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VOCABULARY LEARNING STRATEGIES, SELF-REGULATED LEARNING, AND LEARNERS' OUTCOMES IN PRIMARY SCHOOL PAIR WORK

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ABSTRACT

This study investigates vocabulary learning strategies (VLS) used among ten primary school learners. Through video recordings, the research explores specific VLS utilized during pair work and their influence on learning outcomes, analyzed with qualitative content analysis. The research questions address the identification and utilization of VLS, the relationship between VLS usage and the ability to infer word meanings, and learner engagement in VLS usage. Findings indicate a notable co-occurrence of some strategies. Moreover, the broader the learners' prior knowledge, the more successful they were with inferring word meanings. The study also emphasizes the need for balanced VLS engagement to optimize outcomes in pair work. This research aims to create new impulses for learning/teaching vocabulary within a foreign language classroom through the targeted practice of vocabulary learning strategies. Such practice aims to facilitate students' learning processes in promoting their self-regulated learning.

KEYWORDS

vocabulary learning; pair work; strategies; foreign language; self-regulated learning; primary school

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Introduction

Vocabulary is acknowledged as the core of (foreign) language learning, without which successful communication cannot occur (Schmitt, 2010). Moreover, vocabulary acquisition is one of the biggest problems in learning a foreign language (Alqahtani, 2015). Since the 1980s, there has been a growing emphasis on student-centered approaches and their learning processes in learning and teaching (Nunan, 1990). This shift is accompanied by a general interest in learning strategies, particularly within the context of acquiring a second language (Oxford, 2013).

The self-regulated learning (SRL) concept is an umbrella term involving diverse techniques and modalities to foster students' self-directed learning. Models of SRL consistently incorporate learning strategies through explicit or implicit instruction (Oxford, 2013). A learning strategy is an action plan to achieve a learning objective, a technique aiming to facilitate the active learning process (Oxford, 1990). It involves a wide range of approaches for acquiring and applying knowledge and skills to solve problems and achieve success. Vocabulary learning strategies (VLS) put the focus on techniques employed to learn and expand one's vocabulary, specifically facilitating vocabulary learning in foreign languages (Schmitt, 2000). Positioned within the broader context of SRL, VLS can be recognized as a vital component, strategically leveraging the power of SRL through collaborative pair work activities. This deliberate integration fosters optimal vocabulary learning, where the dynamic interplay between SRL and VLS becomes not only more observable but also connects these two concepts over an important social form of learning, in which learners' metacognitive engagement is combined with help-seeking strategies through their peers (Karabenick & Berger, 2013).

1 Vocabulary learning strategies

Vocabulary learning strategies (VLS) can be defined as actions that learners take to (a) determine the meaning of unknown words, (b) retain them in long-term memory, (c) recall them at will, and (d) use them in oral or written mode (Catalán, 2003, p. 56.) In this study, VLS refer to the techniques learners employ to discover the meaning of a new word. VLS are rooted in the theoretical framework of language learning strategies and constitute integral components in their taxonomies. However, most of the VLS taxonomies omit the aspect of discovering the meaning of a new word, concentrating solely on vocabulary learning and retention (e.g., Cohen, 1990; Gu & Johnson, 1996; Rubin & Thompson, 1994; Stoffer, 1995) and have therefore been excluded from the theoretical framework of this study. Schmitt (1997), on the other

hand, proposed a comprehensive VLS list based on Oxford's taxonomy (1990), adopting four strategy groups (social, memory, cognitive, metacognitive) and expanding them to include the group of discovery strategies for inferring the meanings of new words. For this reason, Schmitt's taxonomy (1997) was selected as the primary theoretical framework for this study.

Schmitt (1997) categorizes VLS into two main groups: discovery strategies for uncovering the meanings of new words and consolidation strategies for solidifying the meanings of such words. For this study and following the definition of the VLS as stated above, only the first category is described in this section. Discovery strategies can be further divided into determination strategies, which assist a learner in determining a new word's meaning without the help of a qualified person, and social strategies, which involve another person in discovering a new word's meaning.

Table 1
Schmitt's Taxonomy of Vocabulary Learning Strategies: Discovery Strategies (Schmitt, 1997)

Discovery strategies	**Determination**	Analyze part of speech
		Analyze affixes and roots
		Check for L1 cognate
		Analyze any available pictures or gestures
		Guess from textual context
		Bilingual dictionary
		Monolingual dictionary
		Word lists
		Flashcards
	Social	Ask teacher for an L1 translation
		Ask teacher for paraphrase or synonym of new word
		Ask classmates for meaning
		Discover new meaning through group work activity

Discovery strategies aid learners in uncovering the meanings of new words and can be grouped into determination and social strategies. Determination strategies involve analyzing part of speech helping learners identify a word's word class. Examining a word's roots or suffixes can also provide valuable hints regarding its meaning. Another strategy involves checking for L1 cognates, which allows learners to estimate word meanings based on shared origins, such as words derived from the same parent word, e.g., "Mutter" in German and "mother" in English. Visual cues are also helpful; analyzing available pictures or accompanying gestures and intonation in oral discussions can assist learners in guessing meanings. Furthermore, learners can estimate

a word's meaning by considering its textual context and cues. To further support vocabulary learning, reference material, including bilingual or monolingual dictionaries, word lists, and flashcards, can be provided to learners.

Social strategies come into play when learners seek assistance from others, such as asking the teacher for a translation into their mother tongue or requesting a paraphrase or a synonym of the new word. Learners can also ask a classmate about a word's meaning or engage in group activities to acquaint themselves with new words collaboratively.[1]

Using strategies shifts the focus from the teacher to the learners and their learning. In this sense, the learner, not the teacher, controls the learning process (Hsu & Malkin, 2011). Strategy use is part of a larger concept called self-regulated learning (SRL), which involves systematically activating behavior, cognition, and motivation toward one's goals (Schunk & Greene, 2017). A student who successfully engages in SRL uses multiple strategies to support their learning, such as seeking assistance or using all available resources (Alvi & Gillies, 2021). SRL within learning analytics (LA) refers to understanding students and their learning in different environments. It is "the measurement, collection, analysis, and reporting of data about learners and their contexts for understanding and optimizing learning and the environments in which it occurs" (Siemens, 2013, p. 1382). Although the scientific research in LA mainly focuses on virtual environments, Long and Siemens (2014) intentionally avoid restricting LA solely to the online education space and digital technologies because of the increasing need to apply LA to face-to-face interactions in physical classrooms. This field of research is called Multimodal Learning Analytics (MLA). It engages different sources of learning data, targeting the understanding of learning and attempting to optimize it without the mediation of digital technology (Ochoa, 2017). In the present study, the VLS are defined as a constituent phase of the SRL structure. By using different modalities, i.e., video and audio recordings, a comprehensive view of the learning processes and actions of learners is provided.

Because the conceptualizations of VLS have been imprecise, and there is no unanimous consensus on the criteria for its definition, it remains undetermined whether they should be classified as observable behaviors, internal mental processes, or a combination of both (Schmitt, 2010). In the past, the assessment of VLS use has primarily relied on self-report questionnaires (e.g., Soureshjani, 2011; Yaacob et al., 2019), since strategic learning is influenced by cognitive processes that are typically not directly observable.

[1] For a more detailed description of specific strategies see appendix A.

Another approach to investigating the use of VLS was experimental research (e.g., Kaplan-Rakowski, 2019; Maheswari & Sultana, 2019). However, no study has directly observed the use of these strategies in foreign language lessons. In contrast, a qualitative approach is needed to examine the complex strategies and record any relevant learners' behavior contributing to vocabulary learning. The qualitative approach constantly compares and expands existing models with emerging categories from the recordings, focusing on causality (Oxford, 2013). Additionally, observational records afford a higher level of objectivity than questionnaires, in which the learners often provide answers they believe are socially acceptable (Cohen, 2011).

