NEW BULGARIAN UNIVERSITY
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VOCABULARY LEARNING STRATEGIES USED BY UNIVERSITY STUDENTS IN AN ESP CONTEXT

Summary of the PhD Thesis

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I Overview of the PhD Thesis

Recent views place the vocabulary acquisition in a dominant position, claiming that the lack of appropriate vocabulary prevents students from mastering the language at a higher level. In addition, the practitioners often recognize that learners acquire the vocabulary differently, therefore, it is the teachers' responsibility to ease the processes of vocabulary acquisition guiding the students into becoming more independent and self-aware learners by eliciting the numerous available vocabulary learning strategies (VLS) they could employ as part of a broader set of language learning strategies (LLS). The combined use of these strategies is believed to have a positive effect on further advancement of learners' linguistic abilities, and by extension their lexicon. The importance of mediation, along with learners' awareness, in building strategic competences is acknowledged in the addition to the Common European Framework of Reference for Languages: Learning, teaching, assessment (CEFR), which provides adequate descriptors for reception, production, interaction and mediation strategies (Council of Europe, 2018).

Since the present research study focuses on vocabulary acquisition in particular, what will be addressed here are strategies applicable to vocabulary learning. There are several proposals on the naming and the distribution of vocabulary learning strategies (VLS) which have been more or less successful in grasping the concept, out of which

Schmitt's taxonomy (1997) is found most comprehensive and hence used as basis for this research. According to Schmitt (1997), there are two basic groups of LLS in general, and VLS in particular: discovering and consolidating. The former are employed during the first encounter with the word (determining and social strategies) and the later during the subsequent encounters (cognitive, metacognitive, memory and social strategies). Notably, the social type of strategies is applicable for both purposes.

When it comes to the ways of acquiring vocabulary, i.e., the choice of LLS, it is safe to assume that our understanding is limited and necessitates further research into the field. Namely, VLS are mostly studied in isolation, with research focused on limited number of strategies or factors influencing them

It has been noted that some strategies are preferred over others for no obvious reason, which indicates that individual learners' differences play a significant role in strategy preference. In other words, factors such as age, gender, personality, motivation, learning style, language beliefs, language level, linguistic configuration, etc., which have been proved to affect language acquisition, could also affect the choice of strategies the learners use. Furthermore, more recent studies elicit the learning context as an important factor for learners metacognitive development.

Therefore, this thesis aimed at emphasizing the role of individual learners' differences and the learning context

in the use of strategies in FL vocabulary acquisition. It summarized previous insights into the field, providing fresh and more concise view of the learner characteristics effect on strategy use and subsequently the amount of acquired vocabulary. The research aimed at answering these initial questions:

1. Do individual learners' differences significantly affect their choice of vocabulary learning strategies?
2. Is there a connection between the choice of strategies and the amount of acquired vocabulary?
3. Does the ESP learning context influence the choice of VLS (in comparison to learning EGP vocabulary)?
4. Are the learners (from the target population specified in the present research study) familiar with the wide range of available VLS? Which VLS are preferred and with what frequency?
5. Are the strategies effective?

The hypothesized answers were:

1. The following individual differences significantly affect the choice of VLS:
    - gender
    - linguistic configuration
    - language proficiency
    - learning style
    - personality type

- personal vocabulary learning beliefs.

2. There is a positive relationship between the choice and use of multiple VLS and the amount of acquired vocabulary.

3. The learning context influences the choice of VLS. Learners use different strategies in EGP and ESP contexts.

The object and the aim of this study requested efficient, precise and factual interpretation of the collected data which can be provided by descriptive research methodology using principally quantitative methods of research. Furthermore, the effectiveness of used or preferred VLS was tested using qualitative research methodology (verbal self-reports, interviews and various vocabulary tests).

II Theoretical background

The end of the 20th century marked the linguistic field of foreign language learning by shifting the focus from language teaching to language learning, opening new interests towards learners' characteristics and differences. It has especially been highlighted by the Council of Europe and articulated through the CEFR, which is based upon positive formulation of educational aims and outcomes at all levels viewing the learners as *social agents* responsible for their process of acquisition and guided by their social communicative needs. In view of teaching, this *action-oriented* model includes familiarization with the proposed descriptors, which would enable the learners to evaluate and describe their general and particular competences and activate the strategies necessary for completing a given aim or task (Council of Europe, 2018, pp. 25-30).

This further turned the SLA researchers' attention to the ways or strategies the learners employ into their language learning process and subsequently the factors influencing that choice. In other words, learning outcomes (vocabulary size in this case) are interpreted in relation to individual learners' traits. Good learners are characterized with learning awareness and are able to identify and create semantic relationships between old and new vocabulary.

1. Word and word meaning

A word is a meaningful item that can stand on its own (McCarthy, 1990, p. 3) without the need to add affixes to it. Morphology distinguishes free and bound morphemes, the former carrying semantic burden, and the later performing inflectional or derivational functions. Richards et al. (1992) have defined the word as a set of lexemes which includes single words, compound words and idioms. The number of distinct words in the corpus, having in perspective their abstract category, is referred to as the word type, and it is counted as a single occurrence, not counting any subsequent occurrences, while the total number of words in a text is labelled as word tokens. In this research the notion word family is preferred to the notion lemma since it allows the participants to derive the meaning of an unknown member of a word family from the meaning of familiar ones.

The arbitrariness of a language makes it difficult to precisely specify the meaning of a word as one would expect to see in a dictionary, or as Aitchison (2012) puts it – fuzzy meanings[1]. However, Alston defines it as a relationship between the word and its referent (Alston, 1967), and since

1"Word meanings cannot be pinned down, as if they were dead insects. Instead, they flutter around elusively like live butterflies. Or perhaps they should be likened to fish which slither out of one's grasp" (Aitchison, 2012, p. 54).

arbitrariness actually means that the majority of the population “has agreed” to recognize this relationship as valid and applicable, for the sake of this research we accept his interpretation.

1.1 Declarative, procedural and strategic knowledge

In order to achieve higher competences, learners need to be taught relevant learning skills along with the aforementioned content knowledge. Therefore, it can be deduced that the concept of knowledge is by far more complex and as such it has been a subject of extensive linguistic studies (Canale and Swain, 1980; Canale. 1983; Cooke et al., 2000; Pol et al., 2009; Ullman, 2004, 2015, 2016; Hamrick et al., 2018), which essentially identified three types of knowledge: declarative, procedural and strategic.

Declarative knowledge, often disused as explicit knowledge (Ellis, 1995), encompasses theoretical knowledge, which is formal, descriptive and factual, referring to information stored in the memory about objects and processes and their connection. Tulving (1985) regards it as independent and nonconscious until the moment it is triggered by individual’s attention and meaningful cues. Ulman (2004, 2015, 2016) posits that the declarative memory generally underlies the acquisition of lexical knowledge, notwithstanding the amount of exposure and the

language proficiency level, as well as the elementary grammar at the early stages.

Procedural knowledge, on the other hand, is considered as learners' practical ability generated through their actions, which might not be easily interpreted and explained. Namely, rote learning and reproduction, accompanied by trials and errors are considered less tacit than the ability to understand, evaluate and creatively manipulate information (Star, 2005). The procedural memory is responsible for relations across linguistic domains, governing the acquisition and use of different rules and patterns, thus supporting the acquisition of grammar at higher language proficiency levels, after increased exposure. In the context of lexical competence, relevant for this thesis, Hamrick et al. (2018) discovered that lexical knowledge is persistently related to declarative knowledge for L2 adults.

The strategic knowledge, as part of the procedural knowledge, frequently discussed as strategic competence, involves specific behaviour, actions and techniques (simply strategies) aimed at facilitating the learning process through their application. Strategic competence is discussed in the CEFR in view of different competence models sharing four principle aspects: strategic competence; linguistic competence; pragmatic competence (comprising both discourse and functional/actional competence), and socio-cultural competence (including socio-linguistic) competence (Council of Europe, 2018, p. 130).

1.2 Vocabulary acquisition

Researchers define vocabulary differently: starting with all the words in a language, or all the words used by a particular person (Burns, 1972; Hornby, 1995) and their meaning (Diamond and Gutlohn, 2006), necessary for effective communication and being of two types, expressive and receptive (Neuman and Dwyer, 2009). Jeremy Harmer differentiates two types of vocabulary: active and passive vocabulary (Harmer, 1991), the former referring to the taught vocabulary which learners know and are expected to use, and the later – to words learners recognizes, but rarely use. Similarly, Webb distinguishes receptive and productive vocabulary (Webb, 2005).

Regardless of how it was acquired, the amount of vocabulary, as well as human efficiency in finding and using the appropriate words indicate that there must be a highly precise composition in our minds referred to as mental lexicon (Aitchison, 2003). As far as L2 mental lexicon is concerned, the researchers agree that it is separately stored, however highly influenced by L1 mental lexicon (Wolter, 2006; Bastkowski, 2010), since each acquired item creates a connection with its L1 translation. Namely, the learners form a tight bond between the L2 form of a vocabulary item using semantic and syntactic information from its L1 counterpart in the initial stage of their language development (Jiang, 2000).

Learners' Memory

As far as the cognitive processes, involved in vocabulary acquisition, are concerned, we need to understand how human cognition systems operate. The role of memory is crucial for the process of vocabulary acquisition, and the different success rate of learners is directly connected to their memory capacity. Memory is defined as "mental processes of acquiring and retaining information for later retrieval, and the mental storage system that enables these processes" (Ashcraft, 1994, p. 11). There are four types: sensory memory, working memory, short-term memory and long-term memory. The roles of all memory types cannot be strictly defined since they manifest mutual dependence. The short-term and the working memory are needed for the long term-memory to be fully functional (Wixted and Squire, 2011). On the other hand, if the task at hand exceeds the working memory capacity, the performance will depend on long-term memory. The same happens when learners are distracted and they lose attention and the information stored in short-term memory is no longer available (Drachman and Arbit, 1966). The initial stage of memorization processes is called sensory memory and includes everything a person sees, smells, hears or feels, or in other words incoming information. Its capacity is limited and the information is stored within up to 300 milliseconds during which it is either noticed or ignored (Ashcraft, 1994). The short-term memory can be defined as the type of memory which maintains data activated from

long-term memory for a limited time period (Cowan, 1995). Basically, it holds information people sometimes need for a short period of time (e.g., a phone number) which becomes irrelevant after a while. Usually, it covers a period between 30sec. up to a few days. Its capacity is vital for the cognitive processes and the information is transferred from there to the long-term memory through practice and other cognitive activities (Waugh and Norman, 1965). Long-term memory is an information storage system where the learner permanently places the items transferred from short-term and working memory through rehearsal and association with other items already placed in the long-term memory (Ashcraft, 1994). It has an unlimited capacity and enables the learners to retain the vocabulary items permanently, after effective rehearsal. Tulving (1972) differentiates three types of long-term memory: procedural memory, which is unconscious and deeply embedded due to constant repetition and practice and holds information on how to do things, like motor skills; semantic memory which holds information (facts, meanings, concepts and knowledge) about the external world, and episodic memory which is conscious and holds information on various experienced events (times, places and emotions) in chronological order. Ullman (2013) concurs, pointing out the existence of multiple memory systems part of which are the declarative and procedural memories. The declarative memory is accountable for the semantic knowledge (learning, representation and factual knowledge) as well as the episodic knowledge (personal experience) and specializes in

conscious and fast learning of random data chunks through association. Procedural memory, on the other hand is responsible for motor and cognitive skills processing of data gathered unconsciously through practice and habits. Retrieval of those skills and habits cannot be done consciously and hence the name implicit memory (Ullman, 2013). The declarative and procedural memory systems are in constant mutual interdependence underlying cooperative as well as competitive learning and processing. From a language learning aspect, the declarative memory is accountable for the mental lexicon, i.e., word-specific knowledge and syntax. Procedural memory, however, is responsible for implicit knowledge gradually developed around the explicit knowledge in the declarative memory, or more specifically the mental grammar accountable for rule governed complex linguistic structures (Ullman, 2013, p.225). The cognition system responsible for handling and storing new information during complex cognitive activities is called working memory (Ashcraft, 1994) and it influences learners' capacity to master the language skills, and by extension vocabulary acquisition. Even though it is mainly formed in the early childhood, there are ways of improvement later in life. Understanding how this system operates will enable enhancement of learners' language performances. Logically, there has to be a difference between monolingual and bilingual working memory since the bilingual brain has to block L1 during L2 processing burdening it a little further (Ransdell, Arecco and Levy,

2001; Crinion et al., 2006; Cummins, 2007), thus boasting its capacity.

