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Short Thesis

The Impacts of Keyword Mnemonic and Mapping Techniques on L2 Vocabulary Learning and Retention of 6th Graders within a Group Learning Framework

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Chapter One: Introduction

1.1. Introduction

Vocabulary constitutes an essential part of both oral and written forms of knowledge, and encompasses receptive dimension (comprehension and recognition) as well as productive dimension (usage in writing and speaking skills). In language teaching, effective vocabulary instruction requires grasping these intricacies and applying long-term, coherent strategies from preschool through the school years. Diverse vocabulary teaching techniques have emerged with different advantages and disadvantages. As students transition to middle school, they often rely on utilizing autonomous Vocabulary Learning Strategies (VLS) to manage increasingly challenging vocabulary across various subjects. Instructing VLS is important as these strategies enable students to engage with new words and use them effectively. In general, these strategies are techniques employed to aid in learning vocabulary in the target language.

1.2. Statement of the Problem

Language learning challenges can arise from various factors, such as language proficiency and motivation. Furthermore, students with lower self-efficacy have poor performance when they utilize language learning strategies. Most students often encounter difficulties in learning vocabulary due to utilizing unsuitable learning techniques, and teachers may not have sufficient knowledge of efficient mnemonic techniques. Vocabulary acquisition poses a crucial difficulty in both first and second language learning and necessitates proficiency in many words to employ them effectively. Traditional vocabulary teaching often fails to provide students with effective VLS and does not adequately promote an appreciation for words.

1.3. Significance of the Study

Vocabulary learning is crucial for increasing communication and literacy skills. Mnemonic techniques are renowned for their efficiency in learning and memory recall, aiding students in transferring knowledge from short-term to long-term memory. Understanding vocabulary involves more than definitions; it also encompasses comprehending how words connect to the world, contributing to increase general comprehension abilities. Furthermore, language learning strategies, particularly VLS, are essential components in second or foreign language

learning. Various factors such as learner's personality, learning style, age, gender, and cultural background affect these strategies. It is important to note that effective VLS contingent upon both language proficiency and the specific type of vocabulary mastery. The focus of researchers on determining and classifying VLS aids students in building powerful vocabulary knowledge. Moreover, collaborating in small groups promotes students' critical thinking skills, deepens content comprehension, and aids students in clearly expressing ideas and addressing misunderstandings. Collaboration and group work are particularly effective when engaging with complicated, thought-provoking subjects that require higher levels of cognitive involvement.

1.4. Statement of the Research Questions and Hypotheses

1.4.1. Research Questions

The present study seeks to address the following questions:

1. Are there any significant differences among the effects of the selected techniques (the keyword method, concept mapping, and mind mapping) on vocabulary comprehension among 6th-grade primary students within a group learning framework?

2. Are there any significant differences among the effects of the selected techniques (the keyword method, concept mapping, and mind mapping) on vocabulary production among 6th-grade primary students within a group learning framework?

3. Are there any significant differences among the effects of the selected techniques (the keyword method, concept mapping, and mind mapping) on vocabulary retention among 6th-grade primary students within a group learning framework?

1.4.2. Research Hypotheses

The subsequent null hypotheses are crafted in reply to the preceding questions.

1. There are no significant differences among the effects of the selected techniques (the keyword method, concept mapping, and mind mapping) on the vocabulary comprehension of 6th-grade primary students within a group learning framework.

2. There are no significant differences among the effects of the selected techniques (the keyword method, concept mapping, and mind mapping) on the vocabulary production of 6th-grade primary students within a group learning framework.

3. There are no significant differences among the effects of the selected techniques (the keyword method, concept mapping, and mind mapping) on the vocabulary retention of 6th-grade primary students within a group learning framework.

1.5. Objectives of the Study

The objectives of the present study align with the central aim of promoting effective vocabulary instruction and enhancing language learning outcomes in educational settings. The primary objective is to examine the effectiveness of three specific vocabulary learning techniques—the keyword mnemonic method, concept mapping, and mind mapping—on L2 vocabulary learning and retention among 6th-graders within a group learning framework. This examination aims to determine the most effective techniques for enhancing vocabulary comprehension, production, and retention of primary students. Valuable insights of this study equip teachers with evidence-based methods to foster vocabulary education in a second language learning environment.

