Effectiveness of the Presseisen Model in Solving Grammatical Problems Among Intermediate School Students

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ABSTRACT

The current research aims to evaluate the effectiveness of the Presseisen model in solving grammatical problems among intermediate school students. It seeks to verify the null hypothesis: "There are no statistically significant differences at the 0.05 level between the mean scores of the experimental group, which studied using the Presseisen model, and the mean scores of the control group, which studied using traditional methods, in solving grammatical problems." The researcher used a quasi-experimental design and randomly selected Al-Hurriya Secondary School for Girls from schools affiliated to the Directorate of Education in Al-Rusafa 1. The study was conducted with a sample of fourth-grade students during the first semester of the $2023-2024$ academic year, over 8 weeks, covering Arabic grammar topics (past tense), (present tense / nominative case, accusative case, and genitive case), (construction of the present tense verb), (imperative verbs), (transitivity and intransitivity), and (the subject) from the Arabic Language Book / Fourth Grade / Part One. Two sections were randomly selected from a total of four sections. The sample consisted of 86 female students, with 44 students from Section C representing the control group and 42 students from Section B representing the experimental group. The groups were matched on variables such as chronological age and academic achievement in the previous year's Arabic language subject. To achieve the research objective, the researcher developed a decision-making scale for solving grammatical

problems. After validating its accuracy and reliability and determining the coefficient of determination, the final scale consisted of 20 items. Following the experiment, data was analyzed statistically to calculate coefficient of determination, Chi-square, Pearson correlation, Cronbach's alpha, and the t-test for independent samples, and to compute the impact sizes. The results indicated that the experimental group outperformed the control group in decision-making for solving grammatical problems. Based on the findings, the researcher proposed several recommendations and suggestions.

Keywords: Effectiveness, Model, Presseisen, Problem Solving, Grammatical, Intermediate Stage

فاعلية انموذج (Presseisen) في حل المشكلات النحوية لدى طالبات المرحلة الاعدادية

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الملخص

يستهدف البحث الحالي التعرف على (فاعلية انموذج (Presseisen) في حل المشكلات النحوية لدى طالبات المرحلة الإعدادية)، وذلك من خلال التحقق من الفرضية الصفرية الاتية : (لا توجد فروق ذات دلالة احصائية بنسبة (٠,٠٥) بين متوسط درجات طالبات المجموعة التجريبية والتي درست وفق انموذج (Presseisen) ومتوسط درجات طالبات المجموعة الضابطة التي درست بالطريقة التقليدية في حل المشكلات النحوية ، استعملت الباحثة التصميم التجريبي ذو الضبط الجزئي، واختارت عشوائيا اعدادية (الحريري للبنات) من بين المدارس الثانوية والاعدادية التابعة الى (مديرية تربية الرصافة الاولى) و طبق البحث على عينة من طالبات الصف الرابع الاعدادي في الفصل الاول للعام الدراسي ٢٠٢٣ – ٢٠٢٤ م، على مدى ٨ اسابيع وفي المواضيع قواعد اللغة العربية (الفعل الماضي)، (الفعل المضارع / رفع، نصب، جر)، (بناء الفعل المضارع)، (الفعل الامر)، (التعدي و اللزوم)، (الفاعل) من كتاب اللغة العربية / الرابع الاعدادي/ الجزء الاول، المقرر ، وتم اختيار شعبتين من بين اربع شعب بالطريقة العشوائية، وبلغ عدد طالبات العينة ٨٦ طالبة بواقع (٤٤) طالبة للشعبة (ج) و التي مثلت المجموعة الضابطة و(٤٢) طالبة للشعبة (ب) التي مثلت المجموعة التجريبية ، وتم تكافؤ مجموعتي البحث في عدد من

المتغيرات مثل العمر الزمني وتحصيل السنة الدراسية السابقة في مادة اللغة العربية)، ولغرض التحقق من هدف البحث اعدت الباحثة اداة البحث وهي مقياس اتخذ القرار   لحل المشكلات النحوية، وبعد التحقق من صدقها وثباتها وايجاد معامل التمييز للفقرات، تكون المقياس بصيغته النهائية من ٢٠ فقرة ، وبعد الانتهاء من التجربة وتطبيق الاداة على عينة البحث ومعالجة البيانات احصائياً ، لحساب معامل التمييز لفقرات المقياس، مربع(كاي)   و معامل الارتباط (بيرسن)، ومعامل الارتباط (الفا كرنباخ)، والاختبار (التائي) لعينتين منفصلتين ومعادلة حجم الاثار، اظهرت نتائج البحث تفوق طالبات المجموعة التجريبية على طالبات   المجموعة الضابطة في متغير اتخاذ القرار لحل المشكلات النحوية، وفي ضوء   نتائج البحث وضعت الباحثة عدداً من التوصيات والمقترحات.

الكلمات المفتاحية : فاعلية،   أنموذج، (Presseisen) ، لحل المشكلات، النحوية ، المرحلة الاعدادية .

Introduction:

Thinking is considered one of the most important and complex human behaviors. It is a trait that Allah has endowed humans with, distinguishing them from other creatures. Islam encourages thinking and using reason in all matters. It is the most important means for an individual to solve their problems and answer their various questions. (Al-Tamimi et al. 2023, p. 1266). The increasing need in our society for modern teaching methods aims to accommodate the advancements of the era and meet the requirements and needs of the contemporary Arab community. These methods go beyond the limitations of traditional approaches, which have proven inadequate for meeting the demands of modern times. Consequently, a new concept has emerged in educational literature known as "active learning," which recent studies have demonstrated to be effective in achieving the set objectives of the educational process.