Neurolinguistic theories

Neurolinguistics is a study of the relations between brain functions and language processing trying to provide answers on how the brain grasps and generates language. The neuroscience in language has been raising a lot of interest in the past twenty years covering both teaching and learning perspectives. There are many viewpoints regarding the connection between the language and the brain which can be grouped as: localism, associationism, and holistic mind evolution-based theories (Ahlsen, 2006). In her book Introduction to Neurolinguistics, Ahlsen (2006) gives a brief elaboration on the complexity of bilingualism, or the issues raised by two or more languages processing. Starting from views that all languages are localized in the same area (Freud, 1891; Minkowski, 1963; Pitres, 1885/1983 in Ahlsen, 2006) to completely opposite claims that different brain areas underlie the processing of different languages (Scoresby-Jackson, 1867 in Ahlsen, 2006). Minkowski (1963) provides a compromising view that it is the same area but separate nerve cells, which are partly localized in different areas. Furthermore, there are hypotheses that special brain centers are being developed to govern complex relationships between the languages such as code switching or translation (Pötzl, 1930 in Ahlsen, 2006). Contrary to

this, Paradis (2004) likens the bilingual brain behaviour to monolingual while dealing with different registers. What also needs to be mentioned here is the lateralization of the brain and its implications on bilingualism. There are claims that the right side of the brain is responsible for L2 processing rather than L1 probably due to the fact that L2 is less developed and requires pragmatic activities for compensation (Paradis, 1998 in Ahlsen, 2006).

Neurolinguistically speaking, bilingualism or more recently, multilingualism is a complex phenomenon further complicated and affected by individual learning characteristics and proficiency levels of all involved languages.

Implications of neurolinguistic theories for SLA and teaching

Neurolinguistic research and latest insights into the matter encouraged more current pedagogical views such as The Neurolinguistic Approach (NLA) to second/foreign language (L2/FL) acquisition (Netten and Germain, 2012). Based upon the findings of previous research (Vygotsky, 1962; Lightbown and Spada, 1994; Paradis, 1994, 2004, 2009; Lyster, 2007; N. Ellis, 2011; Segalowitz, 2010 in Netten and Germain, 2012), this paradigm advises teachers to use less vocabulary and instructions in order to trigger implicit competence. Furthermore, the language input

should be authentic and use of learning strategies should be promoted in the acquisition of the target language (Carter and McCarthy, 2006).

More recent research

Cognitive language acquisition theories (Spada 2005; Ellis, 2011) seek support in evidence-based findings from neurological development research aiming at revealing how linguistic information is being processed rather than learners' linguistic competences. Such research focuses on mental representations of grammar acquisition (White, 2003; Bley-Vroman, 2009) and factors influencing internal behaviours; age is widely studied (White 2003; Franschescina 2005; Birdsong 2008; Sorace, 2011; Long 2013), followed by other individual differences such as cognitive capacity or proficiency (Roberts and Meyer, 2012) covering aspects such as the Critical period hypothesis, different developmental sequences, discourse/pragmatic issues, multilingualism, etc. Recent interests involve mental language architecture, or the ways learners arrange linguistic information (Tomasello, 2003) and its relations with comprehension and production in the real world (Roberts and Liszka, 2013).

There is a plethora of research suggesting differences between L1 and L2 processing, which indicates the importance of neurolinguistic evidence in language development. Namely, it has been shown that non-native

speakers tend to use larger brain areas and to a higher extent during foreign language processing, or in other words, language processing causes qualitative changes to the brain (Rüschemeyer et al., 2006; Osterhout et al., 2006; Davidson and Indefrey, 2009).

Language teaching theories benefit from neurolinguistic research as well. There are findings which suggest that the type of language instruction (explicit vs. implicit) affects the brain activity (Morgan-Short et al., 2012), indicating that implicit training of more proficient learners causes similar brain signatures of grammatical violations processing as found at the native speakers (McLaughlin et al., 2010). The teaching process will be aided by the development of pedagogies based on neurolinguistic research by eliciting which language components are best cultivated by metalinguistic training, thus producing the most effective learning methodologies.

Even though these preliminary findings suggest that the neurolinguistic aspects will prevail into the latest SLA theories the reality is that they are inconclusive, premature and limited to specific linguistic knowledge (mainly syntax) focusing on language violation processing. Other types of linguistic knowledge remain yet to be tested.

Neuro-Linguistic Programming

Neuro-Linguistic Programming (NLP) is an important interpersonal communications model for achieving professional, along personal, development, which basically involves understanding human behaviour and controlling your own. Rooted in the ideas proposed by Miller Pribram and Galanter (1960) (TOTE model), Chomsky (1956), Grinder (1973) (META model), Perls (1969), which were mainly psychotherapeutically-based, NLP was introduced by Bandler and Grinder (1975), who suggested that there is a connection between the neurological processes and language, which could be used to enhance learner's skills. This strategy, according to Bandler (1985) enhances learners' inquisitiveness, thirst for knowledge and the ability to significantly influence daily situations. Since all humans intrinsically share the same basic neurology, NLP proposes that the external behavioral manifestations depend on internal processes. Therefore, human skills depend on their ability to govern those processes. Such relations can be made in linguistic context. NLP, broken into components (Neuro, Linguistic and Programming) among which there is a profound relationship (Bandler and Grinder, 1975), actually refers to the neurological processes which encompass experiencing through senses further converted into thoughts modifying learners' emotions and consequently behavior. As the process of conceptualization of those experiences involves the use of a language, it can be said that the language effects

the way humans perceive the world around them. To sum up, learning and decision-making processes can be controlled provided that the learners have mastered ways (strategies) to guide the involved processes. It is clear that individual perception will be subjective - guided by the senses (visual, auditory, tactile, olfactory and gustatory) and the experiences gathered through them, both conscious and unconscious, are codified thus denoting the process of learning (Bandler and Grinder, 1975, Dilts, 1980). Furthermore, Sharpley (1987) suggests that these senses are not equally developed in each individual, claiming that each learner perceives the surroundings through a *preferred representation system,* or the preferred senses. This could also reflect different learning styles due to their intrinsic relation with the development of the senses, as well as the choice of learning strategies.

Applied in educational settings (Beaver, 2002, O'Connor and Seymour, 2000) NLP has been known to have many positive effects such as motivating learners towards higher goals, enhancing their willingness to make special efforts during knowledge acquisition, strengthening their communication with the teachers thus creating favourable learning environment (Pishghadam et al., 2011; Kong, 2012; Bashir and Ghani, 2012).

The teachers' perspective is significant as well. Silva (2017) proposes creating closer relationships between teachers and students by using NLP strategies in order to create rapport or empathy. Furthermore, Lioselle (1985)

reported positive NLP effect on memorizing nonsense words. NLP is rendered as a helpful instrument in second language acquisition allowing the teachers to successfully transfer their personal experiences (Pishghadam, Shayesteh, and Shapoori, 2011; Pishghadam and Shayesteh, 2014), improving learners' reading and writing competences, spelling and orthography communicative competences, memory and intelligence (Salami, 2015). In addition, individual experiences can be transferred within a community (family, school, university, working environment, living community….) (Biswal and Prusty, 2011; Turan et al., 2016) thus strengthening communicative and positive attitudes among individuals.

Such constructive approach towards the use of vocabulary learning strategies individually and willingly will enable the learners to achieve higher learing results because the individual choice is considered more motivating than imposed choices in the classroom or otherwise.

Frequency of exposure to vocabulary input

The vocabulary learning can occur during exposure to the target language without learners being directly and explicitly instructed to learn (de Groot and van Hell, 2005). This type of learning is referred to as incidental learning (Schmitt, 2010), as opposed to implicit or unintentional learning as a consequence of other tasks (Williams, 2005). These two types of learning often overlap since it is not

always clear whether the learners are aware of the vocabulary acquisition or not. Exposure to the target language seems to be a crucial factor influencing the process. It has been shown that the time of exposure (duration) is of vital importance for foreign language vocabulary acquisition, or in other words, frequent exposure creates conditions for better learning. However, the amount of exposure necessary for the process of vocabulary learning is not precisely set. Research results vary from 6 exposures (Rott, 1999), between three and seven (Chen and Truscott, 2010), up to 8 (Bisson et al, 2013), more than 8 (Horst et al., 1998) 5-16 (Nation, 1990), more than 20 exposures (Waring and Takaki, 2003). There are also claims that higher exposure might result in lower retention rates (Zhang, 2009). However, the view that extensive exposure is beneficial seems to dominate over others, or as Ebbinghaus deduced, after a series of experiments to measure the amount of exposure, increased exposure during the learning phase results in successful retention (Ebbinghaus, 1885).

The necessary vocabulary amount for L2 learners

Since the familiarity of the vocabulary is directly related to unveiling the meaning of complicated texts (Schmitt, 2000) even when reading is for pleasure (Hirsh and Nation, 1992), researchers argue about the minimal number of words a learner needs to acquire in order to

achieve successful academic communication and comprehension. Their findings suggest that the necessary minimum for non-native learners is between 2800- and 3000-word families (Nation, 1990; Nation and Waring, 1997). However, native English undergraduate students are reported to have mastered between 14000 – 20000-word families (Zechmeister et al., 1993), or approximately 1000 learned word families per each year of their lives (Nation, 2006). Bauer and Nation clarify that a word family incorporates a root word, its inflected forms, and a small number of logically repeated derived forms (Bauer and Nation, 1993).

Nation and Waring argue that learning the first 3000 high frequency words is the initial prerogative after which the learners need to gain sufficient command of vocabulary learning strategies (VLS) in order to increase the vocabulary size (Nation and Waring, 1997). This initial knowledge will allow a reader a comprehension span of approximately 85%, and the acquisition of the next 2000 (5000 in total) would practically mean sufficient coverage of around 95%. Even though there will still be unknown words in the text, the readers will be able to deduce their meaning from the context. Furthermore, it is important to emphasize that a major part of the language is consisted of rather small number of words, or as Nation calculated, the most frequent 1000-word families compose about 70-75% of written texts, and knowing 2000-word families will enable learners to understand 80% (Nation, 2001). This being the case, the

learners encounter the majority of vocabulary necessary for understanding texts in the initial stages of learning.

1.3 Language learning strategies (definition and distribution)

The positive effect of knowing more than one language can be sensed in many aspects of human socialization, starting from learning abilities and interaction all the way to individual competence and creativity enhancement. The 1970s were marked by a shift in the field of second language acquisition, switching the focus from a teacher-oriented views toward learner-oriented ones. What these stands posit is that the learner's characteristics, performances and abilities influenced the amount of acquired information (Stern, 1975, Cohen and Aphek, 1981; O'Malley et al., 1985; Horwitz, 1988; Oxford, 1990; Coady and Huckin, 1997; Schmitt, 1997). In order to achieve higher proficiency, the learner uses a number of the so called "strategies". It can be said that the difference between successful and less-successful learning lies in the appropriate strategies use which has been a subject of linguistic research ever since the second half of the 20th century. Bransfor stipulates that good or successful learners use their previously acquired knowledge for new learning situations by employing the so-called metacognitive strategies (Bransfor et al., 2000). Even the choice of the word "strategy" (a military term) implies using a range of different tactics in order to achieve something, and

strategies used in the context of the language acquisition can be viewed as learning procedures (Schmeck, 1998). Even though the concept of LLS is widely accepted in SLA studies, the research treats and defines them differently according to their specific field of interest: behaviors (Oxford, 1990), mental or behavioral activity (Ellis, 1995) actions or techniques (Green and Oxford, 1995, O'Malley and Chamot, 1999), or processes (Cohen, 1998). The psycholinguistic view is adopted for the purpose of this research.

The strategies can be defined as mental activities, chosen by the learner, which govern the language acquisition process (Oxford, 1990; Stern, 1992; Cohen, 2005; Griffiths 2008), and as such they can be viewed in relation to the four skills: speaking, listening, reading and writing (Oxford, 1990).

