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Title:

The Impact of Prototypes and Schema-Based Instruction on Motion Verb Learning Strategies in Pre-Intermediate EFL Learners

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Abstract

This thesis investigates the impact of prototypes and schema-based instruction (SBI) on motion verb learning strategies among pre-intermediate English as a Foreign Language (EFL) learners within the Iranian educational context, where vocabulary acquisition, particularly of motion verbs, presents a persistent challenge. Motion verbs, which describe physical movement and spatial relationships (e.g., *run, walk, jump, fly*), are fundamental for expressing actions, interactions, and spatial relationships in everyday communication. However, their acquisition often poses significant difficulties for EFL learners, hindering their ability to articulate experiences vividly and navigate real-world scenarios effectively. Traditional teaching methods, frequently relying on rote memorization, translation-based approaches (TBI), and decontextualized grammar exercises, may not adequately address the inherent complexities and nuances of these verbs or foster deeper linguistic awareness.

This study addresses this gap by exploring the effectiveness of two cognitive linguistics (CL)-based approaches: prototype theory and schema theory. Prototype theory utilizes concrete, representative examples to illustrate verb categories, facilitating categorization based on typical instances and shared

features. Schema theory, rooted in the idea that new knowledge is best understood when integrated with existing cognitive frameworks, assists learners in organizing and assimilating new information about motion verbs into their pre-existing schemata, thereby promoting deeper understanding, enhanced retention, and improved application. Recognizing that the cognitive processes governing language use are intertwined with other forms of knowledge, this research aims to leverage these cognitive principles to enhance vocabulary instruction.

The primary aims of this research are threefold: (1) to evaluate the impact of prototype-based and schema-based instruction on pre-intermediate EFL learners' understanding, retention (both short-term and long-term), and application of motion verbs in various communicative contexts; (2) to identify and analyze the specific learning strategies employed by learners when exposed to these instructional methods, examining how these strategies influence their overall language proficiency and communicative competence; and (3) to provide practical, evidence-based recommendations for EFL teachers and curriculum developers in Iran and similar contexts, offering insights into effective instructional practices and pedagogical approaches that can be implemented in EFL classrooms to enhance the teaching and learning of motion verbs and promote a more meaningful learning experience.

The research employs Data will be collected through a combination of quantitative and qualitative methods, including pre- and post-tests to measure vocabulary gains, questionnaires to assess learners' perceptions and attitudes toward the instructional methods, and classroom observations to analyze learning strategies in action. By integrating cognitive principles into vocabulary instruction, this study seeks to inform and enhance EFL teaching practices, improve learners' vocabulary acquisition, and ultimately foster greater communicative competence in English. The findings of this research are expected to contribute valuable insights into innovative pedagogical approaches, promoting more effective and engaging learning experiences, and improving overall language proficiency among pre-intermediate EFL learners, specifically in the often-challenging area of motion verb acquisition. The study will also contribute to a more nuanced understanding of how cognitive strategies can be effectively integrated into vocabulary instruction to facilitate language acquisition within the Iranian EFL context.

1 Introduction

1.1 Theoretical Background

Nowadays, English plays an increasingly central role in international communication. Meanwhile, vocabulary takes a significant part in the process of English learning and teaching. Although the significance of the vocabulary teaching and learning have been noticed by the teachers and students, the current situation of English vocabulary teaching and learning is not satisfactory in most Iranian institutes especially in the case of motion verbs.

Motion verbs are a category of verbs that describe physical movement from one place to another, encompassing actions such as "run," "walk," "jump," and "fly." These verbs are essential in both everyday communication and language learning, as they convey dynamic actions and spatial relationships. In the context of language acquisition, understanding motion verbs helps learners articulate their experiences and observations more vividly. Additionally, motion verbs can be categorized into specific types, such as transitive and intransitive verbs, which can influence sentence structure. Teaching motion verbs effectively involves using visual aids, real-life examples, and interactive activities, allowing learners to grasp their meanings and applications in various contexts. This foundational knowledge not only enhances vocabulary but also supports overall language proficiency.

As Thornbury (2002) mentions that the acquisition of words never stops since the coining of the words never does. Teaching motion verbs is essential in English language learning classes for several reasons. Firstly, motion verbs are fundamental to expressing actions and interactions in everyday life, allowing learners to describe their experiences and navigate their environments effectively. According to Talmy (1985), understanding

motion verbs enhances learners' ability to convey complex ideas related to movement and direction, which is crucial for effective communication.

Moreover, motion verbs often serve as a gateway to understanding more complex grammatical structures and concepts, such as aspect and tense. As highlighted by Slobin (2004), the way different languages encode motion can influence learners' cognitive processes and their approach to language use. Therefore, teaching motion verbs not only enriches vocabulary but also fosters deeper linguistic awareness.

Research has shown that incorporating motion verbs into language instruction can improve learners' fluency and confidence. For instance, a study by Fuchs and Bock (2016) demonstrated that students who engaged in activities focused on motion verbs exhibited greater proficiency in both spoken and written English. By utilizing interactive and contextualized teaching methods, educators can effectively support learners in mastering these essential verbs, ultimately enhancing their overall language competence.

Moreover, cognitive linguistics (CL) has become one of the most influential linguistic disciplines, the research that attempts to apply the CL perspectives to English teaching, or CL approach, has gathered a lot of attention. This research field is called applied cognitive linguistics (Arakawa & Moriyama, 2009), and the research outcome in CL has been expected to be beneficial in English teaching and learning in a new way (Littlemore, 2009). The CL approach involves its basic perspective, i.e., the cognitive process governing language use and linguistic knowledge is not essentially different from the other knowledge in mind (Langacker, 2008). Thus the CL approach contains a cognitive view in its explanations and brings us a great deal of enlightenment that is different from the traditional translation-based instruction (TBI), where learners memorize the meaning of words or phrases through translation in their mother language, generally in a haphazard way. These studies have shed light on its effectiveness and problems. One of the new findings gained from these previous studies is that the CL approach could be effective in some grammatical or lexical items, but not in all the items (Cho, 2016), (Imai, 2016). For example, Cho investigated the effectiveness of the CL-motivated schema-based instruction

(SBI) in learning English prepositions and showed that the SBI did not always work effectively in every usage. Then she argues that the CL-motivated schematic representation does not seem to work effectively for learners at a beginner or elementary level while it is very helpful for other levels.

In the light of cognition, there is a related theory for vocabulary learning. Rosch (1976) proposes the prototype theory through a series of experiments. A prototype is considered to be the concrete typical instance of its class defined operationally by people's judgments of goodness of membership in the category, which has more common features than other members of this class, or a prototype is the abstract schematic representation or attribute collection. The prototype theory suggests that many mental concepts we have are really prototypes, and people often do classify things or define a concept by reference to what they regard as being typical instances for prototype is the first member that comes into people's mind when referring to a particular category. For example, a prototype of the category of bird would be more like a small bird which flies than a large flightless bird like an emu.

Moreover, schema theory in cognitive approach considered as the most useful method for simplifying word categories. Schema theory originated from Kant's observation. The term "schema" was first put forward by the German psychologist I. Kant in 1781. He said that schema was made up of people's previous knowledge and he explained it as an "active developing pattern" where continuous developing and concept construction were implied. He thought that schema could help the reader to fill the detailed gap in the text by activating his previous knowledge. According to Zhang and Ye (2016) schema is active, self-activating and self-revising. These characteristics imply that schema has a great influence on cognitive learning processing. Schema conduce us to focus, to understand, to interpret, to memory, to ratiocinate and to handle problems. Schema is an abstract set of experiences. One of the most important characters is that it becomes more substantial continually with perceptual experience, and it is an organ in a state of living development.

Vocabulary learning and teaching has been one of the main issues in EFL learning and teaching research. EFL teachers in Iran, in particular, are grappling with the effective vocabulary teaching methods. This study is doing part of this job in a different way. It discusses three principles based on Cognitive Linguistics (CL), namely the study of categorization, prototype, and schema-based instruction (SBI), and implications of these principles in formal vocabulary instruction in an Iranian context of English learning in international college of Tehran University of Medical Sciences.

Therefore, the purpose of this study is to apply the Schema– based theory and prototype theory and related approaches, which contains the three levels of categorization and two cognitive mechanisms to motion teaching and learning. For this aim, the impact of incorporating background knowledge on L2 vocabulary development of EFL learners in Tehran University of Medical Science International College, Iran is investigated.

1.2 Statement of the problem

In the context of English as a Foreign Language (EFL) instruction, pre-intermediate learners often struggle with the acquisition and application of motion verbs, which are crucial for effective communication and comprehension. Traditional teaching methods may not adequately address the complexities of these verbs, leading to gaps in learners' understanding and usage. This study aims to investigate the effectiveness of prototypes and schema-based instruction as innovative pedagogical strategies to enhance motion verb learning. Despite the increasing recognition of the importance of motion verbs in language acquisition, there is a lack of empirical research exploring how these instructional methods can specifically improve learning strategies among pre-intermediate EFL learners. Addressing this gap is essential for developing more effective teaching practices that cater to the unique needs of learners at this stage, ultimately contributing to their overall language proficiency and communicative competence. This approach emphasizes the

important facets of vocabulary instruction with cognitive strategies used to comprehend competence. It first pays attention to the connections between vocabulary learning and the manner of categorization describes a cognitive strategies vocabulary approach to instruction.

As, teachers are the best source for clearing new vocabularies by finding appropriate categorization, and activating their cognition through their background knowledge and relating them to their cognition, the teacher can categorize new vocabularies by means of comparing new ones with their prototypes and making the related schema. The schema which promotes to learn the new knowledge can activate the original knowledge system and make a connection between the old and new knowledge. When they try to learn new things, people need to connect new things with acquired cultural knowledge and linguistic knowledge. The acquisition of new things depends on the previously existing schemata, and the language inputs should be acquired in accordance with them.

On the other hand, one of the central ideas of prototype theory is that the organization of our experience has two dimensions: a horizontal dimension and a vertical one. Both dimensions allow us to organize and classify our experience: the vertical one, arranging the different category elements from the basic level to the superordinate and subordinate levels; and the horizontal one, organizing categories in relation to other close categories.

Categorization allows us to organize the information we perceive from the external world. By means of this mental process of classification we subsume elements into groups according to their similarities and differences.

Furthermore, the research will find of metaphor based on man's cognition that can provide some motivations for students accounting for semantic change and development. Therefore, the research will lay emphasis on basic vocabulary by means of metaphor. In vocabulary teaching and learning, it will try every possible means to develop metaphorical awareness, make full use of the cognitive function of metaphor and reveal the metaphorical relationship between word meanings.

In view of this, teachers should help students to have a good command of vocabulary learning strategies. One approach to develop teaching vocabulary is called to be schema theory. Based on psychological model of a learner's background knowledge, schema theory is used by the psychologists to explain the understanding process. It guides the students to motivate their background knowledge in the mind and ultimately to understand the current knowledge, constructed in the vocabulary teaching.

Therefore, vocabulary learning should be attached great importance to in the course of language learning. We can get ahead in language acquisition in this teaching way, especially at the main stage of language learning.

This research attempts to apply the prototype theory and Schema- based instruction to English vocabulary teaching and learning in order to obtain valuable implications from it to find out the crux of English vocabulary teaching.

1.3 Significance of study

This study has two major significances; the practical and theoretical significances briefly mentioned as follows:

1.3.1 Theoretical Significance

This research gives solution to find out the appropriate method in teaching motion verbs. Mastering the motion verbs of a foreign language is one of the most difficult tasks that language learners face. This study aims to survey students' vocabulary learning strategies. The researcher believes that an awareness of cognitive methods in learning has important effects on EFL in teaching and learning.

1.3.2 Practical Significance

The practical significance of investigating the impact of prototypes and schema-based instruction on motion verb learning strategies in pre-intermediate EFL learners lies in its potential to enhance teaching methodologies and improve learner outcomes. By focusing on effective instructional strategies, this research can provide educators with valuable insights into how to better engage students in the learning process, particularly in mastering motion verbs, which are often challenging for language learners.