To further enhance the observability of VLS, the learners may engage in pair work activities. Learners working in pairs actively employ metacognitive strategies, allowing them to reflect on and control their learning processes, such as establishing learning goals, connecting new with previous knowledge, gathering and organizing material, monitoring mistakes, or making any required modifications (Oxford, 1990). Additionally, learners are encouraged to ask their peers for clarifications on words or concepts they are unfamiliar with, linking metacognitive and help-seeking strategies, both central concepts of SRL (Karabenick & Berger, 2013).

In conclusion, most VLS studies have been conducted in the quantitative research tradition, lacking lesson observations and relying on students' reports. Furthermore, the target group in most of the research was secondary or university students. However, the mapped research is beneficial in establishing the theoretical-methodological framework for the current research. While the studies mentioned above, which investigated the use of VLS, lacked lesson observations and relied on reported strategies from students, this study's primary objective is to observe the VLS utilization during pair work and their connection to inferring word meanings and the learners' engagement.

2 Methodology

It was initially planned to carry out the pilot study in the spring of 2019, but due to the COVID pandemic and the closing of schools it was postponed until autumn of 2020. The main study was carried out in the spring of 2021. Nevertheless, the schools were open only for a month, so the study's time frame had to be adjusted.

2.1 Sample

The sample consisted of ten primary school learners (n=10) in their ninth (final) grade of primary school. Of the ten learners, seven were female, and three were male. The sample was selected purposely as I was a teacher of this

group, which allowed me to grasp the learners' interactions as naturally as possible without disturbing their attention during the data collection. Because of the learners' age, I collected informed consent for recording from the legal representatives, stating that all the data would be anonymous and only the learners' pseudonyms would be used. Moreover, the results would be published only in connection with the study. From a group of twenty learners, ten (and their legal guardians) agreed to be recorded for scientific purposes.

The learners worked in pairs and, if possible, with their preferred choice of partner to ensure a pleasant atmosphere and working environment. A critical factor in the composition of the pairs was that one of the learners had taken part in the pilot study and so had previous experience with a similar task and could provide the other learner with an explanation of the working procedure and steps needed to be taken to perform the assigned task. Table 1 informs about the composition of the pairs according to their pseudonyms (only the beginning letter of their given name was preserved), age[2], grade[3], and participation in the pilot study. Every pair was assigned a working number, later used in the result section for clarity.

Table 2
Description of the study sample

Pseudonym	**Age**	**Grade**	**Pilot study participation**	**Assigned number**
František	15	2	Yes[4]	1
Kryštof	15	2	No	1
Viktorie	15	1	Yes	2
Kateřina	15	1	No	2
Andrea	15	1	Yes	3
Vlasta	14	1	No	3
Erika	15	1	Yes	4
Jaromír	15	2	No	4
Tamara	14	1	Yes	5
Lenka	14	1	No	5

[2] Age of a learner on the day of data collection for the main study

[3] Grade from the German language course from the first term of the school year 2020/2021

[4] The learner took part in executing the task itself, however he was not recorded and therefore not included in the pilot study sample. He fulfilled the assigned task with the other included pairs.

The learners learned German for their obligatory second foreign language instruction, which in 2013 was made part of the primary school curriculum in the Czech Republic (MŠMT, 2017). The selected primary school does not offer a choice of languages, and German is the obligatory second foreign language (L3). German lessons take place twice a week in a forty-five-minute session. I have chosen ninth-grade learners because they are studying German in their third year and can use German vocabulary at a basic level. By the end of the year, they achieve an A1 level as defined by the Common European Framework of Reference for Languages (2012). The learners' interactions were implemented in the Czech language; all excerpts included here were translated into English by the author of this study.

2.2 Research aims and questions

The aim is to determine the specific VLS employed by Czech primary school learners during pair work and to examine how the learners implement the identified VLS. Another aim is to investigate whether applying these VLS contributes to the learners' ability to infer the meanings of new words. Finally, the last aim is to explore the extent of engagement in utilizing VLS during pair work. To address these aims, the following research questions were formulated:

1 Which VLS are employed during pair work?
2 How are the identified VLS used during pair work?
3 Do the employed VLS lead to inferring the meanings of words?
4 How are the learners engaged in the VLS usage?

2.3 Research design

To address the research questions, I employed a qualitative study approach. The qualitative approach addresses the gap identified in previous research that lacked a qualitative perspective of VLS used by learners in the foreign language classroom. The previous research relied mainly on reported strategies, and lacked the quality of observing the learner's behavior directly in the lessons. Learners were divided into pairs to make the behavior more observable and allow the linkage between strategies used and self-regulated learning (see literature review). I utilized audio and video recordings and analyzed the data using the qualitative content analysis method (Mayring, 2015), which allowed me to study the learners' related behavior and actions when using the VLS.

2.4 Data collection

The data collection occurred in five consecutive lessons over three weeks in June of 2021. The data was collected from indirect observations based on video and audio recordings as the research instrument (Janík et al., 2013).

While the video recordings enabled me to focus on the participants' verbal and non-verbal expressions, the audio recordings supplemented the video's inaudible tracks. The subjects of investigation was the exploration of the meanings of new German vocabulary.

Figure 1 depicts the location of cameras in the classroom. Pairs participating in the study were situated at the back of the classroom, whereas regular German lessons for other learners took place in the front. The individual pairs were separated from each other with room dividers so they would not interfere with each other during their interactions. One camera was focused on each pair, and a recorder was placed on each desk, recording the sound, which was inaudible on the video recording.

Before the data collection, a category system[5] based on Schmitt's taxonomy (1997) was developed. Schmitt (1997) established the taxonomy of VLS based on Oxford (1990), extending it with determination strategies that support the students in uncovering a new or unknown word's meaning without a qualified person's help. The category system was created to recognize the learners' first VLS use and to determine the teaching aids to be provided while working on the task.

The teaching aids for the learner strategy elicitations were (1) the text "The Timid Rabbit" (Shaw, 2015), (2) a list of content vocabulary, and (3) pictures available in the text. Content vocabulary consists of nouns, adjectives, verbs, adverbs, and pronouns and is essential for understanding a written text (Roche, 2005). Concerning the text (Shaw, 2015), a vocabulary analysis was first conducted to confirm its A1 level (Glaboniat, 2005). The optimal learning level should not exceed one level higher than the level learners have currently attained, i.e., A2 level (Hufeisen & Riemer, 2010). In view of this recommendation, any B1+ vocabulary was replaced with another word at a lower level[6]. Another vocabulary learning suggestion is to encounter a maximum of twelve new words in one lesson (Gairns & Redman, 1986). Words contained in the textbook (Friedericke et al., 2007) with which the learners worked in regular German lessons were considered known. In contrast, the new words were those that learners had not encountered in the textbook. The teaching aids were available for each pair.