The widely used categorization designed by Rebeca Oxford (SILL - Strategy Inventory for Language Learning) divides the LLS into: direct – related to the target language, and indirect – related to the learner (Oxford, 1990). As it can be deduced from Oxford's elaboration, the LLS are exclusively connected to the learners, and depend upon learners' preferences, indicating that individual learners' differences have an effect on their use.

1.4 Vocabulary learning strategies

As previously mentioned, the difference between successful and less successful learners has been located in the use of appropriate learning strategies (Anderson, 2005). Pavičić - Takač found that more advanced students use various VLS more frequently than less advanced (Pavičić - Takač, 2008). Similarly, in the vocabulary acquisition context, successful vocabulary learners learn the form and meaning of words, aware that this process encompasses storing them in their memory and recalling them, when necessary, usually in different contexts. Research has confirmed that the level of language proficiency raises with the number and variety of used VLS (Gu, 2002; Gu and Johnson, 1996; Schmitt, 1997; Gu, 2002; Catalán, 2003; Pavičić - Takač, 2008; Tseng and Schmitt, 2008). Furthermore, cognitive psychology suggests that the amount of cognitive effort invested in learning the word influences the word recollection speed from learners' memory (Ellis, 1995; Schmitt and McCarthy, 1997).

When it comes to defining VLS, it can be assumed that their outlining will be further advancement or specification of LLS definition. Beginning from the initial clarification that strategies actually represent steps toward successful language acquisition (Oxford, 1990), O'Malley and Chamot define VLS as thoughts or behaviors learners undertake in order to understand, acquire and also retain new information (O'Malley and Chamot, 1990, p.1). Catalan further emphasizes that, essentially, strategies are

steps that learners take to learn the vocabulary and its meaning, place it in long-term memory, evoke it when needed, as well as use it in both oral and written production (Catalán, 2003, p.56), or as Rubin simplifies it, processes by which the information is acquired, stored, recalled and used (Rubin, 1987, p.19).

Strategies applicable to vocabulary learning will be addressed here, since this thesis focuses on vocabulary acquisition. There are several proposals on the naming and the distribution of VLS which are more or less successful in grasping the concept (Cohen, 1990; Rubin and Thompson, 1994; Gu and Johnson, 1996; Schmitt, 1997; Nation, 2001), out of which Schmitt's taxonomy (1997) is found most comprehensive and hence used for this research. Schmitt's distribution relies on Oxford's LLS list, filtering which LLS are explicitly VLS.

According to Schmitt (1997), there are two basic groups of VLS: discovering and consolidating. The former are employed during the first encounter with the word (determining and social strategies) and the later during the subsequent encounters (cognitive, metacognitive, memory and social strategies). The social type of strategies is applicable for both purposes. Schmitt posits that there are two ways of unveiling the meaning of a word: the first one is by guessing (determination strategies), based upon the context, personal views and knowledge and the second one is by social interaction (social strategies), i.e., simple asking. These processes involve, or in other words, are

followed by the use of various strategies connected to retention and practice of the vocabulary in question.

These strategies refer to the activities connected to studying in groups (social strategies for consolidating), relating the new word with the previous knowledge (mnemonic), mechanical repetition by means of various materials such as flash cards or word lists (cognitive), as well as control and evaluation processes (metacognitive).

Even though it has been widely claimed that the key to successful language acquisition lies in frequent use of strategies, it has to be noted that mere frequency without the appropriate cultural/social and cognitive conditions will not be enough. As previously mentioned, both social and cognitive stands influence the language acquisition process. Every social aspect of the learning process (both learners' and teachers' social and cultural background, the curriculum and the teaching material, political situation, societal norms etc.) influences the process of learning and has an effect on the outcome (Politzer and McGroarty, 1985). Moreover, individual learners' features (age, proficiency, learning style, personality etc.) influence the process of information management and manipulation the newly acquired knowledge (Schmitt, 1997) which leads to effective learning.

Individual factors and VLS

Good language learners' (GLL) studies, as part of the SLA research on strategy use was initiated by the work of Stern (1975), Rubin (1975), and Cohen (1977) and it involves discussion about individual differences between successful and less successful learners. Good adult language learners take active approach toward learning, they recognize that the language is a system, and benefit from the rules during the learning process, interactively use the language, deal with emotional hindrances during the acquisition, and evaluate their learning success (Naiman et al., 1978). It is what Ahmed (1989) refers to as learning awareness. This suggests that learners' characteristics are directly connected to the learning process, guiding and modifying it. Klapper (2008) concurs relating individual differences such as age, motivation, proficiency levels, and learning styles to decisions on strategy use. Strategy effectiveness depends on different variables, such as proficiency level, task, text, language modality, background knowledge and culture, context of learning, target language, and learner characteristics (Chamot and Rubin, 1994; Schmitt and Meara, 1997). Furthermore, Schmitt posits that VLS are used more than any other type of LLS, probably because vocabulary learning is private and occurs in learners' own time as compared to the stressful and somewhat enforced public interaction. Also, vocabulary learning as a classroom activity is preferred to integrated

activities, and lastly learners' feel that vocabulary learning is important for their success (Schmitt, 1997).

As previously stated, the understanding of the issue is not complete since most studies (Pressley et al. 1982; Ahmed, 1988; Ehrman and Oxford, 1989; O'Malley and Chamot, 1990; Oxford and Scarcella, 1994; Oxford and Leaver, 1996; Gu and Johnson, 1996; Schmitt, 1997; Horwitz, 1998; Huckin and Bloch. 2002; Catalan, 2003; Савова, 2004; Cummins, 2007; Hammarberg, 2009; Xhaferi, 2010; Nikolovska, 2011; Velikova, 2016; Ruzhekova-Rogozherova 2015, 2016, 2017a, 2017b) focus on limited number of strategies or isolated individual features, usually around a specific area and language. Hence this study will emphasize individual learner's differences and their effect on VLS use and the amount of acquired vocabulary.

1.4.1.1 Age

SLA research studies discuss age differences because essentially, older age implies maturity and cognitive development which in turn results in differences in the proficiency level as well as the learning phases. Furthermore, different educational levels include various teaching methods and teaching materials, as well as different motivational issues (Lan and Oxford, 2003). Consequently, the use of VLS will significantly vary across each stage. However, as previously stated, the participants

in the present research are approximately of the same age and have similar language experience; hence this variable was not taken into account in the statistical analysis.

1.4.1.2 Gender

Gender differences are evident on various levels, starting from physiological distinctions (brain capacity, size of brain regions such as Wernicke and Broca) and continuing to socially determined differences, or in other words, the role of men and women throughout history as well as within a certain society. Be as it may, the gender differences have been widely documented in the language learning processes (Taichi, 2000; Gu, 2002; Catalán, 2003; Lan, 2005; Lee, 2007; Nikolovska, 2011; Subon, 2013; Velikova, 2016; Gul Yilmaz, 2017; Lalicic et al., 2020). Their impact on FL vocabulary acquisition, on the other hand, has not been adequately acknowledged.

1.4.1.3 Linguistic configuration

The differences between first and any subsequent language acquisition have been well documented as well as the crosslinguistic influence along with its positive and negative aspects, especially quite recently because, due to the globalization processes, knowing more than three languages is not a rare phenomenon (Hammarberg, 2009).

In vocabulary learning context, this would mean that the learners use previously acquired strategies into new learning situations, such as using a dictionary and flash cards or practicing translation. Some of the participants in this study are expected to speak more than two languages which in turn might show higher frequency of VLS use.

1.4.1.4 Language proficiency

As previously stated, the lexical base is crucial for language acquisition, since without a sufficient amount of vocabulary learners cannot master any of the language skills. Hence, unveiling the processes (strategy use) behind vocabulary acquisition is of vital importance in order for the learners to gain control over them and consequently reach higher language proficiency. Regrettably, researchers report that low proficiency learners are not aware of conscious use of VLS and their effect on the learning (Lawson and Hogben, 1996; Schmitt, 1997; Ellis, 2002; Nyikos and Fan, 2007; Pavičić - Takač, 2008; Tılfarlıoğlu and Bozgeyik, 2012; Boonkongsaen, 2012; Waldvogel, 2013; Balidede and Lokmacioğlu, 2014).

1.4.1.5 Learning style

As general approaches toward vocabulary acquisition, learning styles have a direct relation to learners'

lexicon (Lawrence, 1984; Ma, 2009). They are defined as natural, habitual and preferred ways in which an individual absorbs, processes and retains information and skills (Reid, 1995, p. viii). The learning style concept in SLA appears to be quite exploited and addressed from many aspects (Pask, 1976; Kolb and Wolfe, 1981; Kolb, 1984; Honey and Mumford, 1982; Felder and Silverman, 1988; Fry et al., 2009).

Felder-Silverman Learning Style Model (Felder and Silverman, 1988) is used for this research because it provides reliable, valid and detailed descriptions of learners' preferences in four dimensions (Felder and Spurlin, 2005), at the same time allowing the learners with high proclivity towards a certain learning behavior to occasionally act differently. Learners can be described according to their inclination toward each of the following four dimensions (Felder and Soloman, 1993): active and reflective learners, sensing and intuitive learners, visual and verbal learners, sequential and global learners. Having in mind that strategies are essentially rendered as conscious activities towards learning, their relation with the learning styles is logical and as such tackled in some studies (Ehrman and Oxford, 1990; Oxford, 1996; Cohen and Dornyei, 2002).

1.4.1.6 Personality type

Social sciences have been trying to relate personality types to all aspects of human development, including cognitive

growth, for a long time. Hence the need to name and evaluate different personalities has been in the focus of many research studies. The selected factor analysis, as a valid systematic approach toward determining individual personality type, required determination of a set of traits which was based upon the so-called lexical hypothesis. The lexical hypothesis generally posits that personality traits, important within a society, will influence the language of that society by developing vocabulary to describe those traits. Namely, the taxonomies proposed for personality type models are said to be language based, and the studies conducted to prove the theories, logically - lexical studies, because they use adjectives to describe individual strives and behaviors. Ashton and Lee (2007) proposed a six-dimensional model – HEXACO, which incorporated noteworthy personality discrepancies and provides better theoretical support for them. The HEXACO model has been selected for this study due to its option to provide personality type assessment based on self-reporting inventory constructed upon the lexical approach. The six personality types assigned to the learners within this research are: honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness to experience.

Detailed cross tabulation analysis of data reflecting personality traits, VLS use and vocabulary acquisition success, to the best of the author's knowledge, has not been conducted yet.

1.4.1.7 Personal Vocabulary Learning Beliefs

Beliefs about language learning have not been in the focus of SLA research until the last couple of decades when Ellis suggested taking them into consideration as an important individual characteristic influencing learning results (Ellis, 1995) due to the learning strategy use (Wenden, 1986; Horwitz, 1987; Rifkin, 2000; Ellis, 2002; Kovačević and Akbarov, 2015).

Li (2010) derives the VLB definition from LLB definition stating that VLB reflect learners' intuition about vocabulary acquisition modified by previous learning practice and environment. This suggests that VLB will be influenced by different cultures, contexts, age and social status. Even though the research on the topic is scarce, the literature offers some significant contributions indicating the importance of LLB on learners' vocabulary size (Gu and Johnson, 1996; Zhang, 2005; Li, 2010; Simon and Taverniers, 2011; Heidari et al., 2012).

Li (2010) adapted Gu and Johnson's questionnaire (1996) focusing on learners' beliefs about the best ways to acquire larger vocabulary sizes which grouped learners' VLB into three clusters: rote memorization, incidental acquisition and intentional study and use, and further emphasized the motivational aspect relating it to the learning results. This form of questionnaire was found adequate for our study.

1.5 ESP Context

The process of teaching a language relies on four basic concepts: language, learning, teaching, and context (Stern, 1983). Teaching and learning ESP are viewed as pragmatically targeted actions aimed to prepare the learners to successfully function, or rather, communicate in their designated professional environment. Furthermore, the learners should be trained not just to adapt, but also question and challenge their surroundings in an attempt to fit their needs (Benesch, 1996). EGP, on the other hand, is considered as aiming at no predetermined destinations. In other words, ESP is used by particular professional discourse communities, which use special genres, defined as communicative situations with specific aims and behavioral patterns (Flowerdew & Peacock, 2001). However, the learners are to be viewed as active participants in these situations after acquiring the rules of the game (Giddens, 1979). They should enter these communities with evolving communicative skills which is a fundamental postulate of the Structuration theory, which posits that researchers and teachers need to provide relevant techniques or strategies in order to help their learners to acquire the necessary elements.