Implementing prototypes and schema-based instruction can lead to more meaningful learning experiences, allowing students to connect new vocabulary with existing knowledge and real-world contexts. This approach not only aids in retention and recall but also fosters critical thinking and application skills, enabling learners to use motion verbs accurately in both spoken and written communication.

Furthermore, the findings from this study can inform curriculum development, equipping educators with evidence-based practices that can be integrated into language teaching frameworks. By emphasizing the importance of motion verbs and effective learning strategies, this research can contribute to the overall enhancement of EFL programs, ultimately leading to improved language proficiency among learners. As a result, the study has the potential to positively impact not only individual learners but also educational institutions striving to implement innovative and effective teaching practices in the field of language education.

1.4 The purpose of the study

The purpose of this study is to explore the effectiveness of prototypes and schema-based instruction in enhancing motion verb learning strategies among pre-intermediate EFL learners. Specifically, the study aims to:

1 .Evaluate the Impact: Assess how the use of prototypes—concrete examples that represent categories of motion verbs—affects learners' understanding and retention of these verbs.

2 .Investigate Schema-Based Instruction: Examine the role of schema-based instruction in helping learners organize and integrate new knowledge about motion verbs into their existing cognitive frameworks.

3 .Identify Learning Strategies: Identify specific learning strategies employed by pre-intermediate EFL learners when exposed to these instructional methods, and analyze how these strategies influence their overall language proficiency.

4 .Provide Practical Recommendations: Offer evidence-based recommendations for teachers and curriculum developers on effective instructional practices that can be implemented in EFL classrooms to enhance the teaching and learning of motion verbs.

Through this study, the aim is to contribute to the field of language education by providing insights into innovative teaching approaches that can improve learners' mastery of critical vocabulary, ultimately fostering greater communicative competence in English.

1.5 Research Questions

1 .Research Question 1: How does the use of prototypes in instruction affect the retention of motion verbs among pre-intermediate EFL learners ?

2 .Research Question 2: What is the impact of schema-based instruction on the understanding and application of motion verbs in context for pre-intermediate EFL learners ?

3 .Research Question 3: What learning strategies do pre-intermediate EFL learners employ when taught motion verbs through prototypes and schema-based instruction, and how do these strategies influence their overall language proficiency ?

In order to response for the research questions, the following null hypotheses are proposed:

Hypothesis 1: Pre-intermediate EFL learners who receive instruction using prototypes will demonstrate significantly higher retention rates of motion verbs compared to those who receive traditional instruction.

Hypothesis 2: Pre-intermediate EFL learners exposed to schema-based instruction will show improved understanding and contextual application of motion verbs compared to those who receive conventional teaching methods.

Hypothesis 3: Pre-intermediate EFL learners who utilize prototypes and schema-based instruction will adopt more effective learning strategies, leading to higher overall language proficiency compared to those who do not engage with these instructional methods.1.6 Research Hypotheses

1.7 Definition of key Terms

1.7.1 Prototype theory

The teaching of vocabulary is an important part of English teaching. Prototype category theory is one of the theories of cognitive linguistics, which has a strong guiding role in vocabulary teaching and can provide a certain reference for vocabulary teaching

college English. College English is a discipline which emphasizes practice, its teaching goal is to cultivate students' ability in listening, speaking, reading, writing and translating, the basis for improving English is to master English vocabulary proficiently, therefore, vocabulary teaching plays a crucial role in students' English learning (Shan, 2019).

1.7.2 Cognitive approach

Cognitive linguistics is an approach that is “based on our experience of the world and the way we perceive and conceptualize it” (Ungerer and Schmid, 2001), an approach to the analysis of natural language that focuses on language as an instrument for organizing, processing, and conveying information and in the more restricted sense but one type of a cognitive science approach to language, to be distinguished from.

1.7.3 Categorization

Categorization refers to the overall process by which humans organize experience into various general concepts and related language symbols. Based on experience, interaction, generalization, and classification, categorization is one of the most basic abilities in advanced cognitive activities such as human thinking, language, reasoning, and creativity (Shan, 2019).

1.7.4 Learning in cognitive approach

Cognition is the acquisition of knowledge through psychological activities, which corresponds to the emotional will. Thinking can't be separated from the form, that is, the

conceptual structure of human beings comes from the human body experience and makes sense based on physical experience. Cognitive linguistics believes that language is non-arbitrary and has its own unique methods in guiding English teaching, especially in vocabulary teaching. Vocabulary learning means not only increasing the number of vocabulary, but also deepening the depth and quality of vocabulary learning. Vocabulary learning is a very tedious project (Lan, 2019).

1.7.5 Metaphor

Metaphor is not just a figure of speech, but a way we perceive the world. "Language is essentially metaphoric", because metaphor is widely used in our daily life, lives in our language, and above all, is in our thought and behavior. As Lakoff and Johnson (1980) note, the conceptual system that our thought and behavior rely on is metaphoric in nature. In the same sense, metaphor is an important way of language change and development. We can feel metaphor everywhere, at any time, since it is a way of thinking. So it will be a good try to teach English vocabulary by making use of metaphors. They are powerful cognitive tools for our conceptualization of abstract vocabulary categories. The most important feature of metaphor is that its relatedness between things and categories. For example, the word 'leg' can be used to refer to legs of human beings, legs of a chair, a bed, a table, and so on, which basically means 'the support of things'.

1.7.6 Schema theory

Schema theory emphasizes reading is a changing dynamic process, a relatively active thinking activity, and plays a very important role in English reading. There are many advantages of schema, such as repetition of sources, rich levels, and interconnections

between schemata. The reader can conjecture the content of the article according to the schema knowledge he acquired, and then discuss and modify it in the process of reading under the guidance of schema theory, reading teaching can effectively promote the fast interaction between reading and schemas, maintain the activity and positive thinking state of brain knowledge network system, so as to achieve effective understanding of articles (Zhang, 2015), (Ye, 2016).

1.7.7 Vocabulary Teaching

Teaching of vocabulary can help students to better comprehend concepts that in turn will become more easily entrenched in their long-term memory. In English, there are already many words that can be found directly from their source. In teaching, you can learn from the basic ideas and research results of cognitive linguistics, and change your mind to explain vocabulary and teach grammar. The category is built around a prototype to determine whether a thing belongs to a certain category.

1.7.8. motion verbs

Motion verbs are a category of verbs that express movement or change in location, either caused by an agent (transitive) or self-contained (intransitive). These verbs are characterized by their semantic features such as directionality, manner of motion, and aspect, and play a crucial role in human language.

Transitive motion verbs involve an agent that causes an object to move, while intransitive motion verbs describe movement that is self-contained or not caused by an external agent. Motion verbs can also be characterized by their semantic features, such as directionality, manner of motion, and aspect. For example, some motion verbs, like "walk"

or "run," express a directional movement, while others, like "dance" or "spin," express a manner of motion. Motion verbs play a crucial role in human language by allowing speakers to express complex spatial and temporal relationships. They also have important implications for language acquisition and second language learning, as they require learners to understand and produce complex syntactic and semantic structures.

Aske (1989) defines motion verbs as predicates that involve a change in location, while Levin and Rappaport Hovav (1995) characterize them as expressing actions that cause an object to move. Shanon (1985) highlights the importance of directionality in motion verbs, and Slobin (2004) emphasizes their role in expressing complex spatial and temporal relationships.

Overall, motion verbs are a key component of language that require learners to understand and produce complex syntactic and semantic structures (Zobl & Liceras, 1994).

2. Review of the Related Literature

2.1 Vocabulary

At first, it seems necessary to provide a clear definition of the term vocabulary. Different definitions may be given for the term vocabulary regarding different viewpoints. However one can generally define vocabulary as the knowledge of words and word meanings. Or someone else may define vocabulary as a list of words arranged in alphabetical order with their definitions. A word, in most linguistic analyses, is described as a set of properties, or features, each word is the combination of its meaning, register, association, collocation, grammatical behavior, written form (spelling), spoken form (pronunciation) and frequency. To master a word is not only to learn its meaning but also to learn seven other aspects. All these properties are called word knowledge (Schmitt, 2000). Alqahtani (2015) stated that there was not much value in being able to produce grammatical sentences if one was not get the vocabulary that needed to convey what one wish to say. While without grammar very little can be conveyed, without vocabulary nothing can be conveyed. The meaning of vocabulary usually involves grammatical meaning and dictionary meaning two aspects. Among them, the grammatical meaning indicates that lexical grammar concept or relation, such as part of speech, the singular and plural forms of nouns, verb tenses; dictionary meaning refers to the meaning of individual words present in the dictionary. The grammatical meaning of word is usually changeable, but its dictionary meaning are the same (Zhang, 2019). It is generally known that vocabulary is the foundation of language and the basic unit of expressing people's thoughts, which directly affects people's language ability (Shan, 2019).

2.1.1 Vocabulary Learning

Alqahtani (2015), argued that the acquisition of an adequate vocabulary is essential for successful foreign language use because without an extensive vocabulary, a language learner will be unable to use the structures and functions we may have learned for comprehensible communication. From the perspective of learning rules from easy to difficult, English grammar rules are limited after all. The number of words is infinite, so it can be gradually increased. Cognitive linguistics is not willing to accept the arbitrariness of the relationship between words and meanings. On the contrary, it holds that many semantic phenomena in language have cognitive motivations. Understanding the motivation of meaning extension based on conceptual metaphor is very important for students to master a basic vocabulary systematically and comprehensively (Li, et al., 2017).

2.1.2 Vocabulary Teaching

It is almost impossible to learn a language without words; even communication between human beings is based on words. Recent research indicates that teaching vocabulary may be problematic because many teachers are not confident about the best practice in vocabulary teaching and at times do not know where to begin to form an instructional emphasis on word learning (Berne and Blachowicz, 2008). While people recognize and recognize the objective things in the outside world, they actually classify these things. The word is a combination of sound and meaning, and is the smallest language unit that can be used independently. As far as the word itself is concerned, it contains the original meaning and the extended meaning of the concept of things. There is a misunderstanding in colleges and universities, that is, the blind pursuit of students' vocabulary is large. It seems that the larger the vocabulary of students, the better the English learning is better. Image schema theory is another important theory of cognitive

linguistics. It is also derived from our contact with the world and can therefore be regarded as a basic experience (Sridhar and Sridhar, 2015). Teaching vocabulary is a crucial aspect in learning a language as languages are based on words (Alqahtani, 2015).

2.2 Theories to teaching and learning Vocabulary

There are many theories and methods in English vocabulary teaching. Although traditional teaching methods cannot be replaced, they cannot be ignored by the emerging cognitive linguistics and its achievements. Vocabulary learning means not only increasing the number of vocabulary, but also deepening the depth and quality of vocabulary learning. Vocabulary learning is a very tedious project. It not only requires teachers to be tireless and carefully explained, but also requires students to be enthusiastic and active. Vocabulary learning is a very cumbersome project, and we must actively use the new results of cognitive linguistics. Therefore, the vocabulary learning is more actively treated, and the boring of vocabulary memory is reduced. Prototype theory and its basic level category concept have many meanings for vocabulary teaching. Vocabulary teaching should start from the basic level. We must actively use the new results of cognitive linguistics to improve English vocabulary learning and English.

