Doctoral Dissertation

Vocabulary Attrition and Retention: A Multiple Case Study of Hungarian, Moroccan, and French Speakers of English as a Second Language

Hanae Ezzaouya

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Dedication

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Abstract

This action research investigates second language (L2) vocabulary attrition and retention among Hungarian, Moroccan, and French speakers of English as a Second Language within a longitudinal, panel-type design. Eleven university students with varied multilingual backgrounds participated in an online Academic English course followed by a 40-week disuse period. Vocabulary instruction was delivered through a blended pedagogical approach incorporating diversified teaching frameworks, with instruction delivered online in either weekly or intensive format depending on participant group. Some participants received periodic input during the disuse period, while others received no reinforcement. The study focused on personal, sociolinguistic, linguistic, and input factors observed to lead to second language vocabulary attrition and retention.

Findings revealed that learners with larger vocabulary size and higher motivation retained more vocabulary over time. Instructional support during the disuse period effectively reactivated dormant vocabulary, while the absence of support led to noticeable attrition, particularly among low-frequency items and collocations. Sentence production tasks and contextualized vocabulary use proved most beneficial for retention.

Implications for language pedagogy include integrating spaced repetition, active recall, and task-based recycling strategies into L2 instruction. The study also highlights the advantages and limitations of online instruction for diverse learner groups and reinforces the value of practitioner-led, iterative action research in second language acquisition.

Keywords:

L2 vocabulary, attrition and retention, language pedagogy, multilingualism.

Table of Contents

List of Figures

Figures

Diagrams

Tables

Scorecards

1. Introduction

While extensive studies have been conducted on first and second language acquisition, studies of language attrition only surfaced as a recognized field of study in 1980 as the University of Pennsylvania held the first exclusively attrition-themed conference (Weltens & Cohen, 1989). Language attrition can be defined as the "loss of language as a result of contact with majority languages, loss of language by communities, or loss of language by individuals in both pathological and nonpathological settings" (Bardovi-Harlig & Stringer, 2010, p. 2). This means that language may be deeply deteriorated on account of the mere acquisition and shift to a second language.

In an era marked by globalization and growing multilingual communication, studying attrition is critical for linguistic research, especially as there remains a scarcity of investigations focusing on populations such as Hungarian, Moroccan, and French speakers of English as a Second Language (ESL). Such populations represent diverse backgrounds and can yield rich comparative result analyses.

This underrepresentation may stem from language policy priorities, the logistical challenges of conducting longitudinal research in these specific regions, or the institutional focus on other aspects of language education.

Furthermore, each of these countries presents unique sociolinguistic conditions, ranging from the multilingual tapestry of Morocco, through Hungary's broader emphasis on foreign language instruction alongside a Uralic-based mother tongue, to France's traditionally strong emphasis on French linguistic heritage.

These contextual nuances can strongly influence language retention and attrition, yet they have not been fully accounted for in mainstream L2 research. A summary of key L1 and L2 attrition studies involving Hungarian, Moroccan, and French speakers is provided in Table 1 (see Literature Review), which outlines relevant findings, participant profiles, and methodological choices.

Vocabulary as a specialized area of linguistic research has received considerable focus due to its importance as a core component of language that provides an array of cultural, social, cognitive, pedagogic, and technological insights, and owing to its practicality as a quantifiable component that can be studied through available resources such as corpora, lexical databases, software tools, and standardized assessment.

The current study is no exception and deliberately explores vocabulary, especially since the phenomenon of second language vocabulary attrition among advanced learners remains underexplored in comparative studies involving distinct linguistic and cultural backgrounds.

To address this gap, the present dissertation examines the retention and attrition of academic vocabulary among Hungarian, Moroccan, and French speakers of English as a Second Language (ESL) over a prolonged time to provide some insights into the complexity of language learning and its pedagogical implications.

The choice of Hungarian, Moroccan, and French populations is deliberate, as it includes diverse sociolinguistic environments in which English is learned and used, and as the researcher has knowledge and access to the spoken languages of these populations.

This dissertation therefore addresses these understudied populations together with the lack of comparative studies (Schmid et al., 2004) as another gap in attrition research, shedding light on academic vocabulary in particular to build on the previous findings highlighting the vulnerability of the lexicon to attrition (Schmid, 2006; Weltens & Grendel, 1993).

In brief, the dissertation responds to the call for more comparative studies in the field (Schmid et al., 2004; Bardovi-Harlig & Stringer, 2010) and aims to provide insights into the personal, sociolinguistic, linguistic, and input factors influencing second language vocabulary maintenance and attrition, hoping to contribute to the development of more contextually sensitive pedagogical strategies that can be implemented among diverse learner populations.

To summarize, this dissertation primarily aims to:

1. Identify and analyze the personal, sociolinguistic, linguistic, and input factors influencing vocabulary attrition and retention among Hungarian, Moroccan, and French ESL learners.
2. Assess the applicability of established L2 vocabulary attrition theories within the target populations.
3. Explore the pedagogical implications of these findings for enhancing language teaching methodologies.

To achieve these aims**, the research employs a longitudinal, multiple case study, and action research design**, utilizing both qualitative and quantitative methods. Data collection tools include questionnaires, vocabulary tests, interviews, and participant observation within an online Academic English course. This mixed-methods approach ensures a multifaceted understanding of the phenomenon under investigation.

As a preview of the dissertation structure, the Literature Review chapter (Chapter 2) offers a comprehensive examination of the theoretical and empirical studies relating to the

topic, establishing a solid foundation for investigating the factors influencing vocabulary attrition and retention that are the core practical part of the study.

The third chapter outlines the Methodology where the research design, the rationale for selecting a longitudinal multiple case study approach, the participant selection process, the data collection methods, and the analytical procedures are highlighted. The chapter emphasizes the importance of validity, reliability, and ethical considerations in conducting the study.

The fourth chapter focuses on the Results and Analysis of personal, sociolinguistic, linguistic, and input factors. In particular, input variables are examined, including the duration and nature of instruction, exposure to the target language, and the role of instructional practices during the disuse period. Personal variables such as motivation, attitude, vocabulary size, learning strategies, and multilingual background are presented as a detailed analysis of how these factors influence vocabulary retention and attrition of the studied participants. Similarly, sociolinguistic factors including the status of the target language and attitudes towards the language and its culture in Hungarian, Moroccan, and French educational settings, and their impact on vocabulary retention and attrition are highlighted. Likewise, linguistic variables such as the distance between L1 and L2, word frequency, and word characteristics are investigated.

The fifth chapter shows the Discussion where findings from the previous chapters are synthesized and compared to findings from the literature, and where the theoretical and practical implications of the research are underscored.

Chapter six highlights the implications and recommendations for language teaching practices aimed at enhancing vocabulary retention.

The Conclusion chapter (Chapter 7) summarizes the key findings of the dissertation, discusses the limitations of the study, and suggests directions for future research.

2. Literature Review

This chapter presents a review of existing literature relevant to second language vocabulary acquisition and attrition, multilingualism, and broader cognitive and contextual factors influencing vocabulary retention. The review begins by exploring key theories and empirical studies on second language vocabulary acquisition and multilingual development, followed by a discussion on language attrition and methodological challenges in the field. It then examines the pedagogical implications of vocabulary acquisition and attrition, alongside strategies for vocabulary retention and the role of individual learner differences. Cognitive perspectives, such as memory systems and input theories, are also considered. The chapter further discusses the impact of the COVID-19 pandemic on language learning, the role of digital technologies in second language acquisition, and specific teaching contexts such as English for Academic Purposes.

Finally, sociolinguistic aspects are explored through an analysis of the status of English and student attitudes in Hungarian, Moroccan, and French universities, concluding with an examination of linguistic distance between learners' first languages and English.

To contextualize the current study, it is worth emphasizing that empirical studies focusing specifically on Hungarian, Moroccan, and French speakers are limited in number and scope. Table 1 provides a synthesis of selected empirical investigations conducted with these populations, detailing their research setting and key findings. As can be observed, few comparative studies exist, and none examine these three populations within a single research framework. This study aims to contribute to this under-researched area by providing original empirical data drawn from all three groups.

Table 1: *Summary of L1/L2 Studies including Hungarian, Moroccan, and French speakers*

Study Title	Research Setting	Summary
The Hidden Dimension of Language Contact: The Case of Hungarian-English Bilingual Children (Bolonyai, 1999)	United States, where Hungarian-English bilingual children experienced attrition of Hungarian	First language attrition was influenced by the timing of morpheme access during speech production, with later-accessed morphemes being more susceptible to attrition. Apparent surface-level loss often reflected underlying structural reorganization, resulting in a composite linguistic system that integrated elements from both languages
First Language Attrition and Maintenance among Hungarian Speakers in Denmark (Varga, 2012)	Denmark, where Hungarian-born adults who migrated to Denmark experienced L1 attrition	Native Hungarian speakers in Denmark showed minimal first language attrition after over 10 years of immersion, with slight increases in disfluency and accentedness in free speech. More noticeable effects appeared in formal tasks, but background factors like age of emigration or length of residence had little impact
Lexical Access in L1 Attrition—Competition versus Frequency: A Comparison of Turkish and Moroccan Attriters in the Netherlands (Schmid & Yılmaz, 2021)	Netherlands, where both Turkish and Moroccan late L2 learners of Dutch were living in an L2-immersed environment	L1 lexical attrition in L2-immersed speakers was mainly due to reduced use, not competition between languages. Moroccan migrants showed more attrition than Turkish migrants, despite greater multilingual experience

Linguistic Factors in Second-Language Loss (Moorcroft & Gardner, 1987)	Canada, where English-speaking high school students in Ontario learning French as L2 experienced L2 attrition	Following two months of disuse, students showed significant declines in fluency, grammatical accuracy, and overall spoken production, particularly in discourse-level tasks. However, their ability to produce individual vocabulary items remained largely unaffected; recently learned grammar was most affected
Second Language Attrition: The Role of Motivation and Use (Gardner, et. al 1987)	Canada, where English-speaking high school students in Ontario learning French as L2 experienced L2 attrition	While students commonly reported declines, particularly in listening and reading comprehension, objective tests showed minimal consistent attrition, except for a decrease in grammatical accuracy. It was also found that attitudes and motivation did not directly predict language attrition but influenced how much students used French over the summer, which in turn supported retention.

The Attrition of French as a Foreign Language (Weltens, 1989)	The Netherlands, where Dutch secondary school students learning French as an L2 experienced L2 attrition	After four years of disuse, students retained general receptive skills in French but showed attrition in grammar, especially contrastive pronominal forms, and low-frequency, non-cognate vocabulary. High proficiency appeared to protect against loss, supporting the idea of a "critical threshold" for retention.

2.1 Language Acquisition and Language Learning

Studies of language acquisition and language learning have ramified, generating diverging standpoints amongst scholars. To be precise, while some view the terms "acquisition" and "learning" as two separate concepts with altered definitions, others believe that they are convergently the same.

Adhering to the first segregating doctrine, Krashen (1981) states that acquisition

"…is very similar to the process children use in acquiring first and second languages. It requires meaningful interactions in the target language-natural communication–in which speakers are concerned not with the forms of their utterances but with the messages they are conveying and understanding", and that learning "is thought to be helped a great deal by error correction and the presentation of explicit rules" (pp.1-2)

Krashen (1981) differentiates between acquisition and learning, describing the former as an unconscious process that emerges through natural and meaningful communication, much like first language development. In contrast, learning involves conscious attention to language rules and is typically linked to formal instruction and error correction. While acquisition supports spontaneous language use, learning contributes more to explicit knowledge without necessarily improving fluency.

Similarly, Yule (1985) defines acquisition as "the gradual development of ability in language by using it naturally in communicative situations" and learning as the "conscious process of accumulating knowledge of the vocabulary and grammar of a language" (p.151).

Likewise, McLaughlin (1987, p. 20) joins the idea that acquisition is a "result of a meaningful interaction in an authentic setting where speakers do not focus on form but on the

meaning, and no attention is paid to errors and correction", followed by Holec (1979, p. 146) claiming that "language learning refers to the active involvement of an individual in a variety of activities, the outcome of which is expected to be the acquisition of the knowledge and know-how which confer competence in the target language. It is a process distinct from, though related to, the process of acquisition".

On a final note, Kramiņa (2000, p. 27) summarizes "acquisition" as a subconscious process that resembles children's acquisition of their mother tongue, contrary to "learning".

From these scholarly readings, it can be deduced that the terms "acquisition" and "learning" differ in terms of the consciousness of the process, the focus on the meaning or form of the language during the process, and the nature of the environment or setting where the process takes place; naturalistic or formal.

On the other hand, Ritchie (1978, p. 6) uses the term "acquisition" rather than "learning" to refer to both processes. Accordingly, Ellis (1996, p.91)uses the terms interchangeably and provides an overview of "sequencing in second language acquisition" contending that "much of language acquisition is in fact sequence learning" and that "the attainment of fluent comprehension and production, in both native L1 and second L2 languages, involves the acquisition of memorized sequences of language". This shows his intention to focus on the unifying and embedding process underlying the final and fluent production of language, rather than to pinpoint the differences surrounding the two notions.

Along the same line, Hatch (1978, p. 433) straightforwardly declares that he does not believe that "there is a real difference between acquisition and learning". Littlewood (1984, p. 3) clarifies that albeit "learning refers to a conscious process for internalizing a second language, whereas acquisition refers to a subconscious process", he would not "systematically" consider the difference.

Supporting scholars such as Barasch and James, (1994) who refuse to accept the idea that acquisition takes place exclusively in a "naturalistic" environment and learning in a "formal" one, Watson-Gegeo and Nielson (2003, p. 162) claim that a "dichotomous distinction of acquisition and learning is completely wrong", for language development is closely related to the cognitive development and is impacted by sociocultural contexts, regardless of their label; school, home, etc. Ellis(1989, p.5) joins this view and asserts that "naturalistic and classroom learning results are identical". To sum it up, these scholars failed to draw a distinction between "acquisition" and "learning".

Whereas the first and second philosophies continue to clash, Ismail (2003, p. 35) states that "some writers and experts (e.g., Oxford, 1990, p.4) advocate that both learning and

acquisition are important for developing communicative competence. They think using the term ‘learning acquisition continuum’ is more accurate than using the dichotomy ‘learning/acquisition’ in speaking about development of language abilities.” This closely relates to the “foreign vs second language acquisition/learning” distinction.

As far as this study is concerned, the second tenet which does not differentiate between the terms “acquisition” and “learning” shall be adopted. This approach allows for acknowledging that both conscious learning (as in classroom settings) and subconscious acquisition (as in immersive environments) contribute to language proficiency. By not strictly separating the two, the overlapping nature of language skills development in real-world contexts is recognized. This holistic perspective better reflects the integrated process of language learning. From this point on, whenever the term “acquisition” is utilized, it is advised to think of it as an umbrella term that implicitly imbeds the notion of learning.

2.2 Second Language Acquisition

It is also essential to be aware of the distinction between second language acquisition (SLA) and foreign language acquisition (FLA). Although they are close in meaning, each is said to have its own definition and characteristics that mark it apart from the other.

Based on Krashen’s (1981) work, acquisition and learning are assumed to be separate cognitive processes whereby the former is an incidental event that leads to a subconscious acquisition of a language without any explicit efforts, and the latter is an intentional event in which learning takes place consciously. However, Ellis (2015, p.18) defines second language acquisition as “the learning of another language in which the language is used as a means of wider communication”. That is, any learning of a second language which is used in frequent day to day communication, and which occurs naturalistically. Mitchell and Myles (2004, p. 5) adopt a more holistic approach and define it as “the learning of any language, to any level, provided only that the learning of the 'second' language takes place sometime later than the acquisition of the first language”. This means that SLA is any learning of a second language that occurs after first language acquisition.

As for foreign language acquisition, Ellis (2015, p.18) delineates it as “the learning that typically takes place in a classroom through instruction where there are no or only limited opportunities to use the second language in daily life”. More specifically, Ringbom (1980, p.1) acclaims that the input of a foreign language is not explicitly available in the natural environment of a learner, though media may disseminate some of it. Here, the learner is said

to have few chances to practice the language in natural interactions. He also adds other distinctive factors such as "the time spent on language learning, the quality and structure of the input, the teacher's role, lack of teacher, and the kind of skills developed" (Ringbom, 1980, p.1). From these views, it may be inferred that second and foreign language acquisitions could be set apart based on the quantity and quality of the input, the extent of language practice in a natural environment, and the environment of acquisition.

While some choose to stick to the exact definition associated with each term, many use the terms interchangeably based on the generic sense underlying the theme, which is any acquisition or learning of a language other than the first, regardless of the characteristics, environment, circumstances, or factors of the process, though they are still important.

As far as this study is concerned, using a distinct differentiation of the terms would add an irrelevant complexity to the study. Therefore, second language acquisition will be used as a main generic term to refer to anything related to second/foreign language acquisition/learning processes.

2.3 Second Language Vocabulary Acquisition

It may come as no surprise that it is naturally impossible to learn a language without learning its vocabulary; without a substantial stock of vocabulary, learners may not be able to communicate at all. Vocabulary is an essential component of all the receptive and productive skills. While the terms "vocabulary, lexis, and lexicon" are often used interchangeably, they all indicate the total stock of "words" in a language (Jackson & Amvela, 2007, p. 2). Knowing words varies in degrees and is related to different levels and systems, for words are not perceived as independent language units (Nation, 2011). This knowledge can be viewed as a continuum encompassing different levels of awareness starting with familiarity with a word and ending in the ability to use it correctly in free production (Laufer & Paribakht, 1998, p. 367). Different dimensions are included in this continuum; notably, receptive and productive knowledge, size, depth, and breadth (Nemati, 2010).

Starting with receptive knowledge, it can be viewed as the understanding of word meaning and the storage of these words in memory, while productive can be perceived as the retrieval of these words from the memory to be used in the proper context (Nattinger, 1988, p. 62). Nation (1990) views receptive knowledge as the ability to recognize a word and its meaning when encountered, and productive as the ability to write it in an appropriate situation (Fan, 2000, p. 105). Receptive knowledge entails the retrieval of words in reading or listening,

and productive knowledge involves the ability to express word meaning in speaking or writing (Nation, 2011) For the purpose of this dissertation, attention will be drawn to both the learners' recognition and productive vocabulary knowledge. Knowing a word productively necessitates the ability to pronounce it correctly taking into account its stress patterns, to spell it correctly in writing, to construct it using the right parts in the correct form, to express its intended range of meanings in the right contexts, to produce its corresponding antonyms and synonyms, to use it in an authentic sentence, to associate it with words occurring with it, and to identify its degrees of formality (Nation, 2011, p. 50). These are all needed to cover the productive aspects of word knowledge encompassing its "form, meaning, and use" (Nation, 2011, p. 48). In a similar vein, Ur (1996, pp. 61–62) suggests that knowing a word means knowing its "form, grammar, and collocation" and being aware of its "connotation, denotation, and appropriateness". Harmer (1991, p. 158) joins this view and adds the aspect of "use" that is necessary in understanding the style, register, formality, and metaphoric and idiomatic meanings of an item.

As for vocabulary size, a general principle concerning native speakers' vocabulary size includes knowledge of 20,000-word families likely widely varying between individuals, with a word family including "base word, its inflected forms, and a small number of reasonably regular derived form" and excluding "proper names, compound words, abbreviations, and foreign words" (Nation & Waring, 1997, p. 2). Second language learners are said to need knowledge of at least "3000 high frequency words" of a language, for without prioritizing these at first, learning low frequency words will not be sensible (Nation & Waring, 1997). It is worth mentioning that low-frequency words are not encouraged to be explicitly taught, rather encouraged to be approached by learners using vocabulary learning strategies (Nation, 1990).

Moving to vocabulary knowledge breadth, it concerns "the number of words the meaning of which one has at least some superficial knowledge" (Qian, 2002, p. 515). Schmitt (2010) describes four categories of vocabulary breadth summarized as: form recall which is the production of the target form corresponding to its meaning, form recognition which is the recognition of the form corresponding to a given meaning, meaning recall which is the production of the given meaning corresponding to a target word, and meaning recognition which is the recognition of the given meaning corresponding to a target word (Zhang & Lu, 2015, p. 742). These are claimed to vary in degree of difficulty, notably that recognition is easier than production of L2 vocabulary (Laufer & Goldstein, 2004).

Concerning language vocabulary depth, it can be viewed as the "the number of words for which the person knows at least some of the significant aspects of meaning" (Anderson &

Freebody, 1983, pp. 91–92). This simply implies the level of knowledge one has for a lexical item (Qian, 2002). As was previously mentioned, word knowledge is argued to involve knowledge of form, meaning, and use. The ability of learners to use a word appropriately requires mastery of all these knowledge aspects (Nation, 2001; Schmitt, 2008).

It follows then that the aspects of language that are of special interest to the current dissertation are recognition and productive vocabulary knowledge along with vocabulary size. Moreover, "vocabulary" is used as a generic term to refer to words or a set of words, including their form, grammar, collocation, usage, and different aspects of meaning (connotation, denotation, and appropriateness).

Taking all these key defining aspects of vocabulary knowledge into consideration, studies of vocabulary acquisition also give an insight into the mental lexicon. Based on these studies, the mental lexicon is assumed to be the center of lexical storage where words might be stored and represented in the mind (Dóczi, 2020, p. 46). Attempts to find what exactly is stored in the mental lexicon and how various elements are interconnected in this complex system remain mostly hypothetical (Aitchison, 2012, p. 41). Many theories and models of the mental lexicon continue to be posited, but the most relevant to this dissertation are those related to the bilingual lexicon. Two perspectives emerge in the conceptualization of the bilingual lexicon. Dóczi (2020) summarizes these into separative and interactional. The separative perspective posits that the L1 and L2 lexicons are separate systems, leading to split paths for lexical access and activation. This view is backed by studies on word association tests (Meara, 1982), phonological and morpho-syntactic structures (Singleton, 2007), aphasia, and extreme cases of L1 attrition (Paradis & Goldblum, 1989; Schmid, 2002). The interactive perspective views the mental lexicon as an "interactive network system" (Dóczi, 2020, p. 55), but without a definite determination of the degrees of this interaction. Support of this view relies on findings from experiments with cognates (Colomé & Miozzo, 2010), frequency of word length, lexical availability, semantic categories roles (Catalan & Dewaele, 2017), level of proficiency (Shook & Marian, 2012), and depth of word knowledge (Wolter, 2001). The level of proficiency showed that advanced bilinguals' languages are both activated, and their fast lexical access is facilitated through translation, while the less advanced bilinguals' languages are characterized by slower lexical access and establishment of conceptual connection (Dufour & Kroll, 1995). This dissertation adopts the interactional perspective, for as Dóczi (2020) concludes, "the mental lexicon is susceptible to constant adjustment and restructuring, depending on several factors. These factors include context, frequency, and recency of use, which results in a lot of

variation and variability rather than stability" (p.61). An interesting question that studies of the bilingual lexicon inspire to pose is what is really meant by bilingualism?

2.4 Multilingualism

There are two distinct, but not completely separate dimensions of multilingualism; the first one is individual, relating to a single person's multilingual ability, the second one is societal, relating to a society's overall multilingual state (Cenoz, 2013). For the interest of this dissertation, some societal aspects will be taken into account, but the focus will mainly fall on the individual facet of multilingualism.

An important distinction to be made when tackling multilingual matters is that of the 'multilingualism' versus 'bilingualism' dichotomy. Whilst there is no universal agreement on the exact difference between the two terms, different scholars adopt various positions. For instance, Cenoz (2013, p. 5) summarizes that some scholars traditionally use 'bilingualism' as a "generic term" to refer to research involving rather two languages than multiple languages, but with the possibility of it including more than two (Bassetti & Cook, 2011), others follow a mainstream position and use 'multilingualism' as a "generic term" to refer to two or more languages, with bilingualism or trilingualism being examples of multilingualism (Aronin & Singleton, 2008), and the rest use bilingualism and multilingualism as differentiable terms where "bilingualism" refers to the use of two languages, and "multilingualism" refers to the use of three or more languages (Groot, 2011; Kemp, 2009). Moreover, in sociolinguistics, bilingualism and multilingualism are generally seen to synonymously denote more than one language, especially when tackling the societal level, but are viewed to differentially denote the exact number of the spoken language in both sociolinguistics and psycholinguistics when tackling individual matters such as language acquisition and language loss. For the purpose of this study, bilingualism and multilingualism will be used as differentiable terms with "bilingualism" referring to the exclusive knowledge/use of two languages, "trilingualism" to the knowledge/use of three, and "multilingualism" to the knowledge/use of more than three languages, for the exact number and nature of the spoken languages of the concerned individuals is of key significance.

A four-way definition of bilingualism is proposed by Skutnabb-Kangas (1990) to shape the given conception of bilingualism. This includes "origin, function, competence, and identification" (p. 11). For origin, it regards whether an individual was born into a bilingual situation, and how the languages are accordingly used. For identification, it concerns whether

an individual internally identifies themselves as bilingual and part of the two languages' culture, and whether they are externally, meaning by other members of the society, identified as native speakers of the two languages. As for competence and function, the former revolves around the individual speaking more than one language at a certain level, and the latter around the frequency of use of the languages.

Furthermore, two noteworthy dimensions, "proficiency" and "use", involved in the definition bilingualism are pointed out by Bassetti and Cook (2011) who conclude that the scholarly definitions take two directions. One group of definitions "consists of a maximal assumption where being bilingual means speaking two languages with equal fluency in every situation". The other group "takes the minimal view that bilingualism refers to any real-life use of more than one language at whatever level" (p. 1). For instance, Bloomfield (1933) states that "nativelike control of two languages" (p. 56) is a necessity, while Weinreich (1953) asserts that it is "the practice of alternately using two languages" (p.1) that is most important, andHaugen, (1953) claims that "the point where a speaker can first produce complete meaningful utterances in the other language" (p. 7) is where bilingualism begins.

Hoffman, (1991) takes the view that both these groups of definitions are flawed, for, on the one hand, it is wrongful to presume that a bilingual individual's competence ought to be equal to that of two monolingual individuals, and on the other hand, it is not sensible to measure the 'use' of a language of bilinguals in comparison to that of monolinguals, especially that factors such as 'codeswitching, translanguaging, and translation' are only specific to bilinguals (p. 23). Bassetti and Cook (2011) proceed to raise additional issues with these definitions, namely the fact that the 'language skills', which are listening, speaking, reading, and writing, are not given due emphasis (p. 2). In fact, the productive (speaking and writing) and receptive (reading and listening) competences of a second language are not necessarily concurrently proficient. This means that some bilingual speakers could have a solid receptive grasp of one language, but still not be able to fluently produce it.

Similarly, in the words of Wardhaugh (2015), "most people who are multilingual do not necessarily have exactly the same abilities in all the languages (or varieties) they speak; in fact, that kind of parity may be exceptional" and "the level of competence in a code is, of course, developed based on the need of the speaker to use a language in a particular domain or for a particular activity" (p. 84). Whilst this interestingly suggests that the development of competence in a language depends heavily on the need for its use, an even more interesting new feature that appears in these words is the term "varieties". One may naturally wonder if individuals speaking two language varieties, or more, are considered multilingual.

"Bidialectalism" is the term coined to refer to this phenomenon. Waleed and Mubarak (2019) summarize bidialectalism's given scholarly definitions, moving from Chambers and Trudgill (1998) defining it as "speaking a dialect in addition to a standard language", through Crystal (2004) describing it as "the use of two distinct dialects (of the same language) for different social purposes" to Crystal (2008) extending it to a "speaker's ability to use two or more dialects, and to know how to code-switch appropriately between these different varieties" (p. 23). Bilingualism and bidialectalism are distinct complex fields, yet it cannot be denied that both play a major role in affecting a multilingual individual's linguistic and sociolinguistic state. For this reason, the current study will not discriminate between standardized and non-standard varieties. The full linguistic background of the individuals concerned shall be accounted for.

Coming back to the dimensions involved in defining bilingualism, de Groot (2011) notices that some scholars classify bilinguals based on the "relative competence in both languages", in that there are some who are "balanced bilinguals who possess similar degrees of proficiency in both languages" and others who are "dominant (unbalanced) bilinguals […] with a higher level of proficiency in one language than in the other" (p. 4). Even more, this is directly linked and varies in accordance with the context; specifically, how much (exposition), where (natural or formal setting), and when (age) the languages are acquired.

Speaking of the context, Cenoz (2013) explains that bilingual individuals could acquire the languages either "simultaneously or successively by being exposed to two or more languages from birth, or successively by being exposed to second or additional languages later in life" (p. 5). The former case concerns individuals who are labeled "early bilinguals". This means that their acquisition of the mother tongue and the second language happens either at the same time (simultaneously) or one before the other (successively) during childhood. The latter case concerns "late bilinguals" who split into "adolescent bilinguals" and "adult bilinguals" who acquire the languages in different age stages. As was mentioned previously, age is generally an essential factor in the study of multilingualism.

In a similar vein, de Groot (2011) mentions "compound bilingualism" that occurs in a natural context, for example at home, in which the two languages are spoken interchangeably. This type of bilingualism goes in the opposite line of "coordinate bilingualism" that emerges under a firm separation of the two languages' use, for example, one is exclusively used at home, and the other one is used at school or public places only (p. 5).

One last crucial aspect splintering the types of bilingual individuals is the social status of their spoken languages. de Groot (2011) shows that this division generates "additive and

subtractive bilinguals". The former blooms when both the native and the second languages have a high social value and are both used frequently, and the latter emerges when one of the acquired languages, mostly native, is looked down on and devalued socially, discouraged to use, and forced to disappear (p. 5). This is directly linked to the social aspect of multilingualism and brings forth matters such as "language shift", which is concerned with groups or communities shifting to an explicit use of one dominant language, "language maintenance", which is related to the continuous use of the two languages, and "ethnolinguistic validity" which is associated with the likelihood of the maintenance of a language (Wardhaugh, 2015, p. 83). This is especially significant, for it has a direct influence on the overall cognitive competences of the bilingual individual, which then influences their language use.

To sum up, as each individual and each purpose needs a relative definition, it remains essential to be aware of and able to detect the diverse and unique background and features of bilingual individuals, and to explore the relationship between the latter and the aspects of second language vocabulary acquisition and attrition (see Bardovi-Harlig & Stringer, 2010;Schmid, 2006).

This discussion of multilingualism lays the background for understanding the complex linguistic profiles of the participants in the current study. Recognizing the different dimensions of multilingual competence, such as proficiency, frequency of use, and context of acquisition, is crucial to interpreting individual variations in second language vocabulary retention and attrition, especially given that the participants come from linguistically diverse backgrounds. Thus, th subsequent section builds upon these conceptual distinctions by reviewing existing literature on language attrition in multilingual contexts.

2.5 Language Attrition

The study of language attrition is focal in understanding the mechanisms underpinning language retention and holds valuable implications for multilingualism and language education. This section lays the foundation for a detailed exploration of second language attrition, addressing the broader context before delving into specific aspects such as vocabulary attrition.

2.5.1 Second Language Attrition

It is not uncommon to hear that many multilingual individuals feel that some of the languages they know, or parts of them, get lost or become forgotten at some point in their lives.

"The action or process of gradually reducing the strength or effectiveness of someone or something through sustained attack or pressure" is the definition attributed to the term "attrition" (Oxford University Press, *n.d.*). Language is one of the potential sufferers of attrition. Language attrition was first recognized as a field of study in 1980 as the University of Pennsylvania held the first exclusively attrition-themed conference. The conference was followed by a growing interest in attrition studies, leading to the publication of two central conference collection papers (Lambert & Freed, 1982; Weltens et al., 1986) which tackled aspects ranging from language loss to language retention and their implications for national language policy.

Language attrition can be defined as the "loss of language as a result of contact with majority languages, loss of language by communities, or loss of language by individuals in both pathological and nonpathological settings" (Bardovi-Harlig & Stringer, 2010). This means that language may deteriorate on account of the mere acquisition and shift to a second language that is a majority's language. For example, immigrants losing their native language as their dominant second language replaces the recessive one. It also means that language may be endangered and threatened by language death when a full community shifts to the sole use of one language over the other, or when its people cease to exist. For instance, the case of some minority languages, and populations that undergo fatal natural disasters. Furthermore, it shows that language could as well be lost in individuals because of brain injuries, traumas, or any other pathological deficiencies, as in the case of aphasia patients, or to some other natural non-pathological causes. This is important because there needs to be a distinction between the studies that cover attrition issues related to contact with a dominant language (Dorian, 1977; Dressler & Wodak-Leodolter, 1977) from those that tackle loss due to natural conditions such as aphasia, the former of which will be the primary focus in this study. Attrition manifests itself in different forms; it can either strike the first language, the second language, or any other foreign language(s). For the purpose of this dissertation, the attention will be directed to second language attrition.