When it comes to the term ESP itself, there are two aspects of defining it (Bloor & Bloor, 1986). The first one is that it is an upgrade on the basic general language which is viewed as core language. The so-called core language contains structures which can be used in any context. In

contrast, the second aspect negates this, treating all languages as exist as one or another variety without treating general language as a core language, due to the fact that special purposes would necessitate special vocabulary in its language core, rather than other high frequency structures (Corder, 1993).

Basturkmen proposed a more balanced approach, claiming that small portions of general language should be initially thought in order to aid the introduction of the needed specialized structures (Basturkmen, 2005).

Dudley-Evans and St John (1998:83) suggest the vocabulary to be grouped into two broader categories: general language vocabulary with high frequency occurrence in specific and technical language (semi-technical), and specialized vocabulary with limited meaning pertaining to specific disciplines (technical).

The teaching and acquisition of such needed structures is highly subjective and teachers are often compelled to use customized teaching materials and methods, which can be quite challenging. Namely, technical vocabulary typical for a specific field could cause no problems for the learners, however the teacher might have difficulties while grasping the concept (Strevens, 1973, p.223). Furthermore, a significant number of lexical items are considered internationally familiar and the teacher needs decide whether to include them in the materials. The role of the teacher goes far beyond this. Even though, ESP learners

are considered as highly motivated, which diminishes teachers as facilitators, still the teachers have the responsibility to elicit important lexical items, further explain them and differentiate their use in everyday and specialized circumstances. As previously stated, the learner centered model views teachers as catalysts of the learning process, guiding the learners through their use of various strategies. Hence, one of the aims of this research was to unveil the specifics of ESP learners' VLS use.

Comparison of ESP and EGP courses

Overall, as a current trend in language teaching, ESP courses relate to the specific professional field in order to assist the learners in their career. Obviously, this approach recognizes learners' lack of interest for linguistics in general, including cultural or historical perspective of languages. Thus, ESP courses aim at developing special competences, such as terminology which would enable the learners to effectively communicate in work related situations (Belyaeva, 2015; Georgieva, 2015). This is further acknowledged by Chung and Nation's (2004) calculations that the texts specific to a particular discipline consist of larger amounts of technical vocabulary. To be more specific, one third of an anatomy textbook and one fifth of applied linguistic textbook were composed of such specific lexical items.

1.6 Summary of the theoretical points

The literature overview has crystalized the main concepts relevant to the topic. In order to gain sufficient command of the language and acquire the necessary amount of lexical units to successfully understand most of the spoken and written language production, the learners should develop adequate strategic competence. The employment of VLS is directly connected to learners' vocabulary size, however the choice of strategies as well as their effectiveness are not precisely documented, thus imposing the need to further examine the issue. Individual learners' characteristics as well as the learning context have been associated with language learning strategies and vocabulary learning strategies (as their subsection) to some extent necessitating further research. Larger portion of the revised literature indicated that learners' age, gender, linguistic configuration, target language proficiency level, learning style, personality type, and vocabulary learning beliefs pose a significant impact over the choice of vocabulary learning strategies. Furthermore, the language learning context, ESP as opposed to EGP in this case, was suggested as important factor as well. Consequently, this served as basis for the research design.

III Research and discussion

The object of this research were the vocabulary learning strategies used by 296 Macedonian undergraduate students, majority of which (268) were learning English as part of their professional ESP training at FON University, and in particular the influence of individual learners' differences on their choice of strategies for FL vocabulary acquisition, as well as the effect of strategy choice on their vocabulary size. Furthermore, the research focused on the effectiveness of the tested VLS in memorization and retention of the lexical items.

The research data were gathered from a sequence of specially designed self-report questionnaires at most opportune times for the aspect being tested. As mentioned above, the participants in this study were Macedonian University students learning English as part of their professional training. General information about the participants' gender, language configuration and course of study was collected through specially designed questionnaire. The vocabulary size was tested through the Vocabulary Size Test 14000 (Nation and Beglar, 2007). This test was used to measure the total receptive size of students' vocabulary. It contains 140 multiple choice items, divided in 14 sections with 10 words as representatives of each 1000-word family level. In order to estimate the vocabulary size of the learners, required for reading, the results were multiplied by 100. The respondents were asked

to select the definition which best describes the word according to their view (4-choice format). The stem consisted of four choices with the correct answers spreading evenly across the choices (a, b, c, d). Since the aim of this test was to measure vocabulary knowledge, but not the actual use, the language used in the stem was simpler than the tested word, and the words composing the definitions were of higher occurrence frequency. The authors of this test suggest bilingual versions to be used to allow maximum comprehensibility for the participants, since in most cases the translator will provide a single word as a translation for the tested one instead of a more complexed definition. This allowed the participants to use even partial knowledge. The test allowed informed guessing, employing sub-conscious knowledge, preferring it to the "I don't know" option which was not provided. Previous studies indicate that undergraduate non-native students at English speaking universities have a vocabulary size of 5000 – 6000-word families. Respondents' learning styles were determined a written survey, where the students were asked to answer questions revealing their personal learning style inclinations. The assessment instrument in question is designed by Felder and Silverman and consists of 44 queries with two possible responses and it was chosen because of its advantages over other instruments such as conciseness and ease of administration (Felder and Silverman, 1988). The participants were allocated into 4 areas: sensory or intuitive, visual or verbal, active or reflective and sequential or global. These dichotomies refer to subject's choices in terms of

their type and mode of vocabulary perception, information processing and organizing, as well as progress rate towards understanding. The HEXACO model of personality structure was used for the purpose of this research. In order to determine whether the personality type affects the choice of VLS, the participants' personality traits were organized into six dimensions: Honesty–Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O) (Ashton & Lee, 2001, 2007). This is an instrument based on self-report, and available in 200-, 100- and 60-item versions. The 100-item self-report version (Appendix 4) was used since it is the most widely used option. Learners' beliefs about vocabulary acquisition were tested by a specially designed self-reporting questionnaire (Appendix 5) (Li, 2010). The questions were organized in two clusters according to the needs of this study: metacognitive beliefs and motivational beliefs. The participants' strategy choices were determined by a questionnaire based upon Schmitt's taxonomy (1997) (Appendix 6) grouping the strategies into two basic clusters: discovering and consolidating, which are further divided into determining, social, cognitive, metacognitive and memory vocabulary learning strategies. This taxonomy is wide-ranging, eliciting relevant strategies from Oxford's LLS inventory (Oxford, 1990). Participants' English language proficiency level was determined by a Placement test (Mitkovska et al., 2013) which consists of 46 items, arranged according to difficulty. This test was used to assess project participants whose texts are part of the

Macedonian corpus of English Interlanguage designed for Project No. 13-3580/2 (Ministry of Education and Science 2010-2012). It assigns levels A to C, according to the CEFR.

The effectiveness of each VLS type was tested through a specially designed experiment. This experiment was expected to reveal how familiar the learners are with the existence of various types of strategies and whether their results are improved after using strategies they have not encountered before.

The Vocabulary Size Test 14000 was analyzed by the use of descriptive statistics, including means, standard deviations, and frequencies. The relation between the choice of strategies and the participants' individual differences was provided by cross tabulation analysis as well as T-tests. Pearson r correlations were computed to test the second hypothesis referring to the relationship between the use of multiple VLS and the amount of acquired vocabulary. Qualitative analysis methodology was employed for the verbal data. The findings will be presented below.

1. Question 1

Do individual learners' differences significantly affect their choice of vocabulary learning strategies?

At the outset it was hypothesized that learners' gender, linguistic configuration, target language proficiency level, learning style, personality type and language learning beliefs significantly affect the choice of VLS. Series of

descriptive statistical operations were performed on the collected data to test this hypothesis and the findings are presented below.

1.1 The influence of learners' gender

The initial preview into the literature on the topic indicated gender specific inclinations of the learners towards the manner of language acquisition. The statistical analysis of the data gathered from the respondents suggested likewise. Namely, according to the results, learners' gender can be viewed as an important factor for strategy preference.

176 female and 120 male students participated in this study. According to their answers on the self-reporting questionnaire aimed at collecting data about the strategy use, the mean values were calculated for both genders for each of the strategy groups as well as all strategies in general. The t-test revealed statistically significant difference between the two gender groups. This indicated that female learners are inclined to use the VLS more frequently than male learners, which is in line with the findings in previous research (Oxford, 1993; Gu, 2002; Catalán, 2003; Lan, 2005; Subon, 2013; Gul Yilmaz, 2017).

With the intention to determine whether gender had any influence on the strategy type, the mean values of their use were compared for each of the strategy groups. The average score for the Metacognitive group of VLS used by female respondents was higher than the average score of male respondents, which means that female learners use

these strategies more frequently than male learners. This corresponds with Catalan's findings (Catalán, 2003), as well as Nikolovska's (Nikolovska, 2011). Furthermore, the t-test for statistical significance of the differences in the arithmetic mean showed that there is a statistical significance among the average scores for the Metacognitive group of VLS between female and male respondents. Metacognition generally indicates conscious approach towards learning and the results above suggest that female students are more aware of their learning process. However, the mean scores show that both male and female participants are familiar and use these strategies with above average frequency, which is probably a result of their educational background and higher language proficiency levels. The results were similar for the Determination group of VLS. The data suggests that female students were more likely to focus on immediate solutions for the problem, unknown word in this case, then their male colleagues. This could be viewed in terms of motivation (Pritchard, 1987) to learn the language in general, and the vocabulary in particular. Parallel to previous results, the collected data for Memory group of VLS reflected female dominance and statistical significance here as well, which was reported in previous studies (Oxford, 1993; Catalan, 2003; Nikolovska, 2011). The high tendency for these strategies shows learners' willingness to deal with unknown lexical items immediately after encountering it, focusing on its visual and auditory interpretation, its translation, and then the position, or its use in the sentence. The medium interest for these

strategies signals learners' lesser preference for further manipulation with the lexical item. Namely, as stated above, they focus on what they can immediately see, hear or translate, rather than deeply process the lexical unit by relating it to previous knowledge (its antonyms and synonyms, cognates) or finding other examples of its use. As for the Cognitive group of VLS, the calculated values followed the preceding trend.

The abovementioned results suggests that female learners were prone to using metacognitive, cognitive, memory and determination strategies more frequently than male learners, which is in line with previous theoretical insight into the matter.

The application of the t-test for statistical significance between the mean scores of the two groups of respondents (male and female) indicated no significance when it comes to the use of social strategies. These results suggested slightly higher proclivity of male learners towards using these strategies, as reported in limited amount of previous research (Wharton, 2000; Manuel, 2016). Even though, the literature suggests that female learners are prone to social activities, meaning they tend to interact more and be more polite in order to maintain a successful communication (Oxford 1993; Green and Oxford 1995; Catalan 2003), the findings of this study indicated otherwise. Despite the fact that the difference is not statistically significant, the mean scores showed that male learners had opted for social strategies more than their female colleagues.

The findings suggested that male and female learners differed significantly in the number and frequency of VLS use, thus eliciting the gender as a factor to be considered when teaching and introducing different strategies. However, these results can be viewed as an indicator of certain similarities as well. Namely, the mean scores of individual VLS use generally belong into higher categories, suggesting that both genders frequently opt for the majority of VLS. This could indicate that their strategic competence is reasonably developed due to their prior language learning experience.