The modern perspective views knowledge not merely as a dynamic, evolving intellectual construct, but as a human activity that is constantly changing and adapting. It extends beyond the mere acquisition of information to the way in which this knowledge is acquired. The true

value of knowledge lies in its ability to explain phenomena and events. This can be achieved by abstracting similar facts and connecting them into scientific concepts. (Al-Tamimi and Ghanem, 2021, p. 1889). Teaching problem-solving skills is crucial for smooth classroom operations, enabling the retrieval and application of previously learned information in new situations. Additionally, problem-solving helps students innovate and think beyond conventional patterns.

The Research Problem:

Nowadays, thinking and problem-solving have become central goals advocated by modern education, which seeks methods to develop and enhance these skills owned by students. The researcher, through surveying a group of Arabic language teachers, has identified weaknesses in processes such as thinking, analysis, inference, generalization, and the ability to make judgments and decisions regarding topics and problems encountered in their lives, particularly grammatical issues. Therefore, it is essential to employ more technical and advanced methods that are suitable for learners, to develop students who are liberated from backwardness and confident in their own cognitive and cultural resources (Ghanem and Al-Tamimi, 2021, p. 6413).

This indicates a clear decline in overall levels of thinking, particularly critical thinking, among learners, as evidenced by conclusions from several studies, including those by Al-Janabi (1992), Al-Alwani (1999), Ali (2004), and Al-Tamimi et al. (2023). These studies have confirmed a noticeable drop in this type of thinking among learners. This necessitates the activation of educational activities that focus on thinking, its models, methods, and the interpretation of cognitive abilities and mental organization, including models that explain cognitive activities. This will be addressed in the current research in order to achieve the goals that education aims to reach. Therefore, the

researcher is justified in investigating the effectiveness of the Presseisen model in decision-making for solving grammatical problems. The research problem can be summarized by the following question:

What is the effectiveness of the Presseisen model in decision-making for solving grammatical problems among intermediate school female students?

The Research Importance:

Education is a fundamental reality in all aspects of life. It affects human relationships in all their forms, as it is a social and moral necessity with significant educational dimensions. Education is a set of standards and goals that must be present in every organized society, whether advanced or developing. It permeates the individuals' minds, shaping their attitudes, motivations, and aspirations, and it manifests in both conscious and unconscious behavior and in situations requiring engagement from these individuals. Education is influenced by the home, school, mosque, church, friends, peers, and the community as a whole (Al-Jamali, 2017, p. 10).

Educators agree that teaching thinking, or teaching thinking skills, is a crucial goal of education. They believe that schools should do everything in their power to provide opportunities for their students to learn how to think. Teachers want their students to succeed, and many consider the development of each student's thinking ability to be a primary educational goal. When formulating educational objectives, they express their hopes and expectations that students will develop the skills to effectively deal with complex life problems both now and in the future. (Jibrawi, 2011, p. 19)

The growing desire to adapt to the demands of a technological society and the needs of contemporary students has increased educators' interest in selecting effective thinking strategies for decision-making to address various problems. Among these strategies is the adoption of

diverse thinking models that provide students with opportunities to develop their cognitive, emotional, social, and background knowledge. (Qatami & Qatami, 2000, p. 12)

This means that the adoption of thinking models in teaching stems from the understanding that teaching is no longer just an art, as it was in the past, but has become a science. Moreover, it requires organized knowledge of the fundamentals of thinking, its methods, models, strategies, and how to plan for it to achieve specific goals with a high degree of precision. It involves maintaining active interaction with students, measuring their progress towards achieving goals, assessing the effectiveness of the educational process to improve future practices, and achieving learning outcomes (Dourzeh, 1990, p. 7).

Regardless of the diversity of thinking models, their significance lies in developing the cognitive and intellectual aspects of students. This is achieved by developing and enhancing their cognitive structures through interaction with the learning situations provided to them. Additionally, students are equipped with fundamental and complex mental processes to improve their thinking skills. This is facilitated by providing an engaging and enjoyable learning environment, as well as employing appropriate strategies to stimulate their thinking and assist them in research, study, and drawing conclusions. (Kemp, 1985, p. 94)

Thinking develops more effectively and enhances cognitive processes when its methods are integrated into the prescribed curriculum. This integration allows learners to apply these processes easily and clearly whenever needed (Nofal and Saifan, 2011, p. 50). The decision-making process is significant because it is closely linked to the learner's life. Therefore, this process should not be left to chance or be detached from reality and implementation. Several studies, including those by Al-Asadi (2009), Shneif (2012), and Abdel (2012), highlight the importance of teaching learners decision-making skills.

Decision-making is considered one of the most important human skills, with a strong and effective impact on success and quality of life. Consequently, learners are required to make numerous decisions, such as choosing specific subjects or topics, or selecting the major for their future careers. (Al-Remawi et al., 2004, p. 331). Additionally, the ability to make decisions is considered a desirable goal of the educational system. This system is tasked with preparing learners to select the best alternative from a range of proposed behavioral options within certain limits and with relative independence from others. Decision-making skills can help learners activate their thinking and problem-solving abilities (Tama, 2010, p. 6).

Some researchers describe the decision-making process as one of several thinking strategies, including problem-solving and concept formation. They treat each of these processes independently, as involving distinct steps and operations. However, others argue that decision-making is synonymous with problem-solving, considering that problems are essentially situations that require decisions to be made. In reality, the decision-making process necessitates the use of higher-order thinking skills such as analysis, evaluation, induction, and deduction. Therefore, it might be more appropriate to classify it as a complex thinking process, alongside critical thinking, creative thinking, and problem-solving. (Jabrawan, 2011, p. 105)

The importance of the research can be summarized as follows:

1. The Presseisen model is used to develop complex thinking processes in students.

2. The Presseisen model contributes to creating a decision-making scale for solving grammatical problems.

3. The Presseisen model assists educators and curriculum developers in including problems and situations in grammar textbooks that enhance students' decision-making skills.