Studies of second language attrition have been approached descriptively, theoretically, and quantitatively. Second language attrition "occurs whenever there is a reduction in second language use due to group or individual needs and preferences or due to environmental changes limiting the use of the language (or languages) in question" (Olshtain, 1989, p. 151). This entails that there is a strong relationship between attrition and language use. This language deterioration is said to be characterized by a lack of language input and natural feedback (Olshtain, 1989). Attrition could occur in two separate contexts, the first one concerns attrition

of second language that was acquired through formal classroom instruction and the second one regards attrition of a second language that was naturally acquired in the country where it is spoken (Schmid, 2006). Whether in a natural or formal foreign language classroom, the main characteristic is “isolation from the language” (Schmid, 2006, p. 79). One cannot argue that this is the only factor impacting attrition. In fact, Olshtain (1989, p. 154) shows that there are several “predictor variables” affecting language attrition that can be grouped into five categories: “personal variables, sociolinguistic variables, input variables, linguistic variables, and production variables”. Lambert and Moore (1986, p. 184) describe these variables as "the characteristics of the individual and the situation that influence both degree of overall loss or the differential loss of particular linguistic features”. All these variables will be examined and considered in this study.

Each of the aforementioned categories includes several factors. For example, in personal variables, age proves to be an important factor (Olshtain, 1989), as it strongly relates to language acquisition. Closely related to age is the level of literacy in the target language, studies of which led to the hypothesis that the lower the level of literacy in the target language, that is a result of young age, the higher the probability of attrition (Berman & Olshtain, 1983; Cohen, 1989). Attitude and motivation are also important personal factors to be considered in the study of L2 attrition (Schmid, 2006). While it may seem evident that these would have a direct impact on attrition, as they do on language acquisition, results showed rather little evidence for such a strong correlation, and even when so, it was only based on self-evaluations, which are not a strong attritional predictor (Gardner et al., 1985). Still, they are worthy of attention and investigation, as they could yield different results in different contexts. Another factor to consider is the learner’s level of proficiency, for in his study of English attrition of university students, Xu (2010) found a strong relationship between the level of proficiency in the second language and language retention.

As for the sociolinguistic variables, factors such as “environmental features pertaining to language use and language dominance”, namely status of the language, language availability, and attitudes towards the language’ cultures, all proved to have a strong influence on language attrition (Olshtain, 1989, p. 155). Linguistic variables on the other hand concern the length of exposure to the second language, showing that the longer the exposure the more of a safeguard it will be against attrition (Hansen, 1999). Production variables are of specific interest as it was previously established that these productive skills are the main focus of this study. Here, productive attrition is seen differently than the receptive one. This relates to the lack of oral or

written production of the target language, and the difficulty of the actual productive tasks (Olshtain, 1989).

Theoretical findings have also been advanced to contribute to the overall understanding of language attrition and to explain the potential reasons behind its occurrence. For example, the regression hypothesis posits that the order of acquisition, meaning the order in which language was learned, could yield predictions of the language that will be attired first; "last in, first out", since it views the process of language attrition as the reversal of the process of acquisition (Schmid, 2006, p. 76). While this hypothesis does not stand valid for pathological language loss, it still stands as a valid predictor in second language attrition, especially in the context of classroom instruction (Cohen, 1975; Hayashi, 1999). As Hansen (1999, p. 150) highlights, in second language attrition, the focus should rather be on "when and under what conditions its (regression hypothesis) predictions hold true".

Another interesting hypothesis is the dormant language hypothesis which states that in attrition, language is not totally lost, rather it is merely forgotten, or dormant somewhere, further amplifying the idea that relearning a language is possible and easier, and less time-demanding (Bardovi-Harlig & Stringer, 2010).

In the same line, the theory of markedness, adopted from phonological, morphological, syntactic, and semantic research, suggests that some linguistic forms have more complexity than others, hence being marked elements (Gürel, 2004). This extends to language attrition and shows that linguistic elements which are marked have more likelihood to undergo attrition, than those which are not (Gürel, 2004).

Similarly, the functional load theory posits that when certain linguistic features, whether morphological, phonological, or syntactical, have a higher functional load, meaning the extent to which they can make distinctions in a language, then it is quite likely that they will undergo attrition, especially if those features lead to frequent information loss (Andersen, 1982).

Finally, the retrieval fail hypothesis considers forgetting as inaccessibility of information rather than total loss. As Loftus and Loftus (1976, p. 78) clarify, "forgetting is much like being unable to find something that we have misplaced somewhere. Forgetting occurs because the information we seek is temporarily inaccessible; if only we had the right retrieval cue, the information we seek could be successfully retrieved". Ecke (2004) further explains that recognition is easier than production, and that frequent difficulty in retrieving during production without enough cues would gradually lead to losing the language elements. Having discussed the general factors and theories of second language attrition, it is now time

to dive deeper into more specific elements of language attrition, namely vocabulary attrition, for it was previously established that it is the focus of the dissertation.

2.5.2 Second Language Vocabulary Attrition

Multiple studies of language attrition have endeavored to pinpoint the exact linguistic features that are likely to be lost, and the exact ones to be likely retained during the early stages of attrition. Many of these studies largely agree that the lexicon, or part of it, is more vulnerable to loss, easily and quickly (Schmid, 2006). As vocabulary has increasingly received greater attention, findings in the area of vocabulary attrition (Weltens & Grendel, 1993) suggested that the focus should be on the production of words rather than their reception, as slight attrition was recorded in the receptive knowledge (Weltens, 1989).

Several studies explored this under three populations: "children returning from other countries, missionaries following time abroad, and college and high school students" (Bardovi-Harlig & Stringer, 2010, p. 26). This led to valuable contributions to the factors promoting or hindering vocabulary attrition.

While previously identified factors, such as age, literacy in the target language, motivation, and attitude (personal variables); status of the target language, language availability, and cultural attitudes (sociolinguistic variables); linguistic distance between L1 and L2 (linguistic variables); and limited exposure or the difficulty of productive tasks (production variables), remain relevant to vocabulary acquisition, additional vocabulary-specific factors have been identified. These include L2 word frequency, the length and frequency of the corresponding L1 word, L2 word length, vocabulary size, and vocabulary learning strategies (Hansen, 2013).

As far as word characteristics are concerned, high frequency words are asserted to likely be retained, longer L2 words rather more likely to be lost, high frequency corresponding words in the L1 to be strongly retained, while distant words from the L1 likely to be forgotten (Hansen, 2013). Schmid (2006, p. 7) stresses that vocabulary attrition is impacted by similarity and frequency; meaning low frequency items are likely to become inaccessible, compared to high frequency ones.

More closely related to learners, vocabulary size stands important in that known words are found to be retained better by learners who learn more words (Hansen, 2013). Similarly, a study found that vocabulary learning strategies correlate with vocabulary attrition (Alharthi, 2014). Attitudes and motivation, on the other hand, were surprisingly not evidenced to have a

strong impact on lexical attrition (Hansen, 2013). Other linguistic factors are measured in vocabulary attrition, particularly "change in the lexicon, fluency, complexity, and accuracy" (Bardovi-Harlig & Stringer, 2010, p. 22).

As for the applicability of second language attrition theories on vocabulary attrition, aspects of the regression hypothesis show that regression could be seen over the course of summer period, where the vocabulary that is acquired towards the end of the instruction period is not retained by the time of the next instruction period (Cohen, 1975). In the same vein, the Retrieval Fail Hypothesis and the dormant language hypothesis lead to questions about the possibility of access to lexical items for production or recall in comprehension purposes. (Paradis, 2007). Additionally, Markedness Theory assumes that the least marked vocabulary items, meaning least complex, are retained longer (Hansen, 2013), and the Critical Threshold Hypothesis claims that best learned vocabulary items are the last ones to be forgotten, showing a level of attainment after which a linguistic system is immune to attrition (Bardovi-Harlig & Stringer, 2010).

It goes without saying that to arrive at conclusions regarding vocabulary attrition, in-depth and various research methods are applied to account for the complex nature of lexical knowledge. The main design in studies of attrition include "a comparison between knowledge at peak attainment and knowledge during or after loss" (Bardovi-Harlig & Stringer, 2010, p. 18). Data is collected right before or when the instruction period is terminated (up to three weeks) or shortly after returning from a disuse period (up to two months after return). Moreover, various tools are used to test second language attrition, including self-assessment; written tasks, particularly standardized, government, or local exams; oral tasks, particularly narrative tasks, oral responses to situational prompts, conversational interviews, language proficiency interviews, grammatically and lexically focused oral elicitations; and background questionnaires (Bardovi-Harlig & Stringer, 2010, pp. 19–22).

While the above theoretical framework provides central insights into the mechanisms of language attrition, empirical research has been instrumental in investigating these theories across diverse linguistic, social, and educational contexts. The following sections review key empirical studies that have explored second language attrition, as well as the methodological challenges inherent in such research.

2.5.3 Empirical Studies on Second Language Vocabulary Attrition

Various empirical studies have examined aspects of second language vocabulary attrition. For instance, Bahrick's (1984) study investigated the long-term retention of Spanish language skills among 733 individuals who had studied the language in high school or college, with retention intervals ranging from 1 to 50 years. Employing a cross-sectional design, he assessed participants' reading comprehension, recall, and recognition of Spanish vocabulary and grammar. Participants also completed a questionnaire to report their original level of training together with any subsequent rehearsal activities, including reading, writing, speaking, or listening to Spanish during the retention interval.

Using multiple regression analysis, Bahrick (1984) found that retention declined sharply within the first three to six years after learning but then stabilized, showing minimal decline over the following decades. The level of original training emerged as a strong predictor of long-term retention, whereas subsequent rehearsal had relatively little effect. These findings led to the introduction of the concept of permastore, which posits that certain types of memories can remain remarkably stable over extended periods, even without ongoing use (Bahrick, 1984).

While the concept of permastore has been influential, further longitudinal research is necessary to fully understand the mechanisms that contribute to the enduring stability of certain memories, as the minimal impact of rehearsal on retention challenges the efficacy of later language exposure, suggesting that efforts to maintain language skills might be less effective if not built upon a strong initial foundation.

Hansen (1999) applied similar recall and recognition measures to explore the long-term attrition of Japanese negation structures among former missionaries who had learned the language during their time in Japan but had limited exposure to it for approximately thirty years thereafter. Utilizing a cross-sectional design, Hansen (1999) assessed the participants' proficiency in producing negation, focusing on negative morphemes attached to verbs and adjectives. Elicitation tasks were used to prompt natural usage of these forms, enabling analysis of both the accuracy and frequency of their application. This approach allowed to investigate patterns of attrition considering the regression hypothesis, which suggests that language elements acquired later are more susceptible to loss.

The findings revealed partial retention of Japanese negation, particularly in simpler forms, while more complex structures showed notable decline. These results support the idea

that certain components of a second language can remain intact over long periods, even in the absence of active use, and underscore the selective nature of language attrition. (Hansen, 1999)

Recognizing that classroom-based L2 acquisition is distinct from naturalistic language learning, researchers have also developed j designs to examine attrition in controlled educational settings. Alharthi (2015), for instance, used a longitudinal mixed-methods study to examine the perceived reasons behind vocabulary attrition among 43 fourth-year male Saudi EFL majors over the course of one year.

Building upon earlier research that had documented significant lexical loss following graduation, the study combined previously collected vocabulary test data with self-reported questionnaires and retrospective semi-structured interviews to explore participants' own perspectives on why they forgot English vocabulary. The findings revealed three main categories of contributing factors: lack of language practice, instructional and environmental influences, and the linguistic nature of the vocabulary items themselves (Alharthi, 2015).

Participants reported that limited opportunities to use English, minimal focus on vocabulary during communication, and frequent reliance on their first language (Arabic) in classroom teaching contributed significantly to vocabulary loss, together with external factors such as insufficient institutional resources, low student motivation, and regional variations in English exposure (Alharthi, 2015).

The study concluded that limited exposure to English post-instruction played a key role in lexical decline and recommended that EFL teachers engage in regular reading, access authentic materials, and participate in continuous professional development to maintain and strengthen their vocabulary knowledge over time (Alharthi, 2015).

This study offers valuable insight by highlighting learner perceptions, yet it presents a limitation since reliance on self-reported data introduces the risk of subjective bias, as participants may not accurately assess the causes of their language loss. However, the study's critical contribution lies in its emphasis on environmental and pedagogical factors, particularly the role of limited English use and inadequate teaching contexts, which are often overlooked in attrition research.

In a recent comprehensive review of second language (L2) lexical attrition research, Larson-Hall (2019) proposes that the loss of vocabulary over time is more accurately understood as a decline in accessibility rather than a complete erasure of lexical knowledge. Central to her discussion is Meara's (2004) Constant Decay Hypothesis, which uses a connectionist simulation to model how attrition might unfold within an interconnected lexical network. According to this model, words in the L2 lexicon are gradually deactivated through

random attrition events, with losses often appearing suddenly after a period of apparent stability. Although this model is theoretical and lacks direct empirical validation, Larson-Hall (2019) highlights its value in accounting for observed patterns of abrupt lexical loss in longitudinal studies.

To contextualize the model, Larson-Hall (2019) reviews prior empirical work, including memory studies by Ebbinghaus (1885) and foreign language research by Bierling (1990), both of which demonstrate sharper declines in productive ability than in receptive vocabulary over time. Drawing on a wide range of L2 attrition studies, she identifies several key variables influencing retention, such as the learner's age at acquisition, the duration of non-use (incubation), and the typological distance between the L1 and L2.

For instance, research by Hansen et al. (2012) found that L2 users of languages structurally distant from English, such as Japanese or Korean, showed greater long-term lexical attrition than those who had learned closer languages like Spanish. Importantly, Larson-Hall (2019) challenged the notion that frequently used, or highly entrenched words are immune to attrition, arguing instead for a view that accommodates randomness and individual variability in lexical loss.

2.5.4 Methodological Challenges in L2 Attrition Research

Due to the multifaceted nature of language attrition, investigating this phenomenon presents a range of methodological challenges related to baseline definition, data collection, and tool selection. This section thus outlines frequent challenges encountered in L2 attrition research.

One of the central issues is determining what constitutes language loss. To do this accurately, researchers must first understand how proficient users of the language typically behave, since without a clear baseline, it becomes difficult to distinguish between actual language attrition and deficiencies stemming from incomplete acquisition. Unlike first language attrition studies which often have access to stable monolingual participants, L2 attrition research must frequently contend with varied learning histories and exposure levels. As Schmid and Mehotcheva (2012) noted, even in L1 research, identifying a valid reference group can be problematic, let alone in L2 contexts where learners may never have reached full fluency.

Longitudinal research designs would ideally offer a solution by tracking the same individuals over time, allowing for a precise comparison between initial proficiency and

subsequent language decline. However, practical limitations such as funding, participant availability and engagement, and the long duration required pose significant obstacles.

Moreover, repeated testing itself may introduce language exposure that inadvertently mitigates attrition, a paradox where the research process potentially interferes with the phenomenon being studied (Schmid & Mehotcheva, 2012).

To address this inherent issue, Weltens (1989) proposed using baseline data from individuals closely resembling the attriting group but not yet experiencing attrition. Similarly, Mehotcheva (2010) implemented a mixed-method design, analyzing participants with different lengths of attrition experience at multiple points in time, which allowed for tracking patterns while avoiding some of the challenges of full longitudinal designs. Specifically, the study used a longitudinal design (same five participants over a year) and a cross-sectional design (different participants grouped by length of attrition). Across both groups, lexical diversity decreased, and hesitation markers increased with longer attrition periods, suggesting weakened lexical access. The picture naming task confirmed slower reaction times and lower accuracy, especially for low-frequency words. Initial proficiency emerged as the strongest predictor of language retention, while disuse, motivation, and contact showed limited or inconsistent effects (Mehotcheva, 2010).

Another methodological constraint lies in the diversity of assessment tools and approaches used across studies. Some researchers employ storytelling and picture-based elicitation (Cohen, 1989; Tomiyama, 1999), while others utilize spontaneous speech recordings, vocabulary tests, reading and listening comprehension tasks, or structured oral interviews (Schmid & Jarvis, 2014; Zhonggen & Chan, 2009; Köpke, 2004). While such variety is enriching, it can also lead to difficulties in comparing findings across studies, as different methods may tap into different dimensions of language knowledge or performance.

Schmid and Mehotcheva (2012) addressed this lack of standardization and suggested a shift toward multimodal data collection that includes formal testing, spontaneous language samples, and self-report measures. Such a comprehensive approach would allow for a more holistic understanding of language attrition and facilitate replication and comparison of findings.

As second language attrition research is still grappling with key methodological questions related to baseline definition, data collection, and tool selection, embracing mixed-method designs and cross-disciplinary techniques may pave the way for more robust studies. In all cases, the observed decline in lexical access and retrieval, as evidenced in attrition studies, underscores the importance of vocabulary as a core component of language proficiency;

therefore, a deeper understanding of how vocabulary is acquired, retained, and utilized in second language contexts holds significant pedagogical implications for attrition research. Investigating vocabulary acquisition is thus a logical and necessary step toward informing more effective instructional practices aimed at fostering durable language competence and mitigating potential language loss.

2.6 Implications of L2 Vocabulary Acquisition on Language Pedagogy

As vocabulary lies at the heart of communication, mastering vocabulary is essential for language comprehension and expression, regardless of whether the target language is a first or second language. In the arena of Second Language Acquisition (SLA), vocabulary has long been recognized for its fundamental role in language comprehension and production; therefore, this chapter delves into the implications of second language vocabulary acquisition on language pedagogy.

To begin with, vocabulary instruction was traditionally dismissed in favor of grammar instruction under the influence of structuralist theories (Zimmerman, 1997). Then, popularized by the grammar-translation method, memorization of long word lists and decontextualized vocabulary drills were adopted as the primary instruction method (Zimmerman, 1997).

Later, under the influence of methods such as the Total Physical Response (TPR) and the Natural Approach, the belief that learners would naturally acquire vocabulary as they were exposed to the language was widely propagated (Zimmerman, 1997).

To support the language acquisition process, early practices favored comprehensible input (Krashen, 1989), which were then extended to include productive language and encourage output (Swain, 1993), balancing therefore activities focusing on receptive and productive skills. Then, with vocabulary focused research (Nation, 2001), attention was drawn to the learners' need for broad and deep vocabulary knowledge that is built through explicit and implicit vocabulary instruction, drawing on word meanings, collocations, semantic networks, and morphological structures (Schmitt, 2008).

To help learners attain a functional lexicon, researchers touched upon the incremental nature of vocabulary acquisition and showed that word knowledge evolves over time through multiple exposure, pushing pedagogues towards adopting spaced repetition and recycling vocabulary items (Nation, 2001). With Task-based language teaching gaining popularity in recent years, it has been evidenced that tasks provide a meaningful context for vocabulary as they allow learners to negotiate meaning and use target vocabulary in context, thereby

strengthening their lexical knowledge (Willis & Willis, 2007). This emphasizes the shift from decontextualized vocabulary drills to contextualized, communicative practices in the classroom. It goes without saying that focusing on context also implies the inclusion of cultural dimensions in vocabulary teaching, especially that words carry both denotative meanings, cultural nuances, and connotations (Kramsch, 1998).

On a different note, digital technology has also played a fundamental role in shaping language pedagogy from its early emergence (Chun & Plass, 1996). Computer-assisted language learning (CALL) tools and multimodal input that combines text with visual and auditory aids were found to enhance vocabulary acquisition and retention, for they provide adaptive, personalized vocabulary learning experiences for different learning styles (Chun & Plass, 1996). In a similar vein, (Webb & Nation, 2017) offer an in-depth perspective on contemporary approaches for vocabulary instruction, emphasizing its focal role in language acquisition.

Of these approaches, prioritizing high frequency words in the classroom is a must as they hold the greatest value in language learning, which aligns well with the communicative aspects of ELT that prioritize practical language use (Webb & Nation, 2017).

Low frequency words are also said to have a space and need to be learned, however preferably outside of the classroom where learners could rely on their vocabulary learning strategies to foster independent acquisition skills (Webb & Nation, 2017). To ensure a foundation in the most applicable vocabulary, a structured approach should follow a progression of vocabulary instruction and learning that starts with the most frequent 1000-word families, followed by the next 1000, then by words specific to learners' needs (Webb & Nation, 2017).

To support a balanced approach in vocabulary instruction, combining explicit and incidental methods along with setting definite vocabulary learning goals are suggested to be vital (Webb & Nation, 2017). Here, Nation’s (2007) Four Strands Framework for Vocabulary Learning which advocates equal time allocation to meaning-focused input and output, language-focused learning, and fluency development can be adopted to ensure that vocabulary learning targets both receptive and productive knowledge. Likewise, effective learning strategies such as guessing from context, using word cards, and using dictionaries, are deemed valuable both inside and outside of the classroom, which aligns with the notion of learner autonomy in modern ELT methodologies (Webb & Nation, 2017).

It goes without saying that it is crucial to assess learners' vocabulary size at the course's outset through various tests suited for the learners’ age and level of proficiency to tailor

instruction according to their needs (Webb & Nation, 2017). This goes hand in hand with both receptive and productive vocabulary assessment throughout the course and upon its completion, including tracking progress, raising awareness of vocabulary knowledge aspects, and using feedback as a cue for further learning (Webb & Nation, 2017). Such work underpins the need to adopt a structured and flexible approach to vocabulary instruction. Their emphasis on the integration of explicit and incidental learning both receptively and productively mirrors the evolution from traditional grammar translation methods to communicative, context-rich, and learner-centered methodologies (Webb & Nation, 2017).

Nation's (2007) four strands framework is particularly compatible with the task-based and skill-based approaches highlighted earlier, providing a comprehensive strategy that captures various aspects of language learning, and ensuring that vocabulary acquisition encompasses practicing contextualized vocabulary use, which is essential in equipping learners with robust vocabulary and improved skills to use it in real-life communicative contexts.

In conclusion, the field of second language vocabulary acquisition has evolved significantly over the years, with empirical research informing and shaping pedagogical practices. Today's vocabulary instruction is characterized by a balanced focus on depth and breadth, the integration of technology, a strong emphasis on contextualized and communicative practices, and a recognition of the cultural dimensions of words. As we move forward, it is paramount that educators continue to adapt and refine their pedagogical approaches in line with ongoing research in this vibrant field, shedding light on aspects of lexical attrition.

2.7 Implications of L2 Vocabulary Attrition on Language Pedagogy

Language attrition, which is the loss of language proficiency over time, has a significant potential to pose a unique challenge in the realm of first and second language acquisition. One of the primary manifestations of this phenomenon is in vocabulary. It is then of particular interest to this dissertation to link the nature and characteristics of second language vocabulary attrition to its implications on language pedagogy.

Although they can be seen as two sides of the same coin, vocabulary attrition is distinct from vocabulary acquisition. While acquisition refers to the ability to perceive, produce, and use words to understand and communicate (Lightbown & Spada, 2013), vocabulary attrition is "the non-linear process of loss in the efficiency to access lexical items and morphological knowledge due to a lack of exposure to or use of one's first or second language" (Weltens et al., 1986, p. 23). It has been earlier established that several factors can contribute to vocabulary

attrition; namely, age, level of proficiency in the target language, motivation, attitude, status of the target language, language availability, attitudes towards the language's cultures, distance between L1 and L2, lack of oral or written exposure to the language, difficulty of completing productive tasks, L2 word frequency, L1 corresponding length and frequency, L2 word length, vocabulary size, and vocabulary learning strategies (Hansen et al., 2002; Bardovi-Harlig & Stringer, 2010). Attrition can significantly influence language proficiency and is a critical factor to consider in language pedagogy.

To help prevent attrition and reinforce retention, a set of practices, as listed below, should be adopted:

- frequent exposure and use of the target language where continuous language engagement is ensured inside of the classroom (Nation, 2013),
- incorporation of regular revision strategies such as spaced repetition and retrieval practice into curricula to consolidate vocabulary knowledge (Karpicke & Roediger, 2008),
- inclusion of teaching effective learning strategies such as mnemonic techniques, context-based learning, and the use of digital tools to learners (Schmitt, 2010),
- focus on receptive and productive vocabulary in teaching to create a resilient linguistic competence (Ellis, 2008),
- emphasis on setting reasonable vocabulary learning goals and amounts to prevent overwhelming learning loads (Cohen, 1989),
- enclosure of difficult aspects of vocabulary such as low frequency, complex nuanced meanings, and pronunciation into language analysis sections of lesson plans (Alharthi, 2015),
- exposure to diverse extensive reading materials to reencounter and reinforce newly learned vocabulary (Alharthi, 2015),
- concentration on active production of words in speaking and writing since productive knowledge is more susceptible to attrition (Alharthi, 2015),
- inclusion of experiential learning and cultural immersion to enhance the memorability of vocabulary (de Bot & Stoessel, 2000),
- use of technology and apps which employ gamification and modern strategies to maintain learner engagement and mitigate vocabulary attrition (Schmid & Köpke, 2017),
- instruction of personalized lessons and vocabulary items that aligns with learners' individual interests to boost motivation and retention (Weltens, 1989),

- active use of all known languages in multilingual individuals and minimization of interference from a dominant language (Schmid & Köpke, 2017),
- integration of vocabulary from various topics in a single lesson to mimic real-life usage (de Bot & Stoessel, 2000), association of vocabulary with narratives and storytelling to aid in memorability (Bahrick, 1984), comprehension of psychological factors such as anxiety and confidence and their impact on learners (Weltens, 1989),
- and encouragement of lifelong learning and engagement in various contexts beyond instructional settings such as reading authentic texts, media consumption, and social interactions in the target language to ensure vocabulary sustainability (Alharthi, 2015).

These strategies are therefore used to account for any potential factors influencing the attrition or retention process. It can be concluded thereafter that while second language vocabulary attrition poses a unique challenge in the field of language pedagogy, understanding its dynamics and implications on the learning process informs both valuable insights into the intricacies of human cognition and effective strategies that ensure long-term retention, particularly regular revisions, manageable learning loads, extensive exposure to the target language in various contexts both inside and outside of the classroom setting, and lifelong learning. As the field continues to evolve, these strategies remain integral to contemporary language pedagogy as they emphasize the need for a dynamic, engaging, and comprehensive approach to vocabulary teaching, learning, and retention. While meaningful research has been conducted on second vocabulary acquisition and attrition, there are remaining gaps surrounding the long-term patterns of attrition, its variation across different languages and cultural contexts, and the efficacy of different pedagogical interventions in an increasingly digital and globalized learning environment. Filling in these research gaps is set to help educators recognize the factors that contribute to attrition and adopt innovative pedagogical strategies that can support learners in retaining vocabulary more effectively, ensuring prolonged language proficiency.

2.8 Vocabulary Learning Strategies

An important aspect of vocabulary instruction and learning is the strategies employed to expand and maintain vocabulary size. Here, vocabulary learning strategies stand as a focal area to be studied to better understand the phenomenon of language attrition and how it affects various learners using different strategies. These strategies encompass a range of techniques

and methods employed by learners to acquire vocabulary both receptively and productively. This part of the literature review aims to synthesize findings from substantial research in this field to have a deeper insight into these strategies and their impact on vocabulary.

Research on language learning strategies can be traced back to the late 1970s, emerging with scholars such as Stern (1975) and Rubin, (1975). These general strategies laid the foundation for more focused studies on vocabulary. Nation (2001)'s research sheds light on incidental and intentional learning strategies, further expanded into discovery and consolidation strategies aligning with processes of exposure to new vocabulary items and reinforcement of already existing ones (Schmitt, 1997). Discovery strategies involve determining the meaning of new words from context, a process that heavily depends on learners' inference skills (Hulstijn, 1992), and consolidation strategies involve repetition, mnemonics, and vocabulary cards (Schmitt, 1997), a process that mainly targets enhancing retention (Gu & Johnson, 1996). Furthermore, social and affective strategies such as language exchange programs and emotional learning context are said to play an important role in language learning and vocabulary acquisition (Oxford, 1990), similarly to metacognitive strategies such as planning, monitoring, and evaluating that support self-regulated learning (Goh & Vandergrift, 2021). In metacognitive approaches, learners receive training in self-awareness and regulation strategies to learn vocabulary (Rasekh & Ranjbary, 2003). Such approaches are especially important in personalization and tailoring strategies to individual learner preferences and experiences (Schmitt, 1997).

With the rise of digital technologies, new strategies have emerged, including the use of assisted language learning tools, mobile applications, online dictionaries, and spaced repetition systems, offering innovative and engaging vocabulary learning tools and methods (Stockwell, 2007). Similarly, an innovative online strategy instruction package for personalized training in error identification and correction and dictionary strategies showed effectiveness in improving vocabulary learning (Webb, 2019).

To yield maximal beneficial results, a combination of incidental and intentional learning strategies is required (Laufer & Hulstijn, 2001), and a varied exposure to vocabulary in addition to repetition are needed (Webb, 2007). Specifically, incidental learning, involves natural vocabulary acquisition through unconscious and effortless repetition and exposure to the target language (Webb, 2019). While this is a significant area of study, its effectiveness varies based on the learner's proficiency level. As an example, higher proficiency students were found to have higher tendencies of acquiring more vocabulary through reading and listening compared to their lower-level counterparts (Penno et al., 2002), implying that strategic and

intentional learning is needed for less proficient learners to bridge skill gaps. Speaking of yielding effective learning, a link between the use of varied vocabulary learning strategies and language proficiency levels has shown that proficient learners use wider ranges of strategies compared to lesser proficient ones (Schmitt & McCarthy, 1997), which sheds light on the importance of strategy training and orientation where learners structurally practice guessing words in context, using word cards, and imaging strategies (Webb & Sasao, 2013) so that they are able to use them autonomously and effectively outside of the class, especially given the limitations in classroom time and language input exposure (Schmitt, 2008). Such training also prompts learners to reflect on their personal experiences, preferences, and beliefs about vocabulary learning, which is invaluable for any planned vocabulary development programs (Webb & Sasao, 2013). Nation (2001) pinpoints the fundamental distinction between declarative knowledge which encompasses knowledge of vocabulary learning strategies and procedural knowledge which entails the ability to actively use the strategies, emphasizing the need for teachers to certify that learners are both aware of the strategies and proficient in using them. Throughout the training, effective learners show flexibility and adaptability in strategy use for vocabulary learning through continuous evaluation and modification of strategies in accordance with their individual needs, the tasks at hand, and the vocabulary types (Webb, 2019). Speaking of vocabulary types, learning lexical chunks rather than single words has been found useful for retention (Webb, 2019). Furthermore, a correlation between vocabulary size and vocabulary learning strategies has been found significant, where the more learners use vocabulary learning strategies, the bigger their vocabulary size (Gu & Johnson, 1996). Vocabulary learning strategies are further defined by characteristics such as choice, complexity, knowledge, training, and efficiency of use (Nation, 2001). Marking a shift towards learner-centeredness, the strategies witnessed a growing importance of strategy use (Schmitt, 1997), highlighting the active role of learners in the language learning process.

Referring to what was reviewed on language attrition, it was highlighted that language attrition is typically influenced by varied factors and affects all language areas including syntax, phonology, and especially vocabulary (Seliger, 1991; Weltens, 1989). It was also recently noted that vocabulary learning strategies encompass a spectrum of practices, techniques, and actions that learners adopt to acquire, internalize, retain, and recall newly learned vocabulary items.

Bridging language attrition with vocabulary learning strategies, it can be established that the chosen set of strategies is crucial in determining the extent of either language retention or language attrition. Maintenance strategies such as frequent exposure to the target language,

engagement with authentic materials, the use of digital tools for spaced repetition, and deliberate practice of vocabulary in varied contexts have been recommended as effective maintenance strategies in the face of attrition (Pfenninger et al., 2023).

In cases where attrition has already arisen, relearning or reactivation vocabulary strategies stand vital in aiding faster reacquisition of vocabulary, particularly intensive exposure to the target language, mnemonic techniques, and contextualized learning (Nation, 2001). Moreover, given that language attrition can be a slow, gradual, hence unnoticed process, metacognitive strategies along with self-monitoring and regulation are crucial elements in preventing attrition, especially given that learners who were found to be aware of their own vocabulary strengths and weaknesses were also found to be better at employing targeted strategies in face of attrition (Goh & Vandergrift, 2021).

Earlier empirical studies also highlight the importance of continued language engagement, the use of both social and individual strategies, a higher usage frequency, and contextual richness in maintaining language proficiency and facilitating the relearning of words (deBot & Clyne, 1994; Bahrick et al., 1994).

However, it is worth noting that given the complexity of language attrition and the fact that it is influenced by numerous external and internal factors, the effectiveness of vocabulary learning strategies in mitigating vocabulary attrition remains ungeneralizable and subject to individual differences, including age, motivation, and the level of language proficiency, and no single strategy or set of strategies can universally prevent or reverse attrition (Köpke & Schmid, 2004). Instead, tailoring strategies to individual learner profiles, and using a combination of approaches that are adaptable to changing circumstances and needs are recommended for maximal benefits (Dörnyei & Skehan, 2003).

In conclusion, comprehending and mitigating vocabulary attrition is critical in further understanding language mechanisms. When effectively employed, vocabulary learning strategies can play a significant role in maintaining language proficiency and aiding in the reacquisition of lost vocabulary.

Still, this overview reflects the multifaceted nature of vocabulary learning strategies and offers valuable insights into their categories and effectiveness. It highlights the importance of discovery strategies, consolidation strategies, social and affective strategies, metacognitive strategies, and digital technology strategies, along with their adaptability to individual learner needs and contexts. It also underscores the importance of strategic training and learner autonomy in acquisition and attrition. Again, the effectiveness of these strategies remains contingent upon both declarative and procedural knowledge along with external and internal

factors, highlighting the role of educators in facilitating the process of acquisition and retention and learners in building their autonomy. It is worth remembering that an over-generalization of strategy effectiveness ought to be avoided, as having a more nuanced understanding of personalized learning approaches, the impact of digital technologies, and individual learner differences need to be carefully considered (Dörnyei, 2005). It is then of specific interest to this research to continue exploring the dynamic interplay between various strategies and the multifaceted nature of second language attrition, especially taking into account individual learner differences.

