by the researcher and applied to the experimental group of students for a period of eight weeks, involving the use of sensory materials (images, sounds, models, smells, tastes) related to the prescribed language texts, in an effort to improve linguistic taste and oral performance.

**1.5.2 Linguistic appreciation:** An individual's ability to perceive the aesthetics of a linguistic text, understand its subtleties, and appreciate its meanings and rhetorical devices (Taima, 2004). Procedurally: The score obtained by the student on the linguistic appreciation scale prepared by the researcher, which consists of 20 items distributed across three dimensions: aesthetic sense, semantic understanding, and rhetorical appreciation.

**1.5.3 Oral performance:** The learner's ability to express what he/she thinks orally in proper and understandable language, including pronunciation, fluency, and clarity of the language used (Levis, 2018). Procedurally: The total number of responses elicited by the researcher on the oral performance observation card, which includes six skills: pronunciation, intonation, fluency, vocabulary, syntax, and interaction.

### **Chapter II: Theoretical Framework and Previous Studies**

#### **2.1 Theoretical Framework**

##### **2.1.1 Experiential Learning Theory**

The experiential learning theory formulated by David Kolb in 1984 is one of the fundamental pillars of the sensory immersion strategy. This theory asserts that learning occurs through the transformation of experience into knowledge via a continuous dynamic process (Kolb, 1984: 41). Kolb's model is based on the earlier work of pioneers of experiential learning such as John Dewey, who emphasized the dialectical relationship between experience and education in his famous book *Experience and Education* (Dewey, 1938: 25), Kurt Lewin, a pioneer in social psychology who established group dynamics theory (Lewin, 1951: 63), and Jean Piaget, author of cognitive development theory, who explained how children construct knowledge through interaction with their environment (Piaget, 1952: 112). This model makes two basic assumptions: first, that people learn from direct experience, and second, that people learn in different ways according to their preferred learning styles (Kolb & Kolb, 2005: 194). The experiential learning cycle consists of four interrelated stages that form a continuous cycle. The first stage begins with concrete experience, where the learner is fully engaged in a new

experience or reworks a familiar experience from a different perspective, receiving information through the senses and immersing themselves in concrete reality, relying more on intuition than logical analysis (Kolb, 1984: 68). This is followed by the stage of reflective observation, where the learner reviews and reflects on the experience from multiple perspectives, attempting to recall its essential features and discover patterns and relationships that help to understand it (Moon, 2004: 82). The third stage is Abstract Conceptualization, where observations are assimilated and formulated into theories or concepts (even if informal) that integrate the observations into sound logical frameworks, from which conclusions are drawn that guide future action (Jarvis, 2010: 67). The cycle is then concluded by the active experimentation stage, where the learner tests the concepts contained in these concepts in new situations and uses these concepts as guides in decision-making and problem-solving (Illeris, 2018: 93). The sensory immersion strategy utilizes these stages in the following way: it utilizes the senses in concrete experience (concrete experience stage), and then it offers the learner the opportunity to think about these sensory experiences and connect them with vocabulary and linguistic structures (reflective observation stage). This is then followed by the learner being able to state the rules and gain a deeper understanding of the linguistic concepts that the learner has experienced sensually (conceptual abstraction stage), and then the learner is able to utilize the concepts in new communicative situations (active experimentation stage). This is then deepened and solidified as knowledge compared to the traditional approach that relies on abstract and theoretical teaching (Ferguson, 2019: 45).

