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Building a Mental Blueprint of Text Using the SVR Model (SVR)

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A B S T R A C T

The current study aims at finding out the effect of using Simple View of Reading model in improving mental blueprint of text for EFL preparatory school Students, Finding out the differences between the mean scores of the first experimental group model in improving mental Blueprint of Text skills (A. Comprehension components B. integration of information C. mental Imagery and visualization D. inference making and engagement E. retention and recall) for EFL preparatory school Students, To verify the hypotheses and achieve the aims of the study, quasi- experimental design is adopted, namely the design of a "Non-Randomized Control Group Pretest- Posttest Design. The sample consists of 70 students from the fifth scientific stage Naji Al-Ajbara Preparatory School for Girls in Al- Alam city for, distributed into two groups, experimental and control with 35 students for each. Both groups. The experiment lasted for two months, during the academic year 2024-2025.

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بناء المخطط الذهني للنص باستخدام نموذج الرؤية البسيطة للقراءة

وفاء عبد الله حسين/ وزارة التربية / المديرية العامة لتربية محافظة صلاح الدين

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الخلاصة:

تهدف الدراسة الحالية إلى معرفة أثر استخدام نموذج الرؤية البسيطة للقراءة (Simple View of Reading) في تحسين المخطط الذهني للنص لدى طالبات المرحلة الإعدادية من متعلمي اللغة الإنجليزية لغةً أجنبية، والكشف عن الفروق بين متوسطات درجات أفراد المجموعة التجريبية الأولى التي دُرِّست باستخدام نموذج الرؤية البسيطة للقراءة في تنمية مهارات المخطط الذهني للنص، والمتمثلة في:

(أ) مكونات الفهم، (ب) تكامل المعلومات، (ج) التخيل الذهني والتصور البصري، (د) الاستدلال والتفاعل، (هـ) الاحتفاظ والاسترجاع، لدى طالبات المرحلة الإعدادية. وللتحقق من فرضيات الدراسة وتحقيق أهدافها، تم اعتماد التصميم شبه التجريبي، وبالتحديد تصميم «المجموعة الضابطة غير العشوائية ذات الاختبارين القبلي والبعدي». تألفت عينة الدراسة من (٧٠) طالبة من الصف الخامس العلمي في إعدادية ناجي العجبر للبنات في قضاء العلم، ووزعت على مجموعتين: تجريبية وضابطة، بواقع (٣٥) طالبة لكل مجموعة، مع تحقيق التكافؤ بين المجموعتين في عدد من المتغيرات. استمرت التجربة لمدة شهرين خلال العام الدراسي (٢٠٢٤–٢٠٢٥). كما تم التحقق من الصدق الظاهري والبنائي وصدق المحتوى، فضلاً عن ثبات أدوات الدراسة.

الكلمات المفتاحية: نموذج الرؤية البسيطة للقراءة(SVR) ، المخطط الذهني للنص، الفهم القرائي، متعلمو اللغة الإنجليزية لغةً أجنبية.

1.1 Background of the Study

Text comprehension is generally recognized to be an complex cognitive process that can be looked at as something more than the mere decoding of linguistic symbols. On the other hand, the reader is involved in the construction of meaning through the integration of information from the text with information from prior knowledge and cognitive expectations. This, in turn, leads to the construction of internal representations in order to gain understanding not only of what is written down but also of what lies implicitly in the mind of the writer. Cognitive approaches on modern psychology strongly point out that text comprehension is a function of the text input and mental structures rather than the text itself (Kintsch, 1998).

1.2 Statement of the Problem

Reading comprehension remains a major challenge for many Iraqi EFL learners, particularly at the preparatory stage. Students often demonstrate difficulties in constructing coherent mental representations of the text, integrating information, and making inferences while reading English texts. These difficulties limit their ability to understand academic materials effectively.

Although reading is a fundamental skill in language learning, classroom practices in many Iraqi schools still rely on traditional teaching methods that

focus mainly on vocabulary and literal comprehension. Such methods may not sufficiently develop deeper cognitive processes involved in text comprehension.

The Simple View of Reading (SVR) model emphasizes that reading comprehension is the result of the interaction between decoding skills and linguistic comprehension. Therefore, applying this model in the classroom may enhance students' ability to construct mental representations of texts and improve their overall comprehension performance.

1.3 Aims of the Study

The study aims to:

1. Investigate the effect of using the Simple View of Reading (SVR) model on improving the mental blueprint of text among EFL preparatory school students.
2. Identify whether the SVR model improves students' abilities in comprehension components, inference making, integration of information, visualization, and retention of textual information.