2.9 Second Language Vocabulary Retention

Having explored vocabulary learning strategies and their role in facilitating vocabulary acquisition, it is equally important to consider how these strategies contribute to vocabulary retention. Other than solidifying a strong initial acquisition, the true value of effective learning strategies such as spaced repetition, mnemonic techniques, and contextual learning lies in their ability to promote long-term retention and mitigate vocabulary attrition. The following section delves into the concept of vocabulary retention, examining key cognitive processes, influential factors, and effective strategies to enhance long-term word retention.

Vocabulary retention "the ability to recall or remember things after an interval of time. In language teaching, retention of what has been taught (e.g. grammar rules and vocabulary) may depend on the quality of teaching, the interest of the learners, or the meaningfulness of the materials" (Richards & Schmidt, 2002, p. 457).

Successful retention depends on the efficient transfer of lexical items from short-term memory to long-term memory (Baddeley, 2003). Words that are processed more deeply, such as those linked to meaningful contexts or retrieved frequently, are more likely to become durable and accessible (Alhazmi, 2024).

In his study, Alhazmi (2024) explored the relative effectiveness of multimedia and traditional text-only approaches in enhancing vocabulary acquisition and retention among adult EFL learners. Employing an experimental design, the research demonstrated that participants who received multimedia instruction outperformed their peers on both immediate and delayed vocabulary assessments.

These results suggest that multimodal input, such as visual, auditory, and video elements, supports deeper cognitive engagement and more durable vocabulary learning compared to conventional methods like memorizing word lists. The findings align with Dual

Coding Theory, which explains how integrating verbal and visual channels enhances memory retention (Alhazmi, 2024). From a pedagogical perspective, the study advocates for incorporating multimedia resources in EFL classrooms to provide richer, more contextualized vocabulary exposure.

Moreover, revisiting vocabulary at increasingly spaced intervals has consistently been found to enhance long-term retention (Nakata, 2015). Nakata (2015) explored how different spacing schedules affect vocabulary acquisition in a second language context, specifically comparing expanding and equal spacing formats. Involving 128 Japanese college students who learned 20 English Japanese word pairs, the research varied both the type of spacing and the length of intervals between study sessions (massed, short, medium, and long).

Findings indicated a small yet statistically meaningful advantage for expanding spacing, marking the first instance of this outcome within L2 vocabulary research. Additionally, the length of spacing intervals had a substantial effect on learning, with longer intervals generally enhancing retention. Overall, the study showed that while expanding spacing may provide some benefits, the magnitude of spacing intervals appears to play a more critical role in effective vocabulary learning (Nakata, 2015).

In a similar vein, retrieval practice, which is actively recalling words during practice rather than passive exposure alone, was found to strengthen memory traces and enhance retention (Roediger & Butler, 2011).

Word frequency and salience are also important factors affecting retention. It was found that frequently encountered vocabulary items, especially those linked to high communicative value, tend to be retained more easily. Conversely, low-frequency or highly specialized words were more susceptible to attrition (Hansen, 1999).

Similarly, vocabulary learned in meaningful contexts, such as through storytelling, conversations, or thematic grouping, was found to be better retained than isolated vocabulary items (Nation, 2001). This goes together with having a high language proficiency and a richer understanding of word meanings, collocations, and usage, which means a greater lexical depth, exhibited stronger retention rates (Webb, 2007).

Numerous strategies have been identified as particularly effective in promoting long-term memory of lexical items. Among these, mnemonic techniques, visual associations, and semantic mapping, were shown to enhance retention by creating meaningful connections between new words and prior knowledge (Atkinson, 1975). Learning vocabulary in the form of collocations and multi-word units also supports retention by facilitating faster recall in communicative contexts (Webb, 2019).

Deliberate practice, including regular speaking and writing, further supports long-term retention (Feng & Webb, 2020), while metacognitive awareness enables learners to identify their lexical gaps and apply targeted strategies to reinforce weak areas (Rahimi & Katal, 2012).

In light of the susceptibility of vocabulary to attrition, language educators are encouraged to integrate these strategies into their instructional practices. This includes providing opportunities for spaced and varied review, encouraging active retrieval and meaningful use, incorporating adaptive digital tools, and fostering metacognitive skills to help learners manage their vocabulary development more effectively.

Given the crucial role of vocabulary in language retention and the strategies that support its long-term maintenance, it is equally important to consider the individual learner variables that mediate the effectiveness of such strategies.

2.10 Individual Learner Differences

Understanding individual learner differences is paramount in the field of second language acquisition and attrition as it shows the cognitive and affective factors that may influence the learning process and how the individual differences might affect vocabulary attrition and retention among learners from diverse linguistic and cultural backgrounds (Dörnyei & Skehan, 2003; Griffiths, 2015). This section reviews how cognitive factors such as language aptitude and working memory, cognitive and learning styles and strategies, affective factors such as motivation and language anxiety, and sociobiological factors such as age and cultural identity impact language learning. It also shows their implications for language pedagogy in light of acquisition and attrition processes.

As far the cognitive factor of aptitude is concerned, it can be said that although it was once considered a narrow and outdated concept, it has managed to regain prominence in second language acquisition research as it is relevant in form-focused instruction, a key area in contemporary language learning (Dörnyei & Skehan, 2003). Moreover, individuals with higher language aptitude tend to maintain their language abilities longer and are more resilient to attrition (de Keyser, 2000). Another cognitive factor known as working memory capacity is also said to be crucial for language maintenance, particularly in retaining vocabulary and grammatical structures (Service, 1992). In the context of language learning and use, working memory is needed for tasks such as understanding spoken language, reading comprehension, and the formulation of spoken and written language, and it allows individuals to hold onto

language elements long enough to be processed and understood in real-time communication (Baddeley, 2003).

While aptitude documents the role of talent for foreign language learning, cognitive style refers to a learner's typical mode of processing information, and learning style indicates a general approach to learning, namely, global, analytic, extroverted, and introverted styles (Dörnyei & Skehan, 2003). These cognitive and learning styles vary significantly across cultural groups and have a great potential for influencing how learners acquire and retain new vocabulary (Dörnyei & Skehan, 2003). They also provide insights into the varying experiences of vocabulary attrition among the students. As for the concept of learner strategies, it has evolved over time from originally focusing on identifying characteristics of good language learners to comprehensively considering the broader dynamic concept of self-regulation which encompasses learners' active management of their vocabulary learning process, a crucial element for retention and attrition prevention (Dörnyei & Skehan, 2003).

Motivation as an effective factor is a critical determinant in the effort individuals will make to maintain a language. Motivation is quite multifaceted but remains a key factor in language learning as it shows the integrative and instrumental orientations in language learning and their impact on the direction, persistence, and effort in language learning activities, and in turn in vocabulary acquisition and retention (Dörnyei & Skehan, 2003). Studies have shown that integrative motivation, where the individual has a strong personal or cultural connection to the language, can significantly reduce attrition rates (Schmid & Köpke, 2011). Reigeluth (1983) asserts that “motivation refers to the choices people make as to what experiences or goals they will approach or avoid, and the degree of effort they will exert in this respect” (p.389). Motivation and attitudes can be understood as a general construct that is affected by varied characteristics; namely, affective, cognitive, and conative. Capturing language learners’ motivation and attitudes is a well-researched topic. In second language acquisition, motivation and attitudes have been recognized as central determinants in the success of language learning (Gardner & Lambert, 1972; Dörnyei, 1990). Motivation has been categorized into instrumental and integrative, whereby the former is related to practical benefits such as education and career development, and the latter is linked to the intrinsic interest in a target language and its community for cultural integration or personal growth and skills development (Dörnyei, 1990). While motivation research is known for its complexity due to the overlap of external and internal factors, it has still evolved over time and been studied both independently and together with other factors. Similarly, studies on attitudes towards a target language have covered the beliefs, values, and feelings that learners hold towards the learning experience, the target

language, and its community (Ellis, 2004). Unlike negative attitudes, positive attitudes have generally been observed to positively correlate with higher proficiency and success in language learning (Masgoret & Gardner, 2003). Pedagogical strategies have therefore focused on nurturing and maintaining favorable attitudes and high motivation amongst the learners to contribute to their language learning success (Dörnyei, 2005; Alrabai, 2015). Given this established significance of motivation and attitudes as language learning factors, this study aims to add to the substantial body of knowledge and examine the role of motivation and attitudes in vocabulary retention or attrition among second language speakers of English in the context of formal instruction.

To assess various dimensions of motivation and attitudes Gardner (1985b), developed the Attitude/Motivation Test Battery (AMTB), a comprehensive questionnaire highlighting any socio-educational factors with a potential impact on learners' motivation and attitudes. It covers constructs ranging from attitudes towards the learning situation to integrativeness, motivation, language anxiety, and instrumentality. The AMTB is composed of 11 subtests, devised to measure the aforementioned constructs, which are essential to understanding the complex interactions of language learning's affective factors.

To evaluate attitudes towards the learning situation, participants share their assessments of their language teacher and course, accounting for the importance of the educational environment's affective quality (Gardner, 1985). To measure integrativeness, the learner's inclination towards the target language community and willingness to embrace the target culture are accounted for. Similarly, motivation is assessed through measuring effort, desire, and attitudes towards language learning to stress the role of affective effects in continuous language learning engagement. To tackle language anxiety as a barrier to language acquisition, two aspects are covered: anxiety experienced within formal classroom contexts, and anxiety arising in authentic language use situations. Lastly, instrumentality is studied as the utilitarian motivation behind language study, assessed through a single measure of instrumental orientation. Employing the AMTB as a tool to analyze motivation and attitudes is aimed to explore the interplay between all the above constructs, underscoring the multifaceted nature of language learning motivation and the nuanced ways in which attitudes, motivation, and anxiety contribute to the language learning process (Gardner, 1985). Language anxiety is another affective factor that can negatively impact the use and retention of a second language, as individuals who experience high levels of anxiety are less likely to engage in communicative situations, leading to decreased language use and increased attrition potential (Horwitz, 2001).

Sociobiological factors such as age of acquisition, attrition, and cultural identity play an important role in language acquisition and retention. For instance, early age acquisition often leads to a deeper fossilization of the language, hence a slower attrition process (Birdsong, 1992), and cultural identity can influence the motivation behind language retention or attrition in the absence thereof, especially that cultural shifts and identity renegotiation have a great potential to lead to changes in language preference and use (Pavlenko, 2002). Here, it is worth stressing the importance of developing learning strategies in language education and tailoring them to individual needs, which is critical for effective vocabulary retention. Successful strategy development programs should be grounded in solid theoretical principles and include awareness-raising, practice, and evaluation. Moreover, both explicit and implicit instructional techniques are recommended for effective strategy instruction (Griffiths, 2015).

Individual learner differences in cognitive, affective and sociobiological factors significantly impact vocabulary attrition and retention and offer valuable insights into tailoring language instruction to diverse learner needs. This understanding is vital for designing effective pedagogical strategies in teaching English vocabulary to students from diverse backgrounds. As a side note, while research on individual learner differences provides valuable insights, several challenges and considerations need to be accounted for, particularly the complexity and interplay between cognitive, affective, and sociobiological factors, small sample sizes, difficulty in comparison, and the variability in research methodologies. To avoid these, isolating the impact of individual variables should be discarded and longitudinal, multi-method research designs should be adopted to unravel the complexities of the interplay between individual factors and language attrition. As for the methodological considerations, one must be aware that variability in research methodologies, definitions of attrition, and measures of language proficiency can make it challenging to compare studies and draw generalizable conclusions.

Building on the discussion of individual learner differences, cognitive factors such as working memory, memory systems, and input theories play a crucial role in language learning and retention. Highlighting such mechanisms is a must to better understand the cognitive foundations of vocabulary retention and attrition.

2.11 Memory Systems and Input Theories

Understanding how memory functions, particularly the role of working memory, short-term memory, and long-term memory, is crucial for examining individual differences in

language attrition and retention. Additionally, input theories provide valuable insights into how language learners process and internalize linguistic information. This section explores these concepts, highlighting their relevance to second language vocabulary acquisition and attrition.

Working memory (WM) is a temporary cognitive system that enables individuals to hold, manipulate, and process information in real-time. As a limited-capacity system, it plays a central role in a range of complex cognitive tasks, including language comprehension, reasoning, and learning (Baddeley, 2003).

Baddeley's (2003) model of working memory conceptualizes the system as comprising four interrelated components: the phonological loop, the visuospatial sketchpad, the central executive, and the episodic buffer.

The phonological loop is responsible for the temporary storage and rehearsal of verbal and acoustic information, playing a key role in vocabulary learning and sentence comprehension (Baddeley, 2003). The visuospatial sketchpad processes visual and spatial information and contributes to reading and writing, particularly in visually demanding tasks (Baddeley, 2003). Both systems operate under the control of the central executive, an attentionally limited system that allocates cognitive resources, manages task switching, and coordinates information across modalities (Baddeley, 2003).

The episodic buffer, added later to the model, integrates information from the phonological loop, visuospatial sketchpad, and long-term memory into coherent, multimodal representations, supporting discourse comprehension and the processing of complex linguistic structures (Baddeley, 2003). Together, these components enable real-time language use and learning, while impairments in any subsystem can result in specific language processing difficulties or disorders

Working memory capacity (WMC) varies substantially across individuals and has been found to affect language learning outcomes. Learners with higher WMC are better equipped to manage the simultaneous cognitive demands of language learning. Working Memory training was found to significantly enhance vocabulary retention, immediate recall, and contextual usage (Baddeley, 2000; Alshehri, 2024).

Understanding the roles of short-term and long-term memory systems further explains how linguistic knowledge is processed and stored. Cowan (2008) examines the distinction between short-term memory (STM) and long-term memory (LTM), emphasizing their unique characteristics and the evidence supporting their separation.

LTM is widely accepted as a broad and relatively permanent store of information, encompassing knowledge and experiences accumulated over time. In contrast, STM refers to

a temporary storage system with limited capacity, often proposed to hold about three to four meaningful units or "chunks" of information (Cowan, 2008).

Two primary factors are considered when differentiating STM from LTM: duration and capacity. While some theories suggest that information in STM decays over time unless maintained (Baddeley et al., 1975; Lewandowsky et al., 2004), the evidence for decay remains inconclusive, as performance can also decline due to interference or limitations in attention and rehearsal (Cowan, 2008).

Experimental efforts to isolate decay, such as using attention-demanding tasks or suppressing verbal rehearsal, have produced mixed findings (Barrouillet et al., 2004); however, capacity limits in STM are more consistently supported, particularly in conditions that prevent chunking or rehearsal strategies.

Neuropsychological studies, including those involving patients with memory impairments, indicate that STM and LTM function independently to some extent (Baddeley & Warrington, 1970; Carlesimo et al., 1995). For example, individuals with long-term memory deficits often show intact short-term recall, suggesting that STM is a distinct system rather than simply a gateway to LTM (Cowan, 2008).

Theories of language input provide additional insight into the interaction between memory systems and exposure in shaping language learning outcomes. Krashen's (1985) Input Hypothesis posits that comprehensible input is a cornerstone of language acquisition, as language learning is most effective when input slightly exceeds the learner's current level of competence.

Building on Krashen's (1985) work, Schmidt's (1990) Noticing Hypothesis suggests that conscious attention to linguistic features in the input is a prerequisite for acquisition. This means that learners must notice new forms to internalize them effectively. Working memory plays an essential role in this process by allowing learners to temporarily hold and analyze novel linguistic items long enough for deeper processing and integration to occur.

Long's (1996) Interaction Hypothesis emphasizes the role of conversational interaction in facilitating language learning. Through negotiation for meaning, learners receive modified and more comprehensible input. These interactions provide repeated exposure to lexical items and opportunities for output, thereby reinforcing vocabulary through use and supporting long-term retention.

In light of these findings, pedagogical interventions that support working memory development, promote the use of comprehensible and engaging input, and encourage active and repeated engagement with vocabulary are essential. Such strategies are critical not only for

successful language acquisition but also for the long-term retention and maintenance of second language vocabulary. Given the importance of effective vocabulary learning strategies, it is also essential to consider how external factors, such as the COVID-19 pandemic, have impacted language education.

2.12 COVID-19 and Post-COVID Impact on Learning

The COVID-19 pandemic, beginning in early 2020, rapidly transformed educational practices globally, compelling an abrupt transition from face-to-face education to fully remote online learning environments.

Institutions across the globe had to promptly adopt digital platforms and online methodologies to ensure continuity of education, leading to the widespread implementation of emergency remote teaching (ERT). Unlike planned online learning, ERT was characterized by rapid, unplanned transitions with limited training and technological readiness for educators and learners alike, posing substantial challenges for teaching and learning processes (Hodges, et al., 2020; Moser et al., 2021).

In language learning, which depends on interaction, practice, and feedback, this transition to remote instruction raised unique concerns about student engagement, language retention, and overall proficiency development (Hartshorn & McMurry, 2020). Particularly vulnerable were second language (L2) learners who typically rely on immersive, communicative exchanges and consistent feedback for developing and retaining vocabulary and linguistic competencies.

ESL learners and educators in the United States reported significant declines in student motivation and engagement during the initial phase of the pandemic, primarily attributed to reduced interpersonal interaction and limited opportunities for real-time language practice (Hartshorn & McMurry, 2020).

However, the shift toward digital learning environments also presented unique opportunities. Despite the initial negative impacts on learner engagement, the necessity to adapt to remote learning accelerated educators' adoption of innovative pedagogical practices and digital tools that had previously been underutilized, and the flexibility and accessibility of online learning contributed to enhanced academic performance by allowing students to progress through material at a pace that suits their individual learning needs (Akpen, et al., 2024).

For vocabulary retention and learning achievement, online tools such as Quizlet proved particularly valuable (Özdemir & Seçkin, 2024). However, during lockdowns, the extent of learning achievement, or lack thereof, likely varied across different school subjects, student groups, and educational institutions (Engzell et al., 2020; van der Velde et al., 2021).

For instance, van der Velde et al. (2021) explored the impact of the COVID-19 lockdown on vocabulary learning among Dutch secondary school students through the use of *SlimStampen*, an adaptive online retrieval practice tool integrated into English and French language instruction. Drawing on a large dataset comprising over 115 million retrieval practice trials done by more than 133,000 students across two academic years, the findings indicated a substantial increase in study activity during the lockdown period (van der Velde et al., 2021).

Despite widespread concerns regarding learning loss during school closures, students' progression through textbook materials remained largely consistent with pre-lockdown patterns, with those in higher educational tracks more likely remaining on or ahead of schedule (Engzell et al., 2020). Similarly, performance on open-ended retrieval tasks improved in both accuracy and response time, suggesting that students may have experienced reduced time pressure and greater focus in home learning environments (van der Velde et al., 2021).

Although the study was limited to a single digital tool and did not account for broader curricular or contextual variables, the findings highlight the potential of well-implemented digital learning platforms to sustain or even enhance learning during periods of educational disruption.

The post-COVID educational landscape, characterized by hybrid and fully online modalities, has continued to influence language teaching methodologies. In a study conducted by Adi and Mung (2023), students were found to have generally held positive perceptions of Hybrid Learning (HL), with many valuing its flexibility and the opportunity for self-regulated learning. Prior experience with online education during the COVID-19 pandemic appeared to enhance their adaptability to HL. Strong positive correlations emerged between satisfaction, engagement, and self-efficacy, suggesting these elements were closely interlinked in shaping the overall learning experience (Adi & Mung, 2023).

Student feedback during and after the pandemic reflects both the advantages and challenges of digital vocabulary learning. From the students' perspective, online EFL education was generally viewed positively, especially in terms of flexibility, accessibility, and satisfaction with synchronous classes (Argudo-Serrano et al., 2023). They specifically appreciated the ability to access course materials at their own pace and often supplemented

institutional resources with additional online content, demonstrating proactive learning behavior (Argudo-Serrano et al., 2023).

However, students also faced challenges such as distractions at home and varying levels of motivation depending on schedule and discipline area. Despite these obstacles, students largely expressed satisfaction with their online learning experience and viewed it as a viable method for developing language skills, provided that the classes were well-structured and included meaningful, interactive content (Argudo-Serrano et al., 2023).

From the teachers' perspective, initial resistance to online teaching largely evolved into a more favorable and nuanced view. Many educators reported that virtual classrooms foster stronger connections with students and create effective, engaging teaching environments. Most teachers believed that students learnt at an equal or faster pace compared to traditional classrooms. Additionally, they expressed support for expanding virtual learning to more subjects, viewing it as a viable alternative to traditional classroom education and homeschooling (Manegre & Sabiri, 2022).

Despite these positive outcomes, challenges were also identified, including limited social interaction, varying levels of lecturer proficiency with digital tools, and technological constraints. These factors were found to negatively impact students' engagement and confidence (Adi & Mung, 2023).

As the COVID-19 pandemic prompted a widespread integration of online and blended learning approaches, a pertinent question in post-pandemic research is whether online vocabulary instruction could match or surpass the effectiveness of traditional face-to-face methods.

One study demonstrated that both fully online and blended instruction led to greater vocabulary gains than conventional classroom instruction among intermediate EFL learners, with no significant difference between online and blended approaches (Sarajari & Gilakjani, 2024). These results reinforce the notion that when thoughtfully designed and implemented, online instruction can achieve comparable, if not better, outcomes in vocabulary acquisition.

The role of digital tools in facilitating these outcomes has been fundamental. LMS platforms such as Moodle and Google Classroom have proven effective in structuring vocabulary instruction, offering consistent access to quizzes, multimedia content, and peer interactions. Mobile-assisted language learning (MALL) tools, including applications like Duolingo and Anki, have shown strong potential in promoting vocabulary retention through frequent, selfpaced practice and spaced repetition (Sarajari & Gilakjani, 2024).

Institutional responses to the shift toward digital education during the COVID-19 pandemic have emphasized the integration of technology into English Language Teaching (ELT), prompting lasting changes in instructional design and delivery.

Many universities and language programs have retained digital tools introduced during this period, such as virtual classrooms, mobile applications, and AI-assisted platforms, and are increasingly embedding them into long-term curricular planning (Pareek, 2023). This shift has expanded access to flexible, personalized learning opportunities and supported the development of higher-order thinking and professional communication skills, particularly for second language (L2) learners (Pareek, 2023).

At the same time, the need for targeted teacher training has become more apparent, with growing calls for professional development to ensure effective use of technology-enhanced resources. As a result, contemporary L2 instruction is becoming more learner-centered, technologically integrated, and focused on fostering learner autonomy and engagement (Pareek, 2023).

In conclusion, post-pandemic research affirms the value of online and blended vocabulary instruction in second language learning. Digital tools, when used strategically, enhance vocabulary acquisition through repeated exposure, engagement, and individualized learning. While challenges persist, particularly around equity and instructional design, the momentum toward integrating technology into language education offers a promising path forward. With continued investment in teacher development and thoughtful curriculum planning, blended learning models can support resilient and effective vocabulary learning in diverse educational contexts, such as when teaching English for Academic purposes.

2.13 Teaching English for Academic Purposes

Teaching English for Academic Purposes (EAP) is a branch of English for Specific Purposes (ESP) that focuses on preparing learners to meet specific language needs found in academic contexts, such as understanding lectures, participating in seminars, reading and writing academic texts, and engaging in academic discussions (Hyland, 2006). This branch encompasses varied skills and strategies tailored specifically to academic settings, accentuating the development of academic literacy, critical thinking, and genre awareness. As EAP aims to help learners acquire and retain the skills necessary in academic settings and higher education contexts, this section sheds light on EAP within the context of language attrition by exploring how EAP methods and strategies can address and mitigate the challenges of language loss and

by synthesizing findings from key studies, theoretical perspectives, and practical implications in the field.

As previously mentioned, language attrition occurs when individuals reduce or lose their contact with a language over a prolonged period of time, affecting various aspects of language proficiency, including vocabulary, grammar, and pronunciation (Seliger, 1991). For non-native speakers of English who are pursuing their studies in English, maintaining proficiency in English as second language can be a significant challenge, often due to decreased exposure and use.

As English for Academic Purposes (EAP) emphasizes the importance of academic language skills and encourages consistent practice and exposure, it can be instrumental in mitigating attrition through continuous and targeted language practice (Brinton et al., 1989). EAP programs often incorporate ongoing language support, which helps maintain language skills. By having students constantly engage with advanced materials and tasks, EAP ensures that language abilities are regularly used and thereby sustained (Dudley-Evans & John, 1998).

Moreover, the relevance of EAP to students' academic and professional goals increases motivation, improves language skills, and helps in maintaining them, especially as the practical nature of EAP tasks ensures that language use is meaningful and directly tied to personal and academic success, thereby reducing the likelihood of attrition (Jordan, 1997).

Key strategies in EAP that help in mitigating attrition include continuous language development, critical language awareness, and the use of integrated skill approaches. For continuous language development, EAP emphasizes incorporating advanced vocabulary, academic writing styles, and disciplinary-specific language use. Such continuous exposure and use of academic English can counterbalance attrition by constantly reinforcing language skills (Flowerdew & Peacock, 2001).

Likewise, EAP aids students in becoming critically aware of their language use in academic contexts, consequently helping them recognize, comprehend, and navigate different genres, registers, and styles. This awareness reinforces language skills as students actively engage with and reflect on their language use (Fairclough, 2014).

As for the integrated skills approach, EAP combines listening, speaking, reading, and writing skills, reflecting the holistic nature of language use in academic settings, and providing a robust shield against the compartmentalized attrition of language abilities (Jordan, 1997). Longitudinal studies on language attrition among students in educational settings provides insights into how academic environments impact language skills over time, highlighting the

importance of sustained language support and the need for strategies that address English language development (Ortega, 2013).

Similarly, empirical studies have shown the effectiveness of various EAP strategies in enhancing academic language proficiency and improving academic reading, writing, and discourse skills (Brinton & Master, 1997). Speaking of proficiency, the level of language proficiency prior to attrition significantly affects the extent of language loss (Bahrick, 1984). Besides, since the receptive and productive ways in which students use language in academic settings, whether through listening and reading, or through speaking and writing, also influences attrition, it can be inferred that EAP's focus on integrating all four language skills provides a comprehensive engagement, thereby reducing attrition (Pica, 1994).

Diving deeper into teaching vocabulary in EAP, unique challenges and opportunities are posed. Since the mid-1990s, studies have been advocating for explicit vocabulary teaching in EAP by implementing more vocabulary practice opportunities such as highlighting new words, using visual aids, and allowing the use of bilingual dictionaries (Kostka & Olmstead-Wang, 2014). Moreover, resources such as Coxhead's (2000) Academic Word List and academic English corpora have been advocated in guiding and determining the specific vocabulary items to be instructed, especially as they help teachers prioritize high-frequency academic vocabulary over less frequent ones, making such resources vital for planning vocabulary curricula (Kostka & Olmstead-Wang, 2014).

In a similar vein, using corpora for teaching vocabulary in EAP settings provides authentic language use examples and effectively supplements textbooks, an approach that aids learners in developing a working knowledge of academic vocabulary, in reading comprehension, in summarizing skills, and in paraphrasing skills (Kostka & Olmstead-Wang, 2014).

While EAP has great potential for mitigating second language attrition, it must be acknowledged that its effectiveness differs widely among individuals due to variances in cognitive, affective, and learning histories. Tailoring EAP instruction to accommodate these differences is essential to provide effective, personalized language support (Dörnyei, 2005).

It is also worth noting that the dynamic nature of academic disciplines means that language demands continually evolve, which in turn means that EAP must adapt to changing disciplinary requirements and language use trends to effectively support students' language needs and prevent attrition.

In conclusion, English for Academic Purposes plays a fundamental role in supporting non-native English speakers in higher education by providing strategies and resources that

enhance academic language proficiency and counteract language attrition. In turn, understanding the relationship between EAP and second language attrition is focal for developing effective language support strategies in academic settings.

In this section, it was established that explicit teaching methods, the strategic use of resources for vocabulary selection, and the innovative use of corpora in EAP settings all highlight the evolving nature of vocabulary teaching in EAP, which means that continued development and refinement of EAP approaches is focal in supporting academic success and language proficiency in multilingual contexts. EAP offers a promising approach to mitigating the effects of second language attrition; therefore, it is especially relevant for this research to explore and test EAP strategies in vocabulary instruction, taking into account individual learner differences and adapting to the changing landscape of academic language use.

2.14 Status of English in Hungarian, Moroccan, and French Universities

2.14.1 Status of English in Hungarian Universities

The global academic world has witnessed a surge in English-medium instruction (Dearden, 2015), therefore, similar to non-Anglophone countries, Hungarian education institutions had to adapt to the trend. In this section, the status and role of the English language within Hungarian universities is examined.

Firstly, there has been a notable increase in English-Medium Instruction courses in recent years across Hungarian Universities (Dafouz & Smit, 2020). This largely goes back to international and domestic students seeking global mobility through education in Hungary (Jenkins, 2014). Particularly, fields such as engineering, informatics, and business have been observed to naturally incorporate English-medium instruction courses to align with the common standards in the global industry.

Secondly, Hungarian institutions have attested a plethora of exchange programs which strengthens international academic alliances, leading to the emergence of multiple collaborations where English is used as the primary medium of instruction (Wächter & Maiworm, 2014). This subsequently leads to an elevated exposure and use of English.

Thirdly, numerous Hungarian scholars venture to publicize their academic research to a wider audience in the realm of a growing internationalized academia through the use of English. This is because English broadens access to varied readership and paves the way for global recognition. It is then a spontaneous consequence for English proficiency to have

become mandatory for research positions, which underscores its importance in academic Hungarian circles.

Lastly, it has become common practice for a rising number of Hungarian universities to require English language proficiency as a criterion for admission. Whether through internationally recognized certifications such as the IELTS (International English Language Testing System) and TOEFL (Test of English as a Foreign Language), or internal English proficiency assessments, incoming students in Hungarian universities are required to be equipped with the necessary skills to complete courses taught in English (Hyland, 2006).

With The growth of English-Medium Instruction (EMI) courses, international collaborations and exchange programs, research, publications, academic discourse, and institutional policies in student admissions, potential implications and challenges are posed. The shift towards English has certainly opened opportunities for Hungarian academia, yet a substantial concern is a potential compromise between mastery of the core subject and language proficiency (Airey, 2011). This educational challenge highlights the needed balance and effective strategies that educators and students must develop and maintain when using a second language for teaching and learning to achieve both language proficiency and subject mastery.

A second challenge is linked to academic identity and local knowledge, whereby the growing influence of English could accidentally lead to the marginalization of local academic knowledge and traditions (Phillipson, 2008). This is especially true when scholars fully are fully invested in aligning their work with English-speaking academic norms and sideline local insights, perspectives and methodologies, thereby losing out on the diversity and richness of thought brought by local academic traditions. While the global spread of English unifies communication and dissemination of knowledge, a balanced approach that preserves and promotes local academic identities and knowledge is needed.

In conclusion, the introduction of English into Hungarian higher education mirrors a global academic trend; however, it brings forth both challenges and opportunities where Hungarian universities should ideally establish a balance between achieving global ambitions whilst preserving local academic ethos.

All in all, factors such as the growth of English-medium instruction courses, the emergence of international collaborations and exchange programs, the internationalization of research, publications, and academic discourse, and the established institutional language policies in student admissions all portray the growing status of English in Hungarian universities.

2.14.2 Status of English in Moroccan Universities

The dominance of English as a lingua franca has clearly impacted various social landscapes globally, and that includes the academic scene in Morocco. Owing to its history and geographical position at a crossroad between Sub-Saharan Africa, the Arab world, and Europe, Morocco's higher education reflects an intriguing convergence of linguistic influences. In this section, the status and role of the English language within Moroccan universities is investigated.

To begin with, it is worth highlighting that the French language has dominated Moroccan higher education due to colonial history (Ennaji, 2005). Nevertheless, with the increasing importance and globalization of English, Moroccan universities have been experiencing a substantial shift in French higher education (Cohen & Jaidi, 2014).

This global influence of English necessitated the introduction of English-Medium Instruction (EMI) (Morchid, 2020). Several Moroccan universities, particularly those featuring international partnerships, have launched EMI courses to accommodate to local and international students in fields such as business, science, technology, and humanities seeking global mobility (R'boul, 2022).

Likewise, as more and more Moroccan institutions are establishing strong ties with Anglophone countries and universities, student and faculty exchange programs are increasingly being featured in both Moroccan and Anglophone contexts (Belhiah et al., 2020). With these initiatives, high English proficiency becomes a necessity, especially as it serves as the main medium of instruction and communication.

Similar to the Hungarian context, Moroccan scholars also echo global trends as they increasingly publish in English to gain an international recognition and reach a wider audience (Zouhir, 2013), which naturally underscores the emphasis on the growing importance of English in Moroccan research communities.