Furthermore, the study evaluates whether there are statistically significant differences in the effectiveness of these strategies on L2 vocabulary learning and retention. This comparative analysis indicates which techniques are most beneficial for specific dimensions of vocabulary instruction. Thus, it enables teachers to adapt their teaching strategies to meet the specific needs and learning styles of elementary students.

Moreover, the study seeks to delve into the fundamental role of group learning framework in vocabulary learning and elucidate its contribution to the effectiveness of these techniques in the field of second language pedagogy. The integration of mnemonic and mapping techniques within a collaborative learning context is likely to enhance the learning experience for primary students, and improve vocabulary mastery.

Finally, the study attempts to present practical recommendations for educators on employing effective vocabulary learning strategies. A detailed analysis of these techniques will provide teachers with the necessary knowledge to foster a constructive vocabulary learning context. Implementing these recommendations will support teachers in selecting appropriate strategies, creating an engaging and consistent learning environment, and consequently enhancing primary students' vocabulary knowledge.

Chapter Two: Review of Literature

2.1. Vocabulary Learning and VLS

Vocabulary constitutes a crucial aspect of language and is considered one of its most indispensable parts (Kimkong, 2011). Vocabulary is considered the focal point of language learning and communication (Siriwan, 2007) and holds a central position in the acquisition of the English language (He, 2010). Moreover, vocabulary plays a crucial role in determining the effectiveness of language learning, assessing whether students grasp the language well, and comprehending implied messages (Kimkong, 2011).

Vocabulary learning techniques are categorized into four groups: De-contextualizing Techniques, Semi-Contextualizing Techniques, Fully Contextualizing Techniques, and Adaptable Technique (Oxford & Crookall, 1990). Furthermore, a number of suggested Vocabulary Learning Strategies (VLS) include "learner training, using mnemonics, word cards, guessing from context, coping strategies for production, using dictionaries, spelling rules, keeping records, and motivation" (Thornbury, 2002, p.144). It is important to note that several factors influence the selection of vocabulary learning strategies. These factors encompass individual differences such as gender, motivation, learning background, self-efficacy, and learning styles (Nosidlak, 2013).

2.2. Mnemonic Techniques: Characteristics and Types

Mnemonics, frequently utilized for vocabulary learning, can be defined as strategies (Rosdiana, 2009). These techniques enhance students' memorization skills, thereby expanding vocabulary and improving vocabulary mastery (Putra Hadiwijaya, 2020). In addition, mnemonic strategies aid in recalling information by facilitating the procedure of remembering and making information more meaningful and concrete (Bakken & Simpson, 2011). It is crucial to note that the key feature in expanding mnemonic strategies is finding ways to connect new information with existing knowledge in long-term memory (Bakken & Simpson, 2011).

Successful mnemonics possess characteristics such as elaboration, vividness, interaction, and bizarreness (Hauptmann, 2004). Additionally, mnemonic techniques adhere to five main principles: "Meaningfulness, Organization, Association, Visualization, Attention, and Interest" (Marthila, 2019, pp.50-51). It is noteworthy that among the various mnemonic tools,

five widely recognized types include: 1) Rhyme, 2) Acronym and Acrostic, 3) Peg-word method, 4) Loci method, and 5) Keyword method (Rosdiana, 2009; McCabe, 2010). Mnemonics can be classified into five main groups, such as linguistic, visual, spatial, verbal, and physical response method (Amiryousefi & Ketabi, 2011).

2.3. The Keyword Method

2.3.1. Definitions, Stages, and Characteristics

In 1975, Atkinson introduced an expanded method known as the keyword mnemonic method. This method has attracted considerable attention in studies, especially when compared to other mnemonic techniques (Abdei-Majeed, 2000). The keyword method involves a two-stage process for recalling subjects. For instance, when learning new vocabulary in a foreign language, the first step is for the student to establish a solid association between the new word in the foreign language and a familiar English word. The chosen keyword possesses some acoustic similarity to the English word. Subsequently, the student establishes a meaningful association between the keyword and the definition of the foreign word (Pressley et al., 1982). Bakheet Al-Zahrani (2011) asserts that an effective keyword method possesses some characteristics, such as phonetic similarity, uniqueness, exaggeration, sensory nature, interactivity, simplicity, creativity, involvement, simplified keywords, and using substitute concrete vocabulary.