5 The category system is attached in the appendix A.

6 E.g., the word "sich wälzen" was replaced by "sich rollen."

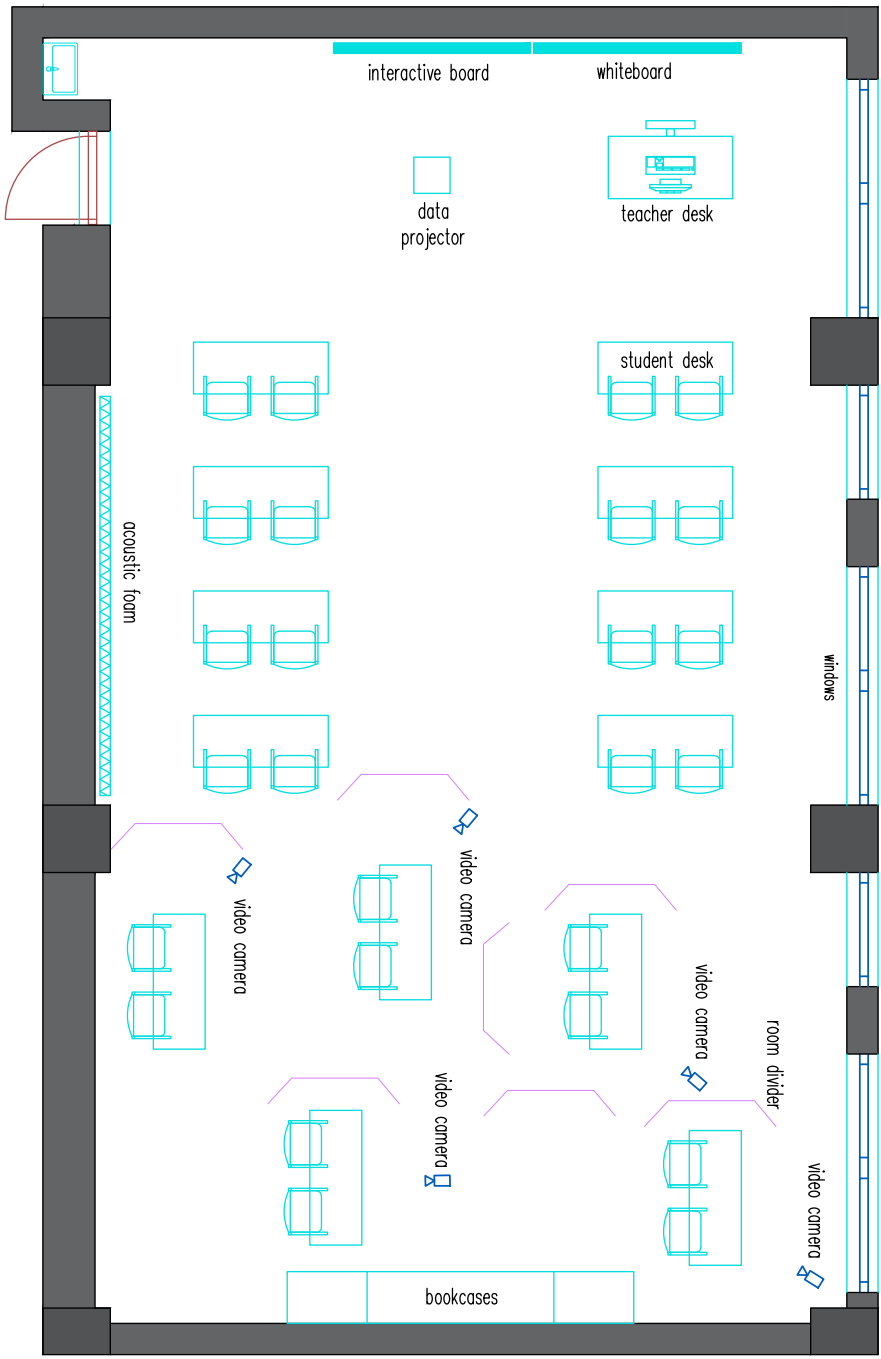

Figure 1
Floor plan and camera placement

2.5 Data analysis

Qualitative content analysis was selected, and the units of analysis were segments in which the learners dealt with word meanings. The analysis took place deductively, i.e., according to the category system, and inductively, i.e., other strategies were derived from the data (Schreier, 2014). The analysis was carried out following the steps reported by Kuckartz (2018).

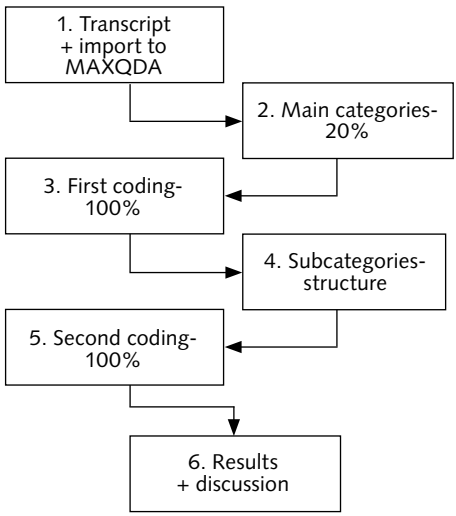

Figure 2
Steps of analysis

The first step was transcribing verbal and non-verbal data and transferring them to the MaxQDA software (VERBI Software, 2019), in which the text transcript was synchronized with the video recordings. The verbal data was transcribed according to Kaderka and Svobodová (2006), and the nonverbal utterances according to Silverman (2011). The second step consisted of determining the main categories, which corresponded with the three categories from Schmitt's taxonomy (1997) – determination, social, and metacognitive strategies. In this step, 20% of data were coded with these categories. The third step of the analysis was to establish the segments, where each segment began with the learner or both learners starting to deal with a word's meaning and finished with them moving on to another word. Subsequently, the above-mentioned main categories were assigned to the individual segments and the entire data corpus was coded. The next step was to create a subcategory structure with all potential subcategories. Initially, the subcategories were identified based on the category system and then generated from the data. Step five involved coding the whole dataset with the main categories and subcategories. The last step of the analysis is addressed in the corresponding chapters of this article.

3 Results

This chapter presents the results connected to the formulated research questions from the methodology section. The results are structured according to each pair working in pair work and the number of lessons in which the pair was recorded for better clarity.

3.1 Which VLS are employed during pair work?

The specific VLS used by the learners in pair work within the five recorded lessons are structured in Table 3 below according to the categories from the developed category system. The VLS strategies are divided into three categories according to whether the strategy was used only by one of the learners in a pair to estimate a new word's meaning: determination strategies (DET), or if the usage of a strategy involved another person, whether it was the learner with whom the person worked in a pair, or the teacher, or someone from another pair participating on the research: social strategies (SOC). According to the literature (Schmitt, 1997; Oxford, 1990), metacognitive strategies (MET) were the last category group. These strategies usually did not lead to inferring the meaning of a new word without connection to other strategies but were inductively produced from the data and, therefore, considered helpful in establishing a new word's meaning.

The numbers show the usage of a strategy during a particular recorded lesson, where empty fields mean that the pair did not use the strategy. As seen in Table 3, some pairs used a wide range of VLS (e.g., pairs 2 and 3). On the other hand, some pairs used a limited number of VLS repeatedly (e.g., pair 1, pair 5), and there is also one pair (pair 4) who, in the last recorded lesson, did not use any VLS to solve the given task.[7]

Table 3 shows that the most frequently used determination strategies across the pairs were *guessing from textual context* and *from available pictures*. From the social strategies, they *asked classmates for meaning* and *made sure about meaning,* and from the metacognitive strategies, it was *linking with already known material*. Details regarding the usage of specific VLS are discussed in the following section.

3.2 How are the identified strategies used during pair work?

Analyzing parts of speech within a text did not often reveal a word's meaning. Instead, it helped the learners understand the word's significance, deciding whether to explore its meaning further or skip it based on its perceived

[7] The distribution of VLS is discussed in section *3.2*.