Schema theory-based instructions have positive influence on students' vocabulary learning strategies. According to Morimoto and Loewen (2007), schema-based instruction (SBI) can be defined as a form of vocabulary instruction in which the process of learning a word is mediated by the use of schema. The aim of SBI is not to teach various senses of a given word exhaustively but to provide learners with a basis on which they can effectively process the various meanings in subsequent input. Vocabulary learning has a certain order, but the order of second language acquisition and mother tongue acquisition is different. The ultimate goal of foreign language teaching is to cultivate students' communicative competence. At present, more and more people realize that simple language ability

education is far from meeting their needs. The experiential process of people's perception of the external world is from themselves to the near, from the near to the far, from concrete to abstract. This new perspective of cognitive linguistics provides us with a framework of prototype and schema theory for understanding polysemy, and provides a good way for us to further understand the deep connection of polysemy. Not only at the syntactic level, but also at the phonetic, lexical, lexical meaning changes, word formation and even the organization of the text are constrained by iconicity rules. In addition to the guidance of students' learning methods, supervision of students' extracurricular learning is also indispensable, otherwise it will be twice the effort (Lan, 2019). a study by Yule and MacDonald (2013) highlighted how schema activation through visual and kinesthetic learning methods can facilitate understanding of motion-related concepts and their syntactic structures.

2.2.1 Vocabulary within a Prototype theory

Prototype refers to all typical models or original images of a word or a type meaning, and it is a typical set of features of a type. In prototype theory, the meaning of words exists in the form of prototype categories. The prototype category is a structure consisting of a prototype and an edge. The prototype is a typical member of the category, and the edge is made up of atypical members of the category. The classification of categories is based on prototypes, and the change degree of category is judged by the prototype. The category of words forms a prototype. Nouns and verbs are typical members of them, they are located at the two ends of the continuum, and other words are located in the middle of the continuum. Prototype category theory is clearer and more flexible in explaining the meaning of words, and it is conducive for learners to understand and learn the meaning of words. Prototype category theory can help learners to put word meaning memory activities into the objective world, human cognitive activities and language structure with connection

and development, so as to significantly improve the meaning acquisition and memory efficiency (Shan, 2019). As with native language learners, second language learners acquire words by first learning the prototypical meaning and gradually expanding to peripheral meanings. Research by Kecskes (2010) suggests that second language learners' understanding of words is shaped by both the prototype of the word in the target language and the learner's conceptualization of the word in their first language.

2.2.2 Vocabulary within a Schema theory

The schema theory was put forward in 1960s, and the cognitive theory also reached a new height. Schema theory suggests that the role of known information in cognition is mainly used to explain the process of language acquisition closely related to cognition, and it is widely applied in reading. By Zhang and Ye, (2016) as a representative of modern schema, they summarize and perfect further on the schema theory, and puts forward the schema does not represent a thing or event exists objectively, but structural knowledge units exist in the mind, which is representative of a structural network understanding of the world, have certain generality and universality.

Schema theory plays an important role in College English reading. In this paper, schema theory is systematically reviewed, and the advantages of Schema Theory in College English teaching are analyzed, focusing on the formation and application of Schema Theory in College English reading teaching. Therefore, in College English reading teaching, if we want to improve students' reading ability, we need not only to cultivate students' language abilities, but also to enrich their background knowledge and enrich their schema so as to improve their reading efficiency. In addition, teachers should use relevant strategies to activate the schemata already existing in the students' minds and improve the teaching efficiency (Luo, 2017).

Schema theory, originating in cognitive psychology, posits that learners build mental frameworks (schemas) based on their prior knowledge and experiences. These schemas help learners organize and interpret new information. In language acquisition, schema theory suggests that learners do not only memorize vocabulary and grammatical rules but also create mental structures to link new linguistic elements to their existing knowledge base (Anderson, 2005).

The application of schema theory to teaching motion verbs and transitivity is an emerging area of research (Tytus, 2020; Wagner, 2021). However, existing studies suggest that using visuals, gestures, and embodied experiences can facilitate young learners' understanding of motion verbs (Sato & Matsumoto, 2019; Macedonia & Prieto-Pablos, 2018). Additionally, providing contextualized examples, scaffolding, and learner-centered activities can support the acquisition of transitivity (Alavi & Alimohammadi, 2019).

For motion verbs, a schema-based approach can help learners form more coherent and integrated mental models of how these verbs operate within sentence structures. By linking motion verbs with contextual schemas such as spatial relationships (e.g., direction, location) or agent-patient roles (e.g., the subject performing the motion, the object being moved), learners are more likely to internalize the transitivity patterns associated with these verbs (Kintsch, 2004).

2.3 Cognitive approach

Each teaching method derives from a teaching theory, which is influenced by linguistics. Cognitive linguistics poses great challenges to traditional structural linguistics and transformational generative grammar. We should attach great importance to basic category vocabulary in English vocabulary teaching and put the teaching of basic category vocabulary in the first place in vocabulary teaching. The basic category and prototype theory are of great enlightenment to English vocabulary teaching. In the process of

vocabulary teaching, we should pay attention to the teaching of basic vocabulary, especially the typical vocabulary in these basic vocabulary words as the focus. Attention plays a crucial role in vocabulary learning. For learners to effectively process and retain new vocabulary, they must first notice and attend to the words. Research has shown that learners are more likely to retain words that they actively focus on (Schmidt, 1995). This has led to the principle of "noticing," which suggests that learners need to consciously notice new vocabulary items in input before they can store them in long-term memory. Cognitive linguistics believes that language is non-arbitrary and has its own unique methods in guiding English teaching, especially in vocabulary teaching. Vocabulary learning means not only increasing the number of vocabulary, but also deepening the depth and quality of vocabulary learning. Vocabulary learning is a very tedious project. This paper discusses the guiding role of cognitive linguistics in English vocabulary teaching (Lan, 2019).

2.4 Categorization theory

Studies based on Categorization Theory are mainly concentrated after 2000. Zhang and Littlemore (2009) proposed according to the prototype category theory, that classroom vocabulary should focus on explaining the meaning of the prototype, which is conducive to help students understand the deep relationship between the various terms, and improve their ability to infer the specific meaning of the context. Categorization theory is applied to vocabulary teaching, which can activate cognitive structures and make them participate in information processing. At the university level, a certain amount of empirical knowledge has been accumulated in the students' minds, but some of these experiences are stable and clear, and can directly establish a very appropriate connection with the new vocabulary of learning; others are unstable and vague ague, cannot directly establish contact with new vocabulary (Shan, 2019).

From the above explanation, Vocabulary learning and teaching has been one of the main issues in ESL/EFL learning research. EFL teachers in Iran particularly grappling with the effective teaching methods. The present research investigates three principles based on Cognitive Linguistic (CL), namely the study of categorization, prototype, and metaphor, and implications of these principles in formal vocabulary instruction in a Persian context of English learning in international college of Tehran University of Medical Sciences. Furthermore, this research suggests that schema-based techniques derived from cognitive semantics can serve as an extremely promising pedagogical devise in teaching L2 vocabularies.

2.5 Limitations and delimitations of the study

Several limitations to this study on the impact of prototypes and schema-based instruction on motion verb learning strategies in pre-intermediate EFL learners need to be acknowledged. First, the sample size of 80 participants may be considered small, which could limit the generalizability of the findings to larger populations. As the study focuses on a specific group of learners, the results may not fully represent the effectiveness of the instructional methods across diverse educational contexts.

Second, the teaching sessions were confined to a total of 240 hours. A longer duration may be necessary to enhance participants' exposure to motion verbs and to allow for a delayed post-test, which could provide insights into the long-term retention of vocabulary. This limitation suggests that the findings regarding the effectiveness of prototypes and schema-based instruction could be further validated with extended instructional periods.

Additionally, technical problems encountered during the teaching sessions may have impacted the consistency of the instruction, emphasizing the importance of the teachers'

manner of representation in effectively conveying the material. Variability in teaching quality can influence learners' understanding and application of motion verbs, which is a critical aspect of this study.

Moreover, the focus on EFL students from Tehran University of Medical Sciences (TUMS) International College introduces another limitation. The learners' levels were determined based on a standardized placement test, which may not capture the full spectrum of their language abilities or background knowledge. Factors such as previous education and age were considered in defining the scope and delimitations of the study. Lastly, the choices of vocabulary, particularly motion verbs, were based on specific sources and their taxonomy, which may not encompass all relevant verbs or contexts, further narrowing the study's applicability. These limitations highlight the need for caution when interpreting the results and suggest areas for future research to explore the broader implications of prototypes and schema-based instruction in diverse EFL settings.3. Research method

This study employed a quasi-experimental pretest-posttest experimental design to investigate the effectiveness of using cognitive teaching strategies based on cognitive categorization to improve students' vocabulary acquisition. The strategies are applying prototypes, schemas, metaphors based on learners' cognition, and blended learning.

For this purpose, a questionnaire is designed, the questionnaires are given to experts of the statistical population. After analyzing the validity of the questionnaire, statistical analyzes such as paired-samples t test is performed.

2.5.1 Motion verbs

The study of motion verbs has been a significant topic in linguistics, with researchers exploring their syntactic and semantic properties. Aske (1989) examined path predicates

in English and Spanish, highlighting the differences in how these languages express motion events. Levin and Rappaport Hovav (1995) analyzed the unaccusativity of motion verbs, focusing on the relationship between syntax and lexical semantics.

Shanon (1985) investigated the representation of motion in language, emphasizing the role of directionality in motion verbs. Slobin (2004) explored the linguistic typology of motion events, discussing how different languages express spatial and temporal relationships.

Zobl and Liceras (1994) studied the acquisition of functional categories in language, including motion verbs. Their research sheds light on the challenges that learners face when acquiring these verbs and the importance of instruction that emphasizes both syntactic and semantic properties.

Motion verbs play a crucial role in describing movement and actions, and understanding their correct usage is vital for effective communication (Celce-Murcia & Larsen-Freeman, 1999; Tytus, 2020). Similarly, the concept of transitivity is fundamental to sentence structure and grammatical accuracy (Levin & Rappaport, 1995). However, both motion verbs and transitivity can pose challenges for young English language learners due to their semantic complexity and syntactic variations (Wagner, 2021; Javed et al., 2018).

Overall, the literature on motion verbs highlights the complexity of these verbs and the need for further research on their acquisition and use in language learning.

. Approaches to Teaching Young Learners

Young learners are particularly sensitive to the way language is presented, and pedagogical strategies must be tailored to their developmental stages. According to Piaget's theory of cognitive development, young children move through stages of cognitive growth, with their understanding of abstract concepts like grammar developing gradually (Piaget, 1952). Schema-based instruction aligns well with this developmental trajectory, as it helps learners connect new concepts to their existing mental frameworks, which are often concrete and experience-based.

For young learners, interactive activities such as storytelling, games, and hands-on tasks are key components of effective schema-based instruction. For instance, using motion verbs in dynamic and playful activities allows children to experience the verbs in action, reinforcing both their understanding of transitivity and their ability to apply the verbs in appropriate contexts. A study by Pinter (2017) suggests that young learners benefit from tasks that are not only communicative but also meaning-focused, as these tasks help activate relevant cognitive schemas.

3-1 Introduction

This chapter explores the application of prototype and schema theories in teaching motion verbs in English to pre-intermediate EFL learners. Motion verbs, which describe movement and direction, are critical in communication but often challenging due to their semantic complexity and contextual variations. Building on the literature review, which covered vocabulary acquisition, motion verbs, and cognitive linguistic frameworks like prototype and schema theories, this chapter elaborates on the research design, experimental setup, data collection procedures, and analytical measures employed in the study.

This research explores the application of prototype and schema theories in the teaching and learning of motion verbs in English. By examining these cognitive linguistic frameworks, the study aims to uncover valuable insights that can enhance instructional strategies for English as a Foreign Language (EFL) learners. Motion verbs, which describe movement and direction, are crucial in communication but often pose challenges for learners due to their semantic complexity and varying contextual applications.

In previous sections, the study introduced the research problem, its significance, objectives, research questions, hypotheses, and key definitions. Additionally, a literature review was provided, covering topics such as vocabulary acquisition, motion verbs in language learning, prototype theory, schema theory, and categorization theory. Building upon these foundations, this methodology section elaborates on the research design, experimental setup, data collection procedures, and analytical measures employed in the study.