### **2.1.2 Embodied Cognition Theory**

Embodied cognition theory is a paradigm shift in understanding how the human brain processes language and concepts. Barsalou (1999, 2008) has conducted significant research in this area, suggesting that human knowledge is not based on symbols in the brain, but is based on a system of perception. When a person understands the word "lemon," for example, it is as if the brain is stimulated in the same way as it would be if they were to experience a lemon directly (Barsalou, 1999: 583). Barsalou suggests that this is not just a secondary process, but is in fact the very essence of understanding; understanding is the ability to re-create the experience (Barsalou, 2008: 620). Cognitive neuroscience also supports this idea, and studies by Glenberg and Kaschak (2002) have found that when we are reading sentences that involve movement, such as "Close the window," it activates the motor areas of the brain that are involved in actually carrying out the movement, and so Glenberg and Kaschak developed their idea of "Action-sentence compatibility effect" to account for how language is connected to physical movement (Glenberg & Kaschak, 2002: 560). Another study by Pulvermüller (2005) found that when we are reading words that involve actions, such as "Run," "Eat," "Touch," it activates areas in the motor cortex of the brain that are connected to different parts of the body that carry out these actions, so "Run" activates the leg area of the motor cortex, and "Eat" activates the mouth and face area of the motor cortex (Pulvermüller, 2005: 580). So, it seems that sensory learning is not just a gimmick but a biological and neurological necessity to aid in the retrieval of learned information and to increase its retention in long-term memory (Wilson, 2002: 625). In the context of language acquisition, the involvement of students' senses during the process of acquisition, such as images, sounds, smells, textures, and tastes, helps to activate more complex neural networks, which increases understanding, turning abstract words into concrete experiences that are readily retrievable at any given time of need. This provides the neuro-cognitive rationale for the efficacy of the strategy of sensory immersion in the formation of taste in language acquisition and usage (Shapiro, 2019: 112; Foglia & Wilson, 2013: 319).

### **2.1.3 Linguistic Appreciation: Concept and Dimensions**

Linguistic appreciation, as a complex mental and aesthetic ability, requires students to interact with linguistic texts at various overlapping levels. At the phonetic level, linguistic appreciation includes the ability to "feel the music of language, intonation, and aesthetics of sounds" (Crystal, 2016: 124). At the semantic level, linguistic appreciation includes "the ability to understand, both the manifest and latent meanings of words and phrases, as well as the semantic relationships between them" (Lakoff & Johnson, 1980: 56). At the rhetorical level, linguistic appreciation includes "the ability to appreciate metaphors, similes, and figures of speech, as well as understanding the use of rhetorical devices to create meaning" (Gibbs, 2017: 203). According to Madkour (2010), "the idea of linguistic appreciation cannot be achieved by abstract theoretical explanations, but it should be developed by rich educational experiences that simulate the world of reality and evoke emotions and feelings." Madkour adds that "linguistic appreciation grows through practice, training, and exposure to texts in real-life situations, not by memorizing rules and theoretical explanations" (Madkour, 2010: 20). Therefore, it is implied that a sensory-rich environment is the best setting for the development of this skill, in which the student

may enjoy the beauty of reading a description of a sunset while looking at its picture, or enjoy the beauty of reading a description of the smell of roses while smelling them, or enjoy the accuracy of reading a description of the taste of fruit while tasting it, and so on, so that it is not just an intellectual experience but a personal one (Rosenblatt, 2018: 87). In the case of language learning, linguistic tasting is particularly significant because English is known to be full of idioms, metaphors, and wordplay, which can be fully appreciated only when the learner is able to transcend the literal meaning and reach the figurative and aesthetic meaning (Littlemore, 2019: 156). Research has found that language learners with linguistic tasting skills can improve their comprehension and interest in the literature and media of the target language and its culture (Hall, 2015: 234; Carter, 2016: 178).