2.3.2. The Keyword Method in the Classroom and Advantages

The keyword method has been successfully implemented with both classes and small groups, including primary school children and junior high school students (Pressley et al., 1982). Additionally, the keyword method proves to be a valuable and effective technique for vocabulary learning in foreign languages, particularly for inexperienced students learning target vocabulary items (Hogben & Lawson, 1994). Research on the use of the keyword method in primary and middle school classrooms reveals that presenting an image for a novel second language word, along with an image for the keyword simultaneously, enhances retention and recall of vocabulary words (Dolean, 2104).

The keyword method stands out for its ability to significantly enhance learning speed and immediate recall of L2 vocabulary words when compared to alternative strategies for second language vocabulary learning (Wang et al., 1992). An advantage of the keyword method lies in its ability to enhance learning and understanding across a diverse range of learners with varying abilities and materials (Dunlosky et al., 2013). Additionally, this mnemonic tool

serves as a valuable means to create an important visual image, thereby supporting memory for the meaning of a novel word (Susana, 2017). Numerous studies have explored the keyword method from various angles. These studies aim to assess its efficacy and utility compared to other methods, its usage across different languages and contexts, and its effectiveness with students exhibiting individual differences and abilities, such as age and language proficiency level (Sagarra & Alba, 2006).

2.4. Concept Mapping Technique

2.4.1. Definitions and Types

The concept mapping technique, initially introduced by Novak and Gowin (Wang, 2019), has become a focal point in education as a teaching and learning strategy (Kalhor & Mehran, 2016). Concept maps consist of concepts organized within circles or boxes, with connecting lines representing the relationships between them. These lines, known as linking lines, are accompanied by linking words that illustrate the nature of the connections (Katagall et al., 2015). They serve as a powerful learning tool for visually representing the structure of students' knowledge (Kassab, 2016). Concept maps have different shapes, including linear, spider-like, circular, and networking. The diversity in drawing methods and the demonstration of diagrams or graphs, alongside a wide range of scientific approaches, underscores the necessity of creating different kinds of concept maps (Moradi, 2020).

2.4.2. Concept Maps in Education and Advantages

The efficacy of concept maps in education is evident due to their applicability at any phase of the teaching process. For example, concept maps are utilized at the beginning of a lesson when introducing a new concept to students and at the end of the lesson for review and revision purposes (Aziz et al., 2017). Therefore, teachers can employ concept mapping as a teaching strategy to facilitate students' studies and enhance their learning process (Ullah et al., 2021). In education, particularly in specialized or professional fields, concept mapping is considered an ideal evaluation tool applied for the teaching and assessment process, enabling teachers to assess students' development and learning (Aziz et al., 2017).

The concept mapping technique encompasses a variety of advantages across different areas. Concept maps serve as useful tools for clarifying knowledge structures (Slotte & Lonka, 1999). Moreover, concept mapping is considered a successful learning strategy for students with varying learning preferences (Azarnoosh & Naeini, 2008). Additionally, utilizing concept mapping encourages idea generation and fosters creativity among

individuals (Katagall et al., 2015). Additionally, studies have shown that concept mapping positively impacts the quality of students' learning across various settings and educational levels, from elementary school to university (Kinchin et al., 2019).

The use of concept mapping techniques in the realm of vocabulary learning provides a structured approach to arranging information during the word definition process. When creating a concept map, students place the main vocabulary word in the centre and utilize additional links or concepts to associate with the main word (Liu, 2016). Numerous studies have investigated the effectiveness of concept mapping techniques across various educational disciplines and domains.

2.5. Mind Mapping Technique

2.5.1. Definitions and Features

Tony Buzan (1970) describes mind maps as "a visual technique where information and knowledge are converted into a hierarchical, formatted, and illustrated diagram, with structural key terms associated with a subject" (Vilela et al., 2013, p.199). It is important to note that when designing a mind map, a central idea is placed at the core of the diagram, from which various subtopics stem. It is evident that there are associations between the central idea and these subtopics (Borovková, 2014). Additionally, employing thicker and thinner branches, as well as varying font sizes, helps to clearly denote the hierarchical structure. Moreover, the use of colors in mind maps enhances their visual appeal and makes them more engaging (Borovková, 2014).