1.2 The influence of learners' linguistic configuration

The participants were asked to report if they speak any languages other than their mother tongue and English, and grade their knowledge on the scale 1-5 (where 5 indicates the highest level of proficiency in the respective language). The majority of learners have acquired their languages in an artificial setting, the classroom, and only those languages, graded 3-5 were taken ito consideration. The statistical data was obtained by correlating the use of strategies and the number of languages the participants have reported to speak. According to the Spearman correlation coefficient ($p<0.005$), it was deduced that the influence of the previously learned languages was statistically significant (- 0.21003; $p=0.000$) only in the case of using **avoidance strategies**, suggesting that participants who

speak more languages tend to use avoidance strategies less than those speaking fewer languages. This means that learning more languages in nonnatural surroundings encouraged strategy use, probably because the learners were exposed and required to use more strategies during the process of language learning. More specifically, the data brings forth the avoidance strategies which were significantly influenced by the number of languages the respondents' speak. Namely, when asked about their behavior during encounters with unfamiliar vocabulary, the participants with lower linguistic configuration opted for the strategy *pay no attention to it and never go back to it* and *pay no attention to it, but go back to it later,* significantly more than their peers with higher linguistic configuration. The use of the third avoidance strategy provided in the questionnaire, *Read the new words the first day, but not afterwards*, was not affected by the number of participants' languages according to the statistical data. As stated before, strategy promotion and use occurr mainly in the language classrooms, a view which supports the above presented data. This showed that avoidance, or rather lower interest in vocabulary learning is typical for learners with lower linguistic configuration. The issue can be viewed in terms of motivation and awareness as well, suggesting that learners who speak more languages are aware of their importance and benefits, and would rather use strategies for determination and consolidation than opt for avoidance strategies.

1.3 The influence of learners' English language proficiency level

Based on the result from the placement test, the respondents were distributed in five groups A1 to C1. The relation between learners' language level and their strategy use was tested with ANOVA test, which indicated that there was statistically significant difference among the language levels of the respondents and the arithmetic mean of the Metacognitive and Cognitive strategy groups as well as the Total use of VLS. Hence, a subsequent statistical operation was performed only for those strategy groups. The data showed that rrespondents at lower language proficiency level (A2) used Metacognitive and Cognitive strategies less than respondents with higher language proficiency levels (B1, B2, C). The difference between the mean scores of respective groups of strategies was statistically significant, and so was the difference between the means of Total strategy use between the lowest (A2) and highest proficiency level (C) of the respondents. In other words, this statistical analysis revealed that the total use of strategies was influenced by the language proficiency level. To be more specific, learners at A2 language proficiency level used fewer strategies than learners at C level. Furthermore, with the advancement of the language level B1-C, the results suggested larger interest in Metacognitive and Cognitive strategies. This relation is logical, since the use of these consolidation strategies is shown to aid retention and

production, hence they might be considered responsible for achieving higher target language proficiency levels.

1.4 The influence of learners' learning style

The ANOVA test was also applied on the collected data about the participants' learning styles and their strategy use. They were distributed in 22 groups according to their learning preferences. Two categories remained empty (Strong verbal and Strong active), because none of the respondents' results matched the requirements of that category, and thus they were excluded from the calculations. Variable analysis (ANOVA test) indicated that there was a statistically significant difference between each style subcategory in their relation with the means of each group of strategies as well as the overall strategy use. These results suggested strong relationship between the learning style and the amount and variety of strategy use.

What needs to be pointed out here is that the statistical analysis showed that the subdivision (mild, moderate and strong) was proven to be statistically irrelevant and had no influence over respondents' strategy choice.

The first analyzed learning style was Active learning style which means that these learners prefer using the new vocabulary and enjoy group activities. The respondents opted for metacognitive and social strategies the most, signaling that they were aware of their learning

process and they preferred using the learned lexical units in communication. Reflective learners, on the other hand are prone to thinking about the learning process or rather the acquisition of the new lexical item and prefer studying alone, thus analysis showed that they generally opted for metacognitive strategies, followed by determination strategies. Sensing learners are explicit and prefer common and well-established grounds, which means that they prefer explicit methods of learning previously proven as effective. The results suggested significant proclivity for cognitive strategies. In opposition, intuitive learners prefer new approaches and methods, avoid repetition and welcome innovative relations. They tackle the assignments effortlessly, work faster and accept new concepts. This is probably why their overall strategy use scores were higher, suggesting that the learners were willing to try the majority of them. Visual learners, as indicated in the name, prefer films, images, charts diagrams and any other visual demonstrations of meaning. This was demonstrated by their inclination towards metacognitive strategies. Conversely, verbal learners enjoy written or spoken interpretations and explanations. This proclivity was best reflected in the frequency of use of metacognitive strategies. The gradual approach toward vocabulary learning of the sequential learners enables them to use logic and reasonable judgements. The statistical analysis, as stated previously, elicited metacognitive strategies as most frequently used. Global learners favour the big picture, trying to grasp the

material as a whole without analyzing it into smaller portions.

Aside from the fact that the amount of gathered and processed data was too spacious to be presented in full, the selected interpretations above are sufficient enough to witness the correlation existing between the learners' learning style and the strategies they use. This is a valid starting point for future research as well as a valuable guideline and insight for the teaching process.

1.5 The influence of learners' personality type

The findings are presented according to two levels of data analysis; descriptive statistics on the use of five categories of VLS by Macedonian undergraduate learners of English as a foreign language, and the relationship between their personality type and VLS use.

The respondents were divided in three groups according to the results on their personality test (below the 10th percentile, above the 90th percentile and between the 10th and the 90th percentile), thus reflecting different characteristics associated with high and low levels of each factor or dimension. The results interpreted below reveal statistically significant differences in strategy use by learners with different personality traits. The metacognitive group of VLS was the most favoured group by most of the respondents probably due to their academic inclination, as

well as their relatively high average language level (B2-C1) and thus it was not affected by their personality traits.

The first dimension which was analysed is Openness to Experience. Statistical data suggested that there was a significant statistical difference between the arithmetic mean of the use of five strategy groups and the first group of this dimension (below the 10th percentile). Furthermore, the performed Tukey test indicated that the metacognitive group of strategies was the most favoured; however it was closely followed by, or rather formed a subset with the determination group of strategies. Social strategies belonged to the second subset, while memory and cognitive strategies formed the first subset, or the least used strategies. The influence of these personality traits over strategy preference was best reflected in the use of memory strategies. Namely, these respondents had very low scores on this scale, which means that they are not prone to intellectual challenges, have no interest in art and lack creativity, and thus unsusceptible to unconventional or radical ideas. As the personality traits move towards the other end of this scale, whose members are creative and imaginative, prone to art, inquisitive about various domains of knowledge and generally interested in unusual ideas and people, the use of memory strategies was higher.

The second tested dimension was Extraversion. There was a statistically significant difference in the arithmetic mean of the use of different groups of VLS within the first group (below the 10th percentile). The Tukey test

indicated that the most favoured group of strategies was the metacognitive group, followed by the second subset consisted of determination and memory strategies, and social and cognitive strategies as part of the first subset. People with such low scores on this scale have low self-esteem, they think of themselves as unpopular, they do not care for social activities feeling lethargic and pessimistic. The influence of these traits was manifested through the significantly low interest in social strategies used to discover the meaning of a lexical item, and also to practice its use in social encounters. The movement of social strategies from the first into the second subset was probably caused by the influence of the personality traits toward the other end of the Extrovert scale i.e., the people with high scores on this scale are optimistic, confident and energetic, enjoy various social contacts, often having the role of a leader of the group. This was further highlighted in the third group, consisting of respondents whose scores were above the 90th percentile. These findings contributed towards the view that personality traits (extrovert in this case) influence the choice of strategies, best signalled through the preference of social strategies.

The third observed personality scale was Agreeableness as opposite of Anger. People with low scores, in the first group (below the 10th percentile) are critical of others, rarely conforming with other people's point of view. Furthermore, they bear grudges for a long time and are easily angered when feeling undertreated. As

the personality traits change, moving towards the other end of the scale, they describe people able to control their temper, find compromises and cooperate with others. Furthermore, they are more forgiving and less judgmental, which is reflected in their learning habits as well. These personality traits suggest that these individuals are calmer and in control of the learning process justifying their preference for strategies use. Namely, they report interest and use of virtually all strategy types. The statistical data supported this interpretation.

The analysis of the fourth scale, Emotionality further proved the initial thesis that the personality affects the choice of VLS. According to the statistical data it could be seen that there was a significant statistical difference between the arithmetic mean of the use of five strategy types and the first group of this dimension (below the 10th percentile). Furthermore, the performed Tukey test indicated that Metacognitive strategies were mostly preferred, followed by memory strategies, determination strategies and social strategies. The least used or favoured strategies were the cognitive strategies. People with low scores on this scale are not discouraged when facing potentially dangerous and stressful situations, are reluctant to share their anxieties and feel emotionally detached from others. Consequently, they relied less on social strategies, or rather find other ways to discover the meaning of new words and phrases or practice their use. Similar findings were viewed for the second group (between the 10th percentile

and the 90th percentile). As the respondent's personality traits moved upwards toward the other end of the Emotionality faucet, we see that the social strategies were being more preferred as well. The third group of respondents belonging above the 90th percentile, with very high scores on the Emotionality scale, conversely, are significantly stressed and scared of physical danger, unable to cope with different challenges unless supported by others and are highly emphatic and attached to other people. Surprisingly, the statistical analysis of their results showed similarities with the members of the first group. Namely, the metacognitive strategies were mostly preferred followed by determination, memory and social strategies.The least favoured strategies were the cognitive strategies.

The data gathered in connection to the fifth scale Honesty-Humility indicated statistical significance for the group with scores below the 10th percentile. The least used strategies were, as a rule, the cognitive strategies, while all other strategies formed a separate subset with similar values for their arithmetic mean. These people are prone to flattery and bending the rules in order to benefit from a situation due to their perception of their own self-importance. Furthermore, as they are used to having things done their way, they would use any strategy available if it helps achieving their goal which could explain the relatively equal interest in all strategies. Similar results were seen for the second group (between the 10th and the 90th percentile). At the other end of this scale stand individuals with no interest

to manipulate or break the rules, indifferent to wealth or any other personal gain and no ambition to belong to a particular social group of higher status. The distribution of strategies preference was as follows: metacognitive and and determination are mostly preferred strategies, followed by social, memory and cognitive strategies. The traits at both ends of this scale might suggest willingness and eagerness to achieve certain results regardless of the initial motivation.

The results indicate statistical significance for the three groups of the Conscientiousness scale. Individuals with low scores on this scale fail to respect schedules or rules, dislike challenges and difficult assignments, are far from perfectionists and often behave impulsively and without thinking. The arithmetic means of their strategy use, clearly, reflected these traits indicating insufficient use of any strategy type. Namely, even though metacognitive strategies are highly used, as a rule, still the value of 3,4289 was average if compared to the members of other groups and traits. This low tendency to use strategies could be noticed for the other strategies as well. The situation improved within the second group of respondents whose scores belong in the range from the 10th to the 90th percentile. People with high scores on this scale are disciplined and organized, goal oriented and punctual, prone to accuracy and very careful and mindful during making decisions. This was reflected in the high arithmetic mean of their use of metacognitive strategies, followed by social, memory, determination and cognitive strategies. The

findings above signalled strong relation between learner's personality and their choice of strategies which is supported by the statistical data.

1.6 The influence of learners' personal vocabulary learning beliefs

In order to determine participants' beliefs about themselves as vocabulary learners, they were asked to weigh the provided statements on the Likert scale 1-5 (where 1 stands for strongly disagree, 2 stands for disagree, 3 stands for neutral, 4 stands for agree, 5 stands for strongly agree). The beliefs were distributed into: beliefs about VLS: memorization, beliefs about VLS: acquisition, beliefs about VLS: intentional study and use motivational beliefs: self-efficacy, beliefs about the importance for tests and interests in vocabulary learning.

Surprisingly, the Pearson correlation coefficient indicated no statistical significance of the obtained data. This suggested that learners' beliefs have no influence over their choice and use of vocabulary learning strategies. Further statistical calculations might shed some light over the issue indicating whether this is the case, or there might be some irregularities in the questionnaire or the sample.

2. Question 2

Is there a connection between the choice of strategies and the amount of acquired vocabulary?