The Research Objective:

The current research aims to assess the effectiveness of the Presseisen model in solving grammatical problems among fourth-year intermediate female students.

The Research Hypothesis:

To achieve this goal, the null hypothesis will be verified:

There is no statistically significant difference at the 0.05 level between the average scores of the experimental group, which is taught using the Presseisen model, and the average scores of the control group, which is taught using traditional methods, on the decision-making scale for solving grammatical problems.

The Research Limitations:

1. The study is limited to fourth-year intermediate female students at Al-Hariri Secondary School for Girls (governmental, morning shift) under the General Directorate of Education for Al-Rusafa I.

2. The subjects include Arabic grammar topics: past tense verbs, present tense verbs (nominative, accusative, genitive), the construction of present tense verbs, imperative verbs, transitivity and intransitivity, and the subject, as outlined in the Arabic Language Book for the fourth intermediate grade, Part One.

3. The first semester of the academic year $2023-2024$.

4. The study focuses on complex cognitive processes within the Presseisen model, including problem-solving, decision-making, critical thinking, and creative thinking.

Definition of Terms:

1. **Effectiveness:** According to Shahat and El-Naggar (2003), it is "the extent of the effect of one or more independent factors on another or more independent factors" (Shahat & El-Naggar, 2003, p. 23). Abdullah (2015) defines it as "the measurement of the expected impact of the

Presseisen model on decision-making for solving problems among intermediate students. (Abdullah, 2015, p. 521).

2. **Model**: Qutami and Qutami (2000) define it as "the strategies employed by the teacher in the educational setting to achieve learning outcomes among students, based on assumptions of the model, defining the roles of the teacher and student, and the appropriate evaluation methods" (Qutami & Qutami, 2000, p. 360).

3. **Presseisen Model**: According to Arefa (2006), it is one of the cognitive activity models that includes thinking processes classified into two categories: basic cognitive processes and complex cognitive processes (Arefa, 2006, p. 201). The researcher defines it technically as a cognitive activity model used for teaching Arabic grammar to fourth-year intermediate female students (experimental group) by integrating complex cognitive processes (problem-solving, decision-making, critical thinking, and creative thinking) into the subject content. Effectiveness is measured through the post-test results of the decision-making scale for solving grammatical problems.

4. **Decision-Making**: According to Zaghloul and Zaghloul (2003), decision-making is "a conscious and deep cognitive process that primarily involves selecting the most suitable alternative to solve a problem or exit a situation" (Zaghloul & Zaghloul, 2003, p. 315).

Theoretically, the researcher defines "decision-making for solving grammatical problems" as the process of selecting the best alternative among the presented options to solve a grammatical problem based on scientific and logical criteria. The researcher defines "decision-making for solving grammatical problems" technically as the process carried out by fourth-year intermediate students to choose the best alternative among the options provided in the decision-making scale designed for solving grammatical problems, according to scientific and logical criteria relevant to their choices.

Chapter Two: Theoretical Framework and Previous Studies

1. Thinking:

Thinking represents a form of human behavior, which can be inferred from its outcomes and the behavior exhibited by learners in various situations. It is considered one of the most important characteristics that distinguish humans from other creatures. This mental activity results from the complexity and organization of the human brain compared to the simpler brain structure of animals. Through its use and organization, humans can distinguish themselves from animals by their ability to set objectives for their thinking activities (Qutami et al., 2010, p. 411).

Approaches to Teaching Thinking:

Some researchers identify three approaches to teaching thinking, as outlined by Atiya (2009):

1. The First Approach: Advocates teaching thinking through separate, independent programs or models specifically designed for thinking. In this approach, thinking is not taught as part of the subject content but is instead presented as a distinct subject under the title "learning to think," which is unrelated to the content of the lesson.

2. The Second Approach: This approach advocates integrating thinking instruction within regular subject lessons, indicating that thinking skills are taught as part of the standard curriculum rather than in separate classes. The content of the lesson, which includes teaching thinking skills, is incorporated into the overall subject matter of the curriculum. Teachers design the lesson according to the requirements of the curriculum and embed the thinking skills to be taught within it.

3. The Third Approach: This approach combines both methods, where thinking is taught as a separate subject in special classes by dedicated teachers, with its own specific tests. At the same time, thinking skills are integrated into the content of various subjects such as science, mathematics, language, and social studies, achieving a form of

integration between the two approaches to develop thinking skills (Atiya, 2009, p. 178).

How Thinking Occurs:

The subject of thinking and brain function has been a topic of debate among philosophers and scientists. The processes underlying thinking are more complex than can be described in a single statement. In his book, "The Mechanism of Mind," De Bono (1966) described how the brain functions as a neural network that allows experiences to achieve self-organization through perception. Thinking, he argued, deals with perception rather than logic. Therefore, we need to understand how perception works, as perception is essentially self-organization and an active information system. This is fundamentally different from the passive information systems used in computers. The brain organizes information into models, and then retrieves and reorganizes this information based on how it is recorded, coded, and integrated within its knowledge base. Finally, it retrieves this information in a way that can be expressed through physical sensation, quasi-imagery, or symbolic representation using letters, words, and numbers. (Qutami, 1990, p. 105).