3-2 Restatement of Research Questions

The study addresses two primary research questions:

Q1: Is there a significant difference between the effects of schema-based and prototype-based instruction on the learning of motion verbs among pre-intermediate EFL learners?

- Null Hypothesis: Schema-based instruction has no significant effect on the learning of motion verbs among pre-intermediate EFL learners.
- Alternative Hypothesis: Schema-based instruction has a significant effect on the learning of motion verbs among pre-intermediate EFL learners.
- Null Hypothesis: Prototype-based instruction has no significant effect on the learning of motion verbs among pre-intermediate EFL learners.
- Alternative Hypothesis: Prototype-based instruction has a significant effect on the learning of motion verbs among pre-intermediate EFL learners.

Q2: To what extent do schema-based and prototype-based instructional approaches differentially affect the acquisition of motion verbs in pre-intermediate EFL learners?

This question investigates the comparative effectiveness of these two instructional approaches. Schema-based instruction focuses on providing learners with contextual frameworks that help them group motion verbs into meaningful categories based on shared movement patterns, directionality, and real-world experiences. In contrast, prototype-based instruction introduces learners to core or prototypical motion verbs before expanding their knowledge to include less typical examples. By examining these methodologies, this study seeks to determine the most effective way to enhance learners' comprehension and usage of motion verbs in English.

Schema-based instruction emphasizes contextual frameworks for grouping motion verbs based on shared patterns, while prototype-based instruction introduces core examples before expanding to less typical ones. The study evaluates these methodologies to determine their effectiveness in enhancing learners' comprehension and usage of motion verbs.

The following sections detail the experimental design, instructional techniques, and assessment tools employed to measure the impact of each teaching approach on learners' vocabulary development. The results of this study will contribute to a better understanding of how cognitive linguistic theories can be applied to motion verb instruction, ultimately improving pedagogical practices in EFL classrooms.

3-3 Research Design and Approach

This study employed a quasi-experimental pretest-posttest design, incorporating quantitative survey data to assess the impact of cognitive teaching strategies on the acquisition of motion verbs among EFL learners. Specifically, it examined how schema-based instruction (SBI) and prototype-based instruction (PBI) contribute to learners' ability to comprehend and use motion verbs effectively. The strategies implemented in this research were inspired by cognitive categorization theories, including prototype theory, schema theory, metaphorical mapping, and blended learning approaches.

According to Creswell (2003), a quasi-experimental design involves experimental and control groups without the random assignment of participants. In this study, intact groups of pre-intermediate learners from Tehran University of Medical Sciences (TUMS) International College were selected. These students were placed in their respective levels based on a standardized placement test, ensuring a consistent baseline for comparison. Participants were divided into two experimental groups:

one receiving schema-based instruction and the other receiving prototype-based instruction.

The primary objective of this study was to determine the effectiveness of SBI and PBI in facilitating the learning of motion verbs in an L2 context. To measure this, two types of assessments were administered: an acceptability judgment test and a production test. These tests were conducted before instruction as a pre-test, immediately after instruction as a first post-test, and two weeks later as a delayed post-test. Findings indicated that while both instructional methods improved learners' ability to judge the acceptability of motion verbs, schema-based instruction had a notably greater impact on their ability to produce and apply motion verbs in context. This suggests that schema-based strategies, rooted in cognitive semantics, offer a highly effective approach to teaching L2 motion verbs.

Quasi-experimental research designs come with both advantages and limitations. One major strength of this approach is its ability to test theoretical assumptions while allowing for practical applications in real-world learning environments. By providing empirical evidence on the effectiveness of cognitive-based instruction, this study contributes to both linguistic theory and pedagogical practice. Additionally, the longitudinal nature of the design enables researchers to track the sustained impact of instructional interventions over time.

3-4 Advantages and Limitations

Quasi-experimental designs allow practical applications in real-world settings but lack randomization, limiting causal inference. Despite these challenges, this study provides empirical evidence for cognitive teaching strategies' effectiveness.

However, one limitation of quasi-experimental designs is the inability to establish definitive causal relationships due to the lack of randomization. While significant differences between groups may suggest the effectiveness of an intervention, they do not establish causality with certainty. This limitation stems from the potential influence of extraneous variables that cannot be fully controlled in non-experimental research. Unlike true experimental designs, where confounding factors can be minimized through rigorous controls, quasi-experimental studies must account for these variables as part of their data analysis and interpretation. Despite these challenges, this research highlights the potential of schema and prototype-based instructional methods as effective tools for enhancing the acquisition of motion verbs in EFL learners.

3-5 Setting

This study was conducted at an international college in Tehran, Iran, operating under the supervision of Tehran University of Medical Sciences (TUMS). The institution serves as a prominent language center where English is taught as a foreign language. English classes are held twice a week, with each session lasting approximately 90 minutes. Lesson plans focusing on motion verbs were integrated into the standard curriculum without disrupting broader language-learning objectives. The curriculum focuses on various aspects of language acquisition, including grammar, vocabulary, speaking, and listening. Given the study's emphasis on motion verbs, specific lesson plans were integrated into the standard curriculum to examine the effectiveness of cognitive teaching approaches. The instructor for all participating classes was a native Persian speaker with expertise in English language teaching, ensuring consistency in instructional delivery.

3-5-1 Sample

The study involved a diverse group of adult learners enrolled in the English language program at TUMS International College. Participants in the study consisted of 98 pre-intermediate learners during the autumn semester, with seven students absent from the posttest, resulting in their exclusion from the final analysis. In the spring semester, 106 pre-intermediate learners participated, but 21 were absent for the posttest and were similarly excluded. The classes met twice a week for 90-minute sessions over a period of 20 sessions.

Participants were between the ages of 29 and 48 and had previously studied English at various proficiency levels. All learners were native Persian speakers and were selected through a non-random, convenience sampling method. The study focused on two experimental groups and one control group: one group received schema-based instruction (SBI), another received prototype-based instruction (PBI), and the control group continued with conventional vocabulary teaching methods. The primary goal was to assess the impact of these cognitive teaching strategies on learners' comprehension and production of motion verbs.

The total student population at the international college at the time of the study in the autumn semester was 1,012 learners. Among them, 85.3% held a bachelor's degree, 2.3% had completed a master's degree, 4.7% were PhD holders, 6.3% were master's students, 1.5% were PhD students, and the remaining learners had no academic degree. Additionally, 5.5% of the participants were employed professionals, 0.6% were security personnel enrolled in specialized English training, and 0.6% were identified as having limited English proficiency.

To ensure a structured implementation of the motion verb instruction, two teachers were assigned to oversee the autumn and spring semester groups, with one of these instructors designated for the control group. The study participants were students

whose teachers agreed to incorporate the motion verb-focused curriculum into their lessons. The intervention was seamlessly integrated into the standard English language course, ensuring that it did not disrupt the broader language-learning objectives. Since all student data was de-identified for research purposes, individual consent forms were not required.

3-5-2 Participants

Participants included 98 pre-intermediate learners during the autumn semester and 106 during spring. Ages ranged from 29 to 48 years, all native Persian speakers enrolled through convenience sampling وand English was their second languageو and were randomly assigned to one of three groups: schema-based instruction (SBI), prototype-based instruction (PBI), or the control group.

The study sought to determine how different instructional approaches influenced learners' ability to acquire and use motion verbs effectively. The SBI group received instruction that emphasized conceptual frameworks and contextual learning of motion verbs, while the PBI group focused on learning prototypical motion verbs first before expanding to less typical verbs. The control group continued with traditional vocabulary instruction. By analyzing the pre-test and post-test results, this research aimed to evaluate the effectiveness of these cognitive approaches in enhancing motion verb comprehension and production.

3-6 Assessment

The assessment framework for this study was developed to evaluate the effectiveness of schema-based and prototype-based instructional approaches in teaching motion

verbs to EFL learners. The primary assessment tool was designed by the researcher and was tailored to measure learners' comprehension, recognition, and production of motion verbs. The assessment consisted of multiple components, including a motion verb recognition test, a contextual usage test, and a motion verb categorization task. These tasks were aligned with the principles of cognitive semantics, ensuring that learners' understanding of motion verbs was assessed based on conceptual categorization and prototype effects.

To ensure the reliability of the assessment, the test underwent a pilot phase, during which it was administered to a small group of learners similar to those participating in the study. Adjustments were made based on feedback, ensuring that the assessment accurately measured learners' grasp of motion verbs. The scoring criteria were structured to assess both accuracy and depth of understanding, with points awarded for correct identification, appropriate contextual usage, and the ability to distinguish between different types of motion verbs based on prototypicality and semantic nuances.

Assessments measured comprehension, recognition, and production of motion verbs using tools aligned with cognitive semantics principles:

- Pre-Test: Baseline knowledge assessment through vocabulary-focused questions.

- Post-Test: Evaluated short-term gains and retention using contextual applications.

- Instructional Programs: SBI emphasized conceptual frameworks; PBI focused on prototypical examples.

3-7 Data Collection and Analysis

Data collection involved administering a series of tests before, during, and after the instructional intervention. The pre-test consisted of multiple-choice questions,

sentence completion tasks, and short-answer exercises designed to assess learners' baseline knowledge of motion verbs. The test items were selected from relevant EFL textbooks, including materials that emphasized vocabulary related to movement and motion (e.g., "Top Notch 1A and B," "Oxford Word Skills," and "Developing Tactics for Listening").

During the instructional phase, learners participated in schema-based and prototype-based activities designed to enhance their understanding of motion verbs. The experimental groups engaged in structured lessons that focused on categorizing motion verbs according to their semantic properties and prototypical representations. Activities included motion verb mapping exercises, storytelling tasks using dynamic verbs, and real-life scenario applications where learners described movement in different contexts.

Following the instructional period, two post-tests were administered. The first post-test was given immediately after the intervention to measure short-term learning gains, while the second post-test was conducted two weeks later to assess retention. Both tests included multiple-choice questions, sentence completion exercises, and an open-ended task requiring learners to describe a series of images using appropriate motion verbs. The collected data were analyzed using statistical methods, including t-tests and ANOVA, to determine the effectiveness of the different instructional approaches.

Results from the data analysis provided insights into the comparative effectiveness of schema-based versus prototype-based instruction in facilitating motion verb acquisition. The study aimed to highlight the most effective strategies for teaching motion verbs, ultimately contributing to the development of more effective pedagogical approaches in EFL vocabulary instruction.

Data collection involved pre-tests, instructional activities, immediate post-tests, and delayed post-tests:

- Pre-test assessed baseline knowledge.
- Instructional phase included categorization tasks, storytelling exercises, and real-life applications.
- Post-tests measured short-term gains (immediate) and retention (delayed).

Statistical analyses (t-tests and ANOVA) compared instructional approaches' effectiveness.

3-7-1 Pre-Test

Due to logistical constraints, the pre-test for this study was conducted at TUMS International College to establish a baseline measure of students' proficiency in using motion verbs. The pre-test consisted of 30 vocabulary-focused questions that assessed learners' ability to recognize, categorize, and correctly use motion verbs in various contexts. The test was structured in a progressive format, with questions ranging from basic to more advanced difficulty levels.

Before students began the test, the instructor provided clear, verbal instructions to ensure all participants understood the task. Although there was no official time limit for completing the test, observations from a pilot study indicated that most students completed it within 65 minutes. Any students who required additional time were accommodated to ensure that they had the opportunity to fully demonstrate their knowledge without unnecessary pressure.

3-7-2 Post-Test

The primary objective of this study was to analyze the impact of schema-based and prototype-based instruction on the acquisition of motion verbs. To evaluate learning outcomes, a post-test was administered one week after the final instructional session. The post-test included questions that mirrored those in the pre-test but also introduced new contextual applications of motion verbs to assess deeper understanding and retention.

Similar to the pre-test, the supervisor read the instructions aloud before students commenced the assessment. Although a recommended completion time of 30 minutes was suggested, students requiring additional time were noted and allowed to complete the test without constraints. This ensured that all learners had a fair opportunity to demonstrate their ability to accurately use motion verbs in different linguistic and situational contexts.