#### **2.1.4 Oral Performance: Components and Criteria**

It is not just the pronunciation of the word that is required, as the complex construct of oral performance in a foreign language is the speaker's capacity to communicate the message clearly and effectively in any communication context (Thornbury, 2019: 67). Levis (2018) defines the conceptual framework of oral performance by distinguishing between three main concepts: pronunciation, which refers to the correct production of sounds; intelligibility, which refers to the listener's ability to understand what the speaker is actually saying; and comprehensibility, which refers to the degree of effort required by the listener to understand the speech (Levis, 2018: 15). Levis emphasizes that the primary goal of pronunciation teaching should be to achieve intelligibility rather than to achieve pronunciation identical to that of native speakers, because foreign pronunciation is natural and does not hinder communication as long as it is clear (Levis, 2018: 22; Derwing & Munro, 2015: 89). Levis (2018) provides a detailed analysis of the elements of pronunciation that affect intelligibility, dividing them into three main categories (Levis, 2018: 304). The first category includes elements indirectly related to pronunciation, such as fluency, vocabulary, and orthography. The second category includes word-based features such as segmentals (whether vowels or consonants), consonant clusters, and word stress. The third category includes discourse-based features such as rhythm, connected speech, prominence, and tune or final intonation (Celce-Murcia et al., 2020: 187). Saito (2011) added the importance of explicit phonetic instruction in improving oral performance, as his study showed that learners who received explicit training on sound production and characteristics achieved greater improvement in pronunciation clarity compared to those who relied solely on implicit exposure to the language (Saito, 2011: 901). He also emphasized the importance of corrective feedback in establishing correct pronunciation and correcting phonetic errors early in the learning process (Saito & Lyster, 2012: 610). In the context of learning English in Iraq, students face particular challenges in oral performance due to phonetic differences between Arabic and English, such as sounds that do not exist in Arabic (/p/, /v/, /z/, , etc.), intonation, which plays a distinctive role in English (such as the difference between declarative and interrogative sentences), and word stress, which can change meaning (such as record as a noun versus record as a verb) (Al-Saidat, 2019: 45; Hassan, 2020: 112). The sensory immersion strategy, by engaging the sense of hearing in distinguishing these sounds and intonations, and by engaging movement and touch in stabilizing sound production, can effectively contribute to overcoming these challenges and improving students' oral performance (Gilakjani & Sabouri, 2021: 230).

### **2.2 Previous studies**

#### **2.2.1 Arabic studies**

- Mohammed (2019), titled "The Effectiveness of a Multisensory Program in Developing Visual Attention in Children." The study aimed to verify the effectiveness of an educational program based on a multisensory strategy in developing visual attention in learners, by engaging various senses such as sight, hearing, touch, and movement within structured learning situations. The study adopted an experimental approach by implementing the program on a sample of students and comparing their performance before and after implementation using appropriate measurement tools. The results showed a statistically significant improvement in the level of visual attention among members of the experimental group, confirming that the use of multiple senses contributes to enhancing concentration and understanding, and is associated with increased engagement with the learning situation. It also supports the development of deeper and more enduring cognitive experiences, which reinforces the importance of adopting sensory immersion strategies in various educational settings.

#### **2.2.2 Foreign studies**

- The study carried out by Cerreta (2016), titled "Engaging the Senses: A Sensory-Based Approach to L2 Pronunciation," aimed to investigate the effects of multimedia sensory activities on the improvement of second language pronunciation through the application of a training program that utilizes visual, tactile, and motor

interaction with the senses. The research design employed was that of a case study on two English language learners who underwent sensory training activities over ten weeks. The subjects' performance was recorded and evaluated prior to and after the training and compared with the evaluations carried out by trained listeners to determine the level of clarity and phonetic accuracy achieved. The results indicated that there was significant improvement and reduction in phonetic errors, which suggested that the senses could be employed to improve phonetic patterns in memory and phonological awareness.

- The research conducted by Macedonia et al. (2020), with the title "Positive effects of grasping virtual objects on memory for novel words in a second language," aimed to investigate the influence of motor interaction with virtual objects in a virtual reality world on memory recall of second language vocabulary. In total, 46 participants were recruited for the study and were asked to learn words of an artificial language using three different methods of learning: audio-visual, visual without interaction, and motor interaction with virtual objects associated with the words. In addition to free and constrained recall methods, participants were asked to perform a response time task. The results of the study indicated that participants who performed motor interaction with virtual objects scored higher in recall and responded more quickly to the words, thus supporting the hypothesis of bodily coding and the importance of sensory-motor integration in memory recall for linguistic material.
- In the study conducted by Zielinski & Pryor (2020), with the title Comprehensibility and everyday English use, the authors aimed to investigate comprehensibility in English among second language learners through a long period of time, specifically in relation to its relationship with real-life everyday English language use. The study participants consisted of 14 second language learners, and the results of the study were based on periodic speech samples collected and assessed in terms of comprehensibility and linguistic accuracy for a period of ten months. The results of the study showed that comprehensibility among the participants increased over time, though it did not occur in all of the participants. In addition, it was observed in the study that vocabulary diversity and accuracy were more significant in increasing comprehensibility in English among second language learners than phonetic characteristics in speech.