In spite of the fact that French remains a significant language of instruction in Moroccan contexts, a growing number of universities are recognizing the value of English proficiency and are now accepting or even requiring certifications such as the IELTS or TOEFL for certain programs (Belhiah, 2020)

The growing popularity of English within Moroccan academic and scholarly communities prompts an array of challenges and implications. One example is the risk for aggravating the already existing inequities privileging individuals with prior proficiencies thanks to their higher socioeconomic status (Bullock, 2014) and the marginalization of native

Arabic and Berber speakers, threatening the linguistic diversity undermining Moroccan linguistic heritage (Bensoukas, 2010). Another example is the potential gap between content and proficiency, in that course instruction in English may impede the comprehension of course content for students with lower proficiency, which would degrade the quality of education and widen the already existing educational disparities (Ben Hammou & Kesbi, 2023). Another challenge would be a need for substantial investment in resources for language training, which would divert funds from other educational and research areas that need it critically (Belhiah, 2022). This also raises questions on whether such investments serve the best interest of Moroccan academia in the long term, or whether following this linguistic trend merely reflects a surrender to global linguistic hegemonies (Boukous et al., 2009).

It is then imperative for a reflective dialogue to surface amongst Moroccan academic institutions, scholars, and policy makers, whereby the benefits and challenges of the integration of English are weighed, and for an equitable linguistic policy that balances the Moroccan linguistic heritage and the globalization of English to be put forward (Errihani, 2017)

In conclusion, while Moroccan higher education mirrors the same global trend of a growing propagation of English, promising thereby numerous opportunities, it remains critical to be equipped with proper strategies and action plans to face the foreseen challenges, harmonizing thereby global aspirations with the preservation of the rich academic and linguistic heritage of Morocco.

2.14.3 Status of English in French Universities

While the prominence of English is undeniable in global academia, impacting higher education systems worldwide, France has been traditionally seen to stand out from the crowd, showing a commitment to preserving its linguistic heritage and a strong history of prioritizing French. This section endeavors to explore the status of English within French universities. Firstly, the historical relationship France has with English has traditionally been characterized with a shielding stance, with concrete efforts to resist the propagation of English in official, cultural, and academic spheres (Pennycook, 1994). However, recent scholarship highlights a nuanced shift in this stance as France grapples with the global homogeny of English (Fontaine, 2023). In tracing this linguistic journey of English in French academia, it appears that France's evolving stance reflects a composite interplay between safeguarding its linguistic sovereignty and giving in to the forces of globalization that impose a reevaluation of language policies within academic institutions.

Accordingly, despite its historical protective stance, French universities witnessed a global increase in EMI courses (Doiz et al., 2013). Approximately, as of the early 2020s, it has been estimated that there are over 8000 EMI programs in Europe, numerous of which are found in France (Wächter & Maiworm, 2014). In particular, EMI courses are more pronounced in scientific studies, business, and engineering (Doiz et al., 2013). For example, the institution École Polytechnique has integrated an entire program entitled "Bachelor of Science" which is outright taught in English (Ecole Polytechnique, 2017). Similarly, the French government has been making concrete efforts to internationalize higher education institutions and campuses to attract more international students and staff, with EMI being an essential component of this strategy (Campus France, 2019). This shows an acknowledgement of the utility and global dominance of English.

Moreover, the growing collaborations with Anglophone institutions shows that English is playing an essential role in scholarly communication and academic exchanges, especially as French higher education institutions continually increase international partnerships, exchange programs, and collaborative research initiatives which necessitate English proficiency (Ingram et al., 2005).

In the same vein, the French realm of research and publications in France is also experiencing a shift as scholars recognize the importance of publishing in English. For instance, major academic journals and conferences mainly operate in English, rendering English proficiency essential for French academics (Lillis & Curry, 2010). This also reflects the transformation brought by English as it solidifies its status as the lingua franca in scholarly communication.

Lastly, although French reigns as the primary language of instruction across French universities, English proficiency is being recognized as an indispensable element in student admissions as evident in the acceptance or requirement of standardized or internationally recognized English proficiency certificates (Phillipson, 2008).

While bringing about multiple opportunities and promising prospects for international collaboration and recognition, the ascendancy of English in French academia also brings about challenges such as the marginalization of non-English speaking scholars and students (Phillipson, 2003) and the relegation of the maintenance of linguistic diversity as smaller languages are sidelined in the process of internationalization (Tollefson & Tsui, 2003)

To sum up, the rise of English within French contexts is a multifaceted phenomenon characterized with both resistance, pragmatic adaptations, and global influences. EMI courses increased collaborative international opportunities, and research and publishing widened

audience reachability and recognition. Hence, ensuring an equitable access to educational opportunities and safeguarding French linguistic heritage and identity in the face of global shifts remain necessary steps to establish a harmonious balance.

2.15 Attitudes Towards English among University Students

2.15.1 Attitudes towards English among Hungarian University Students

This section summarizes current research findings and relevant literature to offer insights into this multifaceted research area, as it is vital for understanding the Hungarian participants of the present study.

As previously highlighted, the emergence of English as a lingua franca has had implications globally on various landscapes, particularly on the academic scene, thereby shaping educational practices and influencing student perceptions. Attitudes towards a language are complex and impacted by educational, cultural, and linguistic factors. Using a structured search of databases such as ERIC, JSTOR, and Google Scholar, 20 qualitative and quantitative studies published from 2000 onwards tackling the attitudes of Hungarian university students towards English were selected for inclusion in this systematic review. Results showed that while the overall attitudes of Hungarian students are predominantly positive, factors such as motivation, language anxiety, and cultural identity need to be considered.

On the one hand, findings from these studies showed that students recognize English as an essential key to academic and professional advancement and value its role in accessing global knowledge, leading to a prevailing positive attitude towards English (Dörnyei & Csizér, 2005; Kormos et al., 2008). Moreover, the students' attitudes are shaped by the Hungarian education policies and methodological approaches as the increasing demand of English proficiency together with the adoption of EMI in universities reflect a shift towards global integration (Bowles & Murphy, 2020).

On the other hand, the review identified a spectrum of linguistic self-confidence amongst the students along which some students exhibit increased motivation and self-confidence, and others experience increased language anxiety, which has the potential outcome of negatively influencing their learning outcomes and attitudes (Piniel & Csizér, 2015). The students' attitudes towards English are also impacted by their proficiency levels, in that advanced learners show more confidence and a positive outlook towards English (Csizér &

Kormos, 2009) and beginners experience higher anxiety and low motivation, which leads to negative view towards English (Borbély, 2015).

Furthermore, it appears that the tension between global and national identities stands as a focal factor influencing the students' attitudes. While some students appear to utilize English as a means of cultural enrichment as portrayed by Dörnyei & Csizér (2002) who offer an insight on the instrumental and integrative motivation behind language learning and the positive relationship between the students' attitudes and desire to integrate in the global community, others ambivalently approach it as a potential threat for cultural homogenization (Norton, 2000;Kormos et al., 2008). The English language is often associated with modernity, internationalism, and the door for abundant information, fostering thereby positive attitudes from students (Petzold, 1994); however, concerns regarding Hungarian language and cultural identities persist. Moreover, beyond the academic landscape, the spread of English in various media platforms and in popular culture also plays an essential role in shaping students' attitudes outside formal education settings (Sockett, 2014).

To conclude, the general attitudes of those Hungarian university students who participated in the study towards English are positive, which reflects similar trends observed in other non-English-speaking countries. Thanks to the utility of English in international communication, academic advancement, professional prospects, and cultural prestige, students across the globe are enticed to become proficient in English. Nonetheless, continued research regarding English language education and the subtle relationship between English and Hungarian in regard to cultural identity and language policy are called for to ensure a balance supporting the needs of Hungarian students.

2.15.2 Attitudes towards English among the Moroccan University Students

Drawing on studies exploring linguistic, cultural, educational, and socioeconomic variables affecting learners 'attitudes towards second and foreign languages, this section overviews current research findings and relevant literature into the attitudes of Moroccan university students towards English, examining factors influencing these attitudes and their implications on the studied participants. Searching databases including ERIC, JSTOR, and Google Scholar, 14 studies published in English and French from the early 2000 onwards were included in this systematic review proceeding the screening process. To begin with, it is worth emphasizing that although French has traditionally been the country's official second language, English has gained a central stance as a lingua franca in Moroccan academia and business

(Sadiqi, 2003). As the global status of English and its perceived utility career wise are flourishing, Moroccan youth is showing a strong preference for English over French. Moreover, it has been noticed that the personal and professional development of Moroccan students has direct links to their proficiency in English, which is informed by their attitudes towards it (Ennaji, 2005). Research indicates that in general, and closely similar to the Hungarian context, students in Moroccan university have a positive attitude towards English (Sadiqi, 1991). Still, elements such as the quality of English instruction, the availability of resources, and exposure to the language greatly impact these attitudes (Belhiah, 2020; Marley, 2004).

The pedagogical approach and proficiency of teachers of English in Morocco have been found to be decisive in shaping the students' attitudes towards English (Belhiah et al., 2020). Likewise, the Moroccan educational policies have been recently focusing on advancing the status of English in Morocco as higher education reformation plans introduce English-taught programs in hopes of maximizing employability chances and international collaboration (Ben Hammou & Kesbi, 2023; Bouzidi, 1989). These reforms are warmly met with approval from the students who view English as a means of attaining success in a globalized world (Belhiah & Abdelatif, 2016).

However, the students' positive attitude was found to stem from an uneven socioeconomic distribution and urban/rural divides whereby students with a privileged social status have a higher proficiency level which leads to a better attitude, and students with a lower social status have a lower proficiency level, and a negative attitude (Amani & Sarra, 2023; Buckner, 2009). Nonetheless, it has been noticed that a lack of confidence amongst students in their language skills leads to increased anxiety, lower performance, and a negative attitude across all varied student populations (Sadiqi, 1991; Bentahila & Stevens, 1985).

On a different note, media and technology are shaping the linguistic preferences of the Moroccan youth as they are increasingly exposed to informative and entertaining English language content that facilitates informal language learning (Buckner, 2009). This influence of English-speaking cultures through the internet and media has been noticed to foster positive attitudes amongst Moroccan university students of English (Ennaji, 2005).

All in all, it can be established that although the Moroccan linguistic landscape is dominated by Arabic, the first language, and French, the second language, English has been gaining momentum, especially among younger generation within academic settings. It can also be said that the overall attitude of Moroccan university students towards English is positive, but also influenced by factors such as educational reforms, exposure to the language, and the

perceived utility in various academic, economic, and socioeconomic spheres. The current attitudes align with the global trend; however, it remains essential to recognize the language as a tool for academic progress, not as a vehicle for harming one's own linguistic heritage and identity. Moreover, educational strategies should address the social gaps that create unfair learning advantages and minimize them to ensure both equitable access for tools and opportunities for growth across students. Accordingly, teacher training programs should emphasize modern teaching methods to preserve the students' positive attitudes and proficiency (Marley, 2004), and incorporate media into the curriculum to maximize exposure and enhance effective learning (Bentahila & Stevens, 1985).

As the Moroccan linguistic policies continue to grow, monitoring students' attitudes and addressing challenges that arise through policy and pedagogical changes remain critical to guiding the nation's educational trajectories in face of a globalized world.

2.15.3 Attitudes towards English among French University Students.

Browsing the body of research surrounding the attitudes of French university students towards English in light of the preeminence of English, this systematic review shows the patterns that influence the students' attitudes. The selection criteria included 14 papers published in English and French between 2000 and 2023. The review shows that not so differently from the Hungarian and Moroccan contexts, the attitudes of French university students towards English also show an overall positive attitude towards English due to cultural, educational, and professional factors, although known to be traditionally monolingual. French students adopt a pragmatic approach whereby a difference between the necessity of English for professional reasons and the preference of French for private and public spheres is established (Piquemal & Renaud, 2006). The higher education system portrays part of this duality by implementing English-medium instruction, especially in scientific and business programs, which students seem to welcome with support (Blattès, 2018), innovative teaching methods, and exposure to authentic English through exchange programs fostering favorable attitudes (Graziani, n.d.). However, controversy is also sparked as debates around identity and language policy arise within French academia all while English is being increasingly viewed as a non-negotiable asset by students wishing to fulfill their career potential (Hélot, 2003). This is especially due to English being at times associated with a cosmopolitan class that underly the potential for creating social stratification (Duchêne, 2008), which clashes with the country's

protective stance towards its politics and language identity, reflecting fear of linguistic imperialism through resistance to English (Candelier, 2003).

With the continuous and growing exposure to English through media, personal interest, and travel, French students' attitudes towards English is even more so fortified, promoting an altered understanding of English as a medium of cultural enrichment and globalization rather than a mere subject to be studied (Matrisciano, 2022). Moreover, it was also shown that students' proficiency in English varies in connection with the students' various socioeconomic background, educational background, and regional background whereby students favored to acquire higher proficiency show more positive attitudes and positive language learning experiences, which in turn enhance their disposition towards it, in that specific context of the study (Diab, 2006).

The dynamic context has focal implications for students' language acquisition and broader educational outcomes (Graddol, 2006); namely, reinforcing English instruction and protecting cultural identity. The role of policy makers would then be to ensure an empowering use of English that would open global employment doors for French youth to prosper internationally and maintain the nation's attachment to its own linguistic roots. Enhancing teacher and student training together with promoting exchange programs is seen as promising steps (Wächter & Maiworm, 2014).

To conclude, French university students demonstrate a positive stance towards English as they recognize it to be a practical means of career advancement, global research, and international communication (Hoffmann, 2000), all while maintaining the pervasive narrative underscoring the importance of proudly preserving French language and cultural identity and roots (Walsh, 2015), portraying a harmonized pragmatic acceptance of English as a lingua franca.

2.16 Distance Between L1s and English as an L2

2.16.1 Distance between Hungarian and English

To better understand the linguistic variables that come into play when tackling second language attrition, it proves necessary to resort to a systematic review enabling a deeper insight into our participants' linguistic backgrounds. This systematic review examines the linguistic distance between Hungarian and English, shedding light on the grammatical, phonological, and lexical dimensions of the languages. It synthesizes various research findings inherent in language acquisition and pedagogical approaches.

In terms of the grammatical aspect, results showed that the system of Hungarian grammar is characterized by the use of postpositions instead of prepositions along with an abundant use of case endings, contrary to English which relies on prepositional phrases and an analytical structure. Hungarian speakers then need to have a shift in understanding spatial, temporal, and relational concepts to learn English, and vice versa (Orosz, 1972).

As for the phonological aspect, Hungarian and English have different properties. For instance, Hungarian has a complex harmony system that involves lexically distinctive behaviors and backness assimilation in relation to vowel harmony (Hayes & Londe, 2006); (Hayes et al., 2009), whereas English does not use vowel harmony as a phonological process (Vroomen et al., 1998; Giegerich, 2009); it rather focuses on stress patterns in speech and phonemes. Accordingly, Hungarian is characterized by its complexity of vowel harmony and internalized statistical variations (Hayes & Londe, 2006), and English is deemed challenging due to its extensive terminology and intricacies of sound and stress patterns along with a strong influence of generative grammar theories (Nádasdy, 1995). Hungarian phonology has been subject to quantitative constraint-based models in phonological research (Hayes & Londe, 2006); contrary to English phonology which has been offering frameworks for understanding sound pattern rules through incorporating generative grammar theories (Kenstowicz, 1994). Moreover, Hungarian words are significantly longer and incorporate a broader range of consonant and vowel sounds which are generally more open and longer (Bunta et al., 2006), including long vowels and voiceless consonant combinations that are not found in English. The duration of stressed vowels and consonants is also different as Hungarian vowels do not experience reduction in unstressed syllables the way they do in English (White et al., 2010). These varied distinctions between the two languages impact both the structure and pronunciation of words in each language, making it challenging for Hungarian speakers to adapt to English phonological norms and vice versa.

Last but not least, the lexical dimension of Hungarian presents a unique insight into the language's nature. Hungarian, which is a non-Indo-European language that belongs to the Finno-Ugric Family, has a rich vocabulary landscape characterized by an agglutinative nature and complex morphological structures that allow for the creation of nuanced words through combining various morphemes (Kiss, 2002). This unique language shows a tendency to create new lexical items from its existing lexical stock, which underpins its dynamic and sizable vocabulary nature (Fenyvesi, 2005). Moreover, due to the language's tendency for derivation and compounding, the lexical richness of Hungarian can be challenging, especially given that it has borrowed words from Slavic, Germanic, and Turkic languages, to mention a few, that

have in turn Hungarian character in pronunciation and usage (Rounds, 2001). English, which is a Germanic language of the Indo-European family, encompass a complex vocabulary stock that reflects a multifaceted historical trajectory (Crystal, 2003). Having undergone influences of Latin and French, the lexical amalgamation of English has resulted in a considerable degree of lexical flexibility with the possibility of forming words through varied processes such as conversion, where words can change grammatical categories without modification, which in turn facilitates the expansion of its lexicon (Huddleston & Pullum, 2005). Nonetheless, unlike the agglutinative nature of Hungarian, English is more analytical in its nature and relies on word order and auxiliary elements to establish grammatical relationships.

In comparing the two languages' vocabulary, it can be established that both languages are shaped by their histories of language contact and linguistic heritage. On the one hand, English as a Germanic language has undergone lexical expansion through borrowings resulting from historical interactions and colonial expansions (Crystal, 2003). This led the English lexicon to be marked by heterogeneity as it contains elements from French, Latin, Norse and many other languages (Baugh & Cable, 1993), resulting in abundant synonyms and varied nuances of vocabulary items. On the other hand, Hungarian as a Finno-Ugric Uralic language has been characterized by agglutination, whereby new words are formed through the combination of morphemes, which helps maintain a consistent internal structure (Kiss, 2002). While it has also loanwords from Turkish, German, and Slavic languages, these words merge into the agglutinative framework, preserving then the language's Uralic roots (Fenyvesi, 2005).

The differing trajectories of English and Hungarian vocabulary reflect both linguistic and cultural trails. With the continuous evolution of English as a lingua franca, the English language continues to integrate and adapt novel words from the plethora of languages it comes in contact with (McArthur, 2002). Meanwhile, though receptive to external influences, Hungarian tends to assimilate foreign terms to its phonological and morphological system, maintaining a balance between structural integrity and linguistic borrowing (Fenyvesi, 2005). Both languages, however, show the dynamic and adaptive nature of human language in response to external cultural and social influences.

In conclusion, the linguistic distance between Hungarian and English, spanning grammatical structures, phonological systems, and lexical compositions, reveals challenging gaps between Hungarian and English. These marked differences have strong implications on the language learning process. Understanding the typological disparities between the two languages is crucial for developing effective teaching strategies and tailoring materials to

accommodate the specific challenges faced by learners and professionals working with these languages.

2.16.2 Distance between Arabic and English

Moving to exploring the distance between Arabic and English, it can be established through examining the grammatical, phonological, and lexical research conducted in each language that both have distinct features which in turn interferes with the learning process of the other. This review draws upon existing literature to show these differences and understand the challenges they pose in light of language learning.

To start with, since Arabic belongs to the Semitic language family, and English belongs to the Germanic one, their affiliations play a central role in shaping their linguistic features and structures (Ryding, 2005) Grammatically speaking, Arabic is characterized by a root-and-pattern system whereby words are formed through the insertion of vowels in between a set of consonants unlike English which has a predominantly affixation-based word formation in English (Watson, 2007). English relies on a complex tense system and a fixed word-order (Crystal, 2003). The sentence structure of Arabic follows a verb-subject-object order, which greatly contracts with that of English, which follows a subject-verb-object order (Ryding, 2005). Moreover, Arabic is further complexified with its system of nominal and verbal sentences which is not featured in English (Badawi et al., 2013). This structural sentential difference implies that native speakers of Arabic need to adjust to the English syntactic order, which could interfere with their sentence comprehension and construction. Conjugating verbs in Arabic involves considering both tense, aspect, and mood, as the language differentiates between perfective and imperfective aspects, unlike English which primarily uses auxiliaries to indicate aspect (Ryding, 2005). In addition to this, whereas English shows restricted inflection for person and number, Arabic verbs are marked for both person and number, in addition to gender (Ryding, 2005). Speaking of gender, nouns in Arabic are gendered, unlike in English, and have complex rules of pluralization, which in turn complicates the speakers' conceptions of noun agreements and usage (Holes, 2004). Moreover, the use of articles differs in each language, in that Arabic only uses a definite article, while English comprises both a definite and indefinite article, which could potentially create difficulties of understanding and use for Arabic speakers of English (Badawi et al., 2013).

Moving to the phonological dimension, the phonological landscape of Arabic is distinct from that of English, which stretches the distance between the two languages. Arabic has a

range of emphatic consonants, velarized or pharyngealized, that are absent in English (Holes, 2004) in addition to a smaller inventory of vowels that does not distinguish their length in the same way that English does, which leads to difficulties in producing the range of English vowels, particularly in diphthongs (Al-Ani, 2014). Arabic has different phonotactic rules of syllables and stress patterns that are also not found in English (Al-Ani, 2014), however, syllable structure in Arabic is less varied and primarily consists of consonant-vowel patterns, which often results in the insertion of vowel sounds in consonant clusters in English pronunciation (Watson, 2007).

Lastly, the lexical dimensions of the two languages differ greatly, not just in terms of vocabulary, but also in semantics and pragmatics (Holes, 2004). Arabic vocabulary is mainly derived from semitic roots constructed through the root-and-pattern system, and English is a Germanic language with a lexicon heavily influenced by Latin and French, among others, a disparate etymological origin that results in few cognates, which in turn makes vocabulary acquisition more challenging for learners (Crystal, 2003). Likewise, while both languages have borrowed loanwords from other languages, the nature and sources of these borrowings are distinct, in that while English has borrowed from European languages, Arabic has historically borrowed from Persian, Turkish and other languages in fields like science and technology (Holes, 2004). As for derivation and word formation, in Arabic, a single root can result in many derivatives that convey a wide range of meanings (Watson, 2007), which means that Arabic speakers can often scan for associative meanings in words, which is not that much applicable in English due to its linear and affixation-based word formation (Ryding, 2005). As for figurative language and idioms, Arabic is known for its abundant use of idiomatic expressions that are linked to its cultural and historical contexts, most of which do not have any direct equivalents in English, posing a challenge for learners in terms of usage and comprehension (Ryding, 2014).

Given all the above differences, teaching English to Arabic speakers has pedagogical implications such as the need for emphasizing syntax, explicitly teaching tenses and aspects, practicing article usage, focusing on noun agreement rules, improving pronunciation accuracy, building vocabulary, and learning contextually to bridge the gap between the two languages' structures and practical use.

To conclude, the linguistic distance between Arabic and English is considerable given the grammatical, phonological and lexical differences. Effective pedagogy involves understanding and addressing the unique challenges these differences pose to tailor appropriate teaching approaches that bridge the linguistic gap between the two languages.

2.16.3 Distance between French and English

Unlike Hungarian and Arabic, the distance between English and French is not as broad. Marked by their historical interactions, peaking especially during the Norman conquest of 1066 that significantly influenced English's structure and vocabulary, French and English are marked by both convergence and divergence (Posner, 1994). In a similar fashion to the previous sections, this review highlights the grammatical, phonological, and lexical features of French and English to form a picture on the linguistic distance between the two.

Despite sharing the same ancestral Indo-European language root, French is a romance language, and English is a Germanic one, leading to each evolving along different paths due to historical, cultural, and linguistic influences (Ayres-Bennett, 2004). Of these different paths, grammatical structures show divergence in several aspects such as morphosyntax, gender, conjugation, and article usage. Understanding these subtle nuances is crucial, especially as they have pedagogical implications. Starting with morphosyntactic differences, French predominantly follows the subject-verb-object (SVO) structure but still exhibits flexibility in constructing sentences thanks to its inflectional morphology that can be used to indicate grammatical relations (Price, 1998). While English also generally follows the SVO order, it is less flexible in terms of sentence structure due to its reduced inflectional morphology (Hawkins, 2015). However, conjugating verbs in French is more complex than in English. French verbs are inflected for aspect, tense, mood, number, and gender of the subject, whereas English verbs have a straightforward conjugation system that marks mostly for tense, and occasionally for aspect, with a limited inflection for number and person (Offord, 2001). Another notable difference is the presence of grammatically gendered French nouns, which influences the form of accompanying adjective and articles (Ayres-Bennett, 2004). While French uses masculine and feminine nouns, English is gender-neutral and, naturally, uses gender-neutral articles and invariant adjectives (Crystal, 2003). Speaking of articles, definiteness of articles is more grammatically significant in French, as it provides cues about the number and gender of preceding nouns, while in English it only serves to convey definiteness or indefiniteness (Price, 1998).

It can be said then that the grammatical structures of French and English diverge in their systems of nouns and their genders, verb conjugation, and morphological structures. Nonetheless, the overall grammatical distance also reflects shared Indo-European heritage such as subject verb agreement, pronoun systems, question formation, prepositional phrases, reflexive verbs, and negation to name a few. Still, understanding the differences helps tailor

pedagogical approaches that can impact the learning process such as recommending educators to focus on simplifying English tense structures, emphasizing lesser degrees of verb inflection in English in person and number (J. Hawkins, 2015), highlighting the syntactic differences of complex sentences to master correct sentence construction (Price, 1998), and using gender neutral articles along with adjective invariance (Crystal, 2003).

Moving to the phonological aspect, these languages present distinctive phonological systems, that influence pronunciation, intonation, and rhythm. One of the significant differences lies in their vowel systems, in that English has a more extensive set of vowel sounds such as diphthongs, which is less common in French (Ladefoged & Johnson, 2014), and French has nasal vowels, which are absent in English (Tranel, 1987). Consonants, on the other hand are not so different from each other in each language, except for the voiced and voiceless "th" that are common in English, and the less pronounced or silent terminal consonant sounds that are common in French (Hawkins & Towell, 2015).

In contrast, prosodic features such as intonation and stress differ significantly between French and English in that English is stress-timed where rhythm is influenced by stress pattern, while French is syllable-time where each syllable is given equal duration (Pike, 1945). Understanding the phonological differences that affect pronunciation, intonation, and rhythm is then necessary since they have language teaching implications, particularly in productive pronunciation and listening comprehension and in developing effective strategies for second language learners (Scovel, 1988).

As for the lexical aspect, a testament of the rich historical contact between English and French is tangible in the considerable number of French words present in English. Yet, despite the historical interactions and borrowings, the two languages show notable differences in vocabulary, etymology, and semantic fields which account for the divergent evolutionary paths of English and French lexicons.

As for vocabulary itself, a plethora of French words were introduced into English, especially in areas like law, government, and culinary art, resulting in a considerable number of cognates between the two languages (Walter, 2003); both true cognates such as the French word "gouvernement" and the English one "government", and false cognates such as the English word "library" and the French word "librairie" which means bookstore (Grzega, 2004). Likewise, semantic shifts in borrowed terms created words that appear similar but have different meanings in their respective languages, such as in the English word "demand" and the French word "demander" which is the verb to request (Hawkins & Towell, 2015).

Similarly, concepts may not have direct equivalents in the other language, leading to lexical gaps, such as in the English term ‘accountability’ that does not have a direct equivalent in French (Offord, 2001). Moreover, function words basic verbs, and basic nouns which make up the core vocabularies of both languages, reflect their etymological roots, Germanic and Latin, as is evident in instances such as the English word “two” and the French equivalent “deux” (Mallory & Adams, 2006). All in all, while English and French share a significant amount of cognates, they maintain distinct lexical identities that manifest in semantic shifts, false cognates, lexical gaps and varied core vocabularies.

To bring valuable insights into the comparative linguistic analysis of French and English, it is crucial to understand their lexical differences and their implications on French language speakers of English. This can be done through addressing false cognates and semantic shifts, leveraging etymological similarities specifically in academic and formal English which has more in common with French vocabulary (Baugh & Cable, 1993), bridging lexical gaps by providing plenty of contextual examples, incorporating cultural elements into lesson plans, encouraging interactive and contextual learning, focusing on developing core vocabulary, and ensuring comprehensive exposure to a variety of dialects and accents. This would thereby enhance and ensuring an effective learning experience for French speaking learners of English.

To conclude, the linguistic distance between English and French is influenced by grammatical, phonological, and lexical factors, and whilst the historical interactions have led to similarities between the languages, they still maintain considerable linguistic disparities that explain the low mutual intelligibility between them, and that highlight their varied evolutionary trajectories, which in turn influence language teaching and learning strategies.

In summary, the literature highlights the complexity of second language vocabulary acquisition and attrition, influenced by a range of cognitive, contextual, and sociolinguistic factors. Recent shifts in instructional modalities, prompted by the COVID-19 pandemic, have introduced new dynamics in language learning, particularly in terms of digital engagement and learner autonomy. While significant research has been conducted on vocabulary learning strategies, memory systems, and learner differences, gaps remain in understanding how these variables interact across different linguistic and cultural contexts. This gap underscores the need for further empirical research that adopts a cross-contextual approach to examine how such variables shape vocabulary acquisition and retention in multilingual settings, especially post-COVID-19 period.

The present study addresses this need by integrating a range of personal, sociolinguistic, linguistic, and input-related variables. By doing so, it seeks to provide a more holistic understanding of how individual and contextual factors interact to influence L2 vocabulary outcomes in digital educational environments. The following chapter outlines the methodological framework adopted to investigate these questions, including the research design, instruments, and procedures guiding data collection and analysis.

3. Research Methodology

3.1 Introduction

Having covered the central definitions, theories, variables, and factors laying ground for the current topic, it is now essential to cover the methodological aspect of the study. To recapitulate, we saw that numerous theories have been put forward in second language acquisition and language attrition to decipher and understand the mechanisms of language development and language deterioration, respectively. Specifically, we saw how second language vocabulary acquisition and attrition, which are the focus of the study, play an essential role not only in the formation of solid language faculties for the L2 acquirers, but also in the establishment of proper pedagogical materials designed to meet long-lasting successful learning outcomes.

Studies of second language vocabulary acquisition and attrition, which are the focus of this dissertation, contribute substantially to knowledge regarding the language faculties of L2 learners and the establishment of proper pedagogical materials designed to meet long-lasting successful learning outcomes.

In the recent decades, prominent research in these fields has been conducted; nonetheless, the studies have received little attention in the Moroccan, Hungarian, and French research domains, particularly in light of digital education post the COVID-19 period.

Henceforth, this study aims to shed light on the personal, sociolinguistic, linguistic, and input factors observed to lead to second language vocabulary attrition and retention in the context of Hungarian, Moroccan, and French non-native speakers of English, on the applicability of scholarly theories of L2 vocabulary attrition on the target sample, on the practices observed to promote L2 vocabulary retention, and on the implications of the research findings on language pedagogy.

Moreover, while it has been noted that a direct comparison of different populations in attrition studies is not feasible, partial comparisons can still be made, especially in terms of matching variables (Bardovi-Harlig & Stringer, 2010). This is in fact needed in attrition research, for it has been criticized for its lack of comparative studies that could yield interesting results (Schmid, 2004).

Several studies of language attrition have endeavored to pinpoint the exact linguistic features to be likely lost, and the exact ones to be likely retained during the early stages of attrition. Many of these studies largely agree that the lexicon is more vulnerable to loss, easily

and quickly (Schmid, 2006). Furthermore, findings on vocabulary attrition (Weltens & Grendel, 1993) suggest future studies to address the production of words rather than their reception, as little attrition is recorded at the level of receptive vocabulary knowledge (Weltens, 1989).

Knowing a word productively means having the ability to pronounce it correctly taking into account its stress patterns, to spell it correctly in writing, to construct it using the right parts in the correct form, to express its intended range of meanings in the right contexts, to produce its corresponding antonyms and synonyms, to use it in an authentic sentence, to associate it with words occurring with it, and to identify its degrees of formality (Nation, 2011) These features encompass the aspects "form, meaning, and use" of word knowledge (Nation, 2011, p. 48).

Hereafter, of the numerous linguistic areas that can be studied in second language attrition, only vocabulary is given the focus in the present study.

In the same vein, second language attrition studies have explored vocabulary attrition in three populations: "children returning from other countries, missionaries following time abroad, and college and high school students" (Bardovi-Harlig & Stringer, 2010, p. 26). Such studies have added valuable contributions to knowledge of the variables and factors involved in vocabulary attrition, as summarized below (Bardovi-Harlig & Stringer, 2010; Hansen, 2013; Olshtain, 1989; Schmid, 2006):

Personal variables: including age, gender, motivation and attitudes, vocabulary size, vocabulary learning strategies, strategic competence, and learners' multilingual background.

Sociolinguistic variables: including status of the target language, language availability, and attitudes towards the language culture.

Input variables: including oral and written exposure to the language, duration and nature of the program of instruction, duration and nature of instruction during the disuse period, and duration and nature of the reduced input and use.

Linguistic variables: including the distance between L1 and L2, L2 word frequency, L2 word length, L1 corresponding length and frequency, change in the vocabulary (number of retained or lost words per task, and the total retained), and accuracy (number of errors per response, and number of error-free responses).

As far as word characteristics are concerned, high frequency words are asserted to likely be retained, longer L2 words to likely be lost, high frequency corresponding words in the L1 to be strongly retained, and distant words from the L1 to likely be forgotten (Hansen, 2013). Schmid, (2006, p. 7) stresses that vocabulary attrition is impacted by "similarity and

frequency", meaning low frequency items are likely to become inaccessible, compared to high frequency ones.