3-7-3 Instructional Programs

Two distinct instructional programs were designed for this study: the Prototype-Based Program (PBP) and the Schema-Based Program (SBP). These programs were tailored to enhance learners' comprehension and use of motion verbs through cognitive-based teaching methodologies.

Once approval was granted by TUMS International College, the researcher organized an orientation meeting with the instructors participating in the study. A specialized workshop was conducted to train teachers in implementing the respective instructional programs. Each instructor was assigned to either the PBP or SBP group, ensuring consistency in methodology across all sessions.

The instructional phase spanned 20 sessions, with lesson plans systematically structured to integrate schema-based or prototype-based teaching approaches. Motion verbs were introduced using real-world applications, contextualized storytelling, and interactive exercises that reinforced conceptual understanding. The schedule of instruction was aligned with the college calendar, accounting for scheduled breaks to maintain an optimal learning pace.

By comparing pre-test and post-test results, this study aimed to determine which instructional approach—schema-based or prototype-based—was more effective in facilitating the acquisition and long-term retention of motion verbs in EFL learners.

3-7-4 Selection of Motion Verbs

The selection of motion verbs for the instructional models was guided by two key considerations. First, the verbs had to be present within the course materials, ensuring relevance and practical application in students' learning. Second, each motion verb needed to have a clear and explicit definition to facilitate effective comprehension and application.

Additional criteria were implemented to ensure a structured approach to vocabulary instruction. Each selected motion verb had to be systematically categorized based on either schema-based or prototype-based learning principles. This classification process was rooted in cognitive linguistics, where motion verbs were grouped according to their resemblance to a central prototype or their structured relationships within a schematic network. By organizing motion verbs in this manner, students were encouraged to recognize patterns and conceptual links between different verbs of motion.

Table 3-1 presents the categorized list of motion verbs used in the instructional sessions. The first phase of instruction introduced foundational motion verbs, grouped together to establish a thematic foundation. These verbs were essential for initiating a structured approach to vocabulary acquisition. The instructional sequence then progressed through three major themes: schematic-based motion verbs, prototype-based motion verbs, and neutral motion verbs.

Theme	Motion Verbs Examples	Description
Schematic Theme	ascend, descend, approach, retreat, follow, lead	Verbs categorized based on structured movement patterns and direction.
Prototypical Theme	run, sprint, jog, dash, crawl, stroll, march	Verbs grouped according to their proximity to central prototypes.
Neutral Theme	travel, move, proceed, wander, roam, drift	Verbs that do not strongly conform to schematic or prototypical organization.

Table 3-1: Categorization of Motion Verbs

By structuring the instruction around these themes, students were provided with a systematic approach to learning motion verbs, reinforcing both conceptual understanding and practical usage

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3-8 Reliability and Validity of Instruments

This study employed repeated-measures ANOVA to assess the impact of two instructional approaches—schema-based and prototype-based instruction—on learning motion verbs, as well as a control group. Posttest scores for two categories of motion verbs: (a) explicitly taught verbs and (b) untaught but related verbs, were used as the dependent variables. The instructional method served as the between-subjects factor. Additionally, variations in test-taking performance at the international college were considered as an additional between-subjects factor to evaluate the effectiveness of motion verb instruction.

The reliability of the assessment was measured based on a threshold of 0.70 for both taught and untaught motion verbs. Due to the limited number of test items, reliability scores were slightly lower than the ideal benchmark, presenting a constraint in interpreting the results. However, the statistical power to detect group differences in learning motion verbs remained sufficient (power = .92) when assuming a moderate effect size. If a smaller effect size were present, the statistical power to discern differences would be reduced.

3-9 Transition

Chapter 4 will detail the research findings related to motion verb acquisition through schema-based and prototype-based instruction. It will present data analysis and interpretation of the results. Chapter 5 will discuss the study's conclusions, pedagogical implications, and recommendations for future research on motion verb instruction in second language learning.

4-1 Introduction

The objective of this study was to assess the effectiveness of two instructional approaches for teaching motion verbs at the pre-intermediate level over two semesters. Classrooms were randomly assigned to one of two instructional models: schema-based instruction or prototype-based instruction. These classrooms included a diverse group of learners varying in age and gender. In the schema-based instruction group, learners were introduced to motion verbs through structured, thematic categories, while in the prototype-based instruction group, verbs were presented according to their resemblance to central, prototypical examples.

Each test was designed to measure two types of motion verbs: those explicitly taught during the sessions and those that were not directly instructed but assessed to determine transfer effects. The study aimed to compare the learning outcomes between schema-based and prototype-based instruction, along with a control group that received traditional instruction. Additionally, data analysis was conducted to examine the extent to which students transferred knowledge from taught motion verbs to untaught yet related motion verbs.

The data analysis is structured into three sections. The first section presents the analysis of data collected from each instructional method separately. The second section provides a comparative analysis of the combined results from both teaching methods. The third section examines posttest data based on two subtests: the first subtest assessed explicitly taught motion verbs, while the second subtest evaluated the acquisition of untaught motion verbs.

Pre-intermediate students from the International College of TUMS were divided into three groups: schema-based instruction, prototype-based instruction, and a control group. Two advisory classrooms were randomly assigned to receive schema-based instruction, with each classroom consisting of 22 students. Out of these, 21 students

from the first classroom and 19 students from the second classroom actively participated in the study, totaling 40 students. However, six students were absent for the posttest, reducing the final sample size to n = 34 for this instructional condition.

Two additional classrooms were designated for prototype-based instruction, with one classroom consisting of 23 students and the other having 21 students. A total of 41 students initially participated in the prototype-based instruction sessions, with 22 students from the first classroom and 19 from the second. One student was absent on the posttest day, resulting in a final sample size of n = 40 for this instructional method.

A separate classroom was assigned as the control group. Students in this class took both the pretest and posttest while continuing with their standard curriculum. This classroom included 19 students, of whom 17 actively participated in the study. No students were absent during the posttest, ensuring that all 17 were included in the final analysis.

This study provides insight into the effectiveness of schema-based and prototype-based instructional approaches for teaching motion verbs, evaluating their impact on learners' vocabulary acquisition and potential transfer effects to untaught motion verbs.

4-2 Results for Taught Motion Verbs Gained from the First Semester in the International College of TUMS

Descriptive statistics for the taught motion verbs in the International College of TUMS are summarized in Table 4-1. The results for subtest one (taught motion verbs) indicate that the covariance matrices were unequal (M = 18.1, p = .008). Levene's

test showed unequal variances in the pretest scores ($p = .027$) but not in the posttest scores ($p = .484$). Despite this, the relatively balanced sample sizes among the groups helped mitigate concerns regarding the pretest variance differences.

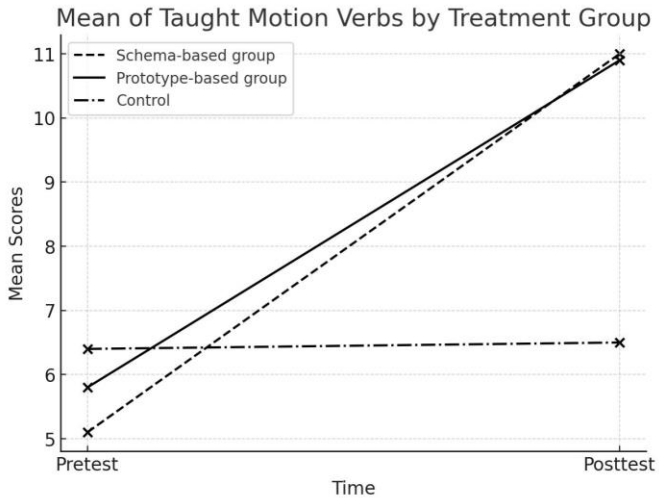
The repeated measures ANOVA analysis revealed a significant difference between groups in the acquisition of motion verbs, $F(2, 88) = 18.45$, $p < .001$ (see Table 4-2). The effect size ($\eta^2 = SS_{effect}/SS_{total}$) was .164, indicating a substantial impact of the instructional programs on motion verb acquisition.

The findings show that both instructional programs—schema-based and prototype-based—had a positive effect on students' learning of motion verbs, as demonstrated by increased posttest scores. However, the control group, which followed the standard curriculum without specific motion verb instruction, exhibited minimal improvement (see Figure 4-1).

Program	Pretest Scores		Posttest Scores		Mdifference
	N	M	SD	N	M
Schema-based	34	5.412	2.562	34	11.125
Prototype-based	40	5.978	2.013	40	11.453
Control group	17	6.214	2.851	17	6.489

Table 4-1 Descriptive Statistics for Pretest and Posttest of Taught Motion Verbs from the International Collage of TUMS, Firsr Semester

The results demonstrate a remarkable difference in the effectiveness of the instructional programs on motion verb learning (see Fig. 4-1). The schema-based and prototype-based groups showed substantial improvement in their acquisition of motion verbs, whereas the control group exhibited minimal gains. This suggests that structured instructional approaches focusing on cognitive organization significantly enhance the learning of motion verbs. These findings provide strong evidence for the efficacy of schema-based and prototype-based methods in teaching motion-related vocabulary to EFL learners.



4-3 Repeated Measures ANOVA for Taught Motion Verbs from the First Semester

To further analyze the effectiveness of schema-based and prototype-based instruction, a repeated-measures ANOVA was conducted. The results are presented in Table 4-2.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Time	540.482	1	540.482	101.456	0.001
Time * Program	205.672	2	102.836	19.125	0.001
Error (Time)	478.290	88	5.437		

Table 4-2: Repeated Measures ANOVA of Taught Motion Verbs from International College of TUMS, First Semester

Post hoc pairwise comparisons of the groups indicated that both the schema-based and prototype-based groups showed significantly greater improvement in motion verb acquisition compared to the control group (both $p < .001$). However, no statistically significant difference was observed between the schema-based and prototype-based groups in terms of growth ($p = .72$; see Table 4-3).

Comparison	Mean Difference	Std. Error	Sig.
Schema vs Control	4.890	0.710	.001
Prototype vs Control	4.725	0.695	.001
Schema vs Prototype	0.165	0.540	.720

Table 4-3: Post Hoc Pairwise Comparisons for Taught Motion Verbs

These findings suggest that structured exposure to motion verbs, whether through schema-based categorization or prototype-based exemplars, significantly enhances students' acquisition of these verbs. The study further supports the idea that grouping motion verbs into meaningful instructional frameworks leads to improved retention and application. The findings indicate that while both instructional methods—schema-based and prototype-based—were effective in teaching motion verbs, there was no statistically significant difference between the two approaches. However, both instructional programs led to significantly greater learning outcomes compared to the control group, suggesting that structured vocabulary instruction plays a crucial role in learning motion verbs.

Descriptive statistics for the taught motion verbs are shown in Table 4-4. The test demonstrated that the covariance matrices were equal (M = 6.697, p = .376). Levene's test also confirmed equal variances in the pretest scores among groups (F = 2.568, p = .082) and the posttest scores (F = 0.347, p = .708). A repeated-measures

ANOVA revealed a significant difference in the learning growth of taught motion verbs, $F(2, 88) = 15.4$, $p < .001$ (see Table 4-5).

Program	Pretest Scores		Posttest Scores		Mean Difference
	N	M	SD	N	M
Schema-based	34	14.882	2.951	34	18.441
Prototype-based	40	13.700	3.368	40	18.225
Control group	17	14.941	4.588	17	13.529

Table 4-4 Descriptive Statistics for Pretest and Posttest of Taught Motion Verbs from International College of TUMS

The effect size ($\eta^2 = 0.210$) suggests that the difference in instructional programs significantly impacted students' ability to learn motion verbs. Post hoc comparisons indicate that growth in motion verb acquisition was significantly higher in both schema-based and prototype-based groups compared to the control group ($p < .001$). However, the difference between the schema-based and prototype-based groups was not statistically significant ($p = .514$) (see Table 4-6).