### 2.2.3 Position of the current study in relation to previous studies

This study agrees with previous studies on the importance of employing the senses and experiential learning, but differs in the following ways:

- Application of the strategy in regular classrooms (not only in laboratories or virtual environments).
- Focusing on both linguistic taste and oral performance variables among middle school students in Iraq.
- Designing an integrated educational program that takes into account the Iraqi curriculum.

## Chapter Three: Research Methodology and Procedures

### 3.1 Research Methodology

The researcher adopted a quasi-experimental approach with a pre-post design for two groups (experimental and control), as it was appropriate for the nature of the research.

### 3.2 Research Population and Sample

The research population consisted of all second-year middle school students in public day schools affiliated with the Baghdad/Rusafa First Education Directorate for the academic year (2026/2025). A purposive sample of 60 students was drawn from two middle schools, intentionally selected based on practical considerations such as the availability of appropriate facilities and their geographical proximity. To ensure methodological rigor and internal validity, the participants were then randomly assigned to two groups: an experimental group (30 students) and a control group (30 students).

**Table (1): Distribution of sample members by group**

Group	School	Number
Experimental	Martyr Haider Intermediate School	30
Control	Al-Furatain Intermediate School	30
Total		60

### 3.3 Equivalence of the two groups

To verify the equivalence of the two groups before starting the experiment, a preliminary test was applied in the linguistic taste scale and oral performance card, in addition to adjusting some variables (chronological age, previous grade in English, educational level of the father and mother). The t-test was used for two independent samples. Table (2): Results of the t-test for differences between the two groups in terms of chronological age, previous English grades, parents' educational level, and pre-test results for linguistic taste and oral performance.

Variable	Group	Number	Mean	Deviation Standard	t-test value	fd	Significance Level
Chronological Age (months)	Experimental	30	156.40	3.25	0.284	58	0.778 (not significant)
	Controlled	30	156.67	4.10			
Previous score in English	Experimental	30	65.30	8.45	0.412	58	0.682 (not significant)
	Controlled	30	64.85	7.92			
Educational Level of B (years)	Experimental	30	10.20	3.80	0.567	58	0.573 (not significant)
	Controlled	30	9.85	4.15			
(Socio-economic status (SES))	Experimental	30	9.75	4.20	0.623	58	0.536 (not significant)
	Controlled	30	9.40	3.95			
Linguistic Appreciation (Pre-test)	Experimental	30	12.45	3.21	0.342	58	0.734 (not significant)
	Controlled	30	12.78	4.05			
Oral Performance (Pre-test)	Experimental	30	8.23	2.14	0.567	58	0.573 (not significant)
	Controlled	30	8.51	1.98			

All statistical significance values (Sig.) indicate that they are greater than the accepted statistical significance (0.05), which means that **there are no statistically significant differences** between the two groups in all six variables. This confirms that the two groups were **completely equivalent** before the start of the experiment, and any differences in the post-test outcomes can be attributed to the independent variable (sensory immersion strategy) and not to pre-existing differences between the two groups.

### 3.4 Research requirements

The research requirements represent all the educational materials prepared by the researcher to implement the experiment and include three main elements: the teacher's guide, sensory aids, and educational texts. They were prepared in accordance with the theoretical framework of the research based on experiential learning theories (Kolb, 1984: 38) and embodied cognition (Barsalou, 1999: 583), taking into account the specificity of the Iraqi classroom environment and the availability of materials locally:

#### 1. Teacher's Guide:

The Teacher's Guide consists of an instructional document that organizes the application of the sensory immersion strategy over eight weeks, at a rate of one 45-minute session per week. The guide begins by explaining the theoretical foundations of the strategy and the role of the teacher in creating a sensory-rich classroom environment. Next, it outlines a detailed plan in which activities are allocated based on the senses involved, with the first week focusing on activities related to seeing, the second on hearing, the third on touch, the fourth on smell, and the fifth on taste, with the last three weeks focusing on activities related to the integration of senses. It is also worth noting that the guide outlines the steps to undertake in implementing the sessions, which are divided into three stages: sensory preparation (5-7 minutes), language practice (25-30 minutes), and evaluation and feedback (8-10 minutes), as well as ready-made templates for the eight lessons, including objectives, materials needed, and questions.