According to Sbenaty (2005), mind maps possess four important features:

1. A central image represents the targeted topic.

2. The key ideas of the topic flow out from the central image on branches.

3. Branches incorporate a keyword or image on the related line to convey details.

4. The branches form an associated nodal construction.

Considering the fundamental principles of generating mind maps, mind maps also encompass some crucial features such as clear structure, creativity, personalization, and motivation. These features reflect that mind maps can be regarded as both a helpful concept in teaching practice and an effective learning tool (Borovková, 2014).

2.5.2. Applications and Advantages of Mind Mapping Technique

The mind mapping technique finds well-recognized applications in various domains, including note taking, teaching, studying, writing, personal development, meeting and project management, brainstorming, creating activity lists, enhancing memory, presentations, and developing visual aids (Mento et al., 1999). Moreover, its practical nature facilitates the association of ideas and pertinent information, making it widely utilized in instructional as well as business and industry settings (Alahmadi, 2020).

2.5.3. Mind Maps in Classrooms and Vocabulary Learning

The effects of using mind maps in classrooms are helpful and efficient because they are principally considered to be visual learning tools and can also activate other kinds of intelligence and senses simultaneously (Borovková, 2014). By utilizing graphical and pictorial designs, mind maps clarify the learning-teaching process, leading to enhanced memory retention and increased student motivation (Liu et al., 2014). Furthermore, mind maps are regarded as both a useful and effective technique for note-taking and as a wonderful tool in the classroom for all, particularly for children (Tee et al., 2014). Several studies have already investigated the effectiveness of the mind mapping technique across various domains and educational disciplines. The notion of mind maps is not totally unknown for the majority of individuals (Borovková, 2014).

2.6. Comparison of Concept Mapping and Mind Mapping Techniques

The techniques of concept mapping proposed by Novak and mind mapping by Buzan share several similar characteristics. For example, both maps integrate texts and images (Eppler, 2006). "Concept maps and mind maps are great personal learning tools that result in individual solutions" (Eppler, 2006, p.205). Additionally, both mind mapping and concept mapping techniques can be utilized to visualize complex concepts (Aydin, 2013). "The visual, non-linear nature of both mapping techniques makes them useful tools for educators who want to help students think through complex ideas and processes in accessible ways" (Beavers, 2014, p.1). Furthermore, there are several reasons for using concept mapping and mind mapping strategies, such as evaluating students' academic success (Salah Abbas et al., 2018). Furthermore, several studies have been conducted to emphasize a comparison between mind mapping and concept mapping techniques.

2.7. Group Work

2.7.1. Definitions and Stages

Group work, as a broad concept, encompasses a range of techniques. It involves assigning collaborative activities to two or more students, fostering both collaboration and the use of self-initiated language (Brown, 2001). Group learning comprises two prominent approaches that have attracted attention: cooperative learning and collaborative learning. These approaches serve as motivators for student learning and highlight different facets of knowledge acquisition and learning within a group in an instructional context (Hammar Chiriac, 2014).

2.7.2. Group Work in Classrooms and Advantages

When a large group of students convenes in one classroom, they are typically subdivided into smaller groups for a designated period. "Each small group is recognized and treated as a separate and distinct social entity by the teacher and the students in the classroom. To be considered instructional, the activities carried out by students in a small group must include learning of educational material" (Ward, 1987, p.1). In educational contexts, group work commonly involves a limited number of students collaborating to complete tasks (Apple, 2006).

Numerous advantages of group learning and collaboration are strongly supported by scientific studies (Hammar Chiriac, 2014). These include fostering interactive language production, promoting an emotional environment favorable for learning, boosting student accountability and self-sufficiency, and moving towards individualized education (Brown, 2001). Additionally, using group work improves learning outcomes and comprehension levels, effectively teaches communicative skills, facilitates richer discussions, fosters the acquisition of new social skills, and enhances student motivation (Taqi & Al-Nouh, 2014).