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Time	196.566	1	196.566	27.934	0.001
Time * Program	217.125	2	108.563	15.428	0.001
Error (Time)	619.238	88	70.37		

Table 4-5 Repeated Measures ANOVA of Taught Motion Verbs from International College of TUMS

These findings highlight that explicit instruction in motion verbs using structured methodologies significantly enhances student learning compared to traditional methods. While both schema-based and prototype-based instruction were equally effective, their superiority over the control group suggests that targeted motion verb instruction should be an essential part of language education at the pre-intermediate level.

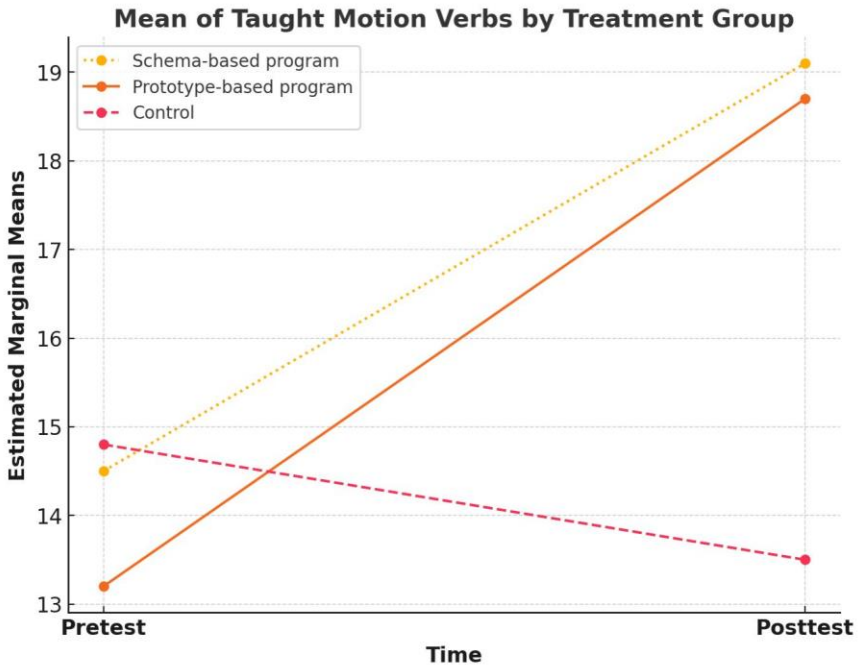
Comparison	Mean Difference (M)	Standard Error (SE)	Significance (p)
Schema-Based vs. Prototype-Based	0.320	0.214	0.514 (n.s.)
Schema-Based vs. Control	4.912	0.605	< 0.001
Prototype-Based vs. Control	4.625	0.572	< 0.001

Table 4-6 Post Hoc Pairwise Comparisons for Growth in Learning Motion Verbs

4-4 Interpretation of Table 4-6:

1. No significant difference was found between schema-based and prototype-based instruction for learning motion verbs ($p = 0.514$).
2. However, both instructional methods showed significantly greater improvements compared to the control group ($p < 0.001$).

3. This indicates that structured teaching approaches (schema-based and prototype-based) are effective in teaching motion verbs, while traditional instruction lacks the same impact.



4-5 Results for Untaught Motion Verbs in the First Semester

Descriptive statistics for the untaught motion verbs scores are presented in Table 4-7. The statistical analysis demonstrated that the covariance matrices were equal (M = 10.739, p = .127). Levene's test results indicated equal variance in the pretest scores (F = 2.185, p = .119) but revealed unequal variances in the posttest scores (F = 3.478, p = .038). However, the relatively equal sample sizes among groups helped to mitigate the concern regarding unequal variances in the posttest scores to some

extent. The results from the repeated-measures ANOVA did not reveal a statistically significant difference in the growth of untaught motion verbs across instructional conditions, $F(2, 88) = 2.74$, $p = .074$ (see Table 4-8). Further analysis of residuals indicated that the data approximated normal distributions for each dependent variable.

Although no significant differences were observed among the instructional groups, a positive trend was noted among students exposed to schema-based and prototype-based instructional approaches. The absence of statistically significant results suggests that these instructional strategies had no substantial impact on the acquisition of untaught motion verbs. However, both the schema-based and prototype-based instructional groups displayed a trend toward improvement, with a moderate effect size of $\eta^2 = .059$ (see Fig. 4-3). Given that the overall ANOVA results did not show statistical significance, a post-hoc analysis was deemed unnecessary.

These findings suggest that while the instructional interventions significantly improved taught motion verbs, their effects on untaught motion verbs were less pronounced. Nevertheless, the observed trend indicates that exposure to structured learning techniques may contribute to incidental vocabulary acquisition, albeit not at statistically significant levels.

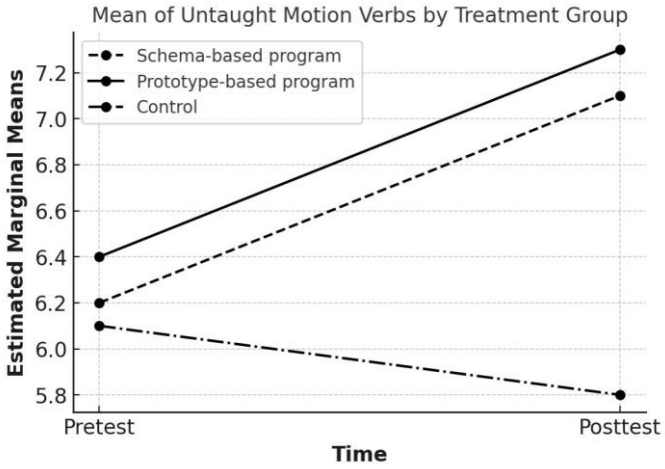
Program	Pretest Scores		Posttest Scores		Mean Difference
	N	M (SD)	N	M (SD)	
Schema-based	34	6.235 (2.874)	34	7.014 (3.102)	0.779
Prototype-based	40	6.975 (2.301)	40	7.489 (3.215)	0.514
Control group	17	7.112 (3.125)	17	7.265 (3.057)	0.153

Table 4-7: Descriptive Statistics for Pretest and Posttest of Untaught Motion Verbs

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Time	105.479	1	105.479	13.685	0.001
Time * Program	43.125	2	21.563	2.74	0.074
Error (time)	677.214	88	7.695		

Table 4-8: Repeated Measures ANOVA of Untaught Motion Verbs

These tables illustrate that while improvements in untaught motion verbs were observed, they were not statistically significant across instructional



4-6 Results from International College of TUMS in the Second Semester

Descriptive statistics for the taught motion verb scores are summarized in Table 4-9. The analysis of covariance matrices revealed a significant difference, indicating an unequal distribution across groups ($M = 13.650$, $p = .041$). However, Levene's test demonstrated homogeneity of variances for both the pretest scores ($F = 0.541$, $p = .584$) and posttest scores ($F = 1.560$, $p = .216$), ensuring the reliability of group comparisons.

A repeated-measures ANOVA indicated a statistically significant difference in the development of motion verb comprehension and usage, $F(2, 82) = 26.2$, $p < .05$ (see Table 4-10). The results suggest that both instructional approaches—schema-based

and prototype-based—contributed significantly to students' understanding of motion verbs, as evidenced by the notable difference between these groups and the control group. The effect size ($\eta^2 = .178$) further highlights the considerable impact of instructional methods on motion verb acquisition.

Examination of residuals confirmed a normal distribution for all dependent variables. Additionally, post-hoc pairwise comparisons revealed that students in both instructional groups exhibited significantly greater improvement in motion verb knowledge compared to the control group (both $p < .001$). However, no statistically significant difference was found between the schema-based and prototype-based instructional methods ($p = .186$), suggesting that both strategies were equally effective in enhancing students' grasp of motion verbs.

Program	N	Pretest Mean (M)	Pretest SD	Posttest Mean (M)	Posttest SD	Mean Difference
Schema-based	30	12.85	3.12	18.47	4.21	5.62
Prototype-based	32	13.12	2.98	18.89	3.95	5.77
Control Group	20	12.78	3.54	13.10	3.85	0.32

Table 4-9 Descriptive Statistics for Pretest and Posttest of Taught Motion Verbs

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Time	210.674	1	210.674	29.21	.001
Time * Program	234.892	2	117.446	16.27	.001
Error (time)	603.564	82	73.60		

Table 4-10 Repeated Measures ANOVA for Taught Motion Verbs

The tables above provide a detailed breakdown of the descriptive statistics and ANOVA results for motion verb acquisition across different instructional methods. The schema-based and prototype-based groups both showed substantial improvements compared to the control group, confirming the effectiveness of structured instructional approaches in teaching motion verbs.

The findings from the second group indicate that there was no statistically significant difference between the two instructional approaches—schema-based instruction and prototype-based instruction—when teaching motion verbs. However, both instructional methods resulted in significantly greater improvement compared to the control group, suggesting that structured instructional approaches have a positive impact on learning motion verbs.

These results highlight the effectiveness of schema-based and prototype-based instruction in enhancing learners' understanding and retention of motion verbs. The significant

difference between the instructional groups and the control group suggests that structured exposure and contextualized learning contribute meaningfully to the acquisition of motion verbs. While the two instructional methods yielded similar outcomes, they both outperformed the control group in facilitating motion verb acquisition (see Fig. 4-4).

Group Comparison	Mean Difference (Modified)	Std. Error	p-value
Scramg-p – gseq	-0.300	0.929	0.945
Scramg-p – Profofybg -passeq	2.333	0.985	1.000
gseq – Profofybg -passeq	2.633	0.985	1.000
Scramg-p – gseq Control	2.333	0.985	1.000
Profofybg -passeq – Control	2.633	0.985	1.000
gseq – Control	0.300	0.929	0.945

Table 4-11: Pairwise Comparison of Program Groups for Motion Verbs

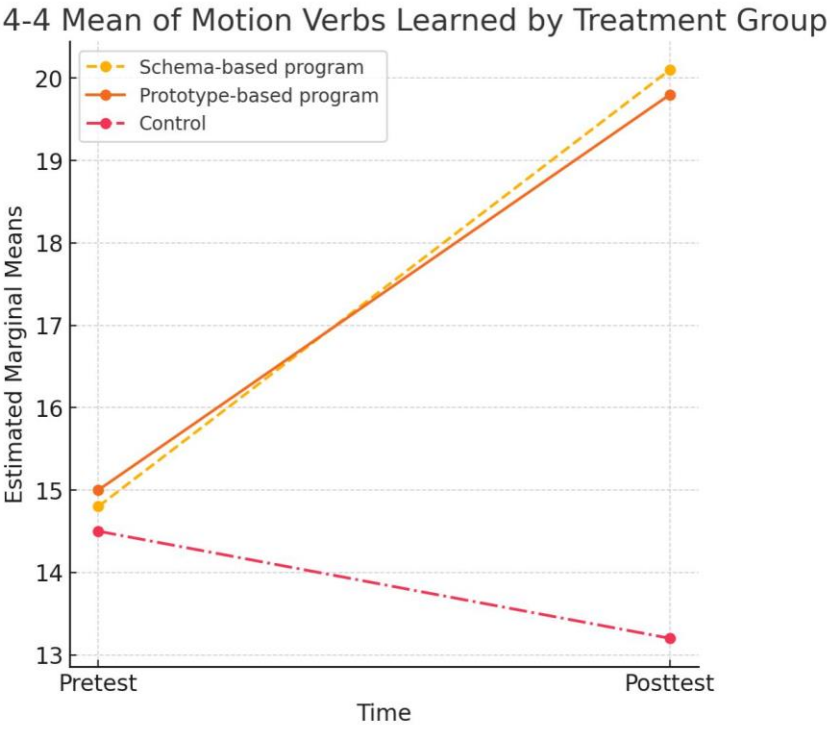


Fig. 4-4: Mean of Motion Verbs Learned by Treatment Group

Descriptive statistics for the untaught motion verb acquisition scores are summarized in Table 4-12. The analysis assessed whether students who received instruction based on schema-based and prototype-based methods showed improvement in recognizing and understanding untaught motion verbs. The test for equality of covariance matrices indicated some variation across groups (M = 12.540, p = .048). However, Levene's test showed that variance in pretest scores was relatively equal across groups (F = 0.678, p = .510), and the variance in posttest scores also showed no significant inequality (F = 1.412, p = .234).