1.4 Questions of the Study

This study seeks to answer the following research questions:

1. Is there a statistically significant difference between the mean scores of the experimental group taught using the Simple View of Reading (SVR) model and those of the control group taught using the conventional method in mental blueprint of text skills?
2. Does the use of the Simple View of Reading model contribute to improving students' reading comprehension skills represented in mental blueprint construction?

1.5 Hypothesis of the Study

The specific hypothesis of this study is to:

1. There is no statistically significant difference at the level of (0.05) between the mean scores of the experimental group taught using the Simple View of Reading model and those of the control group taught using the conventional method in the post-test of mental blueprint of text skills.

1.6 Limit of the study

The study is limited to:

1. Fifth grade Alshaheed Naji Al-Jbara Preparatory School for Boys in Al-Alam city for the academic year 2024-2025
2. Student book and activity book “English for Iraq‟ for the fifth preparatory class, units one, two, and three (in the first semester of the study).

Chapter Two: Literature Review

2.1 Theoretical Foundations of Text Comprehension

The comprehension of text involves building multiple levels of representation, such as surface structure, propositional level, and situational understanding. These representations are dynamic, being used by the reader while processing the incoming information. It can be said that there is effective comprehension when there is the ability to integrate these levels into a single entity that can facilitate inference and knowledge transfer (Zwaan & Radvansky, 1998).

2.2 Mental Models and Situation Models

Mental models are part of cognitively oriented computational linguistics. The mental model theory was developed in the context of natural language understanding. It was inspired by the idea of Holland's artificial life approach and has connections with Montague's formal semantics. The aim of this theory is to explain the process of forming a semantic representation of a sentence or a text by a reader. Robert Moore and John Kundu argued that there is a process of interaction between the reader and the sentence or the text during the process of reading and understanding. The reader begins by predicting the meaning of the

sentence or the text, and then, according to the sentence's structure and semantics, the meaning is confirmed or corrected.

According to the mental model theory, when the semantic structure of the sentence or text is matched against the semantic structures defining the sentence or text meaning, the reader develops a mental model that either confirms or disconfirms the sentence or text meaning. In relation to situation models, Downing et al. argued that readers form situation models in order to achieve the realization of their mental models of the sentences or texts they are reading. They further suggested that situation models provide a way to operationalize the role of mental models in human comprehension and that they have the potential to explain the increased amount of time it takes for readers to process situation descriptions compared to other kinds of sentences.

The mental models theory has a fundamental explanation as to how readers encode the meaning of the text in their memory. According to this theory, readers encode not verbal information but construct mental models of the situation described in the text. Mental models are analogical and encode spatial, temporal, and causal relationships rather than linguistic structures (Johnson-Laird, 1983).

2.3 The Construction–Integration Model: Origins and Development

Among the most characteristic cognitive models of texts and text comprehension is the Construction–Integration Model (CIM). The CIM model was purposefully built in order to model how a reader is able to consider a text and construct a text representation. The model has two phases: construction and integration. The construction phase involves the use of the text and the reader’s knowledge in producing a proposition-based network containing an enormous amount of unnecessary information (Kintsch and van Dijk, 1978).

In the integration phase, cognitive constraints like spreading activation and inhibition occur, which help in forming connections while inhibiting incompatible information. The integration phase results in a stable mental representation that symbolizes the reader’s understanding of text as a unit of meaning. The recursiveness in the integration and the evaluation phases can explain both successful and unsuccessful understandings (Kintsch, 1988).

2.4 Empirical Studies on CIM and Reading Comprehension

Research conducted on the basis of the Construction–Integration Model of comprehension has indicated that inferencing and knowledge integration processes have an important role to play in the comprehension process. It was found that readers who carried out inference generation while reading comprehended better than those who carried out literal processing (McNamara, 2001).

In think-aloud procedures and recall procedures, it has been revealed that comprehension difficulties quite often arise from difficulties with the integration component instead of difficulties with the decoding component. At other times, the reader might need access to the information but might fail to suppress the alternative interpretation, leading to a fragmented comprehension (Kendeou & van den Broek, 2007).

2.5 Cognitive Constraints in Mental Model Construction

While mental model construction is easier when all information is provided at once, humans have a tendency to seek explanations for things they don’t understand. This tendency acts as a cognitive constraint because it forces a mental model to address issues that may not be immediately relevant to the current environment. However, it can also be considered an advantage because it helps to ensure that a mental model is more than just a means for navigating the current environment, but rather it has the ability to adapt to different environments.

Mental models can be created in a number of ways depending on the intended use of the mental model. There are also some limitations when creating mental models based on human cognition. For example, the human brain is not capable of doing an infinite number of calculations. This impacts the calculations that can be done in mental models. Another limitation of the human brain is that it is only capable of recognizing images with a resolution of 50 pixels. This impacts the resolution of the images used in mental models.