As far as learners' characteristics are concerned, their vocabulary size stands important in that known words are found to be retained better by learners who learn more words, meaning learners with a larger vocabulary size (Hansen, 2013). Similarly, a study showed that vocabulary learning strategies correlate with vocabulary attrition (Alharthi, 2014).

Attitudes and motivation, on the other hand, are surprisingly not evidenced to have a strong impact on lexical attrition (Hansen, 2013).

Accordingly, the following study aims to draw on the above findings to account for the personal, sociolinguistic, linguistic, and input variables and factors observed to lead to second language vocabulary attrition or retention of the studied participants.

In a similar line, theory-driven findings have been advanced to explain the potential reasons behind L2 attrition as follows:

'The Regression Hypothesis' posits that the order of acquisition, meaning the order in which language is learned, could yield predictions of the language to be lost first; "last in, first out", since it views the process of language attrition as the reversal of the process of acquisition (Schmid, 2006, p. 76). While this hypothesis is not valid for pathological language loss, it still stands as a valid predictor in second language attrition, especially in the context of classroom instruction (Cohen, 1975; Hayashi, 1999). Hansen (1999, p. 150) highlights that in second language attrition, the focus should rather be on "when and under what conditions its (regression hypothesis) predictions hold true".

In another example, the 'Dormant Language Hypothesis' suggests that in attrition, language is not totally lost, rather it is forgotten, or dormant somewhere, further amplifying the idea that relearning a language is possible, easier, and less time-demanding (Bardovi-Harlig & Stringer, 2010).

In a final example, the 'Retrieval Fail Hypothesis' views forgetting as inaccessibility to information rather than total loss. As Loftus & Loftus (1976, p. 78) clarify, "forgetting occurs because the information we seek is temporarily inaccessible; if only we had the right retrieval cue, the information we seek could be successfully retrieved". Ecke (2004) further explains that recognition is easier than production, and that frequent difficulty in retrieving during production without enough cues would gradually lead to losing language elements.

As for the applicability of these theories on vocabulary attrition, the Regression Hypothesis shows that regression can be seen over the course of summer period, where

vocabulary that is acquired towards the end of the instruction period is not retained by the time of the next instruction period (Cohen, 1975).

The Retrieval Fail Hypothesis and the Dormant Language Hypothesis raise questions regarding the reduced possibility of lexical access for production or recall in comprehension purposes (Paradis, 2007). It follows then that the current research attempts to examine the applicability of the above theories on the participants studied.

On a final note, regarding the theoretical background, it goes without saying that to arrive at conclusions regarding vocabulary attrition, in-depth research methods are needed to account for the complex nature of lexical knowledge.

The main design in studies of attrition includes "a comparison between knowledge at peak attainment and knowledge during or after loss" (Bardovi-Harlig & Stringer, 2010, p. 18). Data is collected right before or when the instruction period is terminated (up to three weeks) or shortly after returning from a disuse period (up to two months after return).

Moreover, various tools are used to test second language attrition, including self-assessment, written tasks such as standardized, government, or local exams, oral tasks such as narrative tasks, oral responses to situational prompts, conversational interviews, language proficiency interviews, and grammatically and lexically focused oral elicitations, and background questionnaires (Bardovi-Harlig & Stringer, 2010, pp. 19-22).

Having covered the variables, theories, and methods essential to the study, both qualitative and quantitative methods are used under a longitudinal design featuring pre-test and post-test measures to arrive at conclusions regarding second language vocabulary attrition and retention.

Initially, this study was conceived as a pre-test/post-test experimental study with a larger group; however, the inherent challenges of conducting longitudinal research, such as maintaining participants and their engagement, being time and resources intensive, amplified by the COVID-19 period, resulted in considerable participant dropout. While a total of 40 participants initially signed up to take part in the online course, only 11 ultimately completed it, necessitating a methodological shift toward a more practitioner-oriented action research approach.

In this action research framework, the teacher-researcher developed, delivered, and evaluated an instructional course across two principal cycles: the first cycle (pilot) involved four Hungarian participants, and the second cycle involved seven Moroccan and French participants.

The instructor planned and delivered the course, reflected on outcomes and challenges, and then refined the approach for the subsequent cohort. Despite the small sample size, this cyclical plan–act–reflect process provided a deeper qualitative understanding of how personal, sociolinguistic, linguistic, and input variables affect vocabulary attrition in real-world contexts.

Ultimately, the fully online format, partially necessitated by COVID-19 restrictions, partially adopted for convenience, shaped the way data was collected, and the feasibility of sustaining participation. The methodological details that follow highlight how these constraints and the action research perspective intersected to yield a more flexible, small-scale study.

3.2 Research Questions

The study endeavors to elucidate the factors influencing vocabulary attrition and retention in English as a second language and to examine their subsequent implications for language pedagogy. It is guided by the following qualitative inquiries:

1. How do intrinsic, extrinsic, and linguistic factors influence L2 vocabulary attrition and retention among the studied participants?
2. How does the studied participants' vocabulary attrition relate to established theories of second language attrition?
3. How does the studied participants' experience of vocabulary attrition/ retention inform pedagogical practices?

The first question seeks to explore the depth, nuance, range, and interaction of personal, sociolinguistic, input, and linguistic factors influencing vocabulary attrition and retention. The second question aims to align the participants' experiences and patterns of vocabulary attrition with existing theoretical frameworks and established theories. The final question attempts to establish a link between the real-life experiences of learners and the practical implications for teaching, furthering the understanding of the impact of attrition and retention on learners and translating their experiences into informing more effective teaching strategies.

3.3 Research Design

The current study is longitudinal, for it studies the relationship between the given variables and gathers data to account for the changes occurring in these relationships over an extended period.

Additionally, it is the panel type of longitudinal studies as it involves collecting data from the same group of individuals repeatedly over an extended period of time. This approach

allows researchers to track changes within individuals, observe patterns of development, and identify causal relationships more accurately than studies that examine different participants at each data point. In education, this type of research has a great potential for "yielding rich data that can trace changes over time, and with great accuracy" (Gorard, 2001, p. 86). It is the most suitable for second language vocabulary attrition research as the attrition process takes time before it can be traced, and as it facilitates the establishment of a potential causal analysis before making any general inferences.

More importantly, this study adopts a primarily qualitative multiple-case study approach, focusing intensely on the nuanced experiences and changes in vocabulary attrition and retention among Hungarian, Moroccan, and French speakers of English as a Second Language. The qualitative nature of this research allows for a more in-depth exploration of individual differences, sociocultural contexts, and the complex processes underpinning vocabulary attrition and retention in ESL learners. The longitudinal aspect of this study, maintaining its panel type characteristics, ensures a thorough examination of these changes and developments over time, capturing the evolving nature of language attrition and retention (Gorard, 2001).

Leaning more heavily towards qualitative methods acknowledges the intricate and often subjective experiences of language learners, which quantitative methods alone might not fully capture. This approach allows for an in-depth exploration of attitudes, perceptions, and internalized rules that govern language use and attrition, which are not easily quantifiable.

The case study method is particularly suited to this research as it allows for a comprehensive and holistic view of the phenomenon within its real-life context (Yin, 2009). Each participant's language journey is considered a 'case,' embedded in the intricate interplay of personal history, cultural background, individual, and linguistic facets. By focusing on these cases within the specific context of Hungarian, Moroccan, and French speakers of ESL, the study aims to provide a detailed, interpretive portrayal of the underlying processes and factors influencing vocabulary attrition and retention of the studied participants.

In line with the focus on qualitative inquiry, the study does not place emphasis on generalizability. Instead, it seeks to provide profound insights and a rich understanding of the observed phenomenon within the specific cases studied. The intention is not to make broad generalizations but to understand deeply and interpret the nuances of vocabulary attrition and retention among the targeted ESL speaker groups. This case-specific focus aligns with Stake's (1995) assertion on the importance of understanding the particularity and complexity of the individual in case study research.

Nevertheless, it is worth highlighting that quantitative data collection and analysis methods are not entirely dismissed, rather, they occupy a secondary role where they primarily support and enrich the qualitative findings. Such an approach acknowledges perspective on methodological triangulation, utilizing the strengths of one method to offset the weaknesses of another (Dörnyei, 2007). Still, the emphasis is decidedly on qualitative data, which aligns with the study's goals of establishing an in-depth, detailed, and context-specific understanding.

Furthermore, Bardovi-Harlig and Stringer (2010, p. 18) put together a synthesis of research on first and second language attrition from which they developed a general model that can be utilized to yield replicable outcomes in this research domain. Of the numerous research designs presented in their article, one that fits with the current research, and has thus been adopted and adapted to carry it out, is the one used for "university students in language courses who undergo varying degrees of attrition during their summer vacation" (Bardovi-Harlig & Stringer, 2010, p. 38)

The proposed model is established to fuse successful traits of previously conducted studies on loss of second language skills by high school and college students during summer vacations into one design, especially to support "empirical research which establishes baselines for attainment against which to measure attrition by comparing learners as individuals to themselves in longitudinal designs" (Bardovi-Harlig & Stringer, 2010, p. 39). The model is also said to evaluate the effectiveness of retention materials, which constitute an indispensable part of the present study.

In the original plan of this research project, the study aimed to randomly assign participants into 'control' and 'experimental' groups, with the latter receiving occasional input during the disuse period. Upon participants' return, attrition would then be measured by comparing outcomes for those who received the extra input against those who did not. However, the small sample (11 participants) prompted a reconfiguration of the methodology and a shift to case study action research was deemed appropriate. Despite reduced numbers, maintaining a qualitative, reflective stance allowed meaningful insights into how partial input differentially affects learners' lexical retention.

In practice, the research evolved into a more agile, action research framework, structured around:

Planning and instruction: designing an online Academic English course, drawing on prior literature (e.g., Bardovi-Harlig & Stringer, 2010) to establish baselines of vocabulary attainment.

Acting (Pilot Cycle): Implementing the teaching program and collecting preliminary data with a small Hungarian cohort, adjusting the instructional methods as needed.

Observing and reflecting: Analyzing outcomes from the pilot (feedback, test scores, self-evaluations) and using the findings to refine materials.

Second cycle: Adapting and re-delivering the program to Moroccan and French participants, repeating the observe–reflect phase to see how changes impacted vocabulary retention/attrition.

In this study, each broad cycle (pilot vs. main) was further subdivided into smaller plan–act–observe–reflect iterations for each instructional session, resulting in what Kemmis and McTaggart (2005) described as a spiral model of action research.

This spiral approach, initially inspired by Lewin's (1946) foundational concept of iterative cycles, allows the researcher to continuously refine practice based on ongoing observation and reflection.

Burns (2010) similarly highlights that teacher-researchers may implement multiple micro-cycles within a single overarching action research project, each micro-cycle producing incremental improvements in teaching methods.

Thus, beyond simply having two distinct phases, this nested framework ensured that reflection-informed adjustments were made session by session, aligning with the core principle of action research to merge systematic inquiry with practical classroom transformations, especially given the digital format of the course.

Using engaged participant observation within a structured online Academic English course, an immersive understanding of 11 university Hungarian, Moroccan, and French students' learning experiences was allowed, and insights into exposure to the target language both orally and in written form during the instruction and disuse periods were facilitated.

This means that the instruction period where the baseline for attainment paving the way for attrition to be measured was first established and completed through the online course. Then, during the disuse period, some participants did not receive any further language input upon course completion, while others received occasional reminders to recycle the acquired items. In the return period, students retook the summative test and attrition/ retention could be measured.

The instruction period comprised eight 90-minute sessions spanning over eight weeks, with a subsequent 40-week disuse period for the Hungarian students. On the other hand, the instruction period comprised four 180-minute session spanning over four weeks, with a subsequent 40-week disuse period for the Moroccan and French students.

More specifically, the researcher offered an online course on Academic English in which a list of 101 academic vocabulary items, mainly selected from McCarthy & O'Dell's (2016) *Academic Vocabulary in Use*, was explicitly taught to participants (see Appendix 1).

The chosen vocabulary items appeared in different frequencies and forms; for instance, academic words, general words appropriate for academic use, and technical words. Phrasal verbs, idioms, and academic language chunks were also included to account for the nature of vocabulary in its attrition or retention.

The chosen vocabulary was instructed based on the principle of vocabulary building and recycling, and the instructional methods were instrumental in developing a multifaceted foundation that diversified the contexts in which vocabulary was encountered and used. A detailed description of the vocabulary items can be found in the analysis of the linguistic variables section.

The lesson planning frameworks were also paramount in diversifying the methods of teaching vocabulary and integrating it with the four skills: reading, listening, writing, and speaking. Each framework was tailored to optimize and ensure a comprehensive approach to student's vocabulary learning. Specifically, a total of six frameworks were adopted; namely, Test-Teach-Test (TTT), Present-Practice-Produce (PPP), Text-Based (TB), Receptive Skills, Speaking, and Writing.

The compact nature of the program was meant to instill an intensive learning environment favoring high retention rates, and the prolonged disuse period was meant to pave the way for a potential risk of vocabulary attrition.

Along with learning and testing academic vocabulary, the course also aimed to develop the students' overall academic competence through a task-based approach covering a range of topics such as vocabulary learning strategies, study skills and habits, writing development, language of Academic English, and academic presentations.

This was to make the instruction situation closely resemble a real-life classroom situation, where focus cannot be solely given to vocabulary instruction. A more detailed description of the course can be found in the analysis section of input variables, but a short summary of the instruction program schedule can be described as follows:

Hungarian Students (4 participants)

- **Instruction Period:**
    - Number of sessions: 8 sessions
    - Duration of each session: 90 minutes
    - Total span of the course: 8 weeks

- **Disuse Period:**
    - Duration: 40 weeks

Moroccan and French Students: (7 participants)

- **Instruction Period:**
    - Number of sessions: 4 sessions
    - Duration of each session: 180 minutes
    - Total span of the course: 4 weeks
- **Disuse Period:**
    - Duration: 40 weeks

Although the Hungarian pilot group met for eight 90-minute sessions over eight weeks while the Moroccan and French participants met for four 180-minute sessions across four weeks, the overall instructional time remained identical in both cases.

These different schedules arose from student-driven scheduling constraints, which prompted the teacher-researcher to adapt the course format in line with action research principle, continually refining and adjusting delivery based on the practical realities of each cohort.

Despite the variation in session intensity, each group received an equivalent total number of instruction hours. This situation also provided a valuable avenue to examine how the duration and intensity of the program might influence learners' ability to maintain or lose newly acquired vocabulary over the same overall span.

To maintain methodological consistency, the study used the same content, teaching methods, and data collection instruments across all participants. This approach ensures that any observed variations in outcomes can be more reliably attributed to contextual factors rather than differences in methodology.

Moreover, the analysis aims to elucidate both the general and specific factors influencing the effectiveness of the instructional program across different educational and cultural settings, integrating mainly qualitative observations and partially quantitative measures for a nuanced understanding of instructional outcomes.

One may question the validity of the researcher being the actual instructor; however, it is worth considering that there is usually a gap between research and the practice of teachers, making the implementation of recommended classroom practices sometimes challenging. Being in the position of a researcher-instructor is then relevant here considering the need to control the input variables.

Moreover, considering the researcher's theoretical knowledge and practical experience in classroom teaching, the lesson plans of the instruction period are in-depth and designed to incorporate the implications of language acquisition and attrition theories on language pedagogy and to account for recommended teaching practices, especially in terms of vocabulary instruction (e.g., teaching vocabulary learning strategies in the curriculum). As Robey and Taylor (2018, p.2) note, "practitioner scholarship promises to accelerate the practical application of research findings by combining the separate roles of practitioner and scholar. (…) With their proximity to real-world problems and their research skills, practitioner–scholars can bridge the divide between academic research and the problems situated in practice settings".

Even so, to ensure the trustworthiness of the research, credibility, transferability, dependability, and conformability are accounted for by adopting recognized and various research methods, allowing peer scrutiny of the project, describing the background of the researcher, and interpreting the research findings in relation to existing studies to provide context and strengthen their validity (Shenton, 2004).

3.4 The pilot study

3.4.1 Overview and rationale

The pilot study constituted the first phase of data collection, conducted with four Hungarian university students in the online Academic English course. Advertising for this pilot began in June 2022 through both printed and digital posters on campus (see Appendix 2), as well as word-of-mouth recommendations among student and teacher networks.

Despite concluding the primary promotional push by the end of June, assembling participants for this pilot remained challenging due to residual post-COVID uncertainties. By June 2022, most Hungarian universities had largely returned to in-person instruction, with pandemic-era measures such as mask mandates and mandatory vaccine/testing requirements no longer widely enforced.

Although some hybrid course offerings and digital tools remained in place, they were generally viewed as a convenience or contingency rather than a necessity (Hodges et al., 2020). In theory, this broader normalization of on-campus life could have motivated prospective participants to prefer traditional face-to-face engagement; however, the flexibility of the online format still aligned well with this study's logistical needs: it accommodated scheduling conflicts and provided a unified approach for learners in varied locations.

Transitioning the pilot and main participants to a common virtual setting ensured methodological consistency even as institutional policies and student preferences continued to shift in the post-COVID landscape. While 18 Hungarian participants signed up for the online course, only four students showed up and completed the entire pilot study program, providing a sufficiently informative environment to test the study's overall design.

From the outset, the pilot was intended not only to collect initial data but also to validate the instructional frameworks, data collection tools, and scheduling logistics for the main study. This approach exemplified action research principles such as cyclical iteration to align with the plan–act–observe–reflect model, guiding the teacher-researcher to refine the approach in response to real-time insights.

3.4.2 Timeline and structure

The Hungarian pilot began on November 7, 2022, following participants' completion of consent forms and a pre-course questionnaire. Over eight weeks, they attended a weekly 90-minute online session, concluding the formal instruction phase by early January 2023 and transitioning into a 40-week disuse period.

During this disuse period, two participants received occasional input, including two short online review sessions (~40 minutes each) focused on vocabulary retrieval and production games, two vocabulary tasks reinforcing the use of academic English to be completed independently and sent via email, and encouragement to engage independently with English-learning platforms. The remaining two participants were intentionally excluded from receiving occasional input.

Although the teacher-researcher was based in Hungary, the course was administered fully online due to several practical considerations. Firstly, while pandemic restrictions had eased, it was assumed that post-COVID caution may have made students more comfortable attending sessions remotely. Secondly, the course needed to adopt a standardized digital format that would be easily replicated for Moroccan and French participants later on. Thirdly, scheduling among the four pilot participants, who juggled various academic and personal obligations, proved simpler to coordinate online than on campus.

The consistent use of virtual meeting platforms, therefore, allowed to explore breakout-room activities, screen-sharing, and audio-visual recordings, key facets that would shape the action research cycle in the main study as well.

3.4.3 Data Collection and Instruments

A key purpose of this pilot was verifying that the data collection methods, from pre-/post-tests to interviews and session observations, operated effectively in a genuine classroom setting. Each participant engaged in a post-instruction vocabulary test (following the eighth session) and a final post-disuse vocabulary test (40 weeks after instruction ended), assessing potential attrition or longer-term retention.

Students' feedback about the course were captured upon course termination to investigate pacing, clarity, and engagement. This yielded qualitative data on perceived course value, and the challenges of navigating online learning tools.

Each pilot session was recorded (with prior written and oral consent) and supplemented by weekly teacher-researcher self-evaluation and observation notes. This reflective documentation highlighted how participants responded to different teaching frameworks (e.g., Test-Teach-Test, Present-Practice-Produce, Task-based, etc.) and how effectively time was managed. Instruments were iteratively refined based on weekly reflections, ensuring that by the end of the pilot phase, the study design was well-tested and prepared for expansion.

Feedback from the Hungarian pilot yielded concrete improvements across the following three core areas:

- Teaching pace: despite delivering the same total instructional hours as in the subsequent main study, dividing sessions into eight short blocks influenced participants' weekly momentum. Some students found it easier to concentrate in 90-minute increments, while others struggled to maintain routine attendance.
- Technical factors: occasional connection or microphone issues underscored the importance of stable internet and device readiness, prompting the teacher-researcher to create a short tech-readiness checklist for participants in the main study.
- Curriculum coherence: alternating between different lesson frameworks each week generally enhanced engagement. However, the pilot highlighted a need to insert more explicit bridging tasks that systematically recycled vocabulary from prior lessons.

Since action research prioritizes reflection-informed adaptation, the teacher-researcher promptly revised file-sharing protocol and added reflection prompts to the post-session interviews. Likewise, test data confirmed that the list of instructed vocabulary items were neither excessively challenging nor too basic, thus reinforcing their suitability.

3.4.4 Conclusion of the Pilot Phase

By January 2023, the Hungarian pilot's eight-week program concluded, and participants progressed into the 40-week disuse period, supplemented by brief review sessions for two participants. Although this was a small number, the pilot's impact on the methodology was substantial as it validated the online course structure, confirmed the viability of collecting rich longitudinal data on vocabulary attrition or retention, and practiced the action research principle of iterating instructional strategies according to weekly insights.

The lessons learned from the pilot study laid the groundwork for the main phase, scheduled to begin on March 19, 2023, for Moroccan and French students. By refining data-collection methods, clarifying participant expectations, and adapting to an online, post-COVID reality, the pilot phase strengthened the study's overall credibility and operational feasibility.

While the Hungarian pilot group was ultimately integrated into the final analysis, it served first as a feasibility check, revealing which lesson aspects needed adaptation to maintain consistency and reliability across cohorts. In the Data Analysis of Input Factors section of this dissertation, each pilot session is discussed alongside its corresponding main-group counterpart, enabling clear comparisons of session dynamics and illustrating how insights from the pilot shaped the second cycle of instruction.

In conclusion, the pilot phase proved central to enhancing the study's overall robustness, credibility, and rigor while exemplifying the action research principle of refining practice through cyclical reflection.

3.5 Participants

The current inquiry is situated within a linguistically diverse academic milieu, engaging a purposively sampled group of 11 university students, originating from Moroccan (4), French (3), and Hungarian (4) backgrounds, each enrolled in varied academic disciplines including tourism, medicine, architecture, and English studies. Central to their academic pursuits is their willingness to develop and practice English as a second language to further their academic pursuits and careers, thus establishing a homogenous desired linguistic trajectory amidst their demographic and disciplinary diversity.

Participants were invited to partake in this longitudinal study through an open call for enrollment in a complementary online Academic English course, as detailed in distributed posters and digital announcements (see Appendix 2). The methodological design for participant recruitment was strategically anchored in purposive sampling, a rationale shown by Cohen et

al. (2007, p. 13) as aiming to "represent itself in a similar population, rather than attempting to represent the whole, undifferentiated population." This approach was deemed most appropriate for its precision and relevance to the study's longitudinal orientation and the specificity of its research foci.

While the original framework envisioned a larger participant base to establish an experimental research design, keeping volunteering participants engaged in a longitudinal study proved too challenging and necessitated a more nuanced methodological approach, which could not be implemented due to research constraints as will be explained in the limitations section.

The revised schema thus integrated a smaller, more diverse group into a single cohesive unit for analysis. This strategic restructuring necessitated a reconsidered approach to the groups, especially given the variation in academic disciplines that both introduced additional layers of complexity to the linguistic analysis and enriched the study's comparative dimension.

In terms of instructional methodology, participants received different instructional input. While some students were exposed to instructional stimuli throughout both the instruction period and the subsequent disuse period, others were limited to receiving the input only during the initial instruction phase. This was established to track vocabulary attrition and retention in the context of varied instructional durations and intensities.

As this study unfolds, it aims to both unravel the linguistic trajectories of demographically and academically diverse participants and to bring insights into the pedagogical strategies best suited for multilingual, multidisciplinary university environments.

The following subsection provides the detailed profile of the participants involved in the study. Each profile outlines the individual's linguistic background, educational journey, and experiences with English language learning and retention. The narratives were collected through the interview schedule on multilingualism and the background information section of the academic English course registration form.

3.5.1 Participant Profiles

To respect participants' privacy, all names used in the following profiles have been anonymized. Each profile is presented in a narrative format, aiming to capture the individual’s language learning journey and multilingual experience in a more personal and engaging way.

Hungarian participants

Ka was a 30-year-old from Hungary who worked in the legal field. At the time of the study, she was enrolled in a university correspondence course focused on English language learning and had reached a B2 level of proficiency. Although her professional life was conducted primarily in Hungarian, she engaged with English academically through her coursework. Her exposure to English was largely formal and structured, with limited opportunities for spontaneous or immersive use in daily life.

Ka's multilingual outcomes reflected an unbalanced, additive, and late successive bilingual profile. While Hungarian remained her dominant and professional language, English served a specific academic function. Her motivation to study English alongside her career illustrated a continued commitment to language development, even without regular use in naturalistic contexts.

Be was a 45-year-old from Hungary who grew up speaking Hungarian and English and also acquired German early in life. She worked in the automobile industry, where she regularly used both German and English in professional contexts. She claimed that she wanted to switch her career to either translation or English teaching. At the time of the study, she was enrolled in the same university correspondence course in English as Ka, although she already had a C1 level of proficiency. Her multilingual background was shaped by both early exposure and sustained use across personal and professional domains.

Be's multilingual outcomes reflected a balanced, additive, and early multilingual profile. She demonstrated high functional competence in English and German, using them actively at work, while Hungarian remained her native and foundational language. Her participation in the English course highlighted her desire to maintain and further refine her skills, despite already operating comfortably in multiple languages.

Ev was a 51-year-old kindergarten teacher from Hungary. She had a B2 level of English proficiency at the time of the study and was motivated to improve her academic English skills. Her exposure to English came primarily through formal instruction and structured learning environments. She enrolled in the same university correspondence course in English as the other participants, aiming to enhance her language competence for both personal and professional development.

Ev's multilingual outcomes reflected an unbalanced, additive, and late successive bilingual profile. Hungarian remained her dominant and professional language, while English played a supportive academic role. Her case illustrated the role of personal motivation and

lifelong learning in shaping second language acquisition, particularly in contexts where English is not used regularly.

Ma was also a 51-year-old administrative worker from Hungary. She worked as a secretary at a music school, handling various administrative responsibilities. Prior to this, she spent three years working as a commercial assistant, a role in which she regularly used English for professional communication. At the time of the study, she had already studied English for 12 years and had attained a C1 level of English proficiency and was enrolled in the same university correspondence course as the others, aiming to maintain and improve her English.

Ma's multilingual outcomes reflected an unbalanced, additive, and late successive bilingual profile.

Moroccan participants

Li was an 19-year-old from Morocco who grew up speaking Moroccan Arabic at home, often mixed with what she labeled as "colloquial Moroccan French" and used English with her older siblings. She began learning both French and English in primary school as part of her private school education and continued through middle and high school. Although French was introduced early on, she did not consider it a language she actively spoke, though she acknowledged that it made learning English easier.

She identified English as her second language and also studied it at a private American language institute in her city for just over a year, where she frequently interacted with native speakers. In her private time, she often consumed content in English through social media platforms, movies, and series, which further reinforced her language skills. At the time of the study, Li was in her first year studying tourism at a public higher education institute in Morocco.

Her proficiency in English was at an advanced (C1) level, which she maintained through daily academic, social, and digital engagement. English had become a key part of her identity, and participating in the study allowed her to reflect on how regular exposure and consistent practice had helped her retain fluency over time.

Accounting for the Li's multilingual outcomes, she can be described as a dominant, additive, early successive, and compound multilingual individual, with bidialectal experience and a high level of functional competence in English.

The term dominant is used because Li claimed having a higher proficiency and more frequent use of Moroccan Arabic compared to her other languages, which aligns with the notion of unbalanced bilingualism.

She is considered additive because English was acquired without the loss or devaluation of her native language, Moroccan Arabic, suggesting a positive and enriching multilingual development.

The label early successive reflects her exposure to French and English through formal education from an early age, though not simultaneously at home, distinguishing her from simultaneous bilinguals.

Her multilingualism is semi-compound in nature because her languages, especially English, were developed and used across multiple integrated contexts (home, school, and social media), rather than being compartmentalized by domain.

Li also exhibited bidialectal experience, as she navigates between Classical and Moroccan Arabic, and formal and colloquial French, which involves using distinct varieties depending on social context. Finally, her high level of functional competence in English is evident in her advanced (C1) proficiency and consistent use across academic, social, and digital platforms, showing strong productive and receptive skills and a clear integration of English into her identity and daily life.

Similarly, Ke was a 19-year-old from Morocco who grew up speaking Moroccan Arabic and French, later developing an interest in Japanese out of personal curiosity. Raised in a multilingual environment, she developed an early appreciation for linguistic and cultural diversity and reached a C1 level of English proficiency.

She pursued medical studies in Romania, where the program was taught fully in English. She identified English as her second language (L2), using it regularly in academic and professional contexts. At home, she continued to speak Moroccan Arabic, maintaining a strong connection to her mother tongue, while socially she code-switched between Arabic, English, and French, depending on the context.

Although English had become a central part of her identity, she remained deeply rooted in her native language background and often reflected on how her multilingual repertoire shaped her worldview.

Ke's multilingual outcomes reflect an unbalanced, additive, and late immersed multilingual profile. Her high proficiency in English, alongside her active use of Arabic and French, illustrates her ability to navigate multiple linguistic and cultural domains. The

flexibility with which she moved between languages in different social and academic settings suggests strong functional competence across her languages. Moreover, her reflections indicated an awareness of how her multilingualism enhanced her learning strategies and cognitive flexibility, particularly in acquiring and using English effectively.

Ih was a 21-year-old from Morocco who grew up speaking Arabic, English, and French, and later learned Spanish out of personal interest. She began studying English in primary school and eventually enrolled in an architecture school in France, where some courses were taught in French and others in English. By the time of the study, she had reached a C1 level of proficiency in English. At home, she used Arabic, French, and English with her siblings, and continued to engage with English regularly through media and social interactions. Ih shared that even a short immersion experience could significantly boost language confidence, noting that a brief tourist stay in the United States had noticeably improved her speaking skills, particularly her accent and pronunciation.

Her multilingual outcomes reflected a balanced, additive, and early multilingual profile. She demonstrated strong functional competence across three languages, with English emerging as a central tool in her academic and personal life. Her case highlighted the positive impact of consistent exposure, diverse language use at home, and short-term immersion experiences on language confidence and proficiency.

Last but not least, Hi was a 23-year-old from Morocco who grew up speaking Moroccan Arabic as his dominant language. Raised in a multilingual environment, he was exposed to both French and English from a young age. However, he struggled with French at school and reported that by the time he participated in the study, he had forgotten it entirely. Hi began learning English in middle school and later enrolled in a Bachelor's degree (BA) program in English.

During his studies, he used English daily in classes and assignments. Despite starting English later than many of his peers, having attended public schools, he remained highly motivated to succeed in the program and gradually overcame the initial challenges.

At home, he spoke Arabic, maintaining a strong connection to his mother tongue, but continued to engage with English regularly through media and social interactions. In social contexts, he code-switched between Arabic and English depending on the setting and the people around him.

By the time of the study, he had reached a B2 level of proficiency in English. English had become a meaningful part of his identity, and because he never stopped using it, maintaining his skills felt natural. Still, he remained grounded in his Arabic heritage and often reflected on how each language he spoke contributed to shaping his worldview.

Hi's multilingual outcomes reflected an unbalanced, additive, and late successive bilingual profile. While Moroccan Arabic remained his dominant language, English emerged as a strong second language developed through formal education and sustained through daily use.

French participants

Om was a 20-year-old from France who grew up speaking predominantly French, with some exposure to Algerian Arabic. She began studying English in primary school and, by the time of the study, had reached a B2 level of proficiency. She pursued medical studies in Romania, where the program was taught in English. Om identified French as her native language, English as her second language, and Algerian Arabic as a third language, though she reported being able to barely understand it. Her daily interactions were mostly in French, and she regularly consumed media in both French and English.

Om's multilingual outcomes reflected an unbalanced, additive, and early successive bilingual profile. While French remained her dominant language, she demonstrated functional proficiency in English, which she used academically and through media exposure. Her limited comprehension of Algerian Arabic placed it as a passive language in her repertoire, contributing minimally to her active multilingual identity.

Mal was a 21-year-old from France and the sister of Om. Like her sibling, she grew up speaking French as her dominant language, with some limited exposure to Algerian Arabic. She began learning English in primary school and, by the time of the study, had reached a B2 level of proficiency. Mal was also studying medicine in Romania in an English-medium program. She identified French as her native language, English as her second language, and Algerian Arabic as a third language, which she could barely understand. Her everyday interactions took place mostly in French, and she regularly consumed media in both French and English. Mal's multilingual outcomes closely mirrored those of her sister, reflecting an unbalanced, additive, and early successive bilingual profile.

Th was a 23-year-old from France and the older brother of Om and Mal. Like his siblings, he grew up speaking French as his dominant language, with limited exposure to Algerian Arabic. He began studying English in primary school and, by the time of the study, had reached a B2 level of proficiency. Th was in his second year of medical school in Romania, studying in an English-medium program. He identified French as his native language, English as his second language, and Algerian Arabic as a third. His daily interactions were primarily in French, and he regularly engaged with media content in both French and English.

Th's multilingual outcomes, like those of his siblings, reflected an unbalanced, additive, and early successive bilingual profile. His proficiency in English served him academically, while French remained central to his identity. Algerian Arabic remained a passive part of his linguistic background, with minimal functional use.

In conclusion, the participants in this study represent a diverse range of multilingual profiles shaped by factors such as age, context of language acquisition, personal motivation, professional demands, and social environments.