Individuals tend to favor one hemisphere of their brain for processing information. The left hemisphere typically processes language-related tasks logically and holistically. In contrast, the right hemisphere processes information related to perception and motor control in an analytical and fragmented way. Each individual has a unique style of thinking, and it is difficult to predict how others will think (Al-Otom, 2004, p. 258). This means that differences in hemispheric dominance can lead to variations in thinking styles and approaches to problem-solving. A dominant left hemisphere can lead to more analytical and realistic thinking styles, while a dominant right-hemisphere may lead to more synthetic and idealistic thinking styles. Therefore, we can expect

engineers and accountants to have a strong left-hemisphere dominance, while poets and writers may have a stronger right hemisphere dominance. (Kamel, 1993, p. 52).

There are various models that offer explanations for thinking, cognitive abilities, and mental organization. Some of the most prominent models include:

First: Models Explaining Cognitive Activity:

Second: Models Explaining Thinking Styles

First: Models Explaining Mental Activity

1. Gubins Model (1985)

2. Arthur Costa Model (1985)

3. Presseisen Model (1985)

Presseisen's Model (1985) for thinking:

Presseisen's model categorizes cognitive processes into two types: basic mental Processes and complex mental Processes.

1. Basic Mental Processes:

1. Causation: Understanding the relationships between cause and effect, evaluating prediction, inference, and assessment processes.

2. Transformations: Relating known and unknown characteristics to produce meaning.

3. Perceiving Relationships: Systematic discovery, connecting parts to wholes, using models, analysis, ordering, organization, and logical deduction.

4. Classification: Identifying descriptive characteristics of phenomena, recognizing similarities and differences, grouping, comparing, detailing, and distinguishing.

5. Discovery of Distinctive Features: Includes definitions, facts, problems, and opinions.

2. Complex Mental Processes:

1. Problem-Solving: This operation relies on transformation and classification, used to solve known problems and generalize solutions.

2. Decision-Making: It relies on classification and perceiving relationships, and helps in understanding specific meanings, leading to particular responses.

3. Critical Thinking: It depends on perceiving relationships, transformations, and causation, used to understand new meanings and arrive at correct reasons and sound evidence.

4. Creative Thinking: It is dependent on transformations, perceiving relationships, and discovering unique features, used to generate new and original ideas and creative outcomes.

According to this model, problem-solving leads to decision-making, which in turn leads to critical thinking, and ultimately to creative thinking as a feature of complex cognitive processes (Irafa, 2006, p. 202).

General Steps for Teaching according to the Presseisen Model:

1. Presenting the Lesson Content: Introduce the lesson material as problems (preferably inspired by the students' environment).

2. Providing Solutions: Offer alternative solutions to the problem.

3. Discussing Solutions: Review and discuss these solutions with the teacher to reach the most appropriate decision, understanding the relationships between the problem's causes and solutions in a scientifically creative and effective manner, avoiding new problems.

Thirdly: Decision-Making:

The concept of decision-making has been utilized by experts from various fields such as philosophy, sociology, psychology, economics, and management. Troubled (as cited in Al-Abdullah, 2015, p. 524) argues that decision-making is one of the most significant sciences, noting that few human functions demand as much intellectual and emotional energy as decision-making does, especially when the decision to be made has a long-term impact on an individual's future.

Each person can likely recall decisions they have made that have had a profound effect on their life journey.

There are many similarities between decision-making and problem-solving, as both involve a series of steps that begin with a problem and end with a solution. Both processes involve evaluating various alternatives or solutions against selected criteria to reach a final decision. The primary difference lies in the recognition of the solution. In problem-solving, the learner starts without a clear answer and seeks to find a scientifically sound and reasonable solution to the problem. In decision-making, the learner may begin with several potential solutions, and the task is to identify the best option that aligns with their goal.

Furthermore, values can play a more significant role in decision-making, especially when analyzing alternatives and assessing the importance of criteria. In decision-making, alternatives are often evaluated simultaneously or in a single step, rather than sequentially as in problem-solving. Both quantitative and qualitative criteria are used to judge the suitability of an alternative, and there may not be a single objectively correct answer in decision-making. Multiple alternatives can be equally acceptable. (Jabrawan, 2011, p. 108)

According to Al-Abdullah (2015, p. 524), numerous factors influence the quality of decisions made. Among these are the psychological factors of the decision-maker, including their motivations, abilities, and capabilities, which are crucial elements in this process. Additionally, social, cultural, civilizational, and economic factors that constitute the decision-making environment play a significant role in the quality of decisions that can be made. Furthermore, the timing of the decision and the time available to the decision-maker are influential factors in the decisions made.

Decision-Making Stages:

According to Abu Jado and Nofal (2010), several steps should be followed when facing a specific problem that requires a suitable decision to resolve it. These steps are:

1. Identifying the Problem: The process of problem-solving and decision-making begins with the presence of an issue or topic that needs resolution. Sometimes, a problem may start occurring without being noticed. Therefore, it is essential to diagnose the problem, determine its size and type, understand its implications, and identify the aspects involved, whether they are natural or otherwise. Identifying the problem is half of the solution.

2. Generating Alternatives: Alternatives are the potential solutions that the decision-maker may choose to address the problem. It is preferable to generate as many alternatives as possible, as a larger number of options increases the likelihood of finding the most suitable solution. The abundance of alternatives makes decision-making a meaningful cognitive activity. In this stage, it is advisable for the learner not to jump to solutions immediately, as generating solutions can lead to creative decision-making. This step is crucial for reaching an agreement on the final and appropriate decision to be made.

3. Considering and Evaluating Alternatives: After generating suitable alternatives, the next step is evaluation, which is the core purpose of the decision-making process. This evaluation is carried out based on criteria such as: Is the alternative feasible? Does it fulfill the purpose? Are its results and effects acceptable? The first question addresses whether a particular alternative, while positive, might be difficult to implement. The second question considers the degree to which a specific alternative is acceptable. The third question examines whether the results of the alternative could be a reason for its exclusion or rejection.