Table 3
VLS usage count by pair and recorded lesson

Vocabulary learning strategy type	**Pair 1**					**Pair 2**					**Pair 3**					**Pair 4**					**Pair 5**				
	Lesson No.					Lesson No.					Lesson No.					Lesson No.					Lesson No.				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
DET1: Analyze part of speech	1					1	1	3		1	5	1	3	2	3		1				3	1		1	1
DET2: Analyze affixes and roots											2			1										2	
DET3: Guess from textual context	11	16	19	8	13	18	22	23	20	16	9	10	18	18	15	6	12				18	11	25	10	23
DET4: Analyze any available pictures	5	7	5	9	8	11	9	7	18	4	8	6	8	8	7	2	9	2	5		16	4	6	11	7
DET5: Bilingual dictionary														19											
DET6: Word lists						3	1	1			16	8	8	8	2	2	1								
DET7: Spelling												1													
DET8: Splitting word in parts: composites						1				1	1	1													
DET9: Sound associations from L1							4		1	2	1	2		1	1						2			1	
DET10: Sound associations from L2								1		3		1	1								1				
DET11: Sound associations from L3+	2					1						3	3	1	2	3		1				2			
SOC1: Ask classmates for meaning	2	3	1		1	14	6	16	8	8	8	5	8	2		3	10				1	3		3	1
SOC2: Ask classmates for meaning (other pair)						1				1	1														
SOC3: Association						1		1																	
SOC4: Copying (from other pairs)																2									
SOC5: Making sure about a meaning	2		5	1		2	6	6		6	4	11	4	5	6	4	8	3			5	8	8		1
SOC6: Ask teacher for an L1 translation						1	1	4	2	6	8	10		1	2	7	5		3						
MET1: Skip or pass new word							1					1									2				
MET2: Linking with already known	8	11	22	8	9	17	25	12	12	16	24	29	16	13	27	14	19	2	2		27	25	26	9	26
MET4: Self-correction: pictures/ textual context															2						1		2		

importance. Throughout the five recorded lessons, all pairs utilized this strategy, with pair 3 employing it most frequently: *V: Gibt could be conjugated from geben*. This approach aligns with a study by Sukanya and Nutprapha (2017) highlighting the importance of understanding words based on their parts of speech in educational news articles. The study recommends analyzing the parts of speech in any text to create practical teaching resources, mainly focusing on high-frequency parts of speech, such as nouns, enabling learners to expand their vocabulary with commonly used words.

Analyzing affixes and roots represents a strategy notably beneficial for learning the German language. This approach allows learners to separate the components of a word, the root from its prefixes, to estimate its meaning. In the following excerpt, pair 5 engages in determining the meaning of the word "weglaufen," which translates to "run away" in English: *T: Wait, der Fuchs läuft, that means that the fox ran (…). She ran away, isn't it? L: Yes, somehow away.* A study by Iseni and Rexhepi (2023) on Germanic prefixes emphasizes their vital role in word formation, altering the base word's meaning. The authors underscore how this knowledge empowers learners to navigate the complexities of Germanic languages, significantly enhancing their comprehension abilities. Additionally, the specific success of pair 5 in separating the root "läuft" from the prefix "weg" and determining the word's meaning strongly supports the effectiveness of this strategy in practice.

Guessing a word's meaning from textual context emerges as one of the most commonly employed strategies. Pair 2 notably excelled in this strategy, frequently integrating the guessed word's meaning into the sentence to assess its contextual coherence. For instance, *V: Well, kleinen, which means small*, in this excerpt the learners incorporated the word *kleinen* into a sentence o*nce upon a time, there was a small, timid rabbit* to infer its meaning from the context. Bai (2018) classifies this strategy as one of the guessing strategies for estimating word meanings, emphasizing its effectiveness. Supporting this, Rahmani's study (2023), focusing on using VLS of Afghan EFL learners, found that most participants (85.82%) relied on context-based guesswork to comprehend new words. Their approach involved leveraging logical development, common sense, and knowledge to infer word meanings during text reading.

Analyzing any available pictures was a strategy based on using the enclosed visuals in the text, which offered learners additional support in comprehending the material. Some pairs relied heavily on the literal meaning of pictures to estimate the meaning of certain words. For instance, in the case of "Dunkelheit," several pairs directly associated the word with a picture where a rabbit was hidden beneath a blanket. This overly literal approach is evident in the following excerpt from pair 5: *L.: I would say this is something like a blanket*, or pair 2: *V: That's paying attention under the blanket?* Vivaldi and Allen (2021)

examined children's understanding of pictures, discovering that the interpretation of a picture, whether literal or nonliteral, hinged upon various contextual cues. As depicted in the provided excerpts, pairs 2 and 5 failed to consider the contextual aspects while estimating the word "Dunkelheit". Their literal interpretation of the picture content hindered them from inferring its intended meaning.

A *bilingual dictionary* was introduced during the fourth recorded lesson, in which the learners encountered over twelve new words (Gairns & Redman, 1986). Pair 3 exclusively decided to use this reference material, distinguishing themselves from the other pairs with different strategies. The approach from pair 3 involved confirming previously guessed word meanings by referring to the dictionary for verification, as seen in the excerpt: *V: Beule, I suppose that (nn) we guessed correctly (+ is looking in the dictionary) (...) Be-, Beu-, Beu- (16) Beu, bulge, nice*. Bai (2018) emphasizes that learners utilize dictionaries to understand word meanings and confirm their knowledge for accurate usage. This aligns with Pair 3's practice of confirming their guessed meaning of "Beule" as "bulge," confirming the guessed meaning using the bilingual dictionary.

Spelling emerged as an exclusive strategy employed by Pair 3 during their investigation of the compound word "Angsthase," which translates as "timid rabbit" in English. Their approach involved splitting the word into two components, "Angst" and "Hase," making sure about the word's spelling to avoid mistaking it with another word: *V: wait, so A-N-G-S-T A: [Here] V: And there is Hase A: [She said] m- V: So it's Hase and Angst. And one of the words means dark, and the other one is hair.* Plonsky (2011) investigated the practices of successful language learners, discovering that they consciously focus on spelling and form when learning new words. The strategy of *splitting words into parts* was derived from the data, initially considered part of *analyzing affixes and roots*. However, it was later recognized that compounds cannot be strictly categorized as having affixes, thus creating a new strategy category. Hubáčková (2015) conducted a study on German compounds in which she stated that it is almost impossible to guess the meaning of a compound based on its components only. As seen in the excerpt, the pair refers to "Angst" as "dark," which suggests a previous encounter with this word, in which the pair estimated the meaning as stated above.

The last three identified determination strategies were linked to *sound associations*, exclusively used by three pairs. These strategies involved seeking resemblances in sound between the new word and words from the learners' native language (Czech), first foreign language (English), or other foreign languages (German, Russian, French, etc.). However, in the excerpts provided, none of the learners successfully estimated the word's meaning, resulting in interference rather than aiding comprehension. *Sound associations from L1* were most frequently used by pair 2, with an example such as "Fuchs" being compared

to the Czech word "fuška," interpreted as "hard work." *V: Der Fuchs, like fuška, that something is hard.* Similarly, *sound associations from L2* did not assist pair 3 in estimating the correct word meaning, as seen in the *excerpt: A: Frei, so frei (+ reads from the word list), those are French fries.* This group's third and last strategy was the *sound association from L3*, used most frequently by pair 3. In the following excerpt, they grapple with the meaning of the word "mutig" incorrectly as "Mutter" because of its sound similarity: *V: Mut, man (…) that's something like A: it reminds me of Mutter, that's mom…* The correct meaning of the word was "brave" in English. De Bruin et al. (2023) confirm that cross-language intrusions between L1, L2, and L3 can disrupt the language learning process, aligning with the observed interferences caused by sound association strategies.

Among the varied strategies employed by learners, *asking classmates for meaning* was one of the most frequently used strategies from the group of social strategies. This strategy is commonly adopted when encountering unfamiliar words, requiring learners to seek clarification from peers or teachers. Instances exemplify the use of this strategy, such as when learner *J* inquires about the word "einfach": *What does einfach mean (+ reads from the word list)*, or when learner *E* asks a learner from another pair for the meaning of "fürchtest": *E: Do you know, V., what fürchtest means?* In specific scenarios, this approach was found inadequate, prompting students from pairs 2, 3 and 4 to opt for teacher assistance, as demonstrated in the following excerpt, when learner *V* raises a question about the words "Dunkelheit" and "gespannt": *V: Miss teacher, we have a question (+ is raising hand). We don't know what Dunkelheit means and gespannt. I thought that one might be fever or cold, but (…).* Drawing on Vygotky's (2012) theory, the positive impact of the social environment, peers, and teachers on the learning process is emphasized. Learners actively engage with peers to explore and elicit word meanings, which enhances their ability to infer meanings that might elude them when working independently. Evidently, the strategy's effectiveness in *asking classmates for meaning* depends on the learner's existing knowledge and/or their capacity to infer meaning from *textual context* or *pictures*. On the other hand, *asking the teacher for meaning* consistently leads to an estimation of the word's meaning, whether through providing direct translation in L1 or indirect cues from text and visuals.