While some individuals were early multilinguals with balanced functional use across multiple languages, others acquired additional languages later in life, often in response to academic or career needs.

The younger participants tended to exhibit dynamic language use across domains, blending academic, social, and digital contexts, while the adult learners often engaged with English in more structured, goal-oriented ways. Despite variations in proficiency and exposure, all participants demonstrated additive bilingual or multilingual development, where additional languages were layered onto their linguistic repertoires without replacing the native tongue.

The following table summarizes the overall course participation and detailed session-by-session attendance for the above participants. As outlined in the methodology, 40 students initially signed up (18 Hungarian and 22 Moroccan/French); however, due to non-responsiveness, only the above four Hungarian and seven Moroccan and French participants actively engaged in the course. The Hungarian group attended eight 90-minute sessions, while the Moroccan and French group participated in four 180-minute sessions. The table below (Table 2) provides a side-by-side comparison of enrollment figures, non-responders, and session attendance fluctuations, linking individual participant profiles to the course engagement data.

While the participants in this study brought diverse linguistic backgrounds, ages, and learning trajectories, their inclusion was not only suitable but essential to the goals of this action

research, which sought depth over breadth and focused on capturing real-world learning experiences through a panel-type longitudinal design. Despite the variation in backgrounds, all participants actively engaged with English and met the criteria for functional second language users. This diversity enhanced the study's credibility by allowing the analysis to reflect authentic, context-dependent learning and attrition patterns.

Table 2: *Session Attendance by Group*

Metric / Session	**Hungarian Pilot Group** ***(8 sessions, 90 min each)***	**Moroccan & French Group** ***(4 sessions, 180 min each)***
Total Signed Up	18	22
Non-Responders (never attended)	14 (all dropouts occurred before the course started; aside from one)	15 (all dropouts occurred at sign-up stage)
Session 1 Attendance	2 (Be and Ev)	7 (Li, Ke, Ih, Hi, Om, Mal, Th)
Session 2	4 (Be, Ev, Ma, Ka)	Full attendance
Session 3	Full attendance besides one participant who never showed up again	Full attendance
Session 4	3 attended, 1 absent (Be)	-
Session 5	3 attended, 1 absent (Be)	-
Session 6	3 attended, 1 absent (Ma)	-
Session 7	Full attendance	-
Session 8	Full attendance	-

Although the Hungarian participants underwent eight 90-minute sessions while the Moroccan and French participants completed four 180-minute sessions, the total instruction time remained equivalent. This ensured instructional consistency while allowing flexibility

based on the scheduling constraints and needs of each group. The difference in group size was also a product of voluntary participation and availability. The study upheld methodological integrity by maintaining consistency in content, teaching methods, and data collection instruments across all participants. Furthermore, adopting a case study and practitioner-researcher approach allowed for close observation, iterative refinement, and contextual understanding of each learner's journey, thus reinforcing the trustworthiness of the research.

3.6 Data Collection

This case study was conducted within an online setting, recruiting participants from various disciplines and universities, namely, Pázmány Péter Catholic university, Faculty of Humanities and Social Sciences, in Budapest, Hungary, Dhar El Mahraz university, Faculty of Letters and Human Sciences, in Fes, Morocco, National School of Architecture in Nantes, France, and the Higher International Institute of Tourism of Tangier in Morocco. Despite their different academic backgrounds, these participants share the commonality of wanting to develop English as a second language.

Specifically, the research targeted individuals who are native speakers of Arabic, Hungarian, and French, all of whom are acquiring or have acquired English as a second language. The choice of these particular linguistic backgrounds is informed by the researcher's proficiency in Arabic, French, English, and Hungarian that is further facilitated through the academic guidance and resources provided by Hungarian supervisory support, which proved critical for accessing and understanding the participants diverse backgrounds. Again, participants were chosen using purposive sampling to ensure a wide representation of language backgrounds, proficiency levels, and academic disciplines, all of which are crucial factors in understanding the nuances of second language vocabulary attrition and retention.

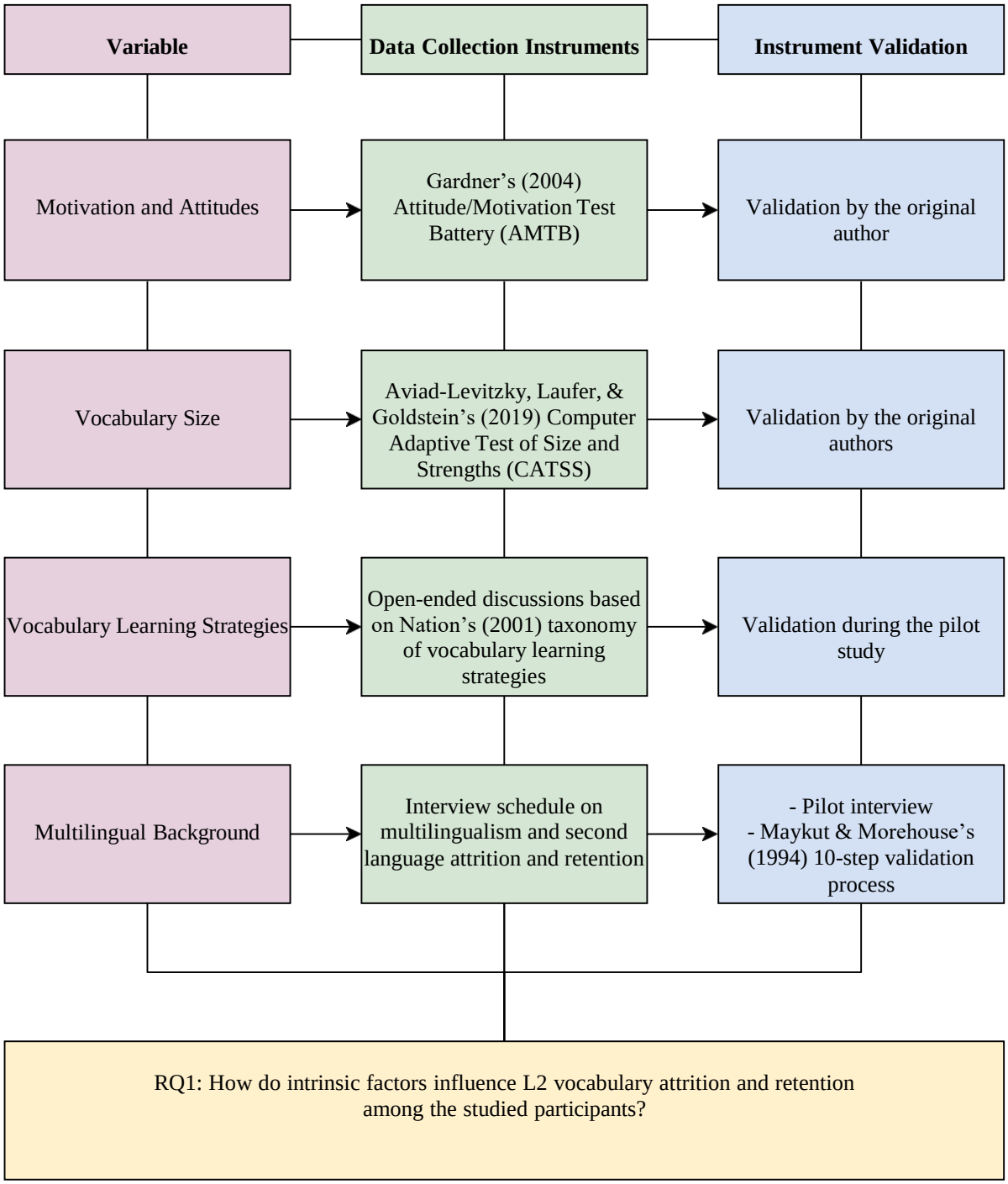
The data collection process was adapted to the online nature of the study. As participants engaged in a series of online sessions, as detailed in the data analysis section, they took part in interactive tasks, quizzes, and discussions, all conducted in English. These sessions were designed to simulate a naturalistic language use environment to the extent possible within an online setting, which then served as the basis of data collection upon termination of the pre-test post-test period.

Video recordings, language tests, task responses, questionnaires and interviews were all used as data collection methods. All sessions were recorded with the consent of participants and served as a primary source of data, capturing the nuanced use of language. The

administered pre-test and post-test sessions assessed the levels of vocabulary attrition and retention post the instruction period and post-disuse period, measuring aspects of vocabulary knowledge such as breadth and depth. Tasks were designed to elicit the target vocabulary using both written and oral formats to allow for a comprehensive analysis of language use. Questionnaires and interviews served to understand the participants' language learning history, attitudes, and strategies, providing in-depth qualitative data.

Given the online nature of the study, it is worth remembering that ethical guidelines were strictly adhered to. Participants were informed of the study's nature, objectives, and their right to withdraw from it at any time. The participants' consent was obtained both prior to the study and upon its launching. In some cases, the research consent was also obtained from the respective university of the studied participants. Confidentiality was maintained by anonymizing the data and securely storing all information. To summarize data collection methods in accordance with the investigated variables and factors and in relation to the research questions, four tables (Table 3, 4, 5, 6) are presented as follows.

Table 3*: Data Collection Instruments and Validation of Personal Variables*



The above table (Table 3) outlines four key research variables: motivation and attitudes, vocabulary size, vocabulary learning strategies, and multilingual background together with the specific instruments used for data collection and their respective validation processes. The research question at the bottom connects these elements to the study's aim of understanding intrinsic factors affecting L2 vocabulary attrition and retention.

Table 4: *Data Collection Instruments and Validation of Sociolinguistic Variables*

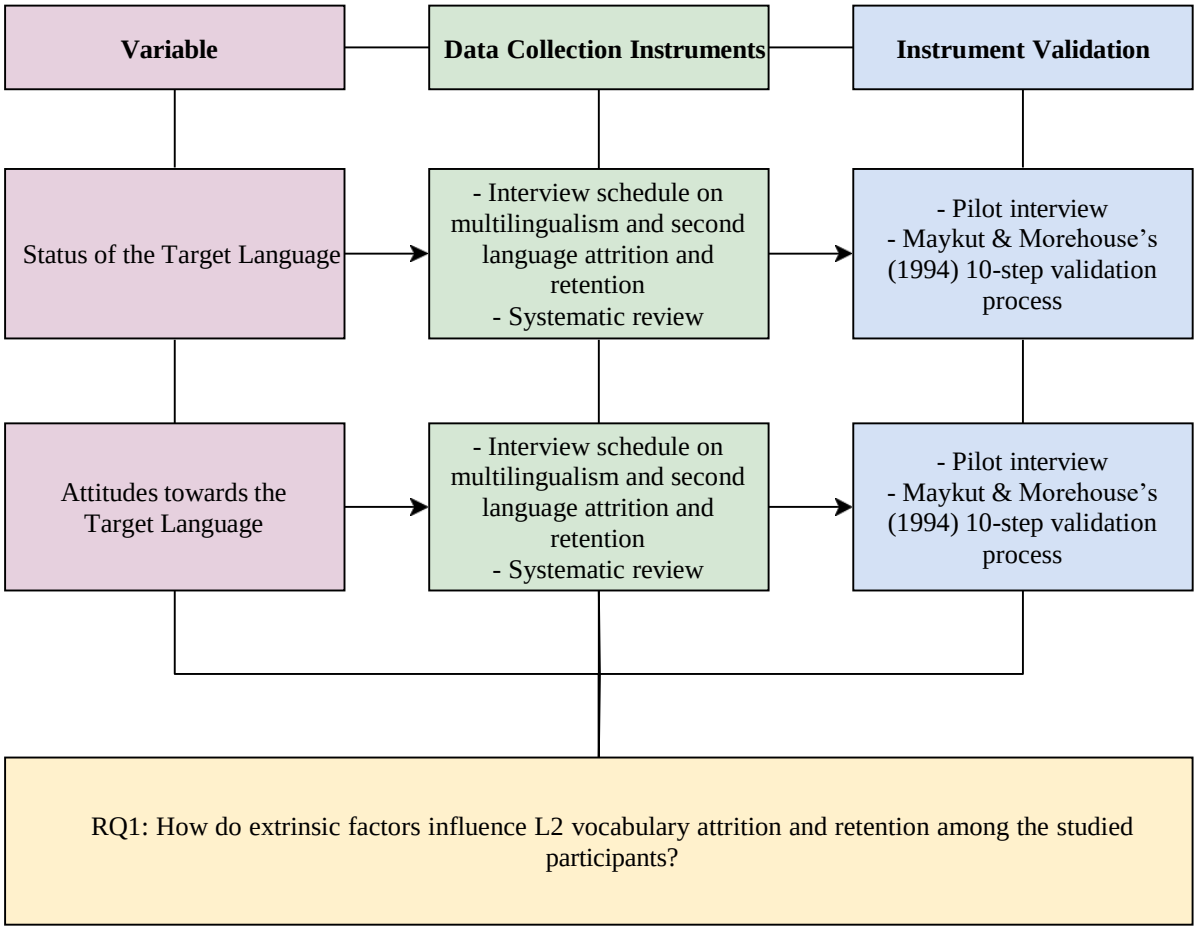


Table 4 above presents the data collection instruments and their corresponding validation processes for two key sociolinguistic variables under investigation: 'Status of the Target Language' and 'Attitudes towards the Target Language.' For both variables, data collection was conducted through both an interview schedule designed to explore aspects of multilingualism in relation to second language attrition and retention, and a systematic review of relevant literature. To ensure the credibility and reliability of the instruments employed, a pilot interview was initially conducted, and Maykut and Morehouse's (1994) 10-step validation process was adhered to. The research question (RQ1) at the base of the above table, "How do extrinsic factors influence L2 vocabulary attrition and retention among the studied participants?" delineates the scope of inquiry and contextualizes the relevance of the variables in relation to the broader aim of the study. This methodological framework is integral to the elucidation of how external factors impact language retention and loss of the studied participants, thereby informing subsequent pedagogical strategies.

Table 5: *Data Collection Instruments and Validation of Input Variables*

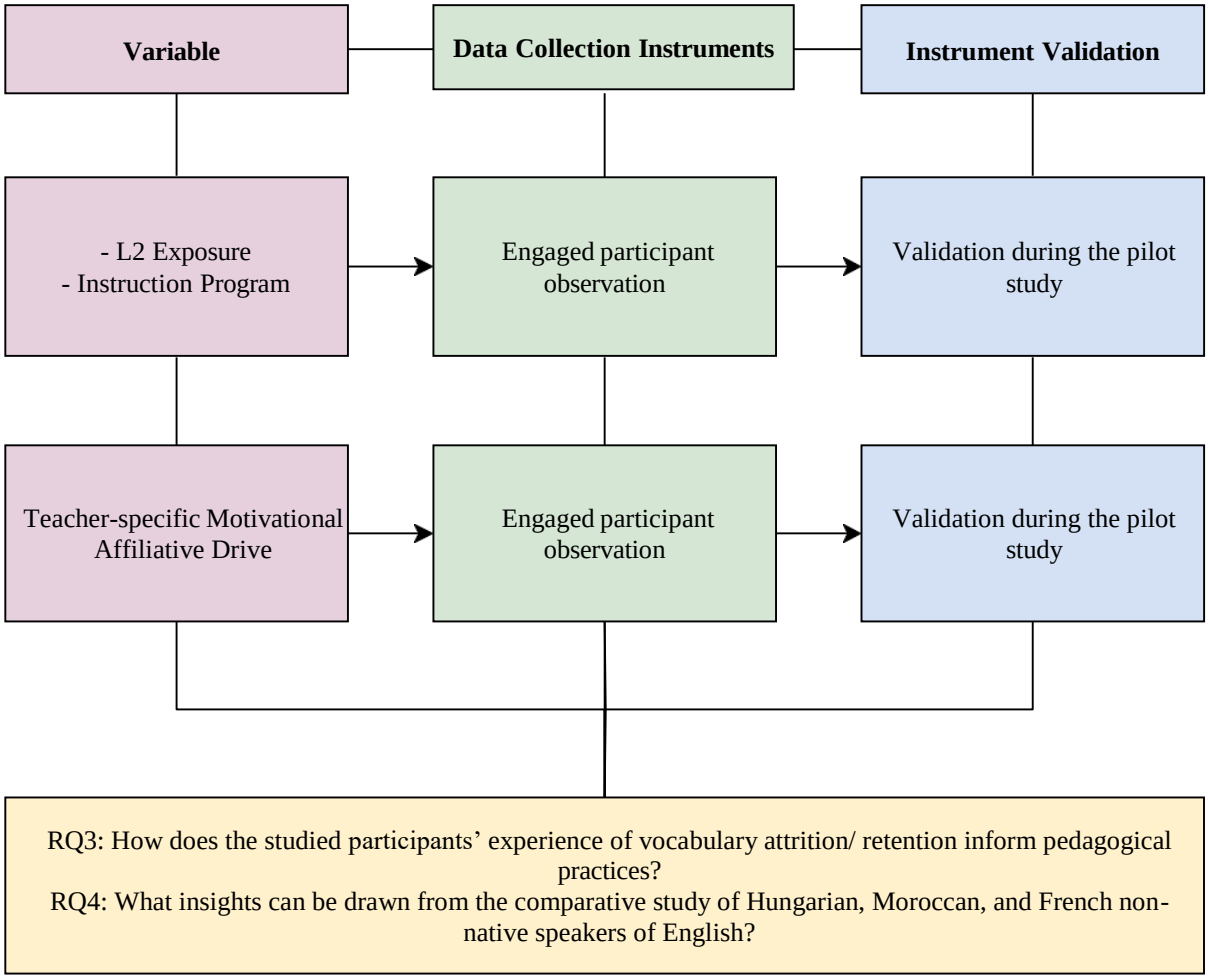


Table 5 above outlines the data collection and validation methods for examining the key input variables of L2 exposure, the instructional program, and teacher-specific motivational strategies. Data was collected through engaged participant observation, a qualitative approach conducive to capturing the depth of participants' interactions and reactions within the language learning environment. This observational strategy was systematically validated during the pilot study to ensure the reliability and applicability of the findings. Two research questions aimed at bridging empirical data with pedagogical implications are embedded within this framework. These questions serve to structure the analysis, enabling a meaningful connection between observed instructional practices and their broader educational significance. RQ3 investigates the influence of participants' experiences of vocabulary attrition and retention in light of instructional practices, and RQ4 contemplates the insights emerging from the comparative examination of Hungarian, Moroccan, and French non-native English speakers. Together, these questions guide the exploration of language attrition and retention

phenomena, with the ultimate goal of informing and enhancing language teaching methodologies.

Table 6: *Data Collection Instruments and Validation of Linguistic Variables*

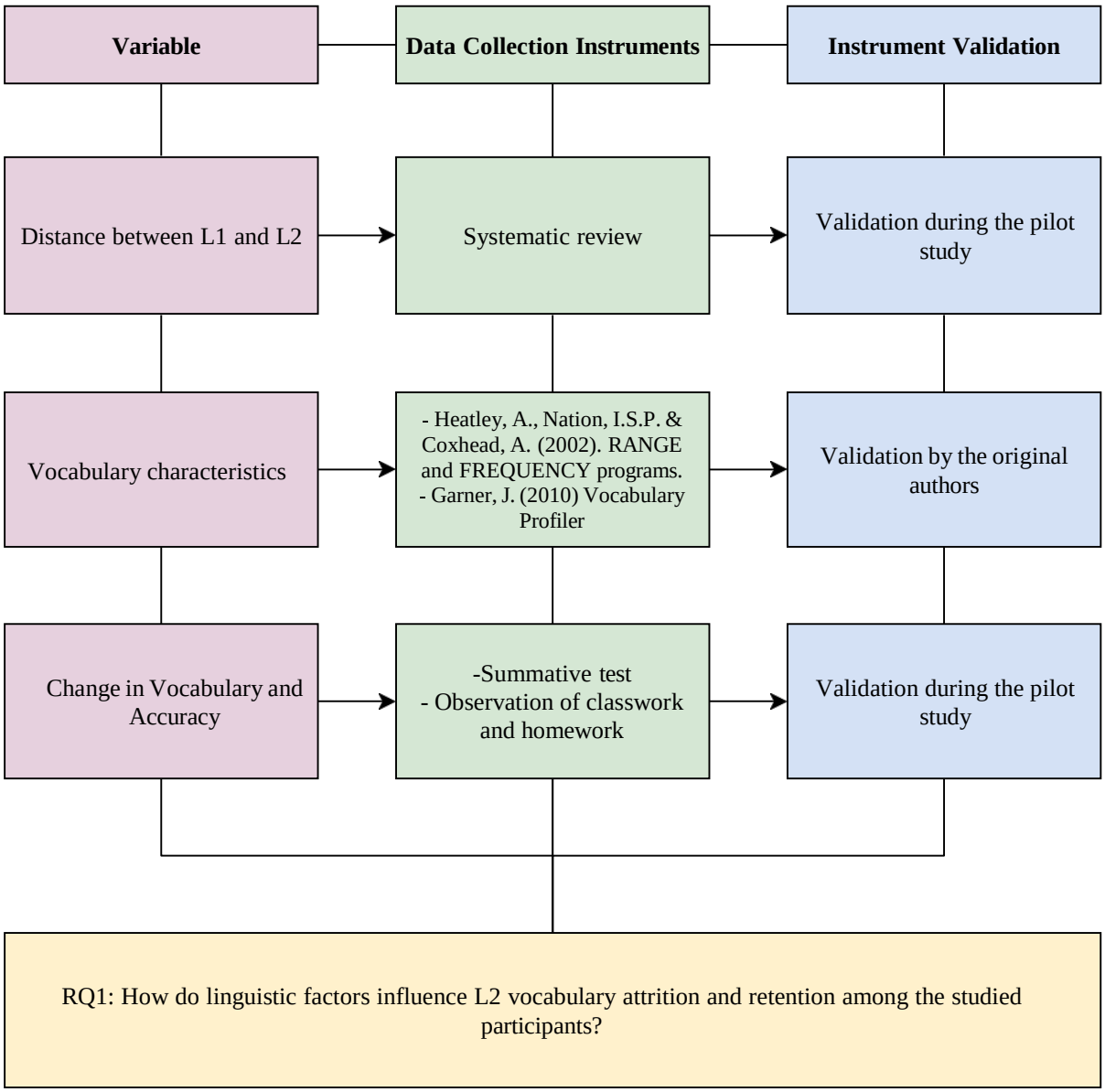


Table 6 shows data collection and validation processes for linguistic variables. The 'Distance between L1 and L2' was investigated through a systematic review, with validation occurring during the pilot phase to ensure methodological soundness. 'Vocabulary characteristics' was analyzed using specialized software tools validated by their original authors. 'Change in Vocabulary and Accuracy' was assessed through summative tests complemented by participants before and after the disuse period, again validated within the

pilot study's framework. RQ1 seeks to understand the impact of linguistic factors on L2 vocabulary attrition and retention.

4 Results

This chapter (Chapter 4) presents a comprehensive analysis of the data collected, blending both qualitative and quantitative approaches to explore how intrinsic, extrinsic, and linguistic elements impact second language vocabulary retention.

Quantitative data from tests were statistically analyzed to identify patterns of vocabulary retention and attrition across different groups. Qualitative data from the survey, the interview, video recordings, and task responses were coded and examined to understand the underlying factors influencing vocabulary usage and changes. This analysis provides insights into intrinsic, extrinsic, and linguistic factors affecting second language vocabulary retention and attrition, and the insights that can be drawn to inform pedagogical practices. To summarize the data analysis methods used, the following table (Table 7) is presented.

Table 7*: Data Analysis Methods of the Studied Variables*

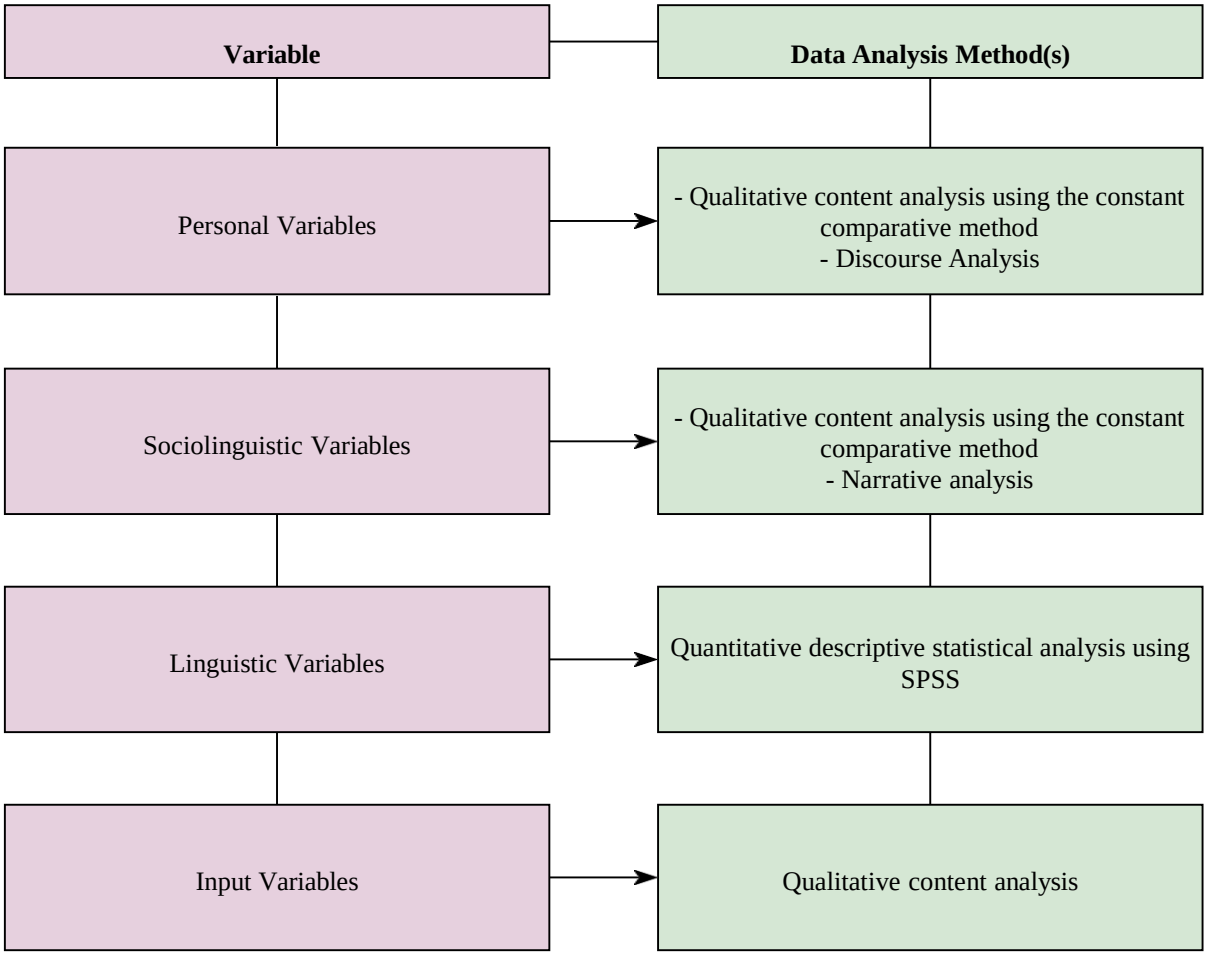


Table 7 above outlines the analytical methodologies applied to the variables of the research scope. Personal variables were examined through qualitative content analysis, employing the constant comparative method, which facilitates the identification of emergent themes and patterns within the data, supported by a discourse analysis approach that unpacks the nuances of communication. Sociolinguistic variables also underwent qualitative content analysis with the constant comparative method, augmented by narrative analysis to explore the stories and personal accounts inherent in language use. For linguistic variables, a quantitative approach was adopted, utilizing descriptive statistical analysis using SPSS to provide a numerical interpretation of language patterns and trends. Lastly, input variables were scrutinized using qualitative content analysis, which allowed for a deep, interpretive understanding of the data's contextual factors. This multimethodological strategy ensured a comprehensive and triangulated examination of the linguistic phenomenon under study.

4.1 Data Analysis of Input Variables

This analysis section investigates the impact of input variables on vocabulary attrition and retention in English as a Second Language (ESL) among university students from Morocco, Hungary, and France. The focus is on exposure to the language through the instruction program, the duration and nature of the program of instruction, and the duration and nature of reduced input and use periods.

4.1.1 Duration and Nature of Instruction Program

Using engaged participant observation within a structured online Academic English course allowed for an immersive understanding of the students' learning experiences and provided insights into their exposure to the target language both orally and in written form. In particular, the nature and duration of the program of instruction, of the instruction during the disuse period, and of the reduced input and use are described herein.

Starting with the duration of the instruction program, for the Hungarian students, the instruction period comprised eight 90-minutes sessions spanned over 8 weeks, with a subsequent 40-week disuse period for Hungarian students. For the Moroccan and French students, the instruction period comprised four 180-minutes spanned over 4 weeks, with a subsequent 40-week disuse period for Moroccan and French students. To ensure the establishment of the baseline of attainment that paves the way for attrition to be measured, the course instruction was given by me to facilitate controlling the factors of input and making

them scrupulously analyzable. More specifically, I offered an online course on Academic English in which a list of 101 academic vocabulary items, mainly selected from McCarthy and O'Dell (2016) *Academic Vocabulary in Use*, was explicitly taught to participants. The compact nature of the program was meant to instill an intensive learning environment favoring high retention rates, and the prolonged disuse period was meant to pave the way for a potential risk of vocabulary attrition. The instructional methods were instrumental in developing a multifaceted foundation that diversified the contexts in which vocabulary was encountered and used. The lesson planning frameworks were also paramount in diversifying the methods of teaching vocabulary and integrating it with the four skills: reading, listening, writing, and speaking. Each framework was tailored to optimize and ensure a comprehensive approach to student's vocabulary learning. A total of six frameworks were adopted.

The first one is rooted in behaviorist theories of learning and has been a staple in language teaching; using the framework Present-Practice-Produce (PPP) was useful in eliciting and presenting new vocabulary items, following it with controlled practice exercises that reinforced the learning, and ending with active free production in a natural context. Within this model, vocabulary is initially introduced by the teacher, followed by guided practice activities that reinforce form and meaning. The process concludes with opportunities for learners to actively use the new vocabulary in more communicative, real-life scenarios. Despite its traditional nature, this approach remains effective in helping students internalize and retain vocabulary through repeated exposure and contextual application.

The second framework was Text Based and proved particularly useful when integrating vocabulary instruction with receptive listening and reading activities. Vocabulary items were introduced though texts and followed by tasks that focused on language practice and analysis. Not only did this approach enhance vocabulary instruction, but it also engaged students' receptive skills to offer rich contexts for vocabulary acquisition.

Likewise, the framework Receptive Skills was used as a basis of pre-instructing vocabulary items to enable students to engage with texts and understand the key items whenever encountered in written or spoken contexts. It particularly helped students get familiarized with the vocabulary and improve their understanding and retention before engaging with texts.

Contrarily, the Speaking framework was designed to introduce vocabulary items necessary for specific productive speaking tasks that are tailored for oral fluency and, most importantly, to allow students to produce these items in speaking activities, promoting thereby active usage and retention. Similarly, the Writing framework was adopted to help students

effectively incorporate newly learned vocabulary items into their writing, allowing for planning, structuring, and analyzing model written texts.

The final framework was the Test-Teach-Test, and as it aligns with principles of diagnostic teaching and formative assessment, it proved valuable in reinforcing vocabulary items related to specific contexts through diagnosing and gauging students' prior knowledge first, followed with instructing vocabulary based on the students' needs as inferred from the initial test, and concluded with a post- instruction test to assess learning. Each framework was chosen to target varied aspects of language learning, ensuring both vocabulary instruction and production in controlled and free contexts.

This methodological approach was pivotal in maximizing vocabulary retention and minimizing vocabulary attrition as relevant to the study's focus on learners of English as a second language from different linguistic backgrounds. Using these varied frameworks also aided in catering to diverse learning styles and needs, which in turn enhanced students' vocabulary learning and retention, and provided insights into teaching methodologies and their impact on vocabulary retention/attrition in ESL contexts. To give a closer look at what the course looked like, a detailed depiction of the lesson plans together with the real-time description of the eight instruction sessions are highlighted below.

Session 1

The first session of the Academic English online course was designed to achieve a set of objectives such as laying the groundwork for both building rapport with participants and introducing essential academic tools, particularly vocabulary learning strategies and note-taking skills. To maximize student engagement and facilitate the learning process in the virtual environment, the lesson was structured into several segments.

At the start of the class, students were made familiar with the learning space, objectives, requirements, and expected outcomes of the course, and potential technical issues were addressed. The session also served as an example of an uninterrupted digital learning experience. Then the actual core of the lesson was tackled, where three vocabulary items: adjudication, instigation, and germane were deliberately instructed using the PPP framework. These vocabulary items were selected due to their relevance to academic discourse and were reviewed using comprehensive language analysis that included meaning, form, and pronunciation. Each word was introduced in context, ensuring that participants both recognized the terms and understood their application within academic settings.