Preliminary tests, as well as the relevant literature, led to the second hypothesis that there is a positive relationship between the choice and use of multiple VLS and the amount of acquired vocabulary. The vocabulary size was tested through the Vocabulary Size Test 14000 (Nation and Beglar, 2007), which measured the total receptive size of learners' vocabulary. It contained 140 multiple choice items, divided in 14 sections with 10 words as representatives of each 1000-word family level. According to their vocabulary size the respondents were distributed in three groups (between 7000 and 9000, 9000 and 11000-, 11000- and 13000-word families). Spearman's correlation coefficient was used to test the connection between the use of various strategies, or rather strategy groups, and the vocabulary size. The results showed that all coefficients of correlation were statistically significant which indicated a positive relation between the strategy use and the amount of acquired vocabulary. Furthermore, these results suggested that with more frequent application of any strategy, and the strategies in total, the vocabulary size of the learner will increase accordingly. In addition, the mean scores for each strategy group showed that metacognitive strategies had the

greatest impact on the vocabulary size (3.81), followed by social (3.57), determination (3.46), memory (3.36) and cognitive (3.03) strategies.

3. Question 3

Does the ESP learning context influence the choice of VLS (in comparison to learning EGP vocabulary)?

Initially it was hypothesized that the learning context has a significant impact on the choice of VLS. The data used to test this hypothesis was collected with the self-reporting questionnaires about respondents' general information and strategy use. 28 of the respondents were studying English for general purposes, while 268 reported studying English for special purposes (they were students from the Faculties of Architecture, Design and Information Technologies). The t-test used for equality of means was applied to test whether respondents studying ESP and EGP use the strategies equally.

Following the obtained data, it was deduced that there was a statistically significant difference ($p < 0,05$) between ESP and EGP respondents in the use of only one group of strategies under the different context conditions – the Metacognitive group of strategies. These strategies are more preferred by EGP, which can be assigned to the heightened awareness about respondents' learning process.

4. Question 4

Are the learner's familiar with the wide range of available strategies and how often they use them?

The participants' strategy choices were determined by a questionnaire based upon Schmitt's taxonomy (1997). The mean values indicated that the respondents were familiar and used a variety of strategies with above average frequency.

The overall examination of preference and frequency of VLS provided an interesting outcome. Namely, the mean values showed somewhat equal distribution and utilization of any and all strategies. Given the academic inclination and relative high target level proficiency of the respondents, the high position of the Metacognitive strategies (3.89) comes as no surprise, along with the Determination strategies (3.36) which were essentially the only strategies identified prior to the introduction and training. They were followed by Memory (3.28) and Social strategies (3.31), used with slightly less preference. Again, the inclination toward these strategies can be justified by the high language proficiency levels, as well as educational background, suggesting that the participants are accustomed to making relations and deducing, but also using the vocabulary in oral and written communication. Cognitive strategies were used less (2.95),

probably due to the previously said. Namely, the utilization of these strategies is intrinsically more time consuming, hence, if the learners feel they have gained sufficient command on the vocabulary in question by using the other strategies (less time consuming), it is not surprising that they would opt for them. The avoidance strategies (2.69), as previously discussed, were the least favoured strategies, which, yet again, can be interpreted as an indicator of academic achievements.

5. Question 5

Are the vocabulary learning strategies effective?

The results from the statistical analysis of the data collected from self-reporting questionnaires are a reflection of respondents' perception rather than the actual representation of the learning process. It provides no evidence of the level of their understanding the concept of strategy use and its results, as well their ability to interpret their actions adequately on numerical scales, such as the Likert scale. It remained unanswered whether the implementation of the strategies is done properly and consciously and to what effect.

A quazi - experiment was designed with the intention of providing a more objective view on the issue. It was aimed at testing the functionality of the VLS and

indicating which of them are responsible for the acquisition of the larger vocabulary quantities at the same time eliciting the strategies found most fitting for the majority of the targeted population. Besides the quantitative data, it provides a more detailed view of VLS use. The participants were asked to apply various VLS (one type at a time) and tested afterwards for retention. Furthermore they were interviewed about their experiences providing short comments and descriptions concerning the acquisition process (and which VLS they find most efficient) intended to provide some qualitative data and information on VLS use and vocabulary acquisition. The target vocabulary was introduced through a series of texts (pertaining to the curricula of the participants in the study) designed for more advanced language levels to ensure that the amount of unfamiliar vocabulary is sufficient to provide valid insights on the issue. Furthermore, since the participants in the study learned English for different purposes, depending on their course of study, the experiment aimed at providing additional information on whether the choice and the effectiveness of strategies are influenced by the vocabulary type (ESP or EGP vocabulary). The participants had received precise instructions on how to study, i.e., which VLS to apply after reading each text. The retention was tested by two tasks containing random selection of the vocabulary in question: translation and gap filling tasks, which provided data both on perception and production.

Due to the Covid 19 lockdown and online teaching, which lasted for two semesters, the experiment was adequately adapted and conducted online, through Microsoft Teams and Microsoft Forms.

The experiment was carried out in three stages:

During the first stage, the respondents were presented with a text and instructed to highlight and make a list of the unfamiliar vocabulary in the form provided by the researcher. Furthermore, they were asked to study at home without any instructions regarding the VLS. The purpose of this stage was to gather general information about the independent learning process and learners' experiences, or in other words whether they were acquainted with VLS prior to the experiment and to what extent were they aware about their value.

The second stage was aimed at introducing the VLS, one type at a time, i.e., the respondents were presented with a text, asked to highlight and list the unfamiliar vocabulary, and instructed to use specific strategies during their studying at home. As mentioned previously, they were provided with specially designed forms for each strategy type and the process was repeated until the respondents had used all strategy types intended to be tested for this research. Besides instructions on how to process the vocabulary, the forms contained questions designed to gather information on the respondents' thoughts, beliefs and experiences regarding strategy use whether conscious or unconscious. This would

provide a deeper, qualitative view of the issue. What needs to be specified here are the constraints, such as the large number of participants as well as online teaching format, which imposed a difficulty in controlling the entire experimenting process and limited the number of strategies to be applied and tested. Furthermore, the course of the study of the participants as well as their language level was taken in consideration during the task design. The selection of strategies was made based upon the relevant theoretical views, the researcher's judgement, as well as insights gained from participants' comments in the forms and orally in class.

The final stage included a test (conducted a month after the last strategy type had been practiced) containing random selection of the unfamiliar vocabulary listed in the forms by the majority of students from every text, which would provide an overview of the entire acquisition process evading the short-term memorization issues. The process was completed by a more detailed elaboration on strategy use as well as the full VLS list intended to raise learners' awareness about the importance of metacognitive development and reflection throughout the learning process.

The results of each vocabulary test were processed statistically. The statistical analysis provides a quantitative representation of the functionality of each tested strategy. The additional questions in the forms regarding respondent's views on vocabulary acquisition, on the other

hand, reveal the necessary qualitative data for full comprehension of the particulars accompanying VLS use.

As it can be seen above, the experiment provided a more detailed outline on the efficiency of different strategies, at the same time tackling maybe even a more important issue – raising learners' awareness about their importance for individual language development.

Qualitative analysis

The first stage was intended to provide insights on participants' views on strategy application without any explicit introduction or explanation (i.e., without priming the subjects in the research sample). They were given sentences to translate and then discuss the ways in which they discover the meaning of unfamiliar words and learn the unknown vocabulary. Their answers suggested that most of them use some of the strategies; however, the wording indicates that they were not aware about the concept (i.e., VLS) and its complexity and importance. Most of the participants reported using a monolingual or bilingual dictionary (93,7%), and small percentages of them dabbled with other strategies without specific knowledge on how to describe them or conclusively explain the reason for using them.

During the second stage of the experiment the participants were introduced to different VLS type at a time, asked to practice and implement some of them (considered

applicable for online teaching), and then provide their comments.

Determination strategies

Determination strategies were the first group of strategies introduced in both ESP and EGP classes. There was a brief, yet detailed, introduction on VLS in general, followed by thorough elaboration on various determination strategies at learners' disposal, such as analyzing the word, guessing from context, consulting a dictionary. Besides the introduction, the respondents were provided with a list of strategies and instructed to select the strategies they have used so far. Multiple options were possible. 66% ESP and 78% EGP students reported using guessing from context, 61% ESP and 67% EGP students use a dictionary, and only 15% ESP and 11% EGP students analyze the words, which was unexpected, since they showed more interest in similar activities, such as placing the words in groups according to their type, as reported in the forms connected to other strategy types. The respondents were asked to employ the strategies on the words they have specified as unknown in the texts and then comment the experience.

The comments provided in this form were scarce, mainly focused on describing the most preferred strategies, such as guessing from context and using a dictionary, often used in combination, or one after the other, i.e., they opted for the dictionary only if they could not guess from context,

described as “looking at surrounding words and guessing the meaning of the selected word”.

Memory strategies

Memory strategies were introduced and explained next in the quasi-experiment. At that stage the participants were instructed to read a text pertaining to their curricula, selecting unfamiliar vocabulary they find relevant for their course of studies. In addition, the vocabulary items were to be classified according to their type, i.e., part of speech they belonged to and then try to connect the vocabulary items with their previous knowledge on the topic, as well as to be used in a short paragraph describing their ideal working place. The form contained a multiple-choice question, where the strategies implemented previously were named properly, aimed to provide more adequate metalanguage for the comments below, thus evading the confusing interpretations in the first stage. The participants learning EGP reported fewer unknown words stating that they could guess the meaning from context, which is why they were asked to extract 20 words typical for advanced language levels and arrange them according to their type and/or meaning, designing and naming the groups themselves. Both ESP and EGP participants were asked to comment on the experience. 87,2% of the ESP learners preferred using the new vocabulary in a different situation and reported finding writing the paragraph more helpful than making

connections with previous knowledge which was a preferred option for only 12,7%. Furthermore, they commented that the opportunity to explore their creativeness during the writing task helped them memorize the words better, and enhanced their motivation and positive attitudes. The learners who enjoyed grammar relations, on the other hand, remembered their grammar lessons from before and were happy to reacquaint themselves with the somewhat forgotten rules. Thus, they reported finding this task useful for boosting their memory.

EGP learners, interestingly, reported enjoying all off their tasks explaining that they are all useful for learning. Furthermore, the specifics in their comments were quite informative. Summed up and paraphrased, their answers indicate that they believe that such approaches to vocabulary learning (VLS) enhances the vocabulary size, as well as their metalinguistic awareness without which reaching higher language levels would be impossible.

Cognitive strategies

The third group of strategies introduced in both ESP and EGP classes were the Cognitive strategies, which involve processing the target language in the mind of the learner. They are similar to memory strategies but include more mechanical repetition, thus ensuring practice through recombination and pattern finding of the vocabulary in question. Manipulating the lexical item by analysis and

interpretation enables the learners to create general ideas and rules about the target language. Furthermore, as cognitive strategies are said to guide the learner into focusing on the main idea, skim the text and not focus on every word, the acquisition of the meaning is found less burdening.

In order to test the effectiveness of these strategies both ESP and EGP participants were asked to extract the unfamiliar and important vocabulary from their texts, practice the items by writing or saying them out loud several times, group them according to their own logic and add at least two more words or phrases from the texts in those groups, and lastly propose subheadings for the paragraphs of the texts. In addition, they were asked to comment the application of these strategies. There was a general consensus among all participants about the importance of repetition, whether oral or written, for memorization and learning, along with positive attitudes towards the activity. For the next strategy, the vocabulary was to be placed into a category according to the participants' logical patterns. Both ESP and EGP students have opted mainly for part of speech, probably due to the previous tasks (related to memory strategies), but there were several attempts to arrange the vocabulary items according to meaning. As with the previous strategy, there was a consensus on whether using logic to group the vocabulary is useful, i.e., the participants felt that by using this strategy they explore the meaning of the words and phrases in a deeper or new way

which in turn enhances the memorization. Similarly, to the previous two strategies, proposing subheadings for the paragraphs was completed successfully by the respondents who chose to participate.

However, 10,3% of the comment boxes were empty, or contained no opinion remarks. This can be interpreted in two ways: either they were getting tired from doing the previous tasks or, the reason could be strategy related, meaning they preferred this strategy less. Another interesting conclusion was drawn from the provided comments. Namely, 3,2% of participants felt that their level is too advanced "to be bothered" with such tasks, even though they recognize the importance of cognitive strategies. Also, 0,6% of participants reported that these tasks/strategies were too challenging for their level, but they "appreciate and welcome" the opportunity.

In general, cognitive strategies were found to be favoured by the participants due to their effectiveness and the way they challenge the learners to manipulate the vocabulary in the process of its acquisition. Nonetheless, modifying the tasks and proposed strategies in order to accommodate learners' language level and interest should be taken into consideration as well.