Chapter Three: Methodology

3.1. Participants

The design of the present study is quasi-experimental and investigates the impacts of keyword method, concept mapping, and mind mapping on L2 vocabulary comprehension, production, and retention among 6th- grade female Iranian EFL students in a group learning framework. A total of 120 elementary students, aged 11 to 12, from two branches of a well-known language institute in Paveh County, Kermanshah, were chosen utilizing simple cluster sampling. Socio-economic factors such as grade, gender, age, institute, and place of residence were taken into consideration to ensure the homogeneity of the participants. Additionally, convenience sampling was used to select the two branches. Next, the participants were divided into three experimental groups and one control group. Each main group was further subdivided into smaller groups selected by the students themselves. Each experimental group was randomly received one of the assigned techniques while the control group had no special treatment instruction.

3.2. Materials and Instruments

3.2.1. Pre-test

A pre-test consisting of 35 multiple-choice questions, chosen from the English Placement Test by Pearson Longman ELT, was administered to homogenize the participants and evaluate their language proficiency level. The results revealed that the scores of 112 students remained within one standard deviation of the mean. The reliability of the pre-test was estimated using a KR-21, resulting in a coefficient of 85%.

3.2.2. Word Knowledge Pre-test

The 'Family and Friends 2' book was employed as the main source to choose 128 vocabulary items for the instructional sessions. The selected words were contextualized in 75 sentences to make the word knowledge pre-test. The aim of this pre-test was to determine target words for the instructional sessions. Similarly, the reliability of this test was calculated utilizing a KR-21, yielding a coefficient of 79%.

3.2.3. Post-tests

Upon the instructional sessions, two post-tests were administered to all groups:

3.2.3.1. Vocabulary Production Post-Test

This test included fill-in-the-gap questions in four different types to evaluate the impacts of the chosen techniques on vocabulary production. The estimated reliability using a KR-21 was a coefficient of 84%.

3.2.3.2. Vocabulary Comprehension Post-Test

This post-test included 15 multiple-choice questions and a task requiring students to arrange sentences to measure comprehension. The reliability was calculated using a KR-21, indicating a coefficient of 82%.

3.2.3.3. Delayed Post-Test

A delayed post-test, consisting of 15 multiple-choice and 15 fill-in-the-blank questions, was administered a month after the two post-tests to evaluate vocabulary retention. The reliability was measured utilizing a KR-21, demonstrating a coefficient of 84%.

3.3. Data Collection Procedures

The first step was to briefly explain to the institute's manager and supervisor about the research process and conduct a teacher training session on the chosen techniques. The participants were divided into four main groups, and sub-divided into smaller groups selected by the students themselves. A pre-test and word knowledge pre-test were administered to ensure homogeneity and to identify target words, respectively. Over 16 sessions, each session lasting 45 minutes, students learned 5 words per session using the selected technique. It is important to note that teachers emphasized collaboration in small groups.

3.4. Data Analysis

To analyse the obtained data, three separate one-way ANOVA procedures were used to answer the proposed research questions.

Chapter Four: Results

4.1. Introduction

This chapter presents the outcomes from the elementary students' performances in the three post-tests and encompasses related statistical analyses utilizing tables and figures.

4.2. Examination of the First Research Question

The first research question examines the impacts of the chosen vocabulary learning techniques on L2 vocabulary comprehension employing a one-way ANOVA procedure. The following descriptive statistics and ANOVA outcomes provide valuable insights into these effects.

Descriptive Statistics for Vocabulary Comprehension:

- **Mind Mapping Group**: Highest mean score (24.67)
- **Concept Mapping Group**: Second highest mean score (22.92)
- **Keyword Method Group**: Third highest mean score (20.75)
- **Control Group**: Lowest mean score (17.75)

ANOVA Outcomes for Vocabulary Comprehension:

- **F Value**: 29.89
- **Significance Level**: $p < 0.05$

The obtained outcomes exhibit statistically significant differences among the groups, resulting in the rejection of the first null hypothesis.

Post-Hoc Multiple Comparisons of Means for the Vocabulary Comprehension:

- **Mind mapping group vs. Concept mapping group**: Insignificant difference, indicating similar performances of both groups.
- **Concept mapping group vs. Keyword method group**: Insignificant difference, but the concept mapping group exhibits slightly better performance.
- **Mind mapping group vs. Keyword method group**: Significant difference, implying better performance of the mind mapping group compared to the keyword group.
- **All experimental groups vs. Control group**: Significant differences, suggesting all experimental groups outperformed the control group.