2.6. Review of Previous Studies

2.6.1 Gough and Tunmer (1986)

This study is entitled "The Simple View of Reading ". It aims to conceptualize reading comprehension as the product of decoding and linguistic (listening) comprehension based on prior studies of school-aged children, both typical and struggling readers, the model was grounded in evidence rather than direct experimentation. Instead of empirical tools, the authors synthesized psycholinguistic and educational findings, referencing word recognition and phonological decoding tasks alongside oral language comprehension measures.

The findings highlighted that weaknesses in either decoding or language comprehension could limit reading success, explaining why some learners read words accurately yet fail to construct coherent meaning. The SVR framework proved influential, offering a diagnostic model that guided later empirical validation and instructional practices.

2.6.2 Kintsch (1988)

This specific research is called “Construction-Integration Model (SVR)” because it aims at particularizing cognitive processes in understanding, involving stages of activation, elaboration, inference generation, and constraint satisfaction. This specific model of SVR did not rely on a single observation but was grounded in cognitive psychology research in reading literature in normal as well as poor readers.

These conceptual tools included simulations of activation and integration of propositions during the process of reading.

The significance of understanding being based on the integration of the text base and world knowledge was brought out clearly, and the roles of generating inferences and accessing knowledge in achieving deep understanding were pointed out.

2.6.3 Hoover and Gough (1990)

This particular research study is referred to as The Simple View of Reading (SVR), The aim of this particular study is to examine how decoding skills and oral language abilities relate to reading comprehension abilities. The particular study applied normative tests of word recognition and listening comprehension

to examine how these two skills are independent of each other but also how they are complimentary to each other in relation to reading outcomes.

Hoover and Gough (1990) conducted a longitudinal study involving young bilingual readers, and their results supported the key claim of SVR that in achieving comprehension, decoding as well as linguistic comprehension is necessary as having strong decoding skills alone is not sufficient in forming an integrated mental representation of the text if oral linguistic skills are weak.

2.7 Discussion of Previous Studies

Previous research has targeted reading comprehension and the underlying cognitive processes in text understanding, including the roles of decoding skills, language comprehension, inference generation, knowledge activation, and text coherence. The research is different in terms of theoretical underpinnings, goals, research instrument, research participants, and results obtained. It is possible to look for convergent and divergent results in these studies in shaping the current study design and framework.

The researcher is able to use the sample, instruments, and findings of such previous studies to adapt and design a new study to examine the relationship between decoding and linguistic understanding and the building of mental text representations. The disparities in findings from such studies will enable theoretical viewpoints to be refined, methodologies to be combined, and the rationale behind this current study to be justified.

2.7.1 Aims

All the above studies are related to the process of reading comprehension, in one way or the other. The study by Gough & Tunmer (1986) attempted to frame a theory for reading comprehension by identifying it as a function of decoding and linguistic comprehension. The study by Kintsch (1988) attempted to formalize the cognitive process involved in text comprehension by identifying the process involved in the Construction-Integration Model (SVR).

Later empirical research further developed these models. Hoover and Gough (1990) set out to test SVR empirically by investigating bilingual children's ability to decode and their oral language ability.

Nonetheless, despite the common goal among the earlier studies aiming for comprehension research, each study has its distinct objective. There were those that aimed for the validation of theoretical models (SVR), as well as those that investigated the mechanisms involving inference generation or knowledge integration. This study will make use of these earlier studies as it delves into the relationships involving decoding, linguistic comprehension, as well as blueprint construction within the context of reading, taking into account both perspectives of SVR.

2.7.2 Sample

The participants of previous studies had a large range of ages and language and contextual background characteristics. The previous study by Gough and Tunmer (1986) compiled previous investigations that included both skilled and struggling readers of a school-going age group. Kintsch (1988) conducted his study with adult readers and that of Hoover and Gough (1990) with young bilingual readers.

Such differences indicate that the underlying processes for reading comprehension are similar for different groups, but the effects may be moderated by the development stage, prior knowledge, and language experience. This study will adjust its sampling based on these earlier studies, taking into consideration the development stages as well as the levels of proficiency for the purposes of this research.

2.7.3 Tools

Most research employed standardized or conceptual methodologies for analyzing decoding, oral language, and comprehension skills. Hoover & Gough (1990) employed standardized measures for word recognition skills and listening comprehension abilities. Gough & Tunmer (1986) integrated research data from word recognition, phonological decoding, and oral language comprehension measures. Kintsch (1988) used conceptual simulations and cognitive analyses for proposition activation/ integration during reading.