4. Choosing the Most Suitable Alternative: At this stage, many alternatives are eliminated through a process of scrutiny, examination, and critical evaluation. The decision-maker must select the most appropriate alternative, relying on experience, skill, and sound judgment. Factors such as the outcomes of the chosen alternative and its fundamental acceptability and practicality play a crucial role in the selection process. (Abu Jado and Nofal, 2010, 375)

Previous Studies:

Abdullah's Study, 2015:

The study aimed to evaluate the effectiveness of the Presseisen model in decision-making for solving physics problems among fifth-grade scientific students. The null hypothesis verified was: "There are no statistically significant differences at the 0.05 level between the mean scores of the experimental group, which was taught using the Presseisen model, and the mean scores of the control group, which was taught using traditional methods, in decision-making for solving physics problems." The researcher used a quasi-experimental design and randomly selected Al-Diwaniyah Secondary School for Boys from among the secondary and preparatory schools in Al-Qadisiyyah Governorate. The study was conducted with a sample of fifth-grade scientific students during the second semester of the 2013-2014 academic year, over an 8-week period, using chapters six through ten of the prescribed physics book. Two sections were randomly selected from four, with a sample size of 61 students, including 30 students in Section A (the control group) and 31 students in Section B (the experimental group). The two research groups were matched on variables such as age, intelligence, previous year's academic achievement in physics, and decision-making for solving physics problems. To achieve the research objective, the researcher developed a tool, a decision-making scale for solving physics problems, and after

verifying its validity, reliability, and item discrimination index, the final scale consisted of 17 items. After conducting the experiment and applying the tool to the research sample, data were analyzed statistically using SPSS software to calculate item discrimination indices, Chi-square, Pearson correlation coefficient, Cronbach's alpha, t-test for independent samples, and effect size. The results showed that the experimental group outperformed the control group in the variable of decision-making for solving physics problems. Based on these findings, the researcher recommended using the Presseisen model in teaching physics and suggested conducting similar studies with other variables, stages, and academic subjects. (Abdullah, 2015, 520)

Chapter Three / Research Procedures

1. Experimental Design:

The researcher adopted a quasi-experimental design with two groups (experimental and control), using a post-test for the decision-making scale for solving grammatical problems, as outlined in the following table:

Table (1): Experimental Design of the Research.

Group	Group equivalence	Independent variable	Dependent variable
Experimental	- Age (month) - The average of last academic year	Presseisen Model	**Taking decisions for solving grammatical problems**
Control		Traditional method	

Second: The Research Community:

The research community consists of all fourth-grade female students in the governmental day schools of the Preparatory and Secondary Schools in the Directorate of Education for Al-Rusafa First / Baghdad, for the academic year (2023 – 2024). The total number of schools is 32, according to statistics provided by the researcher from the Planning Division of the General Directorate of Education for Al-Rusafa First.

Third: The Research Sample:

Among several schools, the researcher randomly selected Al-Hurriya Preparatory School for Girls, which includes four sections for the fourth literary grade. Hence, the researcher randomly chose Section C to represent the control group, consisting of 44 students, and Section B to represent the experimental group, consisting of 42 students. Thus, the total sample size is 86 students, as shown in the following table:

Table (2): Distribution of Research Sample Students between Experimental and Control Groups

Group	Section	Number before exclusion	Excluded	Final Number
Experimental	B	44	2	42
Control	C	46	2	44
Total		90	4	86

Fourth: Ensuring Internal and External Design Validity:

1. Internal Validity of the Experimental Design:

To ensure internal validity, equivalence between the experimental and control groups was established for variables such as age and the previous year's academic performance in Arabic. It was found that the T-values between the groups were not statistically significant.

2. External Validity of the Experimental Design:

Factors affecting external validity were addressed, including the duration of the experiment, the tools used, the classroom environment, the subject teacher, sample selection, interaction between the test and the experiment, and experimental conditions.

Fifth: Research Requirements:

1. Determining the Scientific Material:

The scientific material was determined to include five topics from the Arabic language curriculum for the fourth preparatory class: (past tense), (present tense / nominative case, accusative, and genitive case), (formation of present tense verbs), (imperative verbs), (transitive and

intransitive verbs), and (the subject) from the Arabic Language Book / Fourth Preparatory / Part One, as specified.

2. Formulating Behavioral Objectives:

The researcher formulated 50 cognitive behavioral objectives, which were reviewed by a panel of experts and specialists in Arabic teaching methods. Their feedback was used to adjust and finalize the objectives, with a consensus rate of at least 80%. No objectives were removed, and they were finalized as presented.

3. Preparing the Teaching Plan:

Based on the educational material for the experiment, teaching plans were prepared for both the experimental and control groups, totaling 14 plans, with two sessions per week. These plans were reviewed by a panel of experts and specialists, who suggested some modifications. Approval was obtained from 80% of the reviewers, and the plans were finalized accordingly.

Sixth: The Research Tool:

The researcher developed a decision-making scale for solving grammatical problems as a research tool to assess the extent to which the research objective and hypothesis are achieved. The scale consists of 20 items with four possible choices (Appendix 1), and the student is required to select only one option from these choices, after which the following were calculated:

1. Validity of the Tool:

Face Validity: This refers to the extent to which the test measures what it is supposed to measure. The test is deemed valid if it measures what it was designed to measure. However, if it measures something else, it lacks validity (Ouda, 1988, p. 340). This was assessed by presenting the tool to a group of experts and specialists in Arabic teaching methods. Some items and solutions were revised, and two items were removed, reducing the scale from 22 to 20 items.