Consequently, the outcomes reveal that the mind mapping technique proves to be the most effective technique for vocabulary comprehension, followed by the concept mapping technique, and then the keyword method. All three vocabulary learning techniques are significantly more effective than no special treatment.

4.3. Examination of the Second Research Question

The second research question investigates the effects of the selected vocabulary learning techniques on L2 vocabulary production among 6th-grade students utilizing a one-way ANOVA procedure. The following descriptive statistics and ANOVA outcomes provide valuable insights into these effects.

Descriptive Statistics for Vocabulary Production:

- **Mind Mapping Group**: Highest mean score (26.53)
- **Concept Mapping Group**: Second highest mean score (22.89)
- **Keyword Method Group**: Third highest mean score (22.32)
- **Control Group**: Lowest mean score (19.82)

ANOVA Outcomes for Vocabulary Production:

- **F Value**: 24.91
- **Significance Level**: $p < 0.05$

The results indicate statistically significant differences among the groups, rejecting the second null hypothesis.

Post-Hoc Multiple Comparisons of Means for the Vocabulary Production:

- **Mind mapping group vs. Concept mapping group:** Significant difference, suggesting better performance of the mind mapping group compared to the concept mapping group.

- **Concept mapping group vs. Keyword method group:** Insignificant difference, implying that both groups functioned similarly.

- **Mind mapping group vs. Keyword method group:** Significant difference, indicating superior performance of the mind mapping group compared to the keyword method group.

- **All experimental groups vs. Control group:** Significant difference, exhibiting the poor performance of the control group in comparison with the other groups.

Therefore, these results emphasize that the mind mapping technique is particularly effective in increasing elementary students' vocabulary production skill compared to other techniques examined in this study. Additionally, any structured vocabulary learning technique is more beneficial compared to no structured instruction.

4.4. Examination of the Third Research Question

The third research question examines the impacts of the chosen vocabulary learning strategies on L2 vocabulary retention among elementary students employing a one-way ANOVA. The following descriptive statistics and ANOVA outcomes provide valuable insights into these effects.

Descriptive Statistics for Vocabulary Retention:

- **Mind Mapping Group**: Highest mean score (24.07)
- **Concept Mapping Group**: Second highest mean score (21.78)
- **Keyword Method Group**: Third highest mean score (19.39)
- **Control Group**: Lowest mean score (17.46)

ANOVA Outcomes for Vocabulary Retention:

- **F Value**: 47.71
- **Significance Level**: $p < 0.05$

The results reveal significant differences among the groups' means, leading to the rejection of the third null hypothesis.

Post-Hoc Multiple Comparisons of Means for the Vocabulary Retention:

- **Mind mapping group vs. Concept mapping group:** Significant difference, implying better performance of the mind mapping group compared to the concept mapping group.

- **Concept mapping group vs. Keyword method group:** Significant difference, emphasizing the superior performance of the concept mapping group in vocabulary retention compared to the keyword method group.

- **Mind mapping group vs. Keyword method group:** Significant difference, indicating that the mind mapping group outperformed the keyword method group.

- **All experimental groups vs. Control group:** Significant difference, indicating the poor performance of the control group on the vocabulary retention test.

Consequently, these findings underscore that the mind mapping technique is highly effective in increasing primary students' vocabulary retention compared to both the concept mapping and the keyword method. The keyword method is less beneficial in enhancing the vocabulary retention of primary students, indicating weaker outcomes in this context. Similarly, all techniques significantly outperformed the control group.

Chapter Five: Conclusion

5.1. Conclusion

This chapter provides a succinct summary of the study's main results on how the selected vocabulary learning strategies, including keyword method, concept mapping, and mind mapping, affect vocabulary comprehension, production, and retention among 6th-graders in a group learning framework. It discusses pedagogical implications, acknowledges limitations and delimitations, and suggests further research to explore these techniques and their applications in educational contexts.

In conclusion, the present study has revealed valuable insights that the mapping techniques are highly effective and significantly enhance L2 vocabulary learning and retention among primary students compared to the mnemonic technique and traditional memorization method. Furthermore, these results emphasize the value of incorporating mapping techniques as effective visual instructional tools in both language learning pedagogy and teaching methodology among primary students in a group setting to achieve high quality vocabulary learning results.

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