These instruments formed the basis for assessing the SVR frameworks and emphasize the importance of having instruments that can measure the interplay between decoding, linguistic comprehension, and mental blueprint construction.

The study modifies the measurement instruments to assess not only reading comprehension outcomes but also mental blueprint construction processes.

2.7.4 Results

The earlier studies yielded complementary results on reading comprehension. Gough & Tunmer (1986) found that deficiencies in decoding skills as well as linguistic comprehension skills can impair one's ability to read successfully. Hoover & Gough (1990) replicated the finding that decoding skills and linguistic comprehension skills are independent predictors of comprehension skills. Kintsch (1988) stressed the importance of integrating text with prior knowledge through inference generation and constraint satisfaction procedures for comprehension to occur.

Taken together, these findings provide further evidence for the benefit of integrating SVR frameworks and illustrate the importance of successful understanding being determined not only by decoding but also by cognitive integration and mental model construction. This study will build on these findings and examine the joint effects of decoding and linguistic understanding in influencing readers' capacity for constructing mental maps of text.

Chapter Three: Methodology

3.1 Research Design

This study employs a descriptive-analytical research design and a cognitive model of reading to conceptualize text comprehension and the development of mental models in a Construction-Integration Model (SVR) framework. By adopting the research design, the study will be relevant as it allows the cognitive process of comprehension to be investigated systematically without the manipulation of variables in the design of instruction. The study will be able to specify the pattern of meaning construction as the study observes the behavior of the study participants in a naturalistic view of the study (Creswell, 2014).

A quantitative approach is employed in measuring the results of comprehension outcomes and the quality of mental models in terms of theoretical interpretations of the observed patterns. This approach can help in identifying relationships between cognitive integration processes and comprehension

performance, which corresponds with the explanation of research goals for SVR-related studies (Field, 2018).

3.2 Participants

Participants in the present study consisted of seventy (70) female students from the fifth preparatory scientific grade at Naji Al-Ajbara Preparatory School for Girls in Al-Alam city during the academic year (2024–2025). The students were randomly assigned into two groups:

- Experimental group (35 students)
- Control group (35 students)

Both groups were equalized in several variables including age, previous achievement in English, and pre-test scores.

3.3 Instruments

The data was gathered using a reading comprehension task where the aim was to determine literal as well as inference comprehension. This was a multiple choice as well as open-ended task. This allows for a direct assessment of literal comprehension as well as mental model construction (Kendeou et al., 2014).

3.4 Research Procedures

This particular research will attempt to yield wide-ranging results in many fields; this will be achieved while taking into consideration many factors, such as:

1. Identification of the variables in the research: This will involve identifying the variables that the research will focus on. These variables can be dependent variables or independent variables. This will involve ensuring that the variables are well defined and that their measurements are accurate.
2. Identification of the research instruments: The research instruments are the tools that will be used in conducting the research. The research instruments in the research will include questionnaires and papers. The

research will entail the process of identifying the research instruments to be used in conducting the research.

3. Decision on whether the research will be qualitative or quantitative. This is because the two forms of research follow different processes. The process will involve making a decision on whether the research will be carried out using qualitative research or quantitative research.
4. Determination of whether the research will be conducted on a small or large scale. This is because the two scales have different procedures. The procedure will involve determining whether the research will be conducted on a small or large scale.

3.5 Data Collection

The study targeted respondents by collecting information during the scheduled academic sessions after obtaining prior consent. Instructions for the respondents were standardized. All respondents' answers were anonymized to allow them to perform freely without revealing their identities (Cohen et al., 2018).

These included numerical values for understanding ability and quality of mental models as depicted by the written responses. The two formed a complement in providing an understanding of the outcome of comprehension and the cognitional integration process (Miles, Huberman, & Saldaña, 2014).

3.6 Data Analysis Techniques

Quantitative data was analyzed using descriptive statistics to understand the performance level on comprehension. Correlation analysis was adopted to examine the relationship between the level of mental models' quality and the level of comprehension performance scores, as per the comprehension goals set in this study. Responses to the comprehension questionnaire consisted of coding that was tied to the CIM concepts. To enable reliability in the coding process, the coding was occasionally checked. The method of analysis used here is suitable for systematic interpretation of cognitive processes associated with performance (Saldaña, 2016).

3.7 Validity of the Test

To ensure the validity of the test, the researcher adopted the following procedures:

1. **Face Validity**

The test items were presented to a panel of specialists in English language teaching and applied linguistics. Their suggestions and comments were taken into consideration when revising the test items.