Metacognitive strategies

These strategies basically include self-monitoring over the learning process. Learners use these strategies in order to make proper decisions about the ways to study after careful evaluation of previous personal or others' learning experiences. The participants were acquainted with these strategies and their purpose (Appendix 12). Since there was no mention of any such activity in the comments during the first stage of the experiment, they were offered the strategies so they would have a more precise idea about their implementation. Hence, after being instructed to extract the unfamiliar vocabulary from the new texts, they were provided with a list of metacognitive strategies to choose from, and then manipulate the selected vocabulary according to the choice they have made. They were given the opportunity to choose more than one option.76,4% of the respondents have selected more than three metacognitive strategies. 49% of the participants opted to test themselves with word tests, followed by 47,3% who wanted to continue studying words overtime, and 47,2% who used English language media. Significantly lower number reported spaced word practice (9%) and skipping the new word (3,4%).

After manipulating the vocabulary (in the process of its acquisition) using their favoured strategies, they were asked to comment on the experience. As presumed, the reason why they had not mentioned metacognitive strategies

in the initial stage was probably due to the lack of awareness and proper metalanguage to describe the actions, because once familiarized with the strategies and useful metalinguistic expressions to describe their experience, the participants offered a myriad of comments about their learning process which led to the following conclusions. Firstly, a vast majority applied the strategies in their learning process based upon previously acquired methods in the form of habits built as young students without thinking about them. Secondly, once made aware of the adequate metalinguistic descriptions, they could comment their experience in detail. What needs to be mentioned here is that the responses from both ESP and EGP learners were indistinguishable in this view. Summed up, their comments present the following picture: they are accustomed to using vocabulary learning tasks the most, because they are often provided in their text-books and the participants were able to test their learning success through such tasks, thus boosting their own motivation. Furthermore, they have realized the benefit from continuous learning with constant reflection on previous experiences and practice, especially in new assignments using the English language media. To conclude, metacognitive strategies were recognized as essential for raising the metalinguistic awareness (related to VLS) and reaching higher language levels.

Social strategies

Using social strategies means learning vocabulary through communication or any interaction with other people. Usually, the "other" people are the teachers and the peers to whom the learners turn for help, ask for translation equivalents, paraphrases or synonyms, and also to use the lexical items in communication. These strategies are used both for discovering and consolidating the unfamiliar words and phrases, which was evidenced in the comments provided by the participants in this study as well, suggesting that they appreciate opportunities to use the language for communication in and out of the classroom. During this stage, after the introduction, the participants were asked to extract the unfamiliar vocabulary items from the new text and then find equivalents, synonyms or paraphrasing expressions. Due to the lack of direct communication with their peers and the teacher (in online learning conditions), this task was completed by using dictionaries.

In order to acquaint them or rather, raise their awareness about the existence of other strategies such as asking people around them, the respondents were instructed to choose whom would they rather ask, the teacher or the peers and comment their choice. Furthermore, they were asked if they prefer social interaction (asking people, working in groups) to individual learning (using a dictionary and studying alone). 74% of the ESP students opted for asking the teacher, rather than turn to their peer for help, and

63% of EGP students reported preference for the same social strategy. However, 60% ESP and similarly 62% EGP learners still prefer using a dictionary with answers varying from its easier and simpler, I do not wish to bother others all the way to dictionaries are more accurate and reliable. In addition, 78% ESP and 88% EGP students enjoy communication with friends and peers and find it useful to their learning, providing their language level is satisfactory, or advanced. 47% ESP and only 12% EGP like working in groups mainly because the interaction is important and it is easier and fun. The students opted to study individually or at least combine group and individual activities because as they have reported their concentration and focus are higher, and they do not have to adjust their pace to other people's dynamics. The general deduction here would be that social strategies are recognized and mostly used among this population.

Kruskal – Wallis test

In order to test the effectiveness of used VLS the Kruskal – Wallis test was applied, which is the non-parametric equivalent of the parametric ANOVA test with significance level of 0.05. Arithmetic mean and standard deviation of students' results were calculated for each strategy type. The maximal points on the tests were 40, which were obtained as a sum from two tasks: Translation and Gap Filling.

From the results we deduced that there is a statistically significant difference in the effectiveness of the strategies. The arithmetic mean indicated that the most effective strategies were the memory strategies. This advantage calculated in percent amounts to 72% for memory strategies, followed by social (67.5%), general (64.5 %), cognitive (57.5%), compensation (53.5%), and metacognitive strategies (49.5%).

Whether the abovementioned distribution of strategy effectiveness is influenced by the purpose of language learning (ESP and EGP) was tested by the Mann-Whitney U test, which is a non-parametric equivalent of the t-test, used because the two variables were not normally distributed. The results suggested that the difference in effectiveness of the VLS in different learning contexts (ESP and EGP) is statistically significant for memory, metacognitive and social strategies. Also, statistically significant difference was seen in the results from the unguided and unprimed use of strategies (General), employed during the first stage of the experiment when the respondents were instructed to use any strategy, they feel fit. The difference in the use of cognitive VLS was not statistically significant, however the mean rank indicates that they were more effective when used in EGP context. In more detail, the use of memory and metacognitive strategies, as well as the unguided learning was more effective for the learners of ESP, while social strategies were more beneficial for the learners of EGP.

Concluding remarks for the quazi experiment

To sum up, the initial stage of this experiment indicated that the participants were using some of the VLS, mainly using a dictionary, without being aware of the concept itself. The second stage aimed at familiarizing the participants with the VLS, in general, and gradually utilizing some of them (as applicable in Covid 19 lockdown). Furthermore, they were expected to provide feedback about the experience, and later tested on the retention of randomly selected vocabulary in order to statistically analyze their effectiveness. Determination VLS, as firstly introduced, were ranked in the fifth position according to their effectiveness. Memory VLS were introduced secondly, and the statistical calculations showed that memory strategies were the most effective strategies for retention of the tested lexical items. The next group Cognitive VLS, were third on the ranking list. Metacognitive strategies, as the fourth group of VLS the students were acquainted with, were shown to be the least effective. The last group of VLS introduced as part of this experiment were the Social strategies, which were ranked second according to their effectiveness.

Generally speaking, in view of the effectiveness ranking, one cannot help but notice that the difference, although statistically significant, is not so drastic. Namely, the use all and any of the strategies can be considered as beneficial for the lexical competence of the learners. This was further pointed out by the results of the overall use of

VLS on the effectiveness list. These findings go in line with the findings from the literature review whicj proclaimed the significance of VLS.

The analysis of the dependency between the learning context (ESP and EGP) indicate statistically significant difference for memory, metacognitive and social VLS, as well as the unguided use of strategies. The results show that ESP learners benefit more from using memory and metacognitive strategies, as well as spontaneous use of the strategies, while social strategies are more favourable for the EGP learners. This is not surprising, due to the fact that ESP learning is indeed more intentional and guided, possibly approached with raised awareness, as well as focused on memorization of specific vocabulary. On the other hand, EGP learning could be viewed as less professionally focused, with wider societal implications. Furthermore, the unguided general use of VLS, proven as more beneficial for ESP learners within this experiment, indicated increased motivation on their part, again due to the specifics of the learning context.

IV Conclusion and pedagogical implications

This research, supported both theoretically and empirically places vocabulary acquisition on the top of the language learning processes. The theoretical background suggested that the learning context as well as individual features have a considerable impact on how the learners process and store language, or vocabulary in particular. In terms of VLS, this means that the choice of strategies that learners use with significant frequency is highly dependent on the reason why they learn the language as well as on their personal characteristics. Hence, a research model was designed to determine whether this is the case.

The participants in this study were 296 Macedonian undergraduate students, who voluntary agreed to contribute by filling in the required self-reporting questionnaires as well as take part in the quasi-experiment and subsequent testing. The self-reporting questionnaires gathered data about their gender, linguistic background and the course of study which provided information about the purpose of language learning. Furthermore, data were gathered about their vocabulary size, learning style, personality type, VLB, use of VLS, and learners' English language proficiency levels. The collected data were processed statistically in order to provide answers to the research questions and test the hypotheses.

The first question was whether learners' differences significantly affect their choice of VLS. The abovementioned individual characteristics were separately examined in order to provide the answers.

The first aspect to be viewed was the gender. Both theoretical review and the statistical analysis of the data base suggested that gender differences have a significant influence over learners' strategy preference. Namely, the results showed that female learners use variety of strategies more frequently than male learners. Broken down into separate strategy types, the results indicated female domination in the use of metacognitive, determination, cognitive and memory strategies. As for the use of social strategies, the statistics suggested no significant difference in their utilization, which means that gender plays no role here. The findings elicit the gender as an important individual factor to be considered during teaching, or in other words, the teachers need to acknowledge and implement this while they introduce available strategies in class.

The second aspect, was the linguistic configuration, or the number of languages learners speak apart from English. The questionnaire provided data on the number of languages the participants reported to know and use, as well as the manner of acquisition. Due to the fact that strategy introduction and promotion occurs mainly in artificial settings, i.e., in the classroom, only the languages acquired in that way were taken into consideration for the statistical

analysis. The results indicated that this feature statistically affects only the use of avoidance strategies. Namely, lower linguistic configuration learners, or in other words learners who speak less languages, tend to use avoidance strategies more, ignore the unfamiliar lexical items, rather than employ others in order to learn them. This might raise some issues concerning motivation and awareness as well.

English language proficiency level, as a third aspect, was tested by a custom designed placement test. The statistical data suggested that the proficiency level had a significant impact over the use of metacognitive and cognitive group of strategies, as well as the overall strategy use. Namely, metacognitive and cognitive strategies are avoided by lower language proficiency learners. Furthermore, low language proficiency learners were shown to use less strategies, with lower frequency in general. Considering the results from other tests which connect the use of strategies with higher learning results, these findings are plausible. Moreover, they can be further interpreted through the function of metacognitive and cognitive VLS. Namely, they are directly related with the process of learning and memorization, thus implicating that insufficient use of these consolidating VLS, connected to retention and production, leeds to lower results.

Learning style was analyzed next, as the fourth learners' individual feature. Even though the output of the statistical analysis of gathered data was too spacious to be presented in this paper, the elicited sections indicate high

correlation between the learning style and strategy preference. Namely, each of the subcategories of learning styles has a significant impact over the use of the strategies. Furthermore, the strategies which were genuinely and logically connected to the features of each style were the ones reported as used with highest frequency.

The fifth aspect, the personality type was shown to have a significant impact as well. Similarly, to the learning style, all of the personality dimensions seem to directly affect the choice of strategies. The outputs of these statistical calculations were too spacious and impossible to present here, thus only the direct relation to specific strategy groups was interpreted. The results imply strong relation between learners' personality type and their choice of strategies.

When it comes to the last individual feature, the VLB, the results were somewhat unexpected. Namely, the statistical analysis suggested no significance of the gathered data. This means that VLB had no influence over the respondents' choice of VLS, which is contrary to the major findings in this field. Further research would be useful to ensure full comprehension of the issue.

The initial hypothesis that learners' individual characteristics significantly influence their strategy preference was overall confirmed, with minor oscillations from the general idea, which were presented above. The findings show strong relations between individual features

and use of VLS which can be viewed as a way to raise both teachers' and learners' awareness about the importance of self-reflection and active involvement in the process of learning facilitated by carefully designed and aimed instructions. The combination of these will lead to better results.

The second research question was whether there is a significant relation between learners' vocabulary size and their use of strategies. It was hypothesized that there is a positive relationship. The analysis indicated strong, positive, and statistically significant correlation between the two variables. In addition, the results suggest that increased frequency of use will result with increased amount of acquired lexical items. The average scores of each VLS group unveiled that metacognitive strategies influenced the vocabulary size the most, followed by social, determination, memory and cognitive. What needs to be pointed out here is that, even though there were differences in the mean scores indicated the influence of the strategies, they were not drastic[2], or in other words the use of any and all strategies will boost the vocabulary. This further highlights the need for introduction and instruction of both in and out of the classroom VLS in order to raise learners' awareness about the significance of VLS.

[2] Metacognitive and social strategies belong in the high frequency group, while determination, cognitive and memory were reported as being used with medium frequency.