Construct Validity: This refers to the extent to which a test measures a theoretical construct or concept. It is one of the most important forms of validity because it addresses the fundamental question: What does the test actually measure? All variables are derived from theoretical constructs (Zaitoun, 2004, p. 418). The construct validity of the scale was verified after its application to a pilot sample consisting of 120 students from Al-Hariri Preparatory School for Girls. This was done by calculating the internal consistency of its items, where the correlation coefficients between the scores of each item and the total score of the scale were computed using Pearson's correlation coefficient. The correlation coefficients between each item and the total score of the measurement ranged from 0.30 to 0.70. The tabular value for the correlation coefficient was 0.2 at 78 degrees of freedom and a significance level of 0.05. Therefore, all items were considered acceptable, and the test showed internal consistency, thereby achieving construct validity.

2. Application of the Decision-Making Scale to the Exploratory Sample:

The decision-making scale was administered to the exploratory sample at Al-Hariri Secondary School for Girls on Sunday, 20th of December 2023, to ensure the clarity of the items, their alternatives, and the instructions for use. The average time taken to complete the scale was 45 minutes. After grading and ordering the students' responses in descending order, the highest score (20) represented the upper group, and the lowest score (0) represented the lower group for statistical analysis of scores. The following were extracted:

A. Coefficient of Determination:

To calculate the coefficient of determination of the decision-making scale, an independent two-sample t-test was used to determine the significance of the difference between the mean scores of the upper and lower groups. The results showed that the difference was statistically

significant for all items, with the t-table value being 2.00 at a significance level of 0.05 and 78 degrees of freedom. Thus, all items were considered to be determined.

B. Reliability:

Reliability refers to the accuracy with which the test measures its intended construct each time it is used. The reliability of the decision-making scale was calculated using Cronbach's alpha formula, which is used for non-binary tests. Nonetheless, the reliability coefficient was 0.80, indicating a good level of reliability (Omar et al., 2010, p. 228).

Seventh: Procedures for implementing the experiment:

The researcher taught the control group using the traditional method, whereas the experimental group was taught according to the following procedural steps:

$1.$ Grouping the Students: One lesson was dedicated to dividing the experimental group students into six groups, each consisting of $5-6$ students based on their previous year's performance in Arabic (High, Medium, and Low). Each group was assigned a number and was responsible for presenting their solutions to the class.

$2.$ Explaining the Training Paragraph: The researcher began by distributing a pre-prepared worksheet to each group. This worksheet included a training paragraph (problem) related to the lesson's topic, which was explained clearly and in detail.

$3.$ Discussing Students' Answers: The experimental group students responded to the training paragraph as follows:

A. Each student wrote her answer (solution) in the designated space on the worksheet.

B. Group members discussed the solutions they provided in the worksheet.

C. Each group selected the best solution from among the solutions they proposed.

D. The researcher discussed and evaluated the solutions reached by the experimental groups, recognizing the relationship between the causes of the problem and its solutions in a scientific, creative manner, and selecting the best solution. The group with the best solution was awarded points.

Eighth: Statistical Methods: The researcher used the SPSS statistical software for data analysis, employing the Chi-Square test to assess the validity of the decision-making scale items, Cronbach's Alpha to determine the scale's reliability, Pearson's correlation coefficient to calculate the correlations between each item's scores and the total scale score, and the independent t-test for comparing the two groups. The coefficient of determination for the scale items was also calculated.

Chapter Four: Presentation and Interpretation of Results

First: Presentation of Results

To verify the null hypothesis, which stated that "there are no statistically significant differences at the 0.05 level between the mean scores of the experimental group, which was taught using the Presseisen model, and the mean scores of the control group, which was taught using the conventional method, in decision-making for solving grammatical problems," the mean and standard deviation for both groups were calculated. The mean score for the experimental group was 49.65 with a standard deviation of 5.50, whereas the mean score for the control group was 50.25 with a standard deviation of 4.80. Using the independent samples t-test, it was found that the calculated t-value was 4.30, which is greater than the tabular t-value of 2.00 at 78 degrees of freedom with a significance level of 0.05. Therefore, the null hypothesis is rejected, and the alternative hypothesis is supported. This indicates that there are statistically significant differences between the experimental and control groups, favoring the experimental group in the

post-test measure of decision-making for solving grammatical problems, as shown in the following table:

Table (3): T-value for the significance of the difference between the mean scores of the experimental and control groups in the decision-making for solving grammatical problems.

Group	Number of students	Arithmetic mean	Standard deviation	T – value		Level of sig.
				Calculated	Tabular	
Experimental	42	٤٩,٦٥	٥,٥٠	٤,٣٠	2	0,05
Control	44	٥٠,٢٥	٤,٨٠			

The effect size of the independent variable on the dependent variable is as shown in the following table:

Independent variable	Dependent variable	D value	Impact size
Presseisen Model	Taking decisions for solving grammatical problems	٢,١	Great

It is evident from the effect size in the independent variable for the Presseisen model, which is 2.64 for the variable of decision-making in solving grammatical problems, that this value is suitable for interpreting the effect size according to the scale proposed by Cohen (1988). Cohen considers the effect size to be large, as indicated by Kiss (1996). This is illustrated in the following table:

Table (4): Effect Size (d) and Magnitude of Impact.

Effect size (d) values	Impact Amount
0.2 – less than 0.5	Small
0.5 – less than 0.8	Medium
0.8 and above	Large

Second: Interpretation of Results:

The results obtained by the researcher indicate that the Presseisen model is effective in decision-making for solving grammatical problems among fourth-grade secondary school students. This result can be attributed to the following reasons:

1. The Presseisen model presents educational content in the form of various problem-based situations inspired by the student's environment, helping to organize the material and relate it to their previous experiences. This means the student uses their existing knowledge and data about the situation and the problem they face, following deductive steps that connect each cause to an outcome, ultimately leading to a solution for the situation or problem.