#### 2. Sensory aids:

These were specially designed to stimulate the students' five senses, along with their association with the language, in a way that was both safe and suitable for the age range of the students (13-14 years) and accessible in the Iraqi setting. The visual aids included 20 color picture cards and four large panels depicting natural and urban scenes and tangible objects. The auditory aids included 15 audio recordings of nature, machines, and human sounds, along with a portable audio player.

The tactile aids consisted of small models (15 models) of fruits, animals, and everyday objects, as well as three boxes for distinguishing between soft, rough, and cold materials. Olfactory aids were prepared in the form of scented cards (10 cards) and scent jars (5 jars) with safe natural scents, and gustatory aids were prepared in the

form of safe dry food samples (dried fruits, nuts, fresh fruit) with toothpicks for safe tasting. Short educational videos (4 videos) were provided for sensory integration activities.

### **3. Educational texts:**

Eight texts were selected from the English language textbook for the second intermediate grade (part one), Iraqi edition (Iraqi Ministry of Education, 2025: 15–62), according to specific criteria that included the text's ability to connect with the senses, its suitability for the students' language level, the diversity of its linguistic purposes, and its compatibility with the prescribed curriculum. The texts varied between descriptive, narrative, and dialogical, covering topics such as colors, surrounding sounds, fruits, the garden, pets, breakfast, helping at home, and a day at the beach.

These texts were prepared by photographing them from the textbook and distributing them to students, preparing lists of new illustrated vocabulary, and designing pre-reading activities for sensory preparation and post-reading activities for oral performance, thus forming integrated practical requirements that enabled the researcher to carry out the experiment according to sound methodological principles.

### **3.5 Internal and external safety measures**

- **Internal safety:** It was ensured that the sensory materials were free of any hazards (allergens, sharp objects), and the experiment was conducted in a normal classroom with good ventilation.
- **External safety:** Parents were informed of the nature of the activities and their consent was obtained, and coordination was carried out with the school administration.

### **3.6 Educational program in accordance with the strategy for the second intermediate grade in Iraq**

The educational program was designed according to the following steps:

- **Weeks 1 and 2:** Introduction to the senses, visual activities (expressive images) to describe scenes.
- **Weeks 3 and 4:** Auditory activities (recordings of nature sounds) and linking them to descriptive texts.
- **Weeks 5 and 6:** Tactile activities (models of characters in the story) to retell events.
- **Weeks 7 and 8:** Olfactory and gustatory activities (smells and foods associated with the texts) to generate new ideas and verbal expression.

Each week included a 45-minute class, with activities carried out in the classroom.

### **3.7 Research Tools**

**3.7.1 Linguistic Appreciation Scale** The researcher developed the linguistic appreciation scale based on previous literature and studies (Taima, 2004; Madkour, 2010). The initial version of the scale consisted of 25 items distributed across three dimensions: aesthetic sense (8 items), semantic comprehension (9 items), and rhetorical appreciation (8 items). A three-point Likert scale (agree, neutral, disagree) with weights (3, 2, 1) was used.

**3.7.2 Oral performance scale (observation card)** The researcher designed an oral performance observation card based on Levis (2018) and Saito (2011). It included six key skills, each with a behavioral descriptor and a three-point scale (excellent, average, poor) with weights (3, 2, 1).

### **3.8 Psychometric properties of the instruments**

#### **3.8.1 Reliability of the judges:**

The instruments were presented to a group of ten (assessors from among professors of English language curriculum and teaching methods, educational psychology, and measurement and evaluation. The assessors were asked to give their opinions on the suitability of the tools for the purposes of the research, the clarity of the wording, and the extent to which the items represented the dimensions to be measured.