Expanding on the previous strategy of *asking for meaning*, another category of strategies, referred to as *making sure about meaning,* was identified from the data. This strategy involved a learner proposing a potential meaning of a word and seeking approval or confirmation from their peer, integrating the learner's existing knowledge into the discussion. An illustration of this strategy is evident in this excerpt: *V: Gute means good, right?* Here, the learner presents their understanding of the word "gute" and seeks confirmation from their partner. Ipek (2009) highlights the significance of approval or praise to reinforce a student's activity, motivating them in their subsequent work.

In the context of language learning, seeking confirmation about the meaning of a word from a peer not only validates one's understanding but also creates a collaborative environment that encourages active participation and reinforces the learning process.

One intriguing strategy identified from the data was *association*, which emerged in the interaction of pair 2. Instead of directly *asking classmates for the meaning* of a new word, one learner prompted the other to draw connections between the new word and their existing knowledge or experiences. This instance is depicted when learner *K* asked, *What does fürchten remind you of?* And answering their question: *Absolutely nothing.* Following this, learner *V* attempted to encourage associative thinking by suggesting: *But maybe (…)*, hinting at a potential association. Drawing from the insights of Manzo and Manzo (1990), the *association* strategy aligns with the subjective approach to vocabulary (SAV). This approach encourages students to draw upon their experiences or associations to complement dictionary definitions of new terms. It focuses on building connections between existing knowledge and new vocabulary, facilitating a more profound and personal understanding of the words encountered.

In the first recorded lesson, a notable strategy emerged utilized by pair 4 as they encountered challenges in advancing through the task. This particular strategy involved what could be identified as *copying from other pairs*, a strategy they resorted to when facing difficulties. This approach became apparent in the following dialogue: *E: Why don't we listen to others? J: That could work*. This exchange highlights their decision to seek information from other pairs, particularly in the case of two words, indicating their reliance on the knowledge of others to infer meanings for the given words. According to a study on English education in larger class settings by Erlina et al. (2022), referring to or replicating others' work is described as a coping mechanism in response to time constraints for completing tasks. It acknowledges the pressures of limited time and indicates that the final product may not solely reflect the individual learners' knowledge.

In utilizing metacognitive strategies, pairs 2, 3 and 5 employed *skipping* or *passing a new word*. This strategy is a response to encountering a word that is challenging for a pair to comprehend, acknowledging the time and effort necessary to understand the word's meaning. This is exemplified in the excerpt from pair 5: *T: I would skip this. We will come back to it later.* This excerpt showcases the decision of learner *T* to skip a problematic word initially, aiming to return to it later. Their action aligns with findings by Aravind and Rajasekaran (2018), indicating that skipping unknown words in the learning process is a time-saving strategy. The research also indicates that many learners tend not to revisit the skipped words due to a lack of persistence in estimating their meanings. However, the instance breaks the trend by the pair returning to

word "beißen" and successfully inferring its meaning as "to bite": *L.: beißen will be to bite*. This instance stands out as the pair demonstrated persistence by returning to the skipped word, successfully estimating its meaning. Contrary to the norm observed in the study, this pair's perseverance led to accurate comprehension. Their persistence illustrates a determination to comprehend and reflects a thorough approach to inferring the meanings of all the text's words.

The most used metacognitive strategy was *linking with already known material*, which involved associating the meaning of a word with the learner's existing knowledge base. Pair 5 notably exhibited the highest frequency of employing this strategy, showcasing their extensive prior knowledge. This is exemplified in the following excerpt: *T: Klein, which means small,* and *L.: Grandmother, Oma*. These instances demonstrate their immediate recognition and accurate estimations of word meanings, indicating their strong association between known words and their meanings. The lack of hesitation in their statements indicates a confident and direct link to their existing knowledge. The successful and confident estimations of word meanings by pair 5 and their high engagement indicate a positive impact of prior knowledge on learning. The interaction showed that their broad prior knowledge enabled swift and accurate connections between known and new words, leading to confident estimations. This aligns with the findings of Dong et al. (2020), which suggest that prior knowledge positively influences learning engagement. It allows students to expand their working memory, facilitating the acquisition of new knowledge and enhancing overall learning and engagement.

The final metacognitive strategy observed in the data was *self-correction* involving textual context and/or pictures. Pair 5 utilized this strategy to rectify previous estimations that did not align with the textual context. Their correction was notably based on their interpretations of the enclosed pictures and the text. This is exemplified in the exchange of pair 5: *T: We put that down, but probably wrong as hide, here, to hide under the blanket, but he doesn't hide in the water, right? L.: Well, in that case, Angst. T: That looks like being scared again. L.: Well, so this will be to be afraid, fürchtet*. The learners' correction was influenced not only by the text but also by the visual cues in the illustrations, which depicted a rabbit initially under a blanket in a bed and later in front of a lake, exhibiting signs of being notably scared in both scenarios. The learners' use of textual context and pictures for self-correction emphasizes their conscious effort to correct their earlier estimations that did not align with the context provided. Swain (2005) indicated that self-correction requires learners to recognize their errors consciously, and this observation supports the idea that learners can notice and correct their own mistakes. McCormick and Vercellotti (2013) further affirm that learners can self-correct without specific training, mainly when not preoccupied with formulating meaning.

This section delved into the utilization of VLS, primarily focusing on how learners employed specific strategies, and the attempt to interpret the acquired results with the existing literature on the given patterns. Descriptions of these strategies reveal a consistent trend: many of them were not used in isolation, operating independently, but rather in connection with other strategies. Besides the various strategies used interdependently, only three strategies were used in isolation. One such strategy was *asking teacher for meaning*, a standalone approach not combined with other strategies. However, preceding their request to the teacher, learners consistently attempted to estimate a word's meaning, employing various strategies independently, but often perceived these efforts as unsuccessful. Another strategy used independently was the *bilingual dictionary*. Specifically, pair 3 was the soul group utilizing a dictionary to explore new word meanings. Despite its solitary use without combination with other strategies, the dictionary was typically used to confirm the previously estimated meanings by engaging different strategies. The final strategy used individually was *copying from other pairs*. In this case, pair 4 mutually sought assistance from other pairs (without their knowledge) when faced with challenges in estimating word meanings.

In contrast, the remaining strategies showed a notable tendency to co-occur. Learners frequently relied on elicitation materials, such as pictures, text, and word lists, as their primary resources to estimate word meanings. This approach involved using multiple strategies simultaneously, systematically reflecting their procedures in their learning process. They also frequently revisited already estimated meanings and words still in the estimation process, constantly reevaluating and refining their understanding. The only exception to this pattern was observed in pair 4, as they chose not to review or revise their estimated meanings. Their approach prioritized completing the task as quickly as possible, but this came at the expense of the VLS usage, the accuracy of their estimations, and finally, their engagement in the strategy usage. The following section further investigates the process of inferring the word meanings.

3.3 Do the employed VLS lead to inferring the meanings of words?

The investigation into the relationship between VLS usage and the successful determination of word meanings directs our attention to the specific number of VLS employed by individual pairs. Thus, five figures will be presented in the upcoming section to address the third research question. In these figures, the x-axis denotes the recorded lesson numbers (1, 2, 3, 4, 5), while the y-axis illustrates the number of VLS used. The dark grey gridline represents strategies that successfully facilitated word meaning inference, while the light grey gridline indicates strategies with which the learners failed to do so, resulting in unsuccessful inference.