The third research question addressed the influence of the learning context, or in other words whether learners of ESP use different strategies than learners of EGP. The hypothesis was that the context will significantly influence the choice of strategies. The obtained data from the self-reporting questionnaires showed statistically significant difference only in the use of metacognitive strategies, which were preferred more by the EGP learners. Even though, ESP learners are generally considered to be more motivated and involved, the findings suggested otherwise. The preference for metacognitive strategies by EGP learners indicates higher awareness on their part.

The last two questions were aimed at raising learners' awareness about the variety of VLS as well as their effectiveness. The intention was to provide qualitative view of the matter, due to the fact that previous analysis was based on self-reporting questionnaires and the results can be viewed as indication of learners' perception which is subjective and insufficient. The designed quasi-experiment provided more viable information on whether strategies are implemented adequately and to what end. Furthermore, the quasi-experiment further revealed the specifics of ESP learning, or rather its differences from EGP learning, if any. The learners were instructed to use various strategies through specially designed online tasks using Microsoft Forms, and later they were tested for the retention of the lexical items. Furthermore, they were asked to comment the experience in order to provide even more detailed

representation of the entire learning process. The tested lexical items were introduced by series of texts along with a list of VLS and instructions on how to apply them, one group at a time. Later, the learners were tested for retention which elicited the effectiveness of each strategy group according to the number of correct answers on two vocabulary tasks.

During the first stage of the experiment, the respondents were provided with sentences containing a significant amount of unfamiliar vocabulary relevant for their curricula and asked to learn it without instruction. The aim of this was to provide information on the strategies they normally use. The results suggested serious lack of awareness about the existence of the majority of strategies, as well as their use. The majority of the respondents reported using dictionaries and only a small portion suggested otherwise.

Due to the fact that the respondents were university students of various educational backgrounds, being seriously uninformed about the importance of VLS and their use suggests urgent need to raise the awareness of all relevant factors about this unfortunate situation. Apart from teachers, this issue should be brought forward to the creators of educational policies and curriculum designers with the intention to encourage VLS introduction and instruction in class.

The second stage of the quasi-experiment involved introducing groups of VLS, one at a time, in a way that the participants were acquainted with the taxonomy, familiarized with their importance and instructed on how to implement various VLS to maximize the learning outcome. What needs to be pointed out here is that once introduced with the adequate wording, the majority of respondents provided different answers. Namely, they were able to comment more conclusively and recalled yet using other strategies apart from the scarce selection provided during the initial stage, prior to the introduction. Nonetheless, even though their answers suggested an improvement, their strategy use was far from satisfactory. However, it is noteworthy that these stages, besides introduction, provided tasks for actual implementation of VLS in order to test their effectiveness, the results of which will be presented further below.

The highly favoured determination VLS were guessing from context and consulting a dictionary. Respondents' answers suggested higher preference for these strategies by EGP learners. ESP learners, on the other hand, outnumbered the EGP learners in analyzing the lexical items.

Interestingly, in terms of using the suggested memory strategies, both groups opted for using the vocabulary in new situations. However, ESP learners connect the vocabulary with the previous knowledge far more than EGP learners. This could be the result of their

specially designed courses, as an upgrade of their previous EGP learning.

Cognitive strategies, conversely, were equally used and preferred by both EGP and ESP learners. Namely, they recognized the importance of repetition, logical distribution of items as well as naming paragraphs in a text. Surprisingly, after series of positive comments in the designated box in each of the forms, there was a significant amount of unenthusiastic and reluctant comments. This was probably due to the challenging tasks they were asked to do prior to commenting them, or perhaps this adverse behaviour could be interpreted in view of the cognitive strategies which were reported as less favoured in the previous analysis as well. However, the majority of the participants felt that these strategies were effective. Even so, the comments suggested that the tasks need to be designed in a way that they correspond to learners' language proficiency levels and their interests.

Metacognitive strategies were equally favoured and utilized by both ESP and EGP learners. After the instructions, the participants implemented the strategies and opted to positively comment their importance, recognizing them as vital for raising learners' awareness and facilitating the learning process.

ESP learners preferred social strategies slightly more than EGP learners. The implementation of these strategies was limited due to COVID lockdowns and online

teaching; however, an effort was made by all participants to make the most of the situation and the comments were favourable and positive.

The effectiveness of the strategies was tested by two tasks: Translation and Gap Filling, and the maximum points to be obtained on both tasks was 40. The tested lexical items were selected randomly, out of the lists of unfamiliar words provided by the respondents. The statistical analysis revealed significant differences in the effectiveness of the strategies. Furthermore, a test was run to determine whether the learning context influenced the effectiveness. The results suggested statistically significant difference in the effectiveness of Memory, Metacognitive and Social Strategies. Also, statistically significant difference can be seen in the results from the unguided and free use of various strategies (General), employed during the first stage of the quasi-experiment when the respondents were instructed to use any strategy, they feel fit. The average scores indicate that memory and metacognitive strategies were more effective for ESP participants. As previously stated, ESP learners are more motivated and prone to acquiring new lexical items pertinent to their occupational requirements, thus recognizing the importance of the learning process, which is being reflected in their proper implementation of the suggested metacognitive and memory VLS. This, in turn, resulted in higher results in the tests. EGP learners, obtained better results from their implementation of social strategies which again can be viewed from their

occupational perspective, or rather the lack of it. Namely, the sole purpose of EGP is considered to be communicative, thus the proper implementation of social strategies by these learners lead to better results on the test. Furthermore, ESP learners outperformed EGP learners in the overall results on the test.

Having the mean rank in perspective, memory and metacognitive strategies were more effective for ESP respondents, while EGP respondents benefited more from the use of social strategies. In addition, ESP respondents showed better results in the examples testing general, non-guided use of strategies.

The quasi-experiment, along with the entire research design, besides gathering necessary data, elicits the need to raise learners' awareness about the existence of learning strategies as well as their impact. Additionally, the positive attitude of the participants, as well as their willingness to aid the research resulted in informative, relevant and conclusive insights which have significant pedagogical implications.

When compared, the results from the self-reported data and the tested effectiveness of the utilized strategies brought about some interesting findings, indicating that mere acquainting learners with various VLS and stressing the importance of the frequency of VLS use hardly sufficient for obtaining maximal lexical competence.

Let us consider the firstly ranked metacognitive strategies according to respondents' answers. They were recognized as most effective and most frequently used and the statistical analysis elicited them as directly responsible for learners' vocabulary size. Metacognition is expected with academically inclined individuals; hence these results came as no surprise. Actual testing of the effectiveness suggested otherwise. Namely, these strategies were shown as the least effective for retention. Memory strategies, on the other hand, which were ranked second to last according to respondents' answers, were proven as most effective for vocabulary retention. Furthermore, cognitive strategies reported as used with lowest frequency and thus with lowest impact on the respondents' vocabulary size, were ranked on the third position according to their efficacy. What is more, respondents' comments regarding the benefit from these strategies were highly favourable. The positive impact of social strategies was equally confirmed both by the perception of the respondents, as well as by the results from the experiment. Similarly, determination strategies were ranked third and fourth respectively.

Interpreted from learner-centered model perspective, these findings suggest that the teachers' role as instructor and facilitator through the implementation of VLS should not be neglected at all. Learners' perception is vital, however only if adequately guided and motivated. The statistical results showed that frequency, and also variety of VLS are indeed responsible for learners' sizeable

vocabulary, but eliciting the less favoured and time-consuming memory and cognitive strategies, as more directly effective, will bring forth the highest learning results.

Reaching higher language proficiency in not an easy task both for the learners and their teachers. The results from this research contribute towards prior theoretical insights about the significance of the development of strategic competence and further promote its embedment within the subject courses. The teachers need to focus on developing their students' skills especially ensuring that they are aware about them, and also able to transfer them in another learning situation. This can be achieved only if the learners realize the importance of their strategic competence for the enhancement of their learning process. Mere introduction and occasional practice are not enough, i.e., strategy implementation should be a continuous process until the time it becomes automatic.

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V Contributions of theoretical and practical nature

The extensive theory, within this thesis, offers a complex network of factors influencing the implementation of VLS, such as learners' personal characteristics and skills, their motivation and metacognitive abilities, as well as the context of learning, which are viewed as contributing towards successful vocabulary acquisition. The literature review, likewise, provides a valuable contribution by raising questions for future development of this field propagating the interdependence of pedagogy and other fields, such as sociology and psychology from the learner-centred perspective.

The instruments used in the empirical research used to collect and analyze the data, provide detailed and comprehensive overview over the issue, discussed in the theoretical part, generally contributing toward the preliminary claims and expectations. Namely, the initial hypothesis that learners' personal features affect their learning outcome, narrowed to the size of their lexical fund was generally confirmed, with minor oscillations. In addition, the context of learning was especially pointed out as a significant factor in both VLS preference and learning outcome.

In order to provide a different and more objective view over the matter an experimental model was designed,

which presents a unique contribution itself, not only by employing both the theory and the research instruments, but also by providing valuable insights from a different perspective. In other words, the experimental model tested and brought forth the actual effectiveness of the VLS used in this research.

In general, all of the above-mentioned contributions argue the need to raise all relevant pedagogical factors' awareness about the benefits of strategy-based approach in language instruction in order to facilitate learners' independence in this view. More specifically, learners' self-reflection and active participation in the learning process, along with their ability to transfer their behaviours, or strategies, among various learning situations, should be adequately stimulated. This is especially emphasized in the field of ESP, where the findings of this thesis could be beneficial to all participants in the teaching process as well as creators of educational policies.

VI List of publications related to this thesis

1. **Nedelkoska, G., (2019), СТРАТЕГИИ ЗА УСВОЈУВАЊЕ НА ВОКАБУЛАР И НИВНАТА УЛОГА ВО ГОЛЕМИНАТА НА ЛЕКСИЧКИОТ ФОНД НА ИЗУЧУВАЧИТЕ** International Scientific Multilingual Conference titled "Multilingualism as a Challenge of a Linguistic, Literary and Cultural Communication" held on 19-20 September 2019 and organized by Faculty of Languages, Cultures and Communications and the Language Center. Links: https://bit.ly/2yb2Ugd , https://conf.seeu.edu.mk/archive/

2. **Nedelkoska, G., (2020), VOCABULARY LEARNING STRATEGIES USED BY UNIVERSITY STUDENTS IN AN ESP CONTEXT,** presentation at Online International Doctoral Research Conference in Education 2020, Centre for Educational Research (CERES), Liverpool John Moores University, UK, Wednesday 8th July 2020 (09:00 – 19:00), Podcast available at: https://youtu.be/oUPuAlYCcbI (conference programme & certificate of attendance) https://youtu.be/oUPuAlYCcbI

3. **Nedelkoska, G., (2020), TECHNOLOGY-BASED VOCABULARY LEARNING STRATEGIES**, at the International

Conference "100 years of foreign language education at UNWE: the outlook for tomorrow", University of National and World Economy, Sofia, Bulgaria, 30-31 October 2020 (conference programme & certificate of attendance)

4. **Nedelkoska, G., (2021), PHD DATA COLLECTION CHALLENGES DUE TO THE COVID-19 CRISIS** – a report Educational Role of Language Journal. Volume 2021-1(5). COVID-19 – A Source of Threats or Opportunities for Linguistic Education, pp. 32-33 (ISSN 2657-9774) https://doi.org/10.36534/erlj.2021.01.04 (doi: 10.36534/erlj.2021.01.04)

5. **Nedelkoska, G., & Kardaleska, Lj. (2021) METAPHORS AS A TOOL IN POLITICAL SPEECHES. STUDENT REFLECTIONS,** The Role of English in Higher Education, Proceedings of the International Seminar ESP and CLIL – Current drivers of HEI Internationalisation, 2021, pp. 77-84

6. **Nedelkoska, G., & Angjelkoska, V. (2022), PERSONALITY TYPE AND VOCABULARY LEARNING STRATEGIES,** „Традиция и новаторство“ (Сборник от Юбилейната научна конференция на департамент „Чужди езици и култури“ - 4-5 юни 2022 г., Димитрова-Гюзелева, Светлана и Сиракова, Венета (Съст.), София: Унив. издателство на НБУ (под печат)