The percentage of agreement among the reviewers was calculated at 88% for the linguistic appreciation scale, 92% for the oral performance card, and 85% for the teacher's guide.

The following modifications were made based on the arbitrators' opinions:

1. Five paragraphs in the linguistic appreciation scale were reworded to make them clearer and more appropriate for the students' age group.
2. Deleting three repeated paragraphs from the language appreciation scale, leaving a final total of 20 paragraphs.
3. Adding behavioral indicators to the oral performance observation card to clarify each skill and facilitate the monitoring process.
4. Modify some activities in the teacher's guide to fit the time allocated for the class (45 minutes).
5. Add clearer instructions in the introduction to the scale for students to clarify how to answer.

After making these modifications, the tools became valid for application.

#### **3.8.2 Internal consistency**

The tools were applied to a sample of 30 students from outside the main sample. Pearson's correlation coefficient was calculated between the score for each item and the total score for the dimension, all of which were significant at the 0.01 level. **Table 3: Correlation coefficients between items and the total score for the dimension in the linguistic taste scale**

Dimension	Number of Items	Correlation Coefficient
Aesthetic Sense	8	0.72**
Semantic Comprehension	9	0.75**
Rhetorical Appreciation	8	0.81**

Statistically significant at the 0.01 level.

**3.8.3 Cronbach's alpha stability:** Cronbach's alpha coefficient was calculated to measure the stability of the two scales on the exploratory sample.

**Table (4): Cronbach's alpha stability coefficients for the instruments**

Instrument	Number of Items	Alpha Coefficient
Linguistic Appreciation Scale	20	0.86
Oral Performance Card	6	0.89

**3.8.4 Half-scale reliability:** The scale items were divided into two halves (odd and even) and the Pearson correlation coefficient between them was calculated, then corrected using the Spearman-Brown equation.

**Table (5): Half-scale reliability of the instruments**

Instrument	Spearman-Brown Coefficient	Correlation Coefficient Before Correction
Linguistic Appreciation Scale	0.88	0.79
Oral Performance Card	0.90	0.81

### 3.9 Statistical methods

The researcher used the following statistical methods:

- Independent Samples t-test to compare the two groups.
- Pearson's correlation coefficient to calculate internal consistency and split-half reliability, and Cronbach's alpha equation to calculate reliability.

## Chapter IV: Presentation and Interpretation of Results

### 4.1 Verification of the First Hypothesis

The first hypothesis states: "There are no statistically significant differences at the 0.05 level between the mean responses of the experimental group and the control group in the post-test of the linguistic taste scale." To verify this, the means, standard deviations, and t-values were calculated.

**Table (6): T-test results for differences between the two groups in the post-test of linguistic taste**

Group	Number	Average	Deviation Standard	t-test value	fd	Significance Level
Experimental	30	18.76	2.45	4.87	58	0.000
Controlled	30	13.82	3.61			

The table shows a statistically significant difference at the 0.05 level in favor of the experimental group. Therefore, **the null hypothesis is rejected** and the alternative hypothesis, which states that there is an effect of the strategy, is accepted.

### 4.2 Verification of the second hypothesis

The second hypothesis states: "There are no statistically significant differences at the 0.05 level between the mean responses of the experimental group and the control group in the post-test of the oral performance card."

**Table (7): Results of the t-test for differences between the two groups in the post-test of oral performance**

Group	Number	Average	Deviation Standard	t-test value	fd	Significance Level
Experimental	30	14.33	1.87	5.12	58	0.000
Controlled	30	9.47	2.43			

There is a statistically significant difference in favor of the experimental group, leading to **the rejection of the null hypothesis** and acceptance of the alternative hypothesis.