The instructional design relied on a blend of elicitation and concept checking questions (CCQs) to deepen students' understanding and to foster both recognition and active use. Then, a diagnostic test of the participants' vocabulary learning strategies was performed in the form of open-ended discussion questions inspired by Nation's (2001, p.353) taxonomy of vocabulary learning strategies; serving a dual purpose: gauging the participants' knowledge of vocabulary learning and note-taking strategies and identifying areas for development through reflective practice. This stage was essential to tailor subsequent lesson plans targeting the needs of individual learners.

Furthermore, subsidiary aims of the lesson included collecting participants' background information and data on their vocabulary learning strategies and note-taking skills to inform the research analysis, particularly individual factors related to second language vocabulary attrition and collecting participants' spoken consent for participating in the research, which is crucial for ethical academic practice.

The lesson concluded with a short feedback and practice discussion where students could demonstrate their understanding of the newly learned vocabulary and the introduced learning strategies. The lesson plan had anticipated classroom management challenges such as struggling with the novelty or difficult technical nature of the virtual classroom and dealing with varying student participation levels. As anticipated, these challenges were encountered and strategies addressing them included allocating equal talking time and minimizing nominations during group feedback stages to foster equitable participation and maintain a balanced lesson pace. Minimizing nominations, in this context, involved reducing the frequency of calling on individual students by name, and instead encouraging voluntary responses or open group sharing. This helped lower performance anxiety, particularly in the virtual setting, and allowed more students to engage at their own comfort level, thereby creating a more inclusive and student-centered environment.

Likewise, using breakout rooms was a calculated choice to replicate the interactive nature of physical classrooms, encouraging a sense of collaboration that enhanced the learning experience. My role in monitoring the breakout sessions was central in offering individualized feedback and leading the group feedback discussions.

The lesson was carefully designed to ensure that students were not only introduced to key academic vocabulary and learning strategies but also that they understood how to apply them in varied academic contexts. My approach was proactive and flexible, anticipating challenges and providing solutions for a seamless productive learning experience for all participants. At the end of the first teaching session, I conducted a self-evaluation to reflect on

the effectiveness of the teaching method and achievement of personal aims to enhance the instructional approach and ensure an objective engaged participation. The self-evaluation feedback form included elements such as achievement of lesson aims, effectiveness of teaching strategies, areas for improvement, plans for future lessons, clarity and learning outcomes, unresolved questions, and further discussion.

Here, it is worth pausing on some differences between the Hungarian group and the Moroccan and French group. As was highlighted in the methodology section, having participants volunteer to take part in this study was a particular challenge, and therefore, the course had to be carried out in a way that would ensure enough data was collected regardless of whether the participants were in the same group or different groups and depending on their time preference for the schedule to be set.

The first group (the pilot study group) only consisted of four Hungarian students, and the second group (the main study group) consisted of altogether seven Moroccan and French students at the same time. Likewise, the first group decided it would be best for them to have separate 90 min sessions per week over a three-month period, and the second group preferred 180 sessions per week, over a one-month period. I followed the same lesson plans and used the same worksheets and materials for both groups, however the group discussions and number of lessons per session differed depending on the circumstances of each group. In both groups the instructional methodologies and content covered during the sessions were the same.

The course started with students introducing themselves, then with me showing a brief presentation outlining the course's objectives and requirements and collecting a verbal confirmation of research consent. Then, various vocabulary items were shown in a box format, which were then followed by an exploration of the term 'vocabulary' itself, delving into its meaning and different aspects, including form, pronunciation, spelling, and word parts. Students were encouraged to identify words they found challenging, focusing on the three target words of the session. The lesson then expanded to cover aspects of vocabulary knowledge, such as grammatical aspects, collocations, connotations, discourse functions in particular situations and contexts (social, geographic, disciplinary), and both receptive and productive uses. Subsequently, participants engaged in discussions about their vocabulary learning strategies, answering open-ended questions regarding their selection, sources, frequency, and effectiveness.

Later, they were presented with a list of suggested note-taking strategies for vocabulary learning, including sentence-production, dictionary use, contextual guessing, rote learning, mnemonic strategy, word formation, and semantic network strategy and were asked to reflect

upon them. The session included a Test-Teach-Test (TTT) and Present-Practice-Produce (PPP) approach for the three introduced vocabulary items and Concept Checking Questions (CCQs) were utilized to ensure comprehension. This phase involved a thorough exploration of each word's meaning, form, and pronunciation, including aspects like nuanced meanings in different contexts, grammatical forms, stress, weak forms, connected speech, and intonation. Contextual examples were provided to facilitate a deeper understanding, and productive practice was established through asking participants to come up with their own example sentences using the target items in the chat box and providing the target vocabulary item for the given definition.

The difference between the two groups was particularly seen in aspects such as time management, participant attendance, group interaction, and varying student levels. In the first group, two students failed to show up for the first class; the remaining two had varied levels, one being a C1 level student, the other being a B2 level student. The session was interactive, and participants were given ample time to have pair discussions. In the second group, all seven participants attended, two 90-minute lesson plans were implemented, and most students had more or less similar levels. Due to the higher number of participants, group feedback sessions lasted shorter than in the first group. Nonetheless, every participant was given an equal chance to communicate most of their ideas. This variability in engagement across different groups is a challenge and limitation identified in the current study.

As for the overall evaluation for both groups, I aimed to establish a positive learning environment from the outset. Reflecting on this particular aim, I felt successful in creating an interactive atmosphere, which was evidenced in the active student participation and engagement during the sessions along with their subsequent presence and attendance commitment in the following sessions. This helped me achieve my personal aim of building rapport with participants, especially considering the diversity of their backgrounds, the online format of the course, and the fact that they volunteered to take part in this research.

Moreover, adhering to the allocated time was managed and ensured to help cover all of the planned tasks and the session was mainly concluded within the established timeframe, indicating effective time management. To make sure instructions throughout the session were clear, a set of demonstrations and Instruction Checking Questions (ICQs) were used whenever necessary.

These methods were effective and ensured that students understood the tasks in light of the online nature of the learning environment. The reflective self-evaluation practice provided valuable insights into the efficacy of teaching strategies and achievement of main and personal educational objectives and was essentially linked to the overarching theme of the course,

showing that I tried to the best of my abilities to focus on giving clear instructions, manage time effectively, and facilitate an environment conducive to vocabulary acquisition and retention, a key aspect of the study involving Moroccan, Hungarian, and French university students. To give an overview of the first session's structure, showcasing the dynamic interplay between attendance, instructional techniques, the chosen framework, and the vocabulary items targeted for learning, the following diagram is presented:

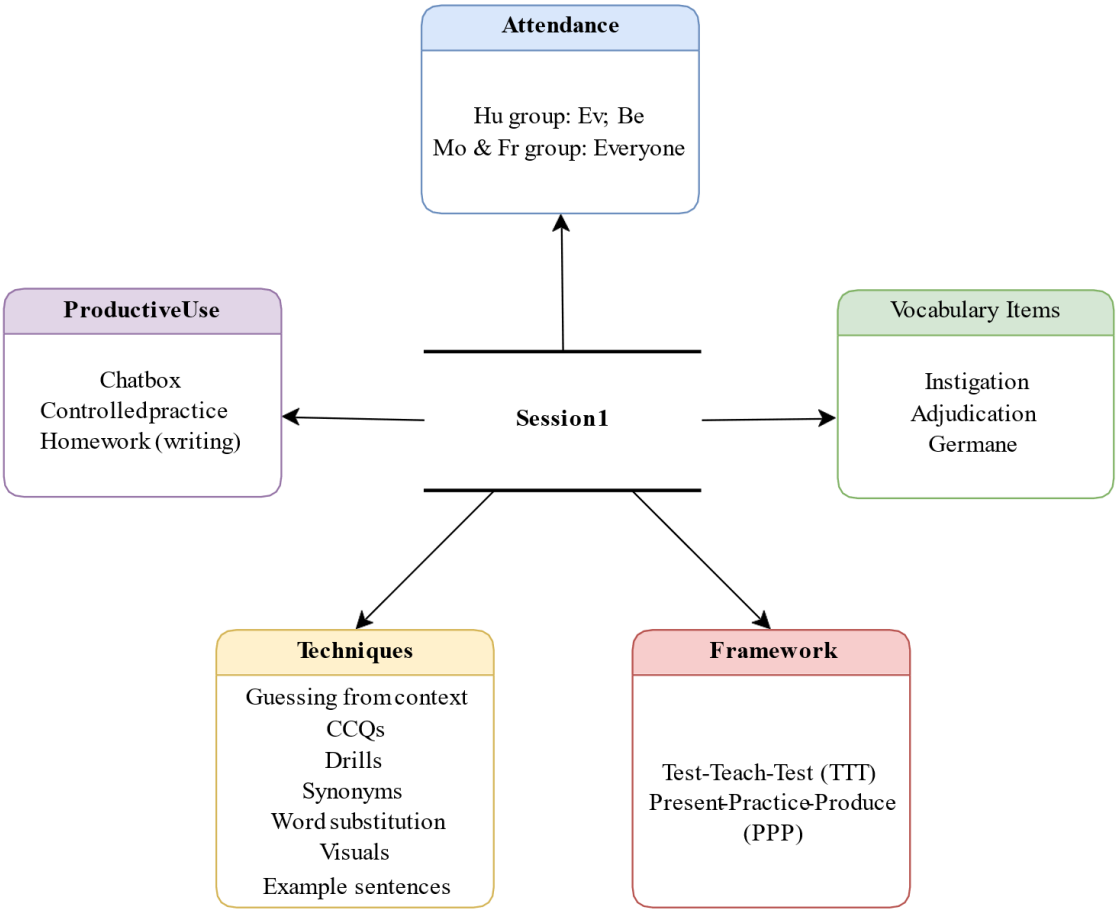


Diagram 1: Overview of pedagogical techniques for vocabulary development in session 1

Session 2

Moving to the second lesson plan, for both groups, I focused on deepening participants' understanding of academic vocabulary and improving their command of academic English lexicon. The primary aim of the lesson was introducing and providing practice of the vocabulary items "attempt, primarily, characteristic of, virtually, and solely" and clarifying their meaning, form, and pronunciation within an academic English context. By the end of the

lesson, students were expected to recognize the difference between academic and spoken/neutral vocabulary and to be able to use the newly introduced words accurately in an academic setting. Subsidiary aims involved recycling the previously learned items and collecting students' vocabulary size using the validated vocabulary test of Aviad-Levitzky et al. (2019) CATTS "Computer Adaptive Test of Size and strength" that evaluated participants' vocabulary size across four modalities: productive recall, receptive recall, productive recognition, and receptive recognition. Their results were directly collected into my website account and were intended for use in the research analysis, specifically examining individual factors involved in vocabulary attrition.

The session began with a lead-in stage generating interest in the topic and setting the scene for language work where students were asked about their own experiences with dealing with academic material and eliciting their observations on academic style. Then, students were asked to fill in a table with the formal equivalents of neutral vocabulary items. This task effectively bridged the gap between informal and formal language usage, enhancing students' awareness of context-appropriate vocabulary and served as a diagnostic test to identify gaps in students' knowledge.

Then they were asked to identify the correct form of given vocabulary items, including the target ones to elicit and enhance their understanding of word forms. I then moved to highlight what constitutes academic vocabulary referring to Coxhead's (2000) definition, helping students contextualize their learning with the broader academic discourse.

To ensure practical application, students were subsequently asked to rewrite sentences with more formal words and phrases and to complete sentences using noun phrases, further strengthening their understanding of word usage in academic contexts. The analysis section of the lesson plan focused on the meaning, form, and pronunciation of the target vocabulary items, and items were introduced through examples and concept checking questions to ensure comprehension and were repeated in drills to ensure correct pronunciation.

The academic context was underscored by reference to work on the use of noun phrases and academic vocabulary, which are both crucial for enhancing academic writing. Moreover, the importance of vocabulary acquisition for increasing vocabulary size was highlighted, and students were guided through taking the CATSS vocabulary test, providing them with insight into their current vocabulary levels and areas for improvement.

Students were assigned to complete and submit the vocabulary size test together with composing a 100–150-word paragraph about a topic of their choice, using academic vocabulary and noun phrases covered in class as homework, ensuring ongoing engagement with the course

material outside the classroom. This structured approach was adopted to design a methodologically sound teaching session that blends both practical exercises and theoretical insights. With its clear aims and practical application, it successfully integrated various aspects of vocabulary learning such as formal/informal usage, word forms, noun phrases, and academic style strategies into a cohesive lesson.

Moreover, it ensured that by the end of the lesson, students had multiple encounters with the new and recycled target vocabulary items, which is a strategy supported by the literature to enhance retention and facilitate deeper learning (Nation, 2001). Such a comprehensive approach is crucial in the environment of ESL learning, as it aids in vocabulary acquisition, retention, and application in relevant academic contexts. The use of diverse tasks catered to different learning styles, reinforcing the vocabulary in a manner that was both engaging and effective. More relevant was the need to teach and practice the multiple facets of vocabulary knowledge.

As for the major differences between the two groups, changes in dynamics, time management and student engagement were observed. More specifically, with the first group, the session strictly adhered to the 90-minute duration and respected the allotted time frame. However, the group faced some challenges such as technical issues and the integration of new students into the class, which required additional time for fixing the issues and for leaving room for new introductions.

This led to a prolonged initial phase where the course aims were recapped, vocabulary learning strategies were reviewed, and strategies from the new students were collected. In contrast, the second group covered both lessons 1 and 2 in the same session, which altogether lasted 3 hours and 15 minutes. The allotted time of 3 hours was respected, and an additional 15 minutes was given as a break in between the two teaching sessions.

The uninterrupted nature of the two lessons allowed for a continuous learning experience; however, it impacted the format of the lesson; pair discussions were eliminated due to time constraints and group feedback discussions were directly addressed instead, and the first lesson spanned 2 hours 26 minutes with the remaining time allocated to the second one. The latter was not an inconvenience as students were asked to take the vocabulary size test at home and were shown a demonstration instead. Moreover, the final moments of the sessions were marked by an informal conversation on managing time zone differences, which also presented a unique challenge for group 2.

These differences show the varying logistical and instructional approaches necessitated by distinct group constraints; therefore, it was necessary to allow flexibility in adapting to these

variations, ensuring effective course delivery and appropriate addressing of the diverse needs of the students. In a similar fashion to the first lesson, upon the completion of the second session, I engaged in a self-evaluation, reflecting on both the successes and challenges of the sessions, a step which was necessary for understanding the efficacy of the instructional approaches and their impact on student learning, particularly in terms of vocabulary acquisition and retention. The report showed that I felt a sense of accomplishment in meeting the primary aim of the lesson of deepening participants' understanding of academic vocabulary.

This was particularly reflected in students' ability to distinguish between academic and spoken/neutral vocabulary towards the end of the session. Still, neither session was free of challenges. The technical issues and need to accommodate new students in group 1 made me feel uncomfortable initially but the discomfort eased as the challenges were managed, albeit leading to a prolonged initial phase of the lesson.

Similarly, the lengthy nature of the session in group 2 necessitated more energy, proactivity, efficacy, and diligent monitoring from me, which was more draining and may have affected the overall flow of the lesson, especially towards the end. While I managed this mini marathon session covering two lessons in one session, I still felt gratified with the seamless transition between lessons and attainment of the main and subsidiary aims of the lesson, particularly in the use of the CATSS vocabulary test and the focus on practical application exercises. In both sessions I experienced a mix of emotions, moving from a sense of pride in successfully conveying academic vocabulary concepts and satisfaction in observing students' progress to frustration over technical issues, class management obstacles, and time constraints, which may have slightly hindered the lessons' desired flow.

Looking ahead, I planned to enhance time management for both groups and explored alternative strategies for integrating new students more seamlessly into future sessions. Overall, I tried to the best of my ability to adopt a methodologically sound approach and was pleased with students' interactivity and engagement with the material. This was seen as a valuable learning experience for both me and the participants as it gave both the chance to reflect on their teaching/learning approaches based on real-time feedback and student discussion. I was determined to provide a high-quality educational experience and reflecting on both success and challenges of the sessions was a crucial step in ensuring that subsequent teaching strategies were improved and developed to meet the desired learning outcomes in the context of ESL vocabulary education. To give an overview of the second session's structure, the following diagram is presented:

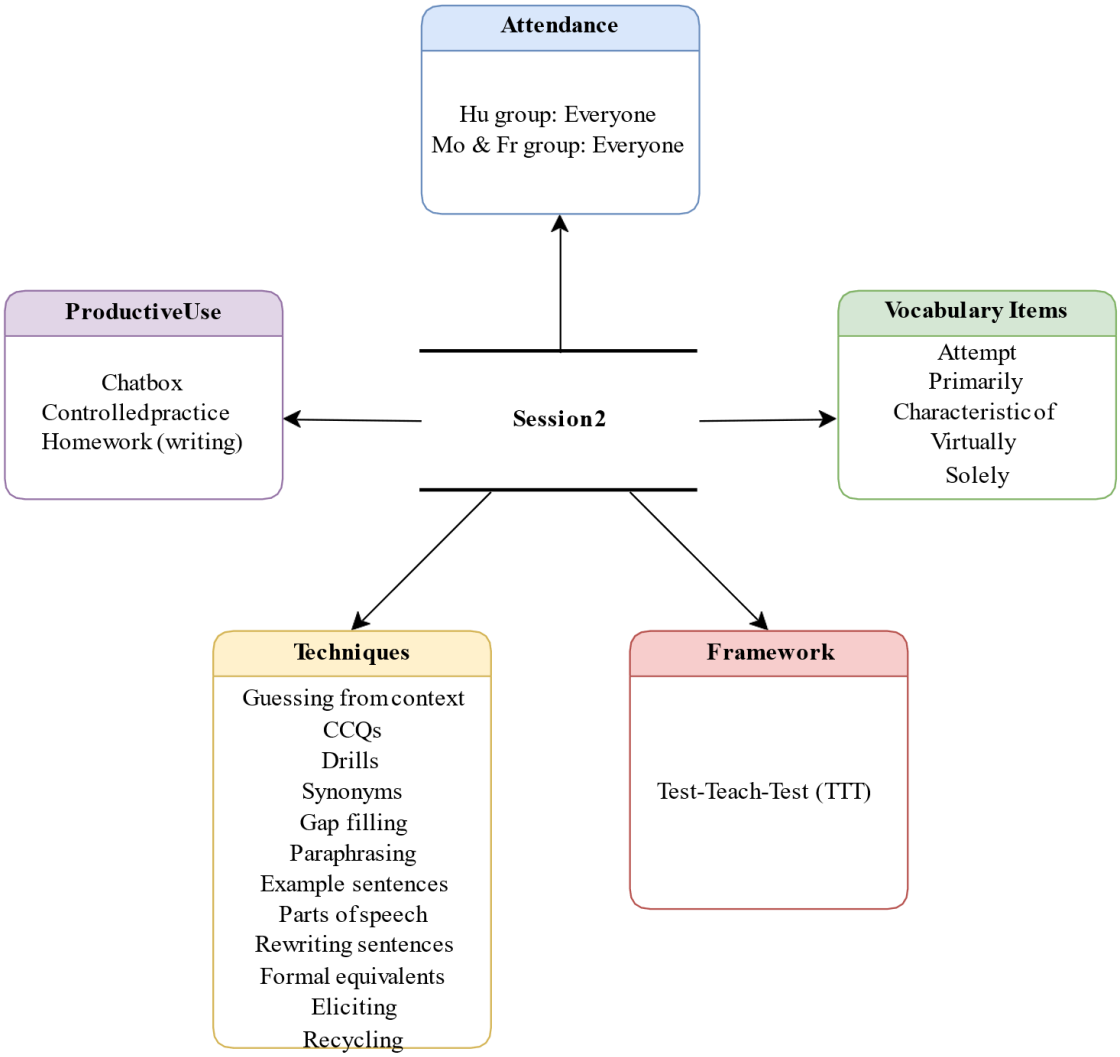


Diagram 2: Overview of pedagogical techniques for vocabulary development in session 2

Session 3

The third lesson started with a recapitulation of everything that was done in the previous sessions and continued focusing on enhancing academic vocabulary and study skills. More specifically, the lesson was designed to introduce effective study habits and to clarify the meaning, form, and pronunciation of the vocabulary items: cramming, visualizing, mnemonics, rote learning, my mind starts to wander, my mind goes blank, to meet a deadline, to make a to-do list, to draw a mind map, to request an extension, extra-curricular activities, rote learning, a first draft, time management, lecture notes, note-taking, a study plan. By the end of the session, students were expected to be well-informed about good study skills, particularly the "ANSWER" method, an abbreviation of the following study skills: Spaced practice, Inter-

leaving, Elaboration, Concrete examples, Dual coding, and Retrieval practice. Students were also expected to be able to passively understand and productively use the introduced vocabulary within an academic context.

To achieve these aims, sources and materials were adapted from McCarthy and O'Dell's Academic Vocabulary in Use, Nation's Learning Vocabulary in Another Language, Cambridge Advanced Learner's Dictionary, and a YouTube video that illustrated the "ANSWER" method of study skills.

To avoid any technical issues, potential difficulties in classroom management were prepared for in advance. Particularly, videos and audios were ensured to be working before the lesson started, participants were sent the session's worksheet, and features such as the chat box were used to share links. The language analysis segment tackled the selected vocabulary items, where aspects such as informal use, collocations, roles in memory techniques, and common phrases were highlighted. This was enhanced by examples, pronunciation drills, and Concept Checking Questions (CCQs) to ensure understanding.

The lesson breakdown included warm-up activities, lead-in discussions on study habits, pre-teaching the target vocabulary, and language-in-context tasks. Controlled practice was used to solidify understanding, and students were given opportunities to practice listening for gist and specific information. Productive follow-up activities prompted students to discuss their study skills, integrating the new vocabulary into their speech. The lesson concluded with feedback to correct any language use errors and encourage the application of the study skills and habits discussed. Using a variety of teaching methods, the lesson aimed to engage students and enhance their academic English proficiency, providing them with tools for both language learning and for effective studying strategies.

The lesson started with me presenting pictures to elicit and analyse target vocabulary items, then concept checking questions were asked, and examples of the vocabulary items in context were provided. Then students engaged in a task where they had to answer questions on time management and shared their answers into the chat box and during group feedback.

Next, a task on study habits and problems studying prompted students to reflect on the most problematic areas of their learning, which paved the way for the introduction of further vocabulary items. Then, based on the above two tasks, students were asked to complete collocations and fill them in full sentences in two subsequent tasks. As the final stage of the lesson, students were shown a video presenting the ANSWER method of study skills, which served to introduce six evidence-based learning strategies. These included: Spaced practice (reviewing material over time), Interleaving (mixing different topics or problem types during

study), Elaboration (explaining ideas in detail and connecting them to prior knowledge), Concrete examples (using specific examples to understand abstract concepts), Dual coding (combining words and visuals), and Retrieval practice (actively recalling information from memory). Students were asked to highlight the key sentences they heard in the video and to share which strategies they found most applicable to their own learning. This reflective task aimed to foster metacognitive skills and support long-term retention through informed study habits. For homework, students were asked to make a 1- or 2-minute video talking about their study skills and habits productively using all vocabulary learned throughout the lessons.

The frameworks adopted were mainly Test-Teach-Test (TTT), Present-Practice-Produce (PPP), and Receptive Skills. Upon completion of the third session, I engaged in a self-evaluation, reflecting on both the successes and challenges of the sessions, a step necessary for understanding the efficacy of the instructional approaches and their impact on student learning. The report showed that prior to the third session with the Hungarian pilot group, I had expected participants to start withdrawing from the course upon the third session; however, contrary to my expectations, more participants joined, with the exception of one participant (Re) who only attended the third week and withdrew from then on due to time constraints. This participant's (Re) data was never accounted for in this research.

While I had planned to better manage my time, this still proved to be an issue as recapitulating what was previously done due to the attendance of new participants taking more time than initially expected, which affected the flow of the allocated 90 minutes of the lesson and resulted in undesired delays. On a positive note, I was very happy with the students' interactivity and participation, which aligned well with the objective of engaging participants.

Overall, I felt that I had achieved most of my desired aims in the lesson, except for bettering my lesson time management. I was satisfied with the overall progress of the lesson and grew more confident as more participants joined. Looking ahead, I planned to finish off the remaining parts of the lesson in the next session and reduce the study load of session 4 to balance out my expectations of what was possible within one session.

For the second group of Moroccan and French participants, a detailed description of the session's breakdown is found when tackling the fourth lesson due to the compact nature of their instruction period. To give an overview of the third session's structure, the following diagram is presented:

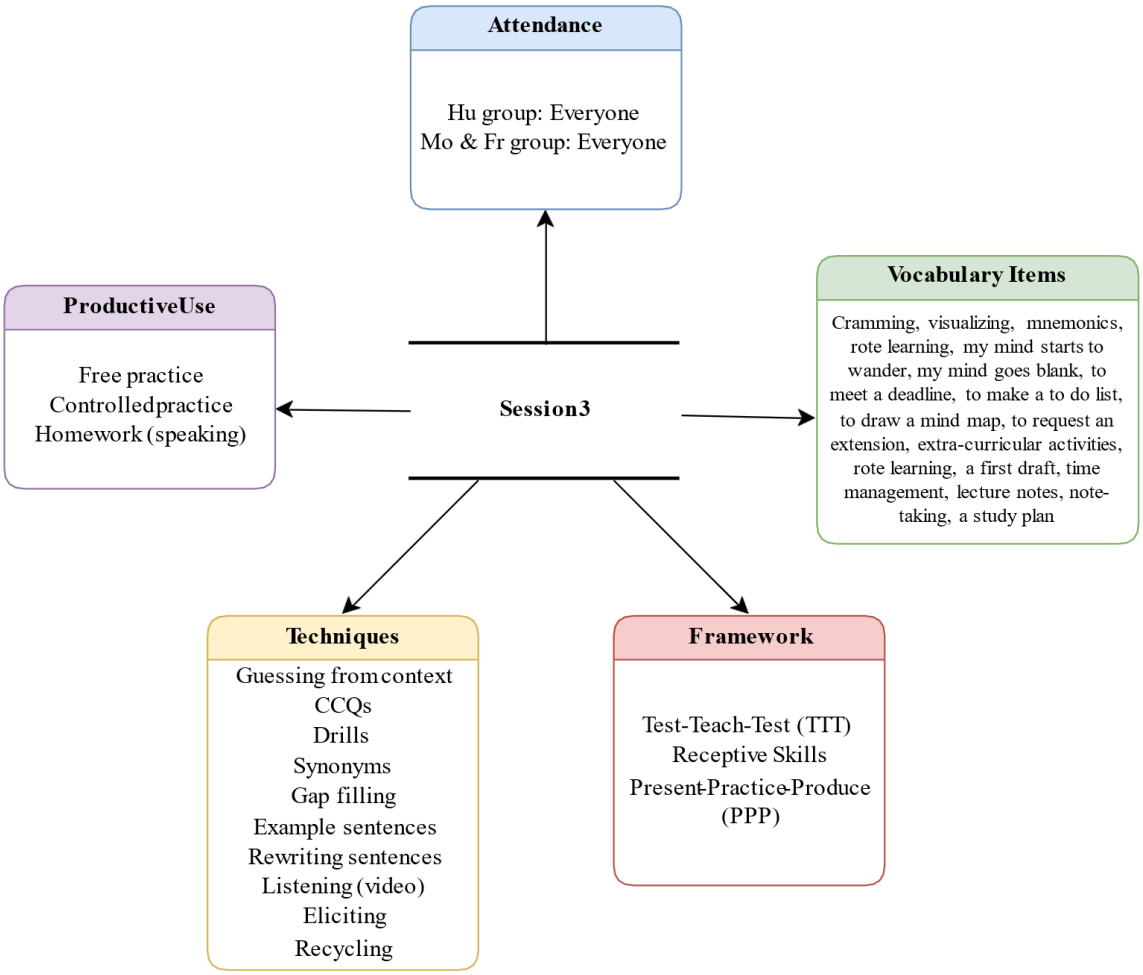


Diagram 3: Overview of pedagogical techniques for vocabulary development in session 3

Session 4

Speaking of session 4, this occasion was dedicated to the process of planning and organizing a piece of academic work. The main goal of the session was to familiarize students with the particularities of formulating a structured approach to academic writing and research. The main objectives were to introduce the planning process and to clarify the meaning, form, and pronunciation of the following academic vocabulary items: *encounter, formulate, pinpoint, find a pathway through, at a glance, relevant, rush into,* and *in light of*. By the end of the class, students were expected to have a better understanding of how to plan their work and to use the newly introduced vocabulary within academic contexts.

The lesson's structure and content were designed to align with proven pedagogical practices for teaching vocabulary in a second language context. Materials were adapted from

the same sources as lesson 3. Anticipated classroom management difficulties included navigating online resources such as Padlet and online dictionaries, and handling the logistical issues of remote learning, like late arrivals or technical issues with handouts. Solutions ranged from pre-class demonstrations of the digital tools to sharing materials through the chat box to ensure everyone was able to access any given worksheets or class materials.

The language analysis prepared students to encounter the given terms in various contexts, with examples and exercises, and the vocabulary ranged from words and phrases directly related to the research process to academic tasks. The lesson procedure included a warm-up and lead-in activity where students shared their experiences with planning a piece of work to help them notice language in context.

In particular, students were first asked about the strategies they use while planning academic work, then they were shown a reading about 'asking for advice for an assignment' and asked to whom it could be directed. This was especially useful to help them notice language in context. Then, students were presented with selected vocabulary and were asked to find their definition in accordance with their given contexts, highlighting the nuanced meaning inherent in vocabulary. Next, they were given collocations and were asked to guess their meaning from the context.

After group feedback and language analysis, students were asked to read a given email from a postgraduate student to their tutor and asked to explain what the email was about and how it could potentially be followed up. This again served as a good context to help them notice new vocabulary items, to which they had to match the correct corresponding definition in a following task.

The next controlled practice tasks required participants to complete given sentences and rewrite underlined words and phrases using the earlier introduced vocabulary items. To wrap up the session, students were asked to use Padlet to see the five steps of writing a thesis and were asked to classify them. Then, the group feedback discussion included definitions of key terms and how those terms relate to the content of the session to follow. Students were also recommended to read chapter 32, pp. 120–126 of Allen's (2019). This chapter was selected because it outlines the general steps involved in writing a thesis in a clear, structured manner that is accessible to learners at various stages of academic writing. Integrating this reading into the lesson allowed for content-focused tasks that introduced students to the overall thesis-writing process, further solidifying their understanding of academic expectations and improving their ability to plan and organize extended writing projects.

Overall, the session was designed to be interactive, with opportunities for the students to engage with the material through individual, pair, and group activities. By the end of the class, students had had multiple encounters with the new vocabulary and had revisited some of the terms introduced earlier in the course. This repetition and application were intended to prepare the students for the upcoming test, with a focus on vocabulary related to research purposes.

Due to the separate instruction programs given to the Hungarian group and the Moroccan and French group, the real-time dynamics of each session were different. In the Hungarian pilot group, the fourth session started with informal discussions as a lead-in activity, allowing each participant to share their experiences with planning academic work.

This initial interaction encouraged open communication, which led to noting down a key observation of a unanimous negative sentiment present among participants towards essay writing, ranging from a lack of enjoyment to complete unfamiliarity with essays as a form of academic discourse, with some students even perceiving essay writing difficulties as a cultural characteristic, labeling it as a 'Hungarian thing'.

On a different note, given the small class size, students had ample opportunities for active participation and language practice. This interactive setting fostered a more personalized learning experience and allowed for more in-depth discussions. For instance, during the discussion on the vocabulary item *literature review*, students brought up external resources such as Google Scholar as a credible source for writing up the text, which both enriched the conversation and helped distinguish between essays and literature reviews, a step necessary for setting the stage for the subsequent session.

As for the technical challenges and solutions, the small class size facilitated a quick resolution through screen sharing for the Padlet activity, which allowed for a collective exploration of the steps in essay writing, incorporating the newly learned vocabulary. Towards the end of the session, students were briefed about the content of the next session, helping them prepare for future discussions. No homework was assigned in the session as students reported struggling with external academic workload and other study commitments.

Upon completion of the fourth session, I filled in the usual self-evaluation form to reflect on the lesson and revealed several key insights; namely, that I successfully adhered to the lesson plan and effectively covered all planned stages within the allotted time, that the level of student engagement was highly satisfactory, with active participation observed throughout the session, that the absence of participant (Be) raised concerns regarding the potential impact on their learning progress and research stability, that despite encountering minimal technical

difficulties, I managed these effectively, ensuring insignificant disruption to the learning process. Finally, I reflected on the use of Teacher Talking Time (TTT) and acknowledged that it was higher than desired, planning therefore to reduce it in future sessions to allow for even more student interaction and spoken output. In summary, the fourth session in the Hungarian pilot group successfully met its objectives, fostering an environment conducive to vocabulary retention through practical application and discussion.

Moving to the exploration of the combined sessions 3 and 4 for the Moroccan and French group, the session began with an informal and culturally rich dialogue among some participants as the others continued to join, easing students into the learning atmosphere and highlighting my intention of creating a comfortable and engaging learning environment. Then, as the session progressed, students revisited key vocabulary from the previous worksheet to reinforce their memory and aid in vocabulary retention.

As a lead-in to the formal content, students' engagement with vocabulary through a discussion of their personal experiences with time management and study habits provided a practical and relatable context, facilitating deeper comprehension and retention.