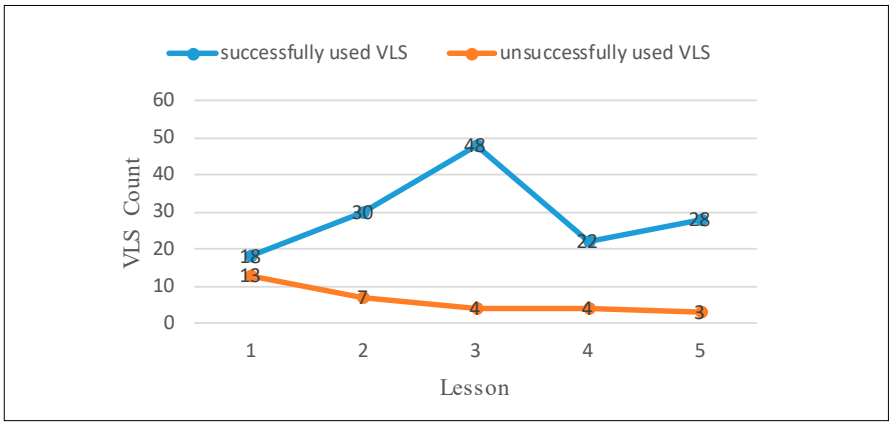

Figure 3
Pair 1: VLS strategy count per lesson for word meaning inference

The data in Figure 3 illustrates the VLS utilized by pair 1 across five recorded lessons. Pair 1 successfully inferred meanings in between 58.06% and 92.31% of instances. Pair 1 used five different strategies: *Guessing from textual context* emerged as the most prevalent and successful strategy, utilized in 37.33% of instances to infer word meanings. Following closely was *linking with already known material*, employed in 36.67% of cases. *Analyzing available pictures* was the third most frequently used strategy, accounting for 18% of instances. However, using the last two strategies, *making sure about meaning* and *asking classmates for meaning*, was almost negligible, at 4.67% and 0.67%, respectively.

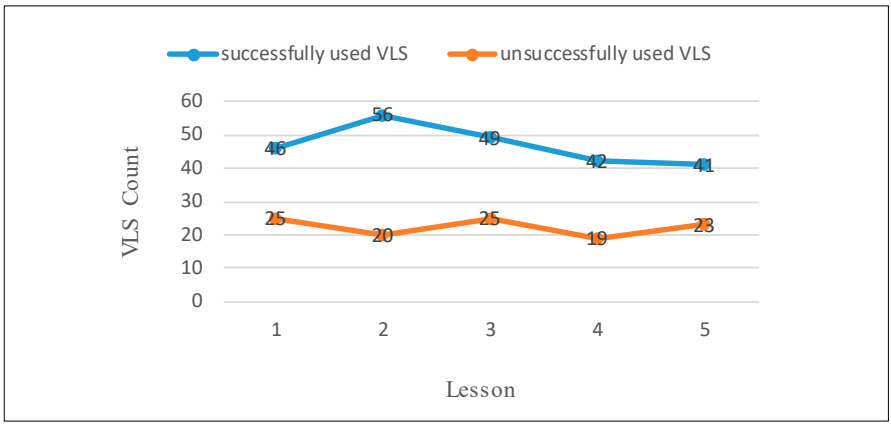

Figure 4
Pair 2: VLS strategy count per lesson for word meaning inference

The data presented in Figure 4 showcases how pair 2 utilized VLS. The success rates across the lessons were notably stable, consistently maintaining a relatively steady level of success, between 64.06% and 73.68%. The pair consistently favored *linking with already known material*. This strategy was prominently employed in 32.48% of instances across all lessons, demonstrating its recurrent significance for inferring word meanings. Throughout the five lessons, pair 2 used a total number of ten different strategies. The second most often used strategy, *guessing from textual context,* was used in 30.34% of instances. The third most often used strategy was *asking classmates for meaning* in 14.96% of instances. *Analyzing available pictures* followed at 14.96% and *asking teacher for meaning* at 5.98%. Additionally, *making sure about meaning* was used in 5.56% of instances. Other strategies were used in less than 1% of cases.

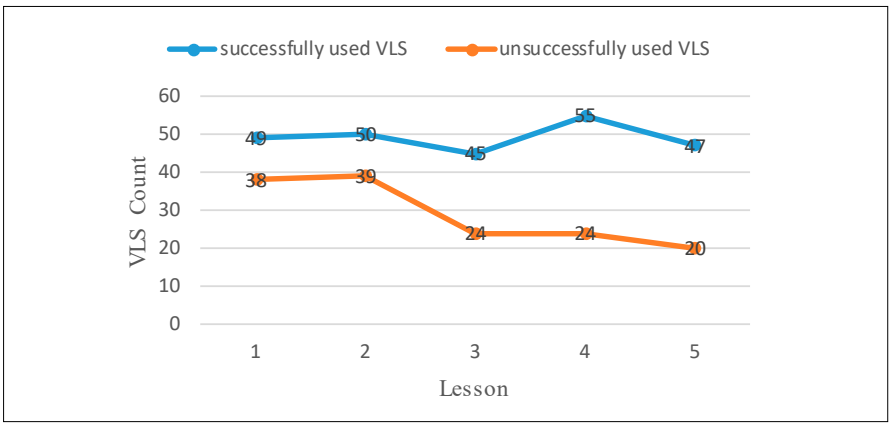

Figure 5
Pair 3: VLS strategy count per lesson for word meaning inference

Figure 5 displays the usage of VLS by pair 3. This pair showcased a stable success rate, fluctuating from 56.32% to 70.15%. Pair 3 employed a total of 15 strategies successfully for inferring word meanings. Notably, the most frequently used strategy was *linking with already known material*, utilized in 36.99% of cases, followed by *guessing from textual context* at 15.85%. *Word lists* as reference material were the third most commonly used strategy at 8.94%. Other strategies, such as using a *bilingual dictionary*, *asking teacher for meaning*, *analyzing any available pictures,* or *making sure about meaning*, were used with percentages lower than 8%.

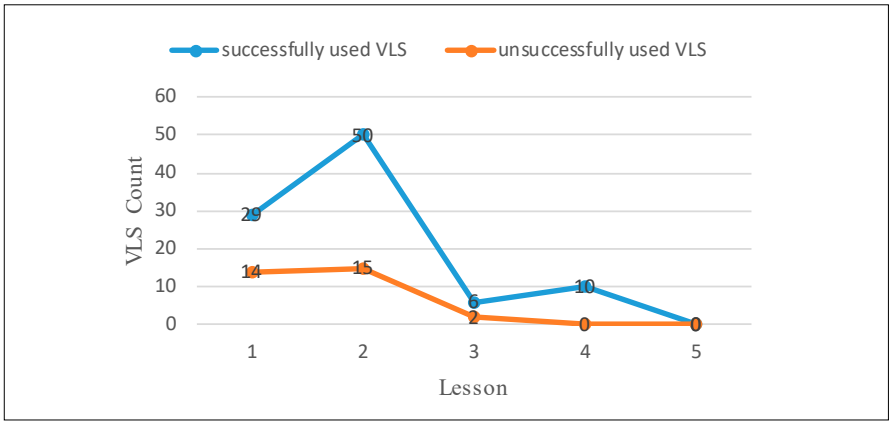

Figure 6
Pair 4: VLS strategy count per lesson for word meaning inference

Data in Figure 6 depicts the VLS usage from pair 4. This pair achieved high success rates, ranging from 67.44% in the first lesson to 100% in the fourth lesson. However, during the fourth lesson, they only used VLS ten times. In the last lesson, the pair chose to skip the process of guessing word meanings entirely. Throughout the five lessons, nine strategies were successfully used to infer meanings. *Linking with already known material* was the most frequently used strategy at 36.84%, followed by *asking teacher for meaning* at 15.79%. *Guessing from textual context* and *analyzing available pictures* were used with identical percentages, at 13.68%. *Making sure about meaning* was also notable at 11.58%. Other strategies were used in less than 5% of cases.