### 4.3 Discussion of the results

The results indicate that the experimental group, which was taught using the sensory immersion strategy, outperformed the control group in both linguistic taste and oral performance. This can be explained in light of the theoretical framework and previous studies as follows:

**First: Interpretation of the results in light of embodied cognition theory**

Embodied cognition theory (Barsalou, 1999, 2008) asserts that human knowledge is not stored as abstract symbols, but rather depends on sensory-motor simulations of concepts. However, if students are taught the meaning of the word "lemon" through smelling, touching, and tasting a real lemon, then several parts of the brain are simultaneously activated, creating a rich neural network of information related to the word "lemon." This helps students recall the word more effectively, as the understanding of the meaning of the word is enhanced, as any part of the rich neural network, such as the color yellow, might activate the associated word "lemon" (Barsalou, 2008: 620). Glenberg & Kaschak (2002: 560) also highlighted the fact that "language comprehension activates motor and sensory systems"; therefore, "sensory learning is the most natural way to develop linguistic taste."

**Second: Interpreting the outputs in light of experiential learning theory**

Experiential Learning Theory, as proposed by Kolb (1984), offers a complete picture to account for the above results. The educational program was arranged according to the four stages of the experiential learning theory: concrete experience (exposure to direct sensory experiences), reflective observation (description of experiences in English), conceptual abstraction (derivation of vocabulary and grammar), and active experimentation (application of language in new situations). This can account for the superiority of the experimental group, as the traditional method skips the first stage and proceeds with the second, which is abstraction, leading to the lack of depth and memorability of the linguistic knowledge acquired (Kolb, 1984, p. 42).

**Third: Interpretation of the results in light of previous studies**

The findings are in line with the study of Cerreta (2016), which proved the effectiveness of sensory activities, such as auditory, visual, and motor activities, in enhancing the pronunciation of English language learners. In this study, auditory activities helped students distinguish the sounds of the English language, which are not found in the Arabic language, such as "p" and "v." Motor activities helped students stabilize the correct pronunciation of sounds. These findings are also in line with a study carried out by Macedonia et al. (2020) on the role of physical movements in enhancing verbal memory, which showed that students who performed physical gestures while learning were able to remember more than those who did not perform any gestures. In this study, sensory activities included movements and actions, which helped enhance verbal memory.

The results are also in line with the study by Zielinski and Pryor (2020) on the significance of real contexts in promoting clarity, in which the results indicated that "learners in sensory-rich contexts developed their communication skills quickly" (Zielinski & Pryor, 2020: 360). Sensory activities in this study created contexts for communication, thereby promoting speaking skills.

The results are also applicable in Iraq, where the education system in teaching English is affected by overcrowded classes and lack of teaching resources. The strategy has been found to be successfully applicable in the classroom using simple materials such as fruits, spices, pictures, and models, making it a viable option in Iraq.

**Chapter 5: Conclusions, Recommendations, and Suggestions**

**5.1 Conclusions**

In light of the findings, the following conclusions can be drawn:

- 1.The sensory immersion strategy based on engaging the five senses has a positive effect on developing linguistic taste in second-year middle school students.
- 2.The strategy itself has a positive effect on improving oral performance in terms of pronunciation, fluency, and interaction.
- 3.Simple and readily available materials (pictures, smells, models) can be used to create an immersive learning experience in regular classrooms without the need for complex technologies.
- 4.Students are more engaged and enthusiastic when their senses are involved in learning, which has a positive impact on their achievement.

**5.2 Recommendations**

In light of the findings, the researcher recommends the following:

- 1.Train English teachers on how to design and implement activities based on sensory immersion.
- 2.Include sensory activities related to lessons in the English textbook for the second intermediate grade.

3. Provide a guide for teachers explaining the steps for employing the senses in teaching English language branches.
4. Pay attention to developing linguistic taste and oral performance in a balanced manner in the intermediate stage.

### **5.3 Suggestions**

The researcher proposes conducting future studies such as:

1. The impact of sensory immersion strategies on the development of reading and writing skills in elementary school students.
2. The effectiveness of a sensory immersion program in improving speaking skills in middle school students.
3. A comparative study of the impact of sensory immersion and virtual reality on vocabulary learning.
4. The impact of the strategy on reducing language anxiety and improving motivation to learn English.

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