2. The harmony between the steps of the Presseisen model and the stages of the decision-making process, on the one hand, and the nature of the activities carried out by the female students in the experimental group collectively, on the other hand, contributed to enhancing their critical, creative, and innovative thinking. Additionally, it boosted their self-confidence in making appropriate decisions to solve problems and address new situations they encountered. This was reflected in their improved performance in the post-test on decision-making compared to the control group.

3. The Presseisen model aligns with the modern concept of the curriculum and the philosophy and goals of teaching grammar by making the student central to both teaching and learning processes. It allows them to engage in higher-order cognitive activities such as problem-solving, analyzing results, inference, generalization, formulating and evaluating alternatives, and making decisions critically and creatively.

4. The Presseisen model contributed to increasing interaction among students and between students and the educational material (activities).

Third: Conclusions:

In light of the results of this study, the researcher concluded that the Presseisen model contributed to improving the decision-making skills of the experimental group students for solving grammatical problems compared to the traditional method and increased their engagement with Arabic grammar.

Fourth: Recommendations:

The researcher recommended adopting the Presseisen model for teaching Arabic grammar at the secondary level, training Arabic language teachers to use this model through workshops, seminars, and in-service training. It should also be included in the curriculum of teaching methods in colleges of education to prepare students for modern teaching techniques. Additionally, educational authorities and curriculum developers should be directed to the importance of incorporating problem-solving situations that stimulate students' minds and develop their skills in analysis, inference, formulation, evaluation, and problem-solving.

Fifth: Suggestions:

To complement this research, the researcher suggests conducting further studies to explore the effectiveness of the Presseisen model in Arabic grammar with variables related to other subjects and educational stages.

References

– Abdul, I. H. (2012). *The impact of active thinking model and responsibility circle strategy on public health achievement, bioethical decision-making, and development of metacognitive skills among life sciences students* (Unpublished doctoral dissertation). College of Education, Ibn Al-Haytham, University of Baghdad.

– Abu Jado, S. M. A. (2000). *Educational psychology* (2nd ed.). Dar Al-Maseerah for Publishing and Distribution.

‒ Abu Jado, S. M. A., & Nofal, M. B. (2007). *Theory and application.* Dar Al‒Maseerah for Publishing and Distribution.

‒ Al‒Rimawi, M. A., et al. (2004). *General psychology.* Dar Al‒Maseerah for Publishing and Distribution.

‒ Al‒Tamimi, R. S. (2010). Difficulties in teaching Arabic in the colleges of administration and economics in Baghdad. *Al‒Ustad Journal, College of Education, Ibn Rushd, University of Baghdad,* (114).

‒ Al‒Tamimi, R. S. (2012). The effect of computer use on the achievement of students of the College of Administration and Economics, University of Baghdad, in the Arabic language subject. *Journal of the College of Basic Education, Al‒Mustansiriya University, 18*(74).

‒ Al‒Tamimi, R. S. (2014). Causes of spelling weakness among students of the College of Administration and Economics at the University of Baghdad and methods of addressing them from the point of view of teachers and students. *Journal of the College of Basic Education, Al‒Mustansiriya University, 20*(86).

‒ Al‒Tamimi, R. S., & Ghanim, K. S. (2021). The effect of Daniel's model on the development of critical thinking in the subject of Arabic language among students of the College of Management and Economics. *Psychology and Education, 58*(1).

‒ Al‒Tamimi, R. S., Ghanim, K. S., & Farhan, N. D. (2023). The effect of productive thinking strategy upon the students' achievement for the subject of research methodology in the College of Islamic Sciences. *Journal of Namibian Studies, 34*(1).

‒ Al‒Zghoul, R., & Al‒Zghoul, A. A. R. (2003). *Cognitive psychology.* Dar Al‒Shorouk for Publishing and Distribution.

‒ Ambo, S. A. B. K., & Al‒Balushi, S. M. (2009). *Teaching methods in science.* Dar Al‒Maseerah.

– Atiyah, M. A. (2009). *Total and new quality in teaching* (2nd ed.). Dar Al-Safa.

– Atoum, A. (2004). *Cognitive psychology: Theory and application*. Dar Al-Maseerah.

– Daroura, A. N. (1990). *Procedures in curriculum design*. Dar Al-Naseer, An-Najah National University.

– Ghanim, K. S. (2020). Attitudes of Arabic language teachers towards the use of technological means in light of the Corona pandemic. *International Journal of Innovation, Creativity and Change, 13*(5).

– Ghanim, K. S., & Al-Tamimi, R. S. (2021). The impact of mind-clearing method in teaching reading book to second class intermediate students. *Turkish Journal of Computer and Mathematics Education, 12*(13).

– Ghanim, K. S., Shihab, M. M. T., & Hussen, F. S. (2020). The effect of e-learning on the acquisition of reading in reading and texts, and the development of creative reading skills and innovative thinking concepts for literary fifth students. *PalArch's Journal of Archaeology of Egypt/Egyptology, 17*(7).

– Gibrawan, F. A. R. (2011). *Teaching thinking: Concepts and applications* (5th ed.). Dar Al-Fikr.

– Kamel, A. W. M. (1993). *The holistic model of brain functions*. *Egyptian Journal of Studies*, (4).

– Kemp, J. (1985). *Instructional design: Developing unit and course plans* (M. Khawaldeh, Trans.). Dar Al-Sharq.

– Kiess, H. O. (1996). *Statistical concepts for behavioral science*. Allyn and Bacon.

– Ministry of Education. (2023). *Arabic language book, fourth preparatory grade, part one* (3rd ed.). General Directorate of Curricula.