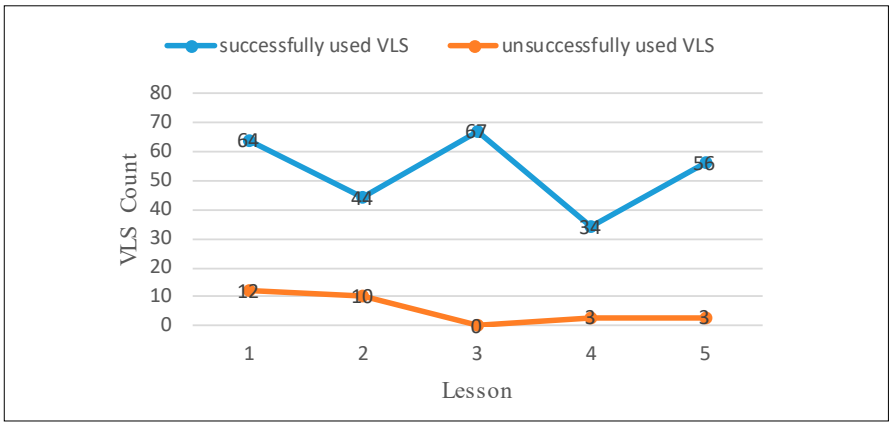

Figure 7
Pair 5: VLS strategy counts per lesson for word meaning inference

Figure 7 presents the VLS use of pair 5. This pair demonstrated the highest success rates among all pairs, ranging from 81.48% in the second lesson to 100% in the third lesson, where all 67 times the strategies used led to inferring word meanings. They employed 13 strategies, *linking with already known material* being the most frequently used at 41.89%, followed by *guessing from textual context* at 30.57% and *analyzing any available pictures* at 15.09%. *Making sure about meaning* was used in 6.79% of cases. The rest of the strategies were used in fewer than 2% of cases.

The analysis revealed distinctive patterns in the usage of VLS and their success in determining word meanings. The strategy most frequently used by many pairs was *linking with already known material*, demonstrating its recurrent significance for inferring word meanings. Some stability in success rates was noted, with pair 2 showcasing the most consistent success rates between lessons. Pair 5 reached all the pairs' highest possible success rates. These observations highlight the impact of strategies like *linking with already known material* and *guessing from textual context*, emphasizing their repeated use and success in understanding word meanings among the diverse pairs. The findings imply that learners with a broader foundation of prior knowledge tended to achieve higher success rates in inferring new word meanings.

3.4 How are the learners engaged in the VLS usage?

The investigation into pair engagement focused on the distribution of strategies employed within the pairs. This analysis distinguished between individual and combined strategy usage. Individual strategy employment refers to instances where only one learner from a pair used a strategy without seeking input from the other. In contrast, combined usage occurred when both learners used strategies to uncover word meanings, negotiate, or agree/disagree on estimated meanings. Moreover, within the combined strategy utilization, the initiator of the strategy use was identified to clarify engagement distribution within each pair. Figure 8 illustrates the degree of engagement by displaying the number of shared (K+F, K+V, A+V, E+J, L+T) and individual uses of VLS. The second part of the figure presents the initiation processes within shared VLS usage, depicted in percentages.

Lesson	Pair															
		1			2			3			4			5		
	Engagement	K+F	K	F	K+V	K	V	A+V	A	V	E+J	E	J	L+T	L	T
	1	28	3		61	4	6	49	4	34	32	4	7	57	4	15
	2	35		2	58	4	14	70	5	15	52	6	7	41	11	2
	3	52			69	0	5	64	3	2	4	4	0	61	0	6
	4	26			47	5	9	68	0	11	0	0	10	32	1	2
	5	27			56	2	6	48	0	19	0	0	0	54	0	6
	Initiaion		K	F		K	V		A	V		E	J		L	T
	1		68%	32%		28%	72%		18%	82%		53%	47%		47%	53%
	2		60%	40%		33%	67%		19%	81%		15%	85%		49%	51%
	3		50%	50%		33%	67%		81%	19%		50%	50%		51%	49%
	4		69%	31%		64%	36%		15%	85%		0%	0%		59%	41%
	5		81%	19%		55%	45%		4%	96%		0%	0%		55%	45%

Figure 8
VLS engagement level and initiation in pair-work

Pair 1 primarily favored a collaborative approach, utilizing combined VLS to estimate new word meanings. *Krystof* often initiated strategies, prompting his partner for meanings, while *Frantisek* primarily responded. Their work pattern strongly preferred joint engagement, with *Krystof* initiating strategies more actively. Pair 2 exhibited varying individual VLS usage. *Katerina* and *Viktorie* demonstrated different levels of individual engagement, with *Viktorie* leading in strategy initiation. This imbalance suggests a need for a more balanced contribution from both learners for enhanced outcomes. Pair 3 showed high individual VLS usage, with *Vlasta* significantly dominating in initiating strategy use. This dynamic suggests the potential impact on their collaborative work. Initially collaborating, Pair 4's cooperation declined in later sessions, with *Jaromir* solely employing VLS and disregarding his partner's contributions. There was a shift from collaborative work to independent strategy usage. Pair 5 consistently engaged in shared VLS usage. *Tamara* took the lead in strategy initiation, but *Lenka* actively challenged or disputed her partner's estimations, contributing to their collaborative approach.

The chapter investigates the engagement and strategy usage within pairs. It assesses the level of engagement by analyzing the distribution of strategies employed, distinguishing between individual and shared usage. Pairs 1 and 5 predominantly showed a collaborative approach in VLS, focusing on joint engagement and negotiation of word meanings. In contrast, Pairs 2, 3, and 4 displayed varying levels of individual strategy engagement, implying

potential differences in the collaborative dynamics. Pair 3 demonstrated significant individual VLS usage, indicating a dominant force in strategy activation. Pair 2 exhibited more varied individual engagement, suggesting a potential need for balanced contribution to enhance their joint outcomes. These observations emphasize distinct dynamics within each pair, influencing their approaches to collaborative learning.

4 Discussion

Utilizing synchronized video and audio recordings allowed for a comprehensive exploration of how new word meanings were determined in German. This multimodal approach proved to be a foundation for in-depth revisiting and reassessing strategies and cooperation dynamics. As Chan et al. (2020, p. 20) referenced, employing MLA techniques, particularly the combination of video and audio data, enhances reliability and consistency in coding. Incorporating various modalities and extracting diverse features can offer deeper insights into higher-level constructs such as engagement, pair-work dynamics, and self-regulation.

The study explored and categorized VLS utilized during pair work, uncovering diverse patterns in their utilization, including their interdependent manner. It was observed that most strategies were seldom used in isolation, with learners often combining multiple strategies to estimate new word meanings. This observation aligns with findings from Nie and Zhou's study (2017), in which proficient English learners employed a multitude of VLS in combination, rather than isolated, to achieve successful learning outcomes. The study highlighted the effectiveness of employing various strategies collectively, reinforcing the idea that a combined approach enhances learning efficacy.

Data analysis revealed a distinction between successful and unsuccessful strategy applications. Successful strategies led to correctly determining word meanings, whereas unsuccessful strategies resulted in incorrect or undetermined word meanings. The study's outcomes indicate the recurring success of strategies across diverse pairs in inferring word meanings, such as *linking with already known material* and *guessing from textual context*. This observation resonates with O'Malley and Chamot's (1990) concept, suggesting that a strategy, when repeatedly successful, may evolve into an automatic and procedural approach. This transformation likely occurs due to the consolidation of successful and unsuccessful conditions associated with the strategy. Hence, throughout consistent successful practice, learners instinctively employ these strategies when encountering similar learning conditions.