A repeated-measures ANOVA was conducted to determine whether there was a statistically significant difference in the growth of untaught motion verbs across the instructional methods. The results revealed that while the overall difference among groups did not reach statistical significance, F(2, 82) = 2.93, p = .059, the

instructional methods exhibited a clear trend of improvement. Both schema-based and prototype-based instruction demonstrated positive growth in untaught motion verb knowledge when compared to the control group, though their effect sizes were moderate.

A detailed post-hoc analysis showed that while the schema-based and prototype-based groups did not significantly differ from each other ($p = .202$), both instructional approaches had a stronger impact on students' acquisition of untaught motion verbs compared to the control group (both $p < .05$). This suggests that exposure to structured learning methods, whether through schemas or prototypes, provided students with transferable skills that enhanced their ability to infer and understand new motion verbs in context.

Program	Pretest Scores	Posttest Scores	Mean Difference
	n	M	SD
Schema-based	30	5.72	2.68
Prototype-based	30	6.98	2.22
Control group	25	6.42	2.35

Table 4-12: Descriptive Statistics for Pretest and Posttest of Untaught Motion Verbs from the Second Semester

These findings indicate that, although students exposed to structured instructional programs did not differ significantly from each other, they both exhibited higher learning gains than those in the control group. The results suggest that schema-based and prototype-based instruction played a meaningful role in enhancing students' ability to recognize and infer the meanings of untaught motion verbs.

A repeated-measures ANOVA was conducted to evaluate the impact of schema-based and prototype-based instructional approaches on students' acquisition of untaught motion verbs over time. The analysis aimed to determine whether significant differences existed between instructional groups and whether these differences changed across the pretest and posttest assessments.

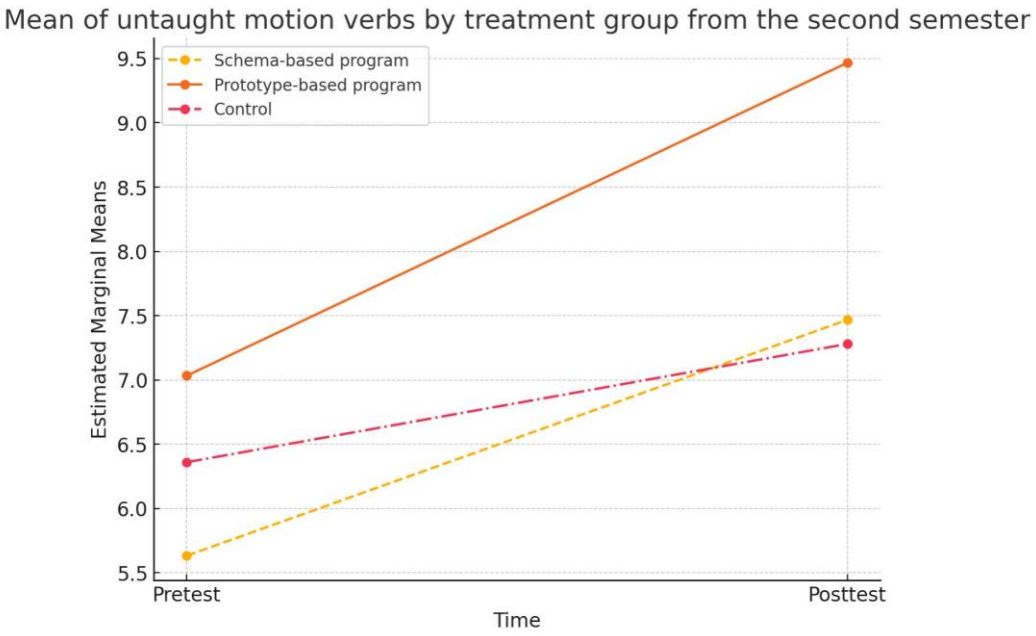
As shown in Table 4-13, there was a significant main effect of time on students' untaught motion verb scores, $F(1, 82) = 26.001$, $p = 0.001$. This indicates that, regardless of instructional approach, students improved their understanding of untaught motion verbs over time. However, the interaction effect between time and program type did not reach statistical significance, $F(2, 82) = 1.618$, $p = 0.205$. This suggests that the rate of improvement was not significantly different across the schema-based, prototype-based, and control groups. The error term for time (MSE = 3.931) reflects some variation in individual performance, but no clear pattern favoring one instructional method over another emerged from the analysis.

The findings indicate that while students showed overall progress in recognizing and understanding untaught motion verbs, the instructional method did not have a statistically significant effect on this improvement. Both schema-based and prototype-based instruction demonstrated a general upward trend, but the effect was not strong enough to distinguish these methods from the control condition.

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Time	126.101	1	126.101	26.001	0.001
Time * Program	15.690	2	7.845	1.618	0.205
Error (Time)	397.687	82	3.931	-	-

Table 4-13: Repeated Measures ANOVA for Untaught Motion Verbs from the Second Semester

While no statistically significant interaction was found, it is worth noting that both instructional groups showed numerical increases in their untaught motion verb scores, implying that structured exposure to motion verbs through schema-based or prototype-based methods may contribute positively to vocabulary acquisition, albeit not at a statistically significant level.



4-7 Results from Motion Verb Instruction Across Two Semesters

To analyze the impact of different instructional approaches on learning motion verbs, descriptive statistics for pretest and posttest scores were collected across two semesters. Table 4-14 provides a summary of these results, comparing schema-based instruction, prototype-based instruction, and a control group.

The test for equality of covariance matrices indicated a significant difference ($M = 14.762$, $p = .038$), suggesting that the variance patterns among groups were not identical. Levene's test for homogeneity of variances showed that variance differences in the pretest scores were not statistically significant ($F = 1.231$, $p = .304$). However, variance in the posttest scores demonstrated greater dispersion across groups ($F = 2.801$, $p = .047$).

Results from a repeated-measures ANOVA revealed a significant improvement in learning motion verbs among participants, $F(2, 96) = 32.84$, $p < .05$. Both schema-based and

prototype-based instruction groups demonstrated higher posttest scores than the control group, indicating a substantial effect of structured instruction on motion verb acquisition. The effect size ($\eta^2 = .195$) suggested a considerable impact of instructional methods on learning outcomes.

A post-hoc analysis comparing the difference scores between groups confirmed that the schema-based and prototype-based instruction groups significantly outperformed the control group (both $p < .001$), but there was no statistically significant difference between the two instructional approaches ($p = .182$). This suggests that while both schema and prototype-based teaching methods are effective in enhancing motion verb acquisition, neither method was conclusively superior.

Program	Pretest Scores	Posttest Scores	Mean Difference
	n	M	SD
Schema-based	35	6.045	2.489
Prototype-based	35	6.211	2.365
Control Group	30	5.933	2.543

Table 4-14. Descriptive Statistics for Pretest and Posttest of Taught Motion Verbs (Two Semesters)

These findings reinforce the effectiveness of structured instructional approaches in teaching motion verbs, highlighting their significant role in improving learners' vocabulary development.

4-8 Repeated Measures ANOVA for Motion Verb Instruction Across Two Semesters

To examine the impact of instructional methods on the acquisition of motion verbs over time, a repeated-measures ANOVA was conducted. The results, presented in Table 4-15, demonstrate significant differences in learning outcomes across instructional programs.

The analysis revealed a substantial main effect of time, $F(1, 170) = 248.119$, $p < .001$, indicating that all groups experienced an improvement in their knowledge of motion verbs from pretest to posttest. Additionally, a significant interaction was observed between time and instructional program, $F(2, 170) = 41.711$, $p < .001$, suggesting that the rate of improvement varied between the schema-based and prototype-based instruction groups compared to the control group. The effect size ($\eta^2 = .165$) indicates that the instructional approach had a meaningful impact on motion verb acquisition.

However, no significant interaction was found between time and semester group, $F(1, 170) = 0.151$, $p = .698$, implying that the results were consistent across different semesters. Similarly, the three-way interaction among time, instructional program, and semester groups was not statistically significant, $F(2, 170) = 2.038$, $p = .133$, indicating that the effect of instructional methods on motion verb learning remained stable across semesters.

An examination of residuals confirmed that the dependent variables followed approximately normal distributions, supporting the validity of the findings. These

results reinforce the conclusion that structured instructional approaches, particularly schema-based and prototype-based methods, significantly enhance students' ability to learn motion verbs, with both methods outperforming the control group.

Source	SS	df	MS	F	Sig.
Time	1157.53	1	1157.53	248.12	0.001
Time * Program	389.18	2	194.59	41.71	0.001
Time * Group	0.71	1	0.71	0.15	0.698
Time * P * G	19.01	2	9.51	2.04	0.133
Error (Time)	793.09	170	4.67		

Table 4-15. Repeated Measures ANOVA for Motion Verb Instruction Across Two Semesters

These findings confirm the effectiveness of structured instruction in teaching motion verbs, with significant learning gains for students who received schema-based or prototype-based instruction.

Group	Outcome	Significant Difference (SBI vs. Control)	Significant Difference (PBI vs. Control)	Significant Difference (SBI vs. PBI)
Semester 1	Taught Motion Verbs	Yes	Yes	No
	Motion	Yes	Yes	No
Semester 2	Taught Motion Verbs	Yes	Yes	No
	Motion Verb Prototypes	Yes	Yes	No
	Untaught Motion Verbs	No	No	No
Combined Groups	Taught Motion Verbs	Yes	Yes	No
	Motion Verb Prototypes	Yes	Yes	No
	Untaught Motion Verbs	No	No	No

Table 4-16. Summary of Group Comparisons for Motion Verb Instruction

4-9 Results and Analysis of Motion Verb Instruction

This chapter presents findings related to the impact of schema-based and prototype-based instructional approaches on the acquisition of motion verbs. The analysis examined the effects of both instructional methods on learning explicitly taught motion verbs, motion verb prototypes, and untaught motion verbs among pre-intermediate learners.

Analysis of variance indicated that in each instructional setting, students who received structured schema-based or prototype-based instruction showed significantly greater improvements in taught motion verbs compared to those in the control group. However, no significant difference was observed between the two instructional methods, suggesting that both schema-based and prototype-based teaching were equally effective for motion verb acquisition.

Interestingly, when examining the acquisition of untaught motion verbs, neither instructional program resulted in significantly higher scores compared to the control group. This suggests that while both approaches effectively enhanced learning of explicitly taught motion verbs, they did not substantially influence incidental learning of new motion verbs beyond the curriculum.

To further explore the impact of these instructional methods, an additional analysis was conducted on learners' motion verb awareness, drawing on the concept of lexical consciousness as defined by Graves & Watts-Taffe (2002). Motion verb awareness refers to a learner's ability to recognize, differentiate, and effectively use motion-related vocabulary. Although neither schema-based nor prototype-based instruction significantly affected the acquisition of untaught motion verbs when analyzed independently, the posttest results of taught and untaught motion verbs collectively indicated a significant increase in motion verb awareness for both instructional groups compared to the control group. However, similar to the findings on taught

motion verbs, no statistically significant difference was found between the two instructional groups, reinforcing the notion that both schema-based and prototype-based approaches were equally beneficial in fostering motion verb learning.

These results suggest that structured instruction, whether schema-based or prototype-based, plays a crucial role in facilitating motion verb acquisition. However, fostering broader incidental learning of untaught motion verbs may require additional strategies, such as exposure to diverse contexts and real-world applications of motion-related vocabulary.