– Nofal, M. B., & Saifan, M. Q. (2011). *Integrating thinking skills into the curriculum*. Dar Al-Maseerah.

– Omar, M., et al. (2010). *Psychological and educational measurement.* Dar Al-Maseerah.

– Ouda, A. S. (1998). *Measurement and evaluation in the teaching process* (2nd ed.). Dar Al-Amal.

– Ouda, A. S., & Malakawi, F. H. (1992). *Fundamentals of scientific research in education and humanities* (2nd ed.). Yarmouk University, Al-Kitab Library.

– Qatami, N., et al. (2010). *Educational psychology: Theory and thinking.* Dar Waeel.

– Qatami, Y., & Qatami, N. (2000). *Teaching design.* Dar Al-Shorouk for Publishing and Distribution.

– Shehata, H., & Al-Najjar, Z. (2003). *Dictionary of psychological and educational terms.* Dar Al-Masriah Al-Lubnaniah.

– Shneif, T. M. (2012). *The effectiveness of knowledge maps and mind maps in biology achievement and developing scientific processes and decision-making among fifth-grade students* (Unpublished doctoral dissertation). College of Education, Ibn Al-Haytham, University of Baghdad.

– The Holy Quran.

– Toma, A. A. (2010). *Decision making and leadership behavior* (2nd ed.). Dar Deybouno.

– Zeitoun, A. M. (2004). *Teaching methods.* Dar Al-Sharq.

Appendix (1): Final Version of the Grammar Problem Solving Scale, Instructions, and Responses

Dear Student:

The scale you are holding measures your ability to make decisions to solve grammatical problems. Please read the situations carefully and the proposed solutions. Choose the most appropriate decision (the best alternative) to solve the problem, and write your answer on the provided sheet. Consider the following three aspects:

1. The alternative should be easy to apply.

2. The alternative should be cost-effective and not require excessive resources.

3. The alternative should not create additional problems.

4. The time allocated for answering the scale is 45 minutes.

Thanks for your cooperation.

1. Problem of Verb Tense:

a. Future

b. Present

c. Past

d. All of the above

2. Problem of the Past Verb Construction with Opening in Cases:

a. When not attached or annexed by anything.

b. When attached by feminine singular ending "tāʾ".

c. When attached by "alif" of dual.

d. All of the above

3. Problem of the Construction with Sukun if Followed by Moving Indicative Pronouns:

a. Tāʾ al-Fāʿil for the subject.

b. The "nūn" for feminine.

c. "nā" (for addressers).

d. All of the above

4. Problem of Additions to the Past Verb:

a. The silent "tāʾ" of femininity.

b. "Qadʾ already " indicating confirmation.

c. "Qad" indicating negation.

d. All of the above

5. Problem of the Present Verb with Weak Ending or Vowel:

a. With "ā" (alif)

b. With "ī" (yāʾ)

c. With "ū" (wāw)

d. With any of the above

6. Problem of Accusative Case of the Present Verb with a Preceding Tool of Accusation:

a. "Lā" or "kī" or "ẖattā"

b. "Lām" for justification or denial

c. "Fā" for causation or "wāw" for coordination

d. Any of the above

7. Problem of Tools for Accusation of the Present Verb:

a. "Lam" negative or "lamā" "since"

b. "Lā" for prohibition 'no' 'do not'

c. "Lām" for imperative

d. Any of the above

8. Problem of the Five Verbs, which is any Present Verb with Attached Pronouns:

a. "Ā" (alif)

b. "Wāw"

c. "Yā'"

d. Any of the above

9. Problem of Types of the Present Verb:

a. The final root letter is a consonant

b. The final root letter is a weak consonant or vowel

c. Either of the above

10. Problem of Cases for the Present Verb with Final root letter is a consonant:

a. To be in nominative case with an explicit damma

b. To be in accusative case with a fatẖa

c. To be elided with a sukun

d. All of the above

11. Problem of Constructing the Present Verb:

a. When attached to "nūn" of feminization

b. When attached to "nūn" of heavy emphasis

c. When attached to "nūn" of light emphasis

d. Any of the above

12. Problem of Emphasizing the Present Verb with One of the Nūns of Emphasis, which should be:

a. Coupled with "lām" in response to an explicit or implied oath

b. Found in response to the oath

c. Affirmative, not negated, and indicating future time

d. Any of the above

13. Problem of Prohibiting Emphasis on the Present Verb in the Following Cases:

a. When "sawfa" separates "lām" of emphasis and the present verb

b. When the present verb is negated

c. When the present verb indicates the present time (now)

d. Any of the above

14. Problem of Constructing the Imperative Verb with the Deletion of Nūn when Attached to:

a. "Ā" (alif) of dual

b. Collective "Wāw"

c. Vocative "Yā'"

d. Any of the above

15. Problem of Constructing the Imperative Verb:

a. With sukun

b. With the deletion of nūn

c. When attached to nūn of feminization

d. Any of the above

16. Problem of Classification of Verbs in Arabic:

a. Intransitive

b. Transitive

c. Both cases above

17. Problem of Transitive Verbs:

a. Transitive over one object

b. Transitive over two objects

c. The cases mentioned above

18. Problem of Di-Transitive Verbs:

a. Transitive over two objects, whose origin is subject and predicate

b. Transitive over two objects, not originally subject and predicate

c. Either of the above

19. Problem of Method of Making Verbs Transitive:

A. By adding the prefix "hamzat al-ta'diyya" (transitive hamza) at the beginning of the verb

B. By doubling the root of the verb

C. Either of the above

20. Problem of Nominating the Subject:

A. With an apparent damma or estimated damma

B. With "ā" (alif)

C. With "wāw"

D. Any of the above

Best wishes for success and achievement.