The observations highlight the varying levels of engagement and strategy usage among pairs, emphasizing their different approaches to collaborative learning. Pairs 1 and 5 predominantly displayed joint engagement, while pairs 2, 3 and 4 exhibited diverse levels of individual strategy engagement, hinting at potential discrepancies in pair-work dynamics. For instance, pair 4 took a negative approach, potentially hurting their ability to proceed with the work during the subsequent lessons, giving up on the shared VLS use and meaning negotiations. Chan et al. (2020) emphasize the impact of individual behaviors on pair-work engagement and dynamics. The significant individual usage of VLS across the pairs indicates the need for balanced contributions to optimize shared outcomes. Pair-specific differences in strategy usage and engagement levels may impact their effectiveness in inferring word meanings and overall success in pair work.

4.1 Limitation

The presence of cameras, as an invasive data collection tool, can influence learners' behavior, and the data can be significantly distorted (Laurier & Philo, 2012). Nevertheless, the research was implemented over three consecutive weeks, during which the learners gradually stopped noticing the cameras and started to behave more naturally.

The scope of the study is focused on what is observable in the classroom, omitting the cognitive aspects and out-of-class events. However, Oxford (2017) suggests that the connection between learning strategies and self-regulation involves both sociocultural and psychological dimensions. This implies that the process of strategy use extends beyond what is observable in the classroom. The study's focus on the observable social process within the classroom may limit the exploration of cognitive events, potentially neglecting insights into the broader context. On the other hand, Shum and Ferguson (2012) propose that a deeper insight into the learning process is acquired by observing essential aspects of learning, such as interaction, cooperation, or group processes.

Another limitation of the study is that I work in the group as their teacher and simultaneously as the researcher, which can affect the objectivity and distort the data. However, the essence of the study is to investigate the learners' VLS usage and their connection to inferring word meanings and engagement levels. These findings then provide the learners an insight into their conscious and unconscious learning habits (Juhaňák & Zounek, 2016). The study findings are beneficial in understanding the learners' practices when encountering new vocabulary, especially for me as the group's teacher. This knowledge is helpful for future lesson planning aimed at vocabulary instruction. One possible way to maintain impartiality would be to involve a second researcher to analyze a specific data set and test the inter-coder reliability (Kuckartz, 2018).

Conclusion

The study comprehensively explored determining new word meanings in German in primary school, and utilizing synchronized video and audio recording provided insights into vocabulary learning processes during pair work. The multimodal approach facilitated a deeper understanding of the strategies and dynamics of cooperation within pairs. The findings are supported by previous studies (Nie & Zhou, 2017), emphasizing the effectiveness of employing multiple strategies collectively to achieve successful learning outcomes. Successful strategies, such as *linking with already known material* and *guessing from textual context*, repeatedly led to accurate word meaning inferences across diverse pairs, aligning with the concept that recurrently successful strategies may become automatic over time (O'Malley & Chamot, 1990). The observations revealed varied engagement and strategy usage among pairs, highlighting potential disparities in pair-work dynamics and underscoring the need for balanced contributions to optimize shared outcomes.

The study primarily focused on understanding practices at a micro level, specifically examining a group of learners, aiming to improve teaching practice without generalizations (Juhaňák & Zounek, 2016). The findings provide valuable insights into individual and collective learning processes among learners in a classroom setting. Understanding how learners interact with each other and approach unfamiliar words can significantly contribute to comprehending the overall dynamics in pair work and gaining deeper insight into the needs of learners. This comprehensive understanding could then facilitate more effective planning, task allocation, and assessment of vocabulary-related activities. It creates an environment where tailored strategies can be implemented, optimizing the educational experience for all students. Furthermore, the learners' awareness about their learning practices connects the VLS usage with the very nature of self-regulated learning (Redmer, 2022). Nevertheless, further research is needed to gather data on extensive reflections from the learners on the practices they engage in.

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Appendix A: Category System

Main Category	Category Type	Subcategory	Description	Examples
Determination	A	Analyze part of speech (DET1)	Learner analyzes or identifies a new word's word class.	*V: Gibt could be conjugated from geben.*
		Analyze affixes and roots (DET2)	Learner examines a new word's root, suffixes, or affixes.	*T: Wait, der Fuchs läuft, that means that the fox ran (…). She ran away, isn't it? L.: Yes, somehow away (.).*
		Guess from textual context (DET3)	Learner estimates the meaning of a new word using a textual context by inserting words into sentences an/or deriving a word's meaning from its surrounding words.	*V: Well, kleinen, which means small, once upon a time, there was a small, timid rabbit*
		Analyze any available pictures (DET4)	Learner assumes a new word's meaning from the pictures incorporated in the text.	*L.: I would say this is something like a blanket*
		Bilingual dictionary (DET5)	Learner uses a bilingual dictionary to estimate a word's meaning.	*V: Beule, I suppose, that (nn) we guessed correctly (+ is looking in the dictionary) (..) Be-, Beu-, Beu- (16) Beu, bulge, nice.*
		Word lists (DET6)	Learner uses a word list with content words from the text to guess a word's meaning.	*J: What does einfach mean (+ reads from the word list)*
	B	Spelling (DET7)	Learner spells the new word and subsequently attempts to estimate its meaning.	*V: wait, so A-N-G-S-T A: [Here]*
		Splitting words in parts: compounds (DET8)	Learner splits a new word into separate parts and attempts to estimate their meaning.	*V: And there is Hase A: [She said] m- V: So it's Hase and Angst.*
		Sound associations from L1 (DET9)	Learner estimates the meaning of a new word according to its sound similarities to the mother tongue (Czech).	*V: Der Fuchs, like fuška, that something is hard.*
		Sound associations from L2 (DET10)	Learner estimates the meaning of a new word according to its sound similarities to the first foreign language (English).	*A: Frei, so frei (+ reads from the word list), those are fries*
	C	Sound associations from L3+ (DET11)	Learner estimates the meaning of a new word according to its sound similarities to the second and other foreign languages (German, Russian…).	*V: Mut, man (.) that's something like A: it reminds me of Mutter, that's mom…*

Social	A	Ask classmates for meaning (SOC1)	Learner asks their partner from their pair for a meaning of a new word.	*J: What does einfach mean (+ reads from the word list)*
	B	Ask classmates for meaning-other pair (SOC 2)	Learner asks another learner from a different pair for a meaning of a new word.	*E: Do you know, V., what does fürchtest mean?*
	C	Ask classmates for association (SOC3)	Learners asks their partner what does the new word reminds them of.	*K: What does fürchten remind you of?*
		Copying from other pairs (SOC4)	Learners from a pair decide to listen to other pairs and copy their estimated meanings.	*E: Won't we listen to others? J: That could work.*
		Making sure about meaning (SOC5)	Learner asks their partner about the accuracy of their estimated meaning.	*V: Gute means good, right?*
	A	Ask teacher for meaning (SOC6)	Learner asks the teacher for a meaning of a new word.	*V: Miss teacher, we have a question (+ is raising hand). We don't know what Dunkelheit means and gespannt. I thought that one might be fever or cold, but (…)*
Metacognitive	B	Skip or pass new word (MET1)	Learner skips the new word.	*T: I would skip this. We will come back to it later.*
		Linking with already known (MET2)	Learner activates their previous knowledge aquired either thrugh in-school or out-of-school exposure to language and associates it with a specific word.	*T: Klein, which means small, and L.: Grandmother, Oma.*
	C	Self-correction-pictures/textual context (MET3)	Learner corrects their original new word's meaning estimation based on pictures.	*T: We put that down, but probably wrong as hide, here, to hide under the blanket, but he doesn't hide in the water, right?*

Category Type:
A Categories based on Schmitt's taxonomy (1997)
B Categories based on the subcategories structure (step 4 of analysis)
C Catogories established from data (data-driven)