2. **Content Validity**

The test was designed according to the objectives of the study and the reading skills included in the English for Iraq textbook for the fifth preparatory grade.

3.8 Reliability of the Test

The reliability of the test was established using the test-retest method. The test was administered to a pilot sample of students and repeated after two weeks. The Pearson correlation coefficient was calculated and showed a reliability coefficient of 0.82, which indicates acceptable reliability for educational research.

Chapter Four: Analysis of Data And Discussion of the Results

4.0 An Introductory Note

This chapter is allocated to the statistical analysis of the collected data and the discussion of the results in order to verify the hypotheses of the study.

4.1 Presentation of the Results

The student's responses to the test items have been analyzed statistically as follows:

4.1.1 Results Related to the First Hypothesis

Comparison between the Mean Scores of the First Experimental Group(S VR)and that of Control Group in Mental Blueprint of Text at the **Posttest**

According to the following results in table 1, the mean scores of the first experimental group in the posttest is 77.22 and standard deviation is 8.14 . while the mean scores of the control group is 62.06 and the standard deviation is 7.09. The calculated t-value 8.304 is higher than the tabulated t-value 2.00 with a degree of freedom 68 at a level of significance (0.05).

Observing the values of T-calculated above, it is found that the calculated T-value 8.304 is higher than the tabulated T-value of the field 2.00, and it can be concluded that *there are statistically significant differences between the mean scores of the first experimental group, which is taught by using Simple View of Reading model, and that of the control group, which is taught using the conventional method in improving mental blueprint of text in the posttest*, for the benefit of the first experimental group. So, the first hypothesis is rejected.

Table 1: ***Means, Standard Deviation, and T-Values of the Two Groups in Mental Blueprint of Text*** **at the Posttest**

Group	**N.**	**Mean**	**S.D.**	**T-Value**		**DF**	**Level of Sig.**
				Calculated	Tabulated		
Experimental	35	77.22	8.14	8.304	2.00	68	0.05
Control	35	62.06	7.09				

4.1 Results

Observing the values of T-calculated of the first Hypothesis, it is found that the calculated T-value 8.304 is higher than the tabulated T-value of the field 2.00, and it can be concluded that there are statistically significant differences between the mean scores of the first experimental group, which is taught by using Simple View of Reading model, and that of the control group, which is taught using the conventional method in improving mental blueprint of text in the posttest, for the benefit of the first experimental group. So, the first hypothesis is rejected.

4.2 Discussion

The analysis of the mean scores between the first experimental group and the control group in the first hypothesis provides evidence regarding the efficacy of the Simple View of Reading model in improving students' understanding of building blueprints of text. The results indicate that the experimental group,

which utilized this model, achieved a mean score of 77.22, while the control group, taught through conventional methods, scored a mean of 62.06, as show in figure 1. The calculated t-value of 8.304 significantly surpasses the tabulated t-value of 2.00. This stark difference supports the conclusion that the use of Simple View of Reading model has a significant impact on students' performance. The rejection of the null hypothesis indicates that the Simple View of Reading model is more effective in teaching EFL preparatory school students compared to traditional pedagogical approaches. The findings suggest that integrating the Simple View of Reading model into the curriculum could improve students' comprehension skills, particularly in understanding complex texts. This model's emphasis on the interaction between decoding and linguistic comprehension allows for a more holistic approach to reading, which appears to be beneficial in fostering deeper understanding.

Chapter Five: Conclusions, Recommendations and Suggestions for Further Studies

5.1 Conclusions

Based on the results of the statistical analysis, the study arrived at the following conclusions:

1. The Simple View of Reading model has a significant positive effect on improving students' ability to construct a mental blueprint of text.
2. Students who were taught using the SVR model demonstrated higher performance in reading comprehension compared with students who were taught through conventional teaching methods.
3. The SVR model contributes to developing higher-order reading skills such as inference making, integration of information, and visualization of textual information.
4. The findings indicate that reading comprehension is influenced by the interaction between decoding ability and linguistic comprehension, which supports the theoretical assumptions of the SVR model.

5.2 Recommendations

Based on the results of the study, the researcher recommends the following:

1. English language teachers should adopt the Simple View of Reading model in teaching reading comprehension at the preparatory stage.
2. Curriculum designers should incorporate activities that develop inference skills, visualization, and information integration during reading.
3. Teacher training programs should include training on cognitive models of reading such as the SVR model.

5.3 Suggestions for Further Studies

The following studies are suggested:

1. Conducting similar studies at different educational stages such as intermediate or university levels.
2. Investigating the effect of the SVR model on other language skills such as writing or vocabulary acquisition.
3. Examining the effectiveness of combining the SVR model with other cognitive reading strategies.

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