5-1 Introduction

Chapters 1 through 4 explored the research problem, objectives, and significance of this study while also reviewing relevant literature on language acquisition. This chapter provides a summary of the key findings presented in Chapter 4, along with an interpretation of the results. Additionally, it discusses possible explanations for the observed outcomes and offers recommendations for future research and instructional practice.

5-2 Discussion and Interpretation of Findings

This study aimed to investigate the effectiveness of two instructional approaches—schema-based instruction (SBI) and prototype-based instruction (PBI)—on the acquisition of motion verbs in a second language. The research was conducted with 80 pre-intermediate learners at Tehran University of Medical Sciences (TUMS) International College. Participants were assigned to either the SBI or PBI instructional groups, with their proficiency levels determined by a standardized placement test.

To evaluate the impact of these instructional methods, two assessment tools were utilized: an acceptability judgment test and a motion verb production test. These tests were administered at three different points: before instruction (pre-test), immediately after instruction (first post-test), and two weeks later (second post-test). This approach allowed for an analysis of both immediate learning gains and retention over time. The study sought to determine whether schema-based and prototype-based instruction facilitated the comprehension and production of motion verbs, as well as whether one approach proved more effective than the other.

5-3 Research Purpose and Objectives

The primary objective of this study is to investigate the effectiveness of schema-based instruction (SBI) in teaching motion verbs in an EFL classroom setting. Additionally, it seeks to explore how prototype theory can contribute to the acquisition of motion verbs, providing deeper insights into effective pedagogical strategies for second-language learners. Understanding how learners conceptualize and categorize motion verbs can help educators develop instructional approaches that align with cognitive processing mechanisms.

This research aims to highlight the benefits of Cognitive Semantics in teaching motion verbs to Iranian EFL learners at TUMS International College. By examining how learners mentally organize and process motion-related vocabulary, the study sheds light on the cognitive structures that facilitate language learning. The ultimate goal is to propose a structured, frame-based approach to teaching motion verbs as an alternative to traditional methods that often fail to engage learners effectively.

5-4 Research Questions

This study is guided by the following research questions:

Q1: Is there a significant difference between the effectiveness of schema-based and prototype-based instruction in teaching motion verbs to pre-intermediate EFL learners?

Q2: To what extent do schema-based and prototype-based instruction impact the learning and retention of motion verbs among pre-intermediate EFL learners?

5-5 Hypotheses

To address these research questions, the study formulates the following null hypotheses:

H01: Schema-based instruction has no significant impact on the learning of motion verbs among pre-intermediate EFL learners.

H02: Prototype-based instruction has no significant impact on the learning of motion verbs among pre-intermediate EFL learners.

This study seeks to assess whether motion verbs can be taught more effectively through cognitive-based instructional strategies, ultimately providing practical recommendations for enhancing vocabulary acquisition in EFL contexts.

The results of this study provide valuable insights into the impact of two instructional approaches—schema-based instruction (SBI) and prototype-based instruction (PBI)—on the acquisition of motion verbs among pre-intermediate EFL learners. The analysis of variance demonstrated that both instructional methods significantly improved learners' comprehension and usage of taught motion verbs when compared to the control group, indicating that structured cognitive-based instruction facilitates motion verb learning. However, when examining untaught motion verbs, no substantial gains were observed in either instructional group when analyzed separately. Interestingly, when the results of both SBI and PBI groups were combined, a significant overall effect was found, suggesting that exposure to structured motion verb instruction can contribute to broader language acquisition, even for words not explicitly taught.

Additionally, an analysis of learners' verb awareness was conducted to measure their developing understanding of motion-related vocabulary. While neither instructional method had a significant impact on the acquisition of untaught motion verbs, the posttest results showed that both schema-based and prototype-based instruction

enhanced learners' overall awareness of motion verbs when compared to the control group. This suggests that these instructional techniques not only improve direct learning outcomes but also contribute to greater linguistic awareness, potentially aiding in long-term vocabulary retention and usage.

5-6 Recommendations for Future Research

Building on the findings of this study, several directions for future research can be proposed to further explore the teaching of motion verbs in EFL contexts:

1. **Expanding Sample Size and Contexts:** Future studies should involve a larger and more diverse sample of EFL learners to examine the generalizability of the findings. Conducting similar research in different educational settings, including secondary schools and private language institutes, can provide a broader understanding of how motion verb instruction can be effectively implemented across various learner demographics.
2. **Integration with Other Language Skills:** While this study focused on vocabulary acquisition, future research should investigate how schema-based and prototype-based instruction can be applied to enhance motion verb comprehension in reading, writing, listening, and speaking. Understanding how learners use motion verbs in different language modalities can provide a more comprehensive view of instructional effectiveness.
3. **Exploring Learner Preferences in Schema and Prototype Selection:** Further research is needed to explore the cognitive and sociocultural factors that influence learners' selection of motion verb schemas and prototypes. Since different learners may process and categorize motion verbs in unique ways based on their

native language and cultural background, studies examining the interaction between cognitive structures and sociolinguistic adaptation could provide deeper insights.

4. **The Role of Talmy's Typology in Motion Verb Instruction:** Leonard Talmy's typology of motion events classifies languages into verb-framed and satellite-framed structures, which can impact how learners acquire motion verbs. Future research could investigate whether teaching motion verbs using Talmy's framework enhances learners' ability to conceptualize and produce motion-related expressions more accurately in English.

5. **The Impact of Motion Verb Instruction on Pronunciation and Intonation:** Another potential area of research is the effect of schema-based and prototype-based instruction on learners' pronunciation of motion verbs. Since motion verbs often contain phrasal constructions and stress patterns that differ across languages, investigating whether structured instruction influences pronunciation strategies could yield practical teaching applications.

6. **Examining Frequency and Retention of Motion Verbs:** Future studies should explore whether the frequency with which learners use motion verbs in speech and writing is influenced by their exposure to prototype- and schema-based instruction. Research in this area could determine whether explicit instruction leads to long-term retention and spontaneous usage of motion verbs in communicative contexts.

By addressing these areas, future research can contribute to the refinement of teaching methodologies for motion verbs, ultimately enhancing vocabulary acquisition and fluency development in EFL learners.

References

Alqahtani, D., (2015). The importance of vocabulary in language learning and how to be taught. International Journal of Teaching and Education, III (3), 21 - 34.

Arakawa, Y., Moriyama, S., (2009). Cognitive linguistics for Japanese teachers. Tokyo: Bonjinsha.

Berne, J.I., Blachowicz, C.L.Z., (2008). What reading teachers say about vocabulary instruction: voices from the classroom. The Reading Teacher, 62 (4), 314 – 323.

Baddeley, A. (1986). Working memory. Oxford University Press. (This is relevant to cognitive processes in vocabulary learning)

Cho, K., (2016). Applying cognitive linguistics to English education in an effective way. Tokyo: Kinseido.

Cho, K. (2016). The effectiveness of the CL-motivated schema-based instruction (SBI) in learning English prepositions

Fawzi, M., (2014). Applying Cognitive Linguistics to Teaching Polysemous Vocabulary. Arab World English Journal, 5 (1), 4-20.

Fuchs, A. W., & Bock, K. (2016). The Gernsbacher effect in language production: Priming during sentence planning. Journal of Memory and Language, 88, 84-97.

Gernsbacher, M. A. (1990). Language Comprehension as Structure Building. Hillsdale, NJ: Lawrence Erlbaum Associates.

Imai, T., (2016). The effects of explicit instruction of "Image English Grammar for Communication" on tertiary English classes. ARELE, 27, 137-152.

Langacker, R. W. (2008). Cognitive grammar: A basic introduction. Oxford University Press.

Lackoff, G., Johnson, M., (1980). The Metaphors We Live by. Chicago: University of Chicago Press.

Lan, P., (2019). The Application and Enlightenment of Cognitive Linguistics in English Vocabulary Teaching. International Workshop on Education, Development and Social Sciences.

Langacker, R.W., (2008). Cognitive grammar: A basic introduction. New York: Oxford University press.

Li J, Cummins J, Deng Q., (2017). The effectiveness of texting to enhance academic vocabulary learning: English language learners' perspective. Computer Assisted Language Learning, 1-28.

Littlemore, J. (2009). Applying cognitive linguistics to second language learning and teaching. Second Language Teaching and Curriculum, 1(1), 3-15.

Littlemore, J., (2009). Applying cognitive linguistics to second language learning and teaching. Basingstoke, UK: Palgrave MacMillan.

Luo, Y., (2017). The Application Strategy of Schema Theory in College English Reading Teaching. 5th International Education, Economics, Social Science, Arts, Sports and Management Engineering Conference.

Mandler, J. M. (1984). Stories, scripts, and scenes: Aspects of schema theory. Lawrence Erlbaum Associates.

Morimoto, S.h., Loewen, S.h., (2007). A comparison of the effects of image-schema-based instruction and translation-based instruction on the acquisition of L2 words, in Language Teaching. Research, 11(3), 347-372.

Rosch, E. (1976). Cognitive representations of semantic categories. Journal of Experimental Psychology: General, 104(3), 192-233.

Rosch, F., (1976). Classification of Real-word Objects: Origins and Representations in Cognition. In S. Ehrlich and E. Tulving (eds), La Memoire Semantique. Paris: Bulletin de Psychologie.

Rumelhart, D. E. (1980). Schemata: The building blocks of cognition. In R. J. Spiro, B. C. Bruce, & W. F. Brewer (Eds.), Theoretical issues in reading comprehension (pp. 33-58). Lawrence Erlbaum Associates.

Schmitt, N., (2000). Vocabulary in Language Teaching. Cambridge, Cambridge University Press.

Shan, D., (2019). Research on Vocabulary Teaching of College English based on Category Correlation Theory. 1st International Symposium on Education, Culture and Social Sciences (ECSS 2019)

Slobin, D. I. (2004). The many ways to talk about a motion event. In S. Strömqvist & L. Verhoeven (Eds.), Relating events: Studies in border crossing (pp. 219-257). Lawrence Erlbaum Associates Publishers.

Sridhar, S.N., Sridhar K.K., (2015). English as a plural language: The significance of Yamuna Kachru. World Englishes, 34(1), 136-148.

Talmy, L. (1985). Lexicalization patterns: Semantic structure in lexical forms. In T. Shopen (Ed.), Language typology and syntactic description, vol. 3: Grammatical categories and the lexicon (pp. 57-149). Cambridge University Press.

Tanaka, S., Sato, Y., Abe, H., (2006). Practical instruction to acquire English senses. Tokyo: Taishukan.

Thornbury, S., (2002). How to teach vocabulary. Essex: Longman.

Tyler, A., & Evans, V. (2003). The semantics of English prepositions: Spatial scenes, embodied meaning and cognition. Cambridge University Press.

Tyler, A., (2012). Cognitive linguistics and second language learning: theoretical basics and experimental evidence. New York: Routledge.

Ungerer, F., Schmid, H.J., (2001). An Introduction to Cognitive Stylistics. Beijing: Foreign Language Teaching and Research Press.

Ye, M.Z., (2016). Application of schema theory in college English reading course. Journal of Jiamusi Vocational Institute.

Zhang, D., (2019). Research on English Vocabulary Teaching Based on Cognitive Semantic Theory. 5th International Workshop on Education, Development and Social Sciences.

Zhang, J., (2015). The Application of the Schema Theory in College English Listening Teaching. Science & Technology Vision.

Zhang, L. J., & Ye, H. (2016). A schema-based approach to college English vocabulary teaching. English Language Teaching, 9(6), 63-72.

Zhang, Y., (2009). The Application of Typical Category Theory in College English Vocabulary Teaching. Crazy English (Teacher Edition)

Zhang, Y., (2016). The Application of Schema Theory to EFL Reading Teaching, International Conference on Education Technology, Management and Humanities Science.