The rest of the activities were similar to what was covered in the description of the Hungarian group's session 3; however, a notable deviation from the standard session structure arose due to the unique format of combining two sessions.

Faced with the challenge of covering a substantial amount of content with a larger group of students, I made the strategic decision to assign the creation of videos as a follow-up task to compensate for any reduced opportunity for in-class freer spoken practice.

In the second half of the session, the content of the fourth lesson was covered with a shift in dynamics due to the highlighted time constraints and the larger group size. For instance, there was a necessity to skip the lead-in session, a staple in language classes for setting the context, to maximize the time available for individual and group feedback. This shift reflects the need to balance group dynamics with individual learning needs.

Again, the remainder of activities were similar to the ones with the Hungarian group; however, the group dynamics led the session to be concluded with a rich discussion on the application of the learned vocabulary, such as *conceptual and theoretical framework*, in various academic disciplines.

This discussion not only highlighted the practical utility of the vocabulary in real-world contexts but also allowed students to contextualize the language in their respective academic fields, an approach known to enhance language retention and applicability.

Reflecting on the session in the usual self-reflection reports, I identified several key areas for self-evaluation. Again, time management emerged as a central challenge, especially with a larger group and a combined session format. This issue impacted the depth of activities that could be conducted. Still, student participation was robust, with a note of the need for more time for freer practice.

Additionally, managing the logistical complexities of time differences between countries added a layer of complexity in orchestrating a cohesive and effective session. In summary, the report highlighted my adaptive strategies, or need thereof, in the face of time constraints and diverse student needs, the importance of practical application of vocabulary in learning, and the challenges and opportunities inherent in managing larger intercultural groups in an online ESL context. To give an overview of the fourth session's structure, the following diagram is presented:

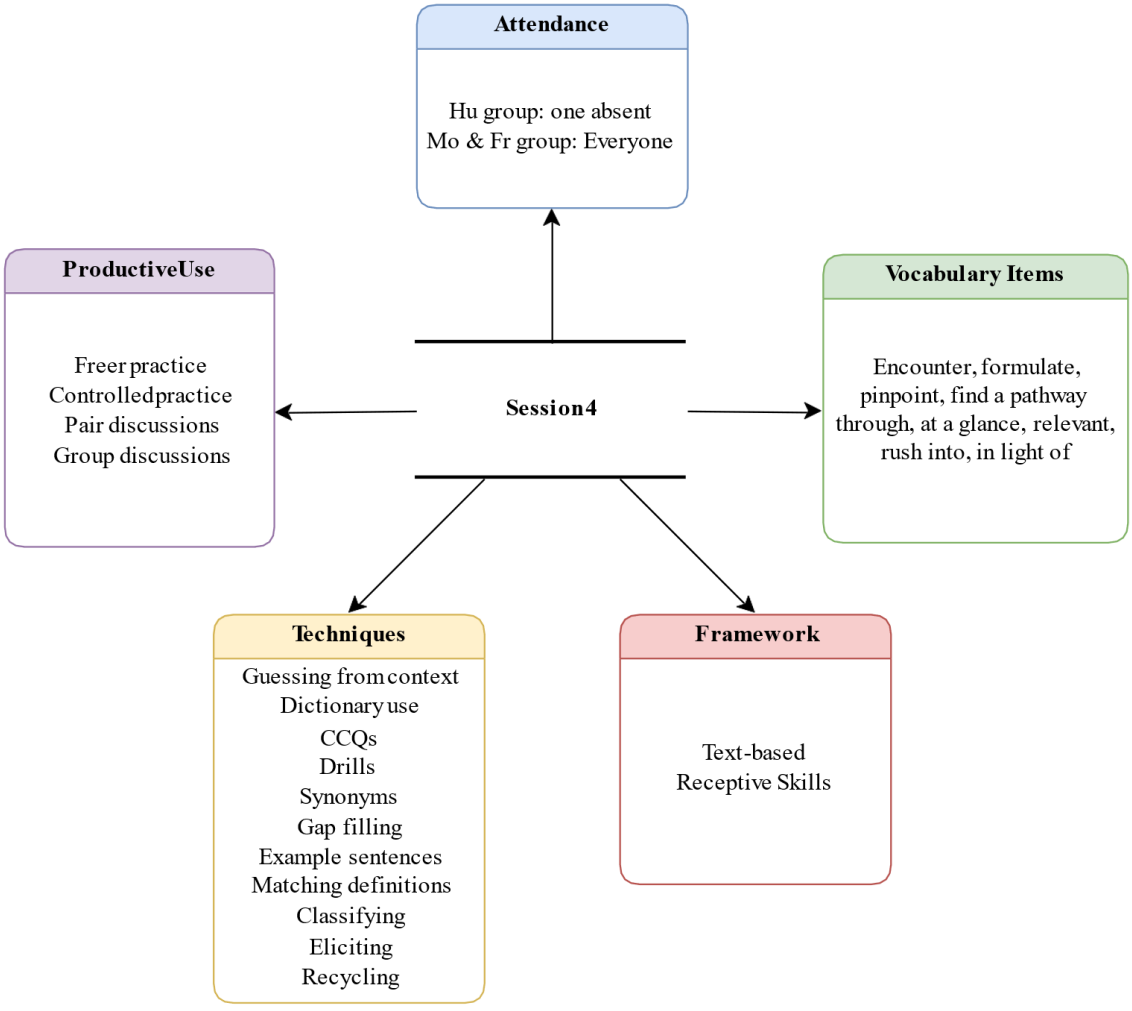


Diagram 4: Overview of pedagogical techniques for vocabulary development in session 4

Session 5

The fifth lesson shifted focus to writing development, specifically essay writing. Over the 90-minute Hungarian pilot session, students were introduced to essential academic vocabulary related to crafting essays, including *annotate, encapsulate, juxtaposing, corroborate, untenable, scepticism, classify, describe, compare, contrast, argue, show cause and effect, define, topic sentence, supporting sentences, concluding sentence, linking words, research question, theoretical framework, conceptual framework, research methods, data collection, only, seldom, under/in no circumstances, on no account, highlighted*. The purpose behind choosing these items was to equip students with both the conceptual understanding and practical tools necessary to articulate their thoughts coherently in written form. By the end of the lesson, students were expected to be well-versed in essay composition and capable of utilizing the introduced vocabulary within an academic context.

The materials were selected from Gilliland (2016) among other sources to provide a structured and principled approach to essay writing, and the lesson also integrated the use of the *Cambridge Advanced Learner's Dictionary* and various phonetic transcription resources to aid students in vocabulary acquisition.

Anticipated classroom challenges such as unfamiliarity with Zoom's collaborative board and comprehension of the jigsaw reading task were tactically addressed. To address these, solutions included demonstrations, screen sharing, and the use of Instruction Checking Questions (ICQs) to ensure clarity and participation. The language analysis segment was comprehensive, delving into the meaning, form, and pronunciation of each vocabulary item through examples, pronunciation drills, and Concept Checking Questions (CCQs).

This approach was vital in deepening students' understanding and ensuring accurate usage of the target items in varied contexts. The lesson procedure was meticulously planned, beginning with a warm-up to prepare students for the first task of the course. Following this, the session transitioned into a lead-in discussion on the importance of essay writing skills, then students were engaged in a jigsaw reading task where they matched six essential steps of essay preparation to the correct techniques. The steps included brainstorming, researching and selecting material, recording sources, planning, note-taking/annotations, checking, drafting, and revising. This activity was crucial in helping students understand the systematic approach to essay writing.

In a second task, students examined various language items and determined their purposes, such as to classify, describe, compare and contrast, argue, establish cause and effect,

and define. This exercise aimed to enhance their understanding of how language functions in different types of academic writing and to introduce meaning, form, and pronunciation of the target vocabulary items.

A model essay on the “challenging aspects of punctuation in academic writing” was then analyzed to provide a concrete example of how to structure their work, and students were tasked with suggesting a suitable title from proposed ones for reading for general information, then with identifying the thesis statement, topic sentences, supporting sentences, examples, linking words, and the main concluding sentence. This exercise was designed to enhance their skills in text analysis and comprehension, along with recycling the already introduced vocabulary.

As part of the practical application, students brainstormed ideas on effective vocabulary learning strategies, an activity that served to engage students in the topic and acted as a precursor to their homework assignment. The homework involved writing an essay on effective vocabulary learning strategies, incorporating the vocabulary introduced during the session, emphasizing correct punctuation, and highlighting vocabulary learning strategies while maintaining correct essay structuring and coherence. The lesson concluded by instructing students to continue the remaining five steps of essay writing at home.

Upon completion, they were asked to send their essays to a designated email for review. Additionally, recommended readings from Murray's (2012) book, specifically chapters 4 and 10, were provided to further reinforce their understanding and skills in essay writing. The main overall goal was to foster a deep understanding of how vocabulary shapes the expression of ideas in written forms and to prepare students for the practical application of these skills in their academic pursuits.

As for the real-time lesson with the Hungarian pilot group, the session began with an engaging chitchat about health and exams, an initial conversation that provided an opportunity for students to recycle previously learned vocabulary items, effectively reinforcing their language retention. Participant Be was again absent during this session.

The lead-in segment involved a short discussion on the definition of an essay and a thorough explanation of the jigsaw reading task. This task also set the context for introducing the meaning, form, and pronunciation of the target vocabulary items. Following this, students delved into analyzing a model essay, an exercise that was integral to understanding the structure and nuances of academic writing. The employed teaching framework was text-based, focusing on eliciting answers from the students and encouraging active participation. A summary of the

essay structure was shown to the students, aiming to enhance their understanding of essay composition.

Interestingly, the students proactively proposed sending summaries on punctuation from other courses, demonstrating their engagement and willingness to contribute to the learning process. Additionally, the session included an exploration of language items that establish text coherence. This exploration was skillfully used as another context for introducing further vocabulary items, with a focus on meaning, form, and pronunciation. The session concluded with setting homework, recommending readings, and providing a brief introduction to the next session. This was quite similar to the first half of the third session with the Moroccan and French students' group, which is highlighted in more detail together with lesson 6.

Reflecting on the session through the self-evaluation form, several insights emerged from me. The reading jigsaw task posed a slight challenge, partly due to the uneven number of students and the complexities of conducting such activities online. Despite these challenges, student participation was observed to be very good. In response to previous self-evaluations, I consciously reduced my Teacher Talking Time (TTT). Interestingly, I had caught the flu, which inadvertently contributed to this decrease in TTT, shifting the focus more towards student input.

The use of the essay model was deemed successful, as evidenced by the students' ability to correctly answer most Concept Checking Questions (CCQs) and their adherence to the introduced essay structure in their homework assignments. This session, therefore, marked a significant stride in the students' journey towards mastering academic writing and vocabulary in an ESL context. To give an overview of the fifth session's structure, the following diagram is presented:

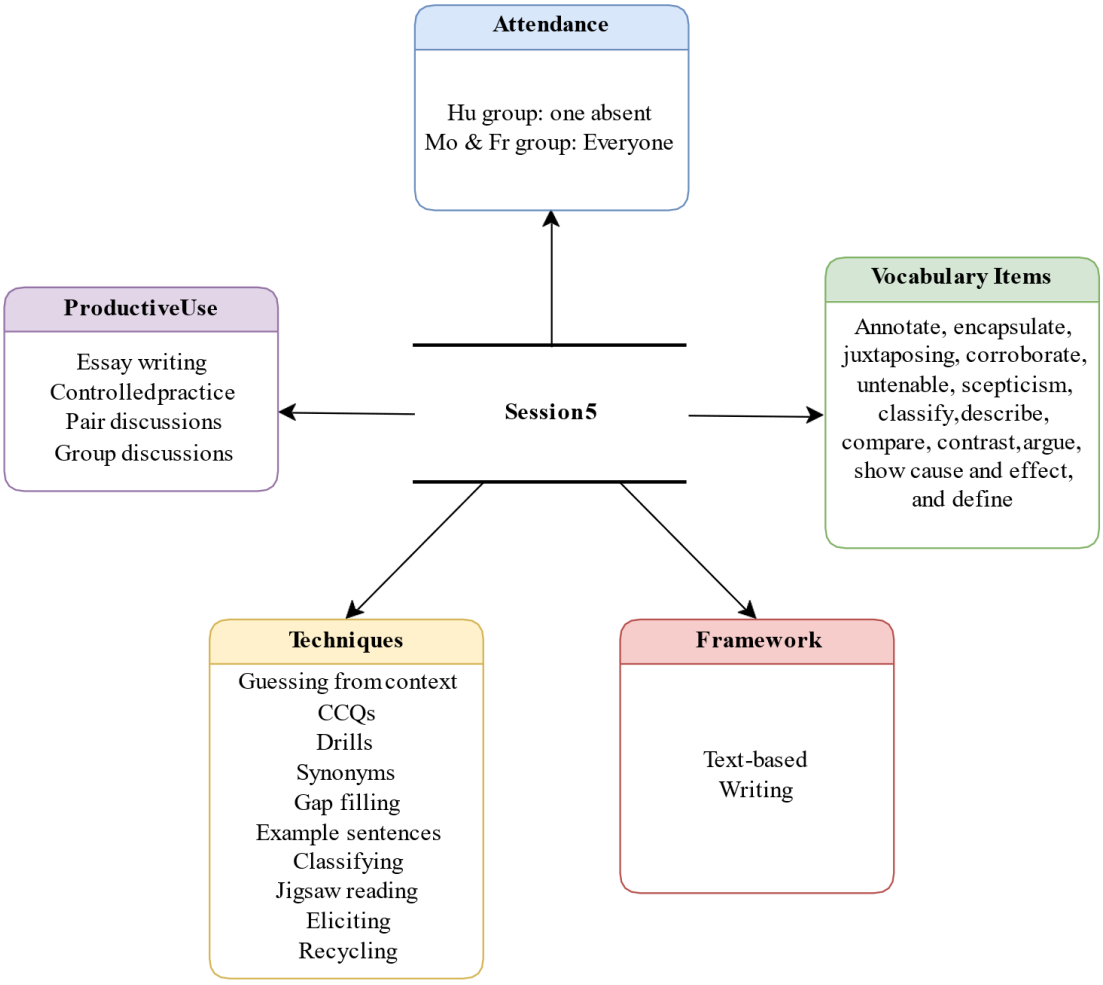


Diagram 5: Overview of pedagogical techniques for vocabulary development in session 5

Session 6

In the sixth lesson of the course, the instructional focus shifted to the development of writing, specifically in terms of writing literature reviews. The session's aim was to introduce students to academic vocabulary necessary for crafting literature reviews, including the terms *explain, implicate, observe, argue, assert, contend, describe, state, emphasize, put forward, cast doubt on, demonstrate, title, abstract, introduction/literature review, methods, results, discussion, references*. The primary goal was to ensure that by the end of the lesson, students would be familiarized with writing a literature review and be able to effectively incorporate the introduced sophisticated vocabulary items into their writing within an academic context. Materials were derived from the resource Galvan and Galvan (2017) *Writing Literature*

Reviews: A Guide for Students of the Social and Behavioural Sciences, as well as McCarthy and O'Dell's (2016) *Academic Vocabulary in Use*.

These sources provided a structured approach to understanding and constructing literature reviews, offering both theoretical underpinnings and practical applications. Anticipated classroom management difficulties included potential challenges with specific tasks like highlighting stress in words or finding suitable collocations. The solutions involved clear demonstrations and alternative methods of participation, ensuring that students could still engage with the lesson content even if technical issues arose. The language analysis segment of the lesson plan broke down each vocabulary item in terms of meaning, form, and pronunciation, using examples, pronunciation drills, and Concept Checking Questions (CCQs), to deepen the students' understanding of the vocabulary's use in context and ensure accurate application in their writing.

The lesson procedure began with a warm-up that included answering questions on essay writing feedback. The session then moved to a lead-in discussion about literature reviews, followed by tasks focused on understanding and applying the model of a literature review. Students were given opportunities to engage with the material through guided discovery, focusing on the clarification of meaning, form, and pronunciation of the target language. Brainstorming and planning exercises allowed students to prepare for their writing task, which involved composing a literature review using the session's target language and the literature presented during the lesson.

The session also included peer-editing opportunities, allowing students to provide feedback on each other’s texts, and concluded with language feedback to address any errors and highlight effective language use. This was introduced through a series of well-structured activities designed to enhance students’ understanding and application of academic vocabulary in the context of literature review writing. In these tasks, students began with an analytical reading of a provided literature review.

The initial goal was to discern the author's main actions in the piece. They then revisited the text to highlight the words used by the author to report what others say, an exercise that underlined the importance of reporting language in literature reviews. In the next phase, students engaged in a discussion about various aspects of the text, and the questions focused on the author's research methods, source mentions, paragraph coherence, theoretical review inclusion, pronoun usage, the importance of the reviewed topic, direct quotation frequency, and classification of end-text references. This comprehensive analysis deepened their understanding of how literature reviews are structured and articulated.

Later, using an online resource, students matched different reporting verbs to their meanings to emphasize the nuanced differences between various reporting verbs, an essential skill in academic writing to accurately represent source material. Again, each of these tasks also served to lay context for vocabulary items instruction. In the following task, students completed a table by identifying the correct noun and verb forms. This exercise was shared and discussed in the chat box, promoting collaborative learning and clarifying any ambiguities in word forms. The next task focused on frequent use of reporting nouns and their suitable collocations, enhancing their ability to use the introduced terms effectively in academic contexts.

The session also included a pronunciation-focused activity where students highlighted the stress in various vocabulary items and used pronunciation drills. This task aimed to improve their spoken academic English, a vital component of presentations and discussions in an academic setting. Towards the end of the session, students brainstormed their ideas on vocabulary learning strategies, then examined provided literature on the same topic. The objective was to group the provided pieces coherently, simulating the process of organizing a literature review.

As a final activity, students were asked to write a short literature review (300–500 words) on vocabulary learning strategies. They used the literature provided in the preceding task and incorporated the session's reporting words and the learned vocabulary items. Guidelines were given to ensure that students followed the correct structure and style for a literature review. From understanding reporting language to actual writing practice, each activity was designed to build their competence in this area of academic writing. The session effectively combined theoretical learning with practical application, thereby equipping students with the necessary tools to craft well-structured and articulate literature reviews.

As for the real-time lesson dynamics, the lesson commenced with a friendly chitchat about Christmas and New Year activities, fostering a relaxed atmosphere. The student who was absent from the previous sessions (Be) rejoined the class, explaining her absence due to personal reasons. However, another student (Ma) missed this class, maintaining the pattern of fluctuating attendance. The lead-in proceeded as planned, seamlessly transitioning into the main lesson content. Throughout the session, eliciting answers from students played a crucial role, particularly as they engaged in providing and paraphrasing their example sentences. This activity not only clarified the concept of “paraphrasing” but also sparked an engaging discussion about “blue Monday,” illustrating the practical application of language skills in real-life topics.

A notable challenge arose during the task of matching reporting words to their meanings. Students initially found it difficult to differentiate between words due to their nuanced meanings. However, through detailed group feedback and the successful answering of Concept Checking Questions (CCQs), students eventually grasped these subtle differences. This task demanded more time than anticipated, leading to a 10-minute extension of the lesson. Due to time constraints, the task involving collocations was modified from an individual exercise to a group activity. This change ensured that all planned tasks could be covered within the time frame, albeit with less individual practice than initially intended. The session concluded with the setting of homework, where students were reminded to avoid plagiarism in their submissions. The class also reviewed the original plan and schedule, preparing them for the upcoming summative quiz.

Reflecting on the session, I acknowledged that the lesson exceeded the allocated time, necessitating an additional ten minutes. Despite this, student participation was commendable, with students responding effectively to elicitation exercises and actively engaging in the tasks. I recognized the need to revisit time management strategies to ensure more efficient use of class time. The main goals of the lesson were achieved, as evidenced by the quality of the submitted literature reviews. Looking forward, I planned to simplify the online platform used for the reporting words task to enhance understanding and streamline the learning process. This reflection highlights my continuous commitment to improving teaching methodologies and adapting to the needs of the students.

Moving to the second group of Moroccan and French participants, the extensive nature of the program facilitated covering both the fifth and sixth lessons into the allocated 180 minutes. In the first half of the lesson, the session began with an amiable chitchat, where participants discussed the current situation in their respective countries.

This conversation provided a comfortable start and allowed time for all students to join. A recapitulation of week 4's content set the stage for the day's lessons, outlining the agenda that included essay writing (lesson 5) and literature review writing (lesson 6). As we started, tasks from lesson 5 were demonstrated, followed by peer and group feedback. A model essay was then introduced, serving both as a practical example and a tool for introducing target vocabulary items. The online format of the class was effectively utilized to color and highlight different sections of the text, helping students familiarize themselves with the structure and components of an essay. Elicitations and CCQs played a crucial role in clarifying the form, meaning, and pronunciation of the vocabulary items, supplemented by drills and stress

identification in words. The first half of the session concluded with the setting up of homework and was followed by a 15-minute break.

The second half of the session delved directly into the model literature review. Students engaged in reading for gist and detailed information, simultaneously discovering the target vocabulary items. The approach and activities mirrored those conducted with the Hungarian pilot group. Special emphasis was placed on the task of matching reporting verbs to their meanings by giving additional demonstrations to facilitate understanding, and group feedback sessions were instrumental in clarifying the subtle nuances between the target vocabulary items.

The session concluded with the assignment of the second homework along with highlighting the guidelines for writing. The session closed with a brief outline of what to expect in the next session. Reflecting on this extended session, I noted the successful management of time and the high level of student participation. The main goals of the session, along with my personal objectives, were met satisfactorily. Notably, attendance by the students was perfect, reflecting their engagement and commitment to the course. This session, encompassing lessons 5 and 6, showcased an effective blend of structure and flexibility, ensuring comprehensive coverage of essential academic writing skills and academic vocabulary while adapting to the needs and dynamics of a diverse student group. To give an overview of the sixth session's structure, the following diagram is presented:

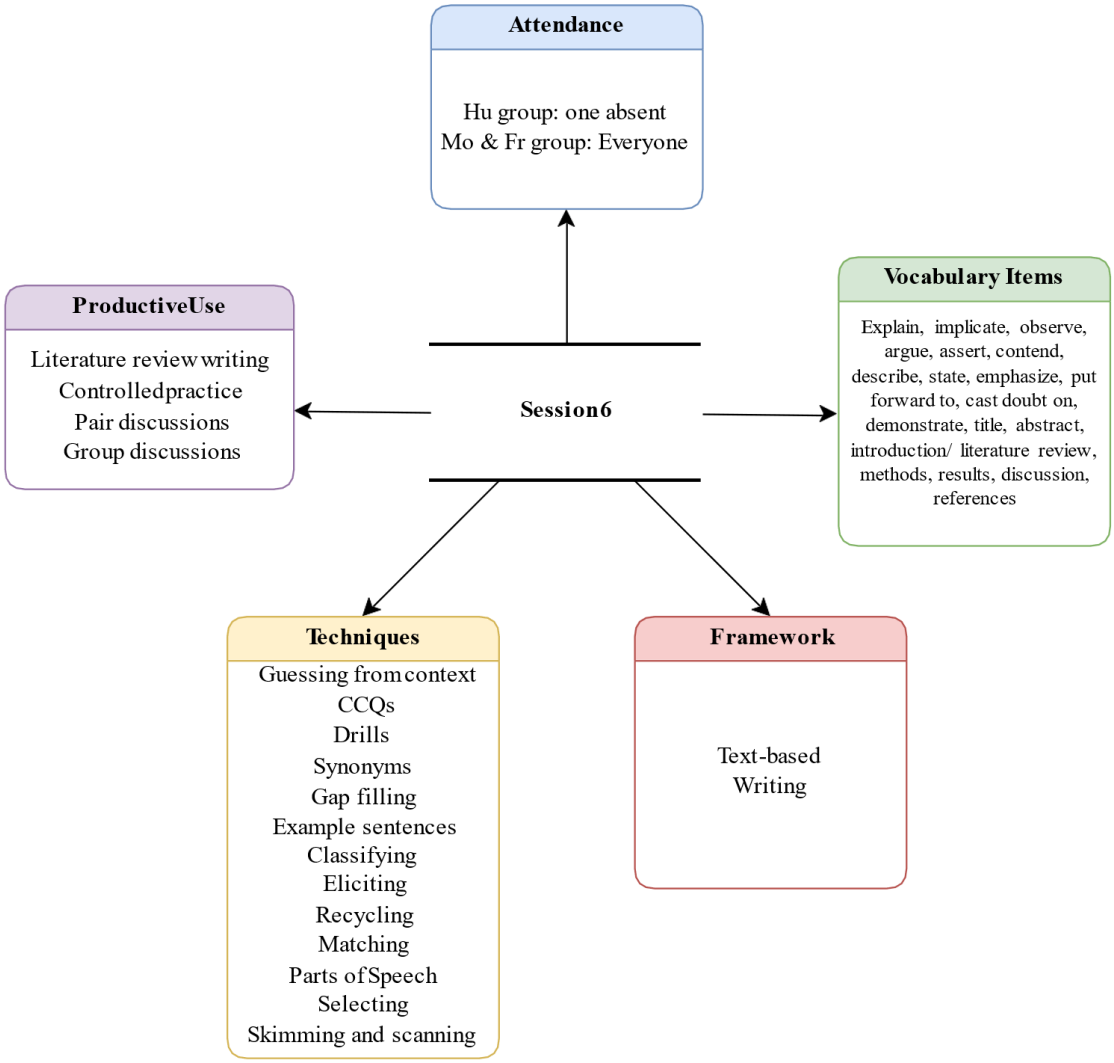


Diagram 6: Overview of pedagogical techniques for vocabulary development in session 6

Session 7

In the seventh lesson of the course, students delved into the intricate aspects of vocabulary related to expressing evaluation and emphasis in academic writing. This lesson was essential in equipping students with understanding and using the vocabulary items *stance, evaluation, hedging, boosting, highlight, seminal, borne out by, acknowledge, recalling, noteworthy, weighing up, drawbacks, course of action, relevant aspects, robust, drawing conclusions, outweigh, soundly*, and *points raised* to effectively articulate their thoughts in academic contexts.

First, students were asked to analyze a paragraph to identify the writer's voice and the voices of other authors. They focused on words or phrases showing the writer's confidence

level, distinguishing between cautious language (hedging) and confident language (boosting). This task was crucial in helping students understand how to express their stance and evaluate others' work in their writing.

Then, students were asked to examine sentences with bold words and look up their meanings in a dictionary. This exercise aimed to deepen their understanding of evaluation and emphasis, essential components in academic writing. As the lesson progressed, students engaged in an activity where they matched definitions to terms related to methods and data analysis. This task helped them familiarize themselves with key concepts and vocabulary used in describing research methods and analyzing data.

Later, students were required to complete sentences with appropriate words from a given list, focusing on methodological language. It reinforced their understanding of how different methods are described in academic texts. In the final task, students found the correct words for given definitions in a paragraph that described analyzing data. This activity emphasized the language used in research writing to describe data analysis. The lesson plan was carefully structured to balance theoretical knowledge with practical application.

Students participated in various tasks, including analyzing written passages and engaging in discussions to identify different elements of language that convey evaluation and emphasis. Anticipated classroom management challenges were addressed through interactive tasks, clear demonstrations, and effective use of the virtual learning environment. Language analysis was a key component, where each term was broken down in terms of its meaning, form, and pronunciation. Through examples, drills, and CCQs, students explored the nuances of each term, ensuring a deep understanding and correct usage.

After conducting the seventh lesson, my self-evaluation revealed both insights and areas for future improvement. Firstly, the primary objectives of the lesson, which were to teach students about expressing evaluation and emphasis and to enable them to identify and use relevant language effectively, were successfully met. Students demonstrated a clear understanding of concepts such as *stance*, *hedging*, and *boosting*, as evidenced in their participation and the exercises. Students were actively engaged throughout the lesson. Their involvement in the tasks, especially during the interactive activities like matching definitions

and analyzing paragraphs, was encouraging. However, I noticed that some students were less vocal than others.

Managing the online classroom went smoothly, with minimal technical issues. However, monitoring individual progress in the virtual setting posed a challenge, which I fixed through revisiting the recorded sessions.

The lesson was well-paced, and the activities were completed within the allotted time. The breakdown of vocabulary in terms of meaning, form, and pronunciation was thorough and seemed to resonate well with the students. Their correct use of the target language in tasks indicated a good grasp of the concepts.

While students showed a good understanding of the academic vocabulary, I believe that providing more guidance in critically analyzing language use in academic writing, such as through fostering deeper discussions about the choice of language in different contexts, would be more beneficial. Moreover, ensuring that each student has equal opportunity to contribute to group feedback remains a priority.

In conclusion, the seventh lesson was a critical step in advancing students' abilities to use language for evaluation and emphasis in academic writing. Through a combination of insightful theoretical content and practical exercises, the session successfully met its objectives, significantly contributing to the students' linguistic development in English as a Second Language. There were no major changes or differences in the real-time event of session 6 between the Hungarian group and the Moroccan and French ones other than the variety of students' answers and rates of participation and the nature of the program of instruction. Following this session, both groups were asked to take a 90-minute test to assess and measure their vocabulary retention or attrition after a disuse period. To give an overview of the seventh session's structure, the following diagram is presented: their vocabulary retention or attrition

after a disuse period. To give an overview of the seventh session's structure, the following diagram is presented:

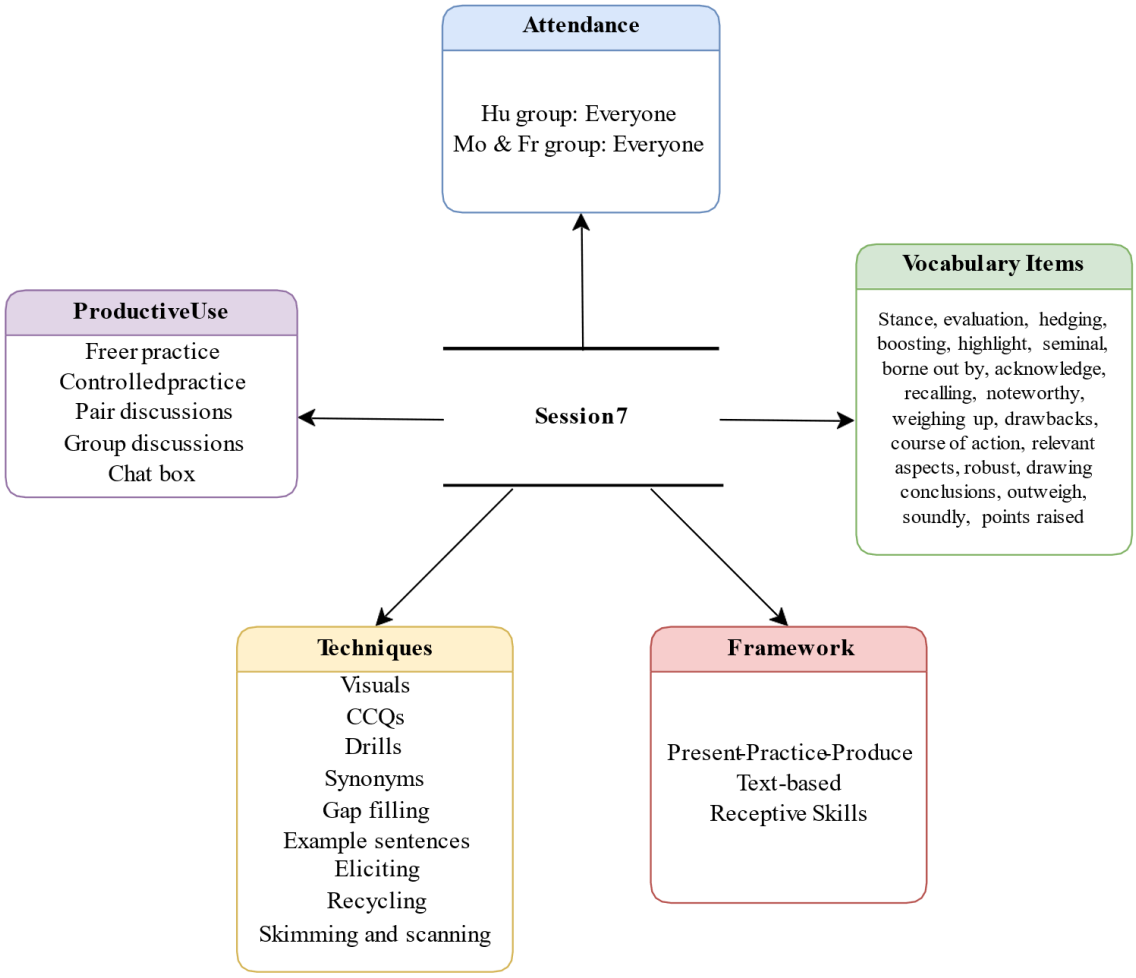


Diagram 7: Overview of pedagogical techniques for vocabulary development in session 7

Session 8: the test (see appendix 3)

The eighth session was a strategically designed assessment to evaluate students' proficiency in academic vocabulary, fitting into my main thesis' study of vocabulary attrition and retention in English as a second language. This comprehensive test, lasting approximately 90 minutes, was methodologically aligned with the educational aims and content of the previous seven lessons, ensuring a holistic evaluation of the students' language skills. It employed a multifaceted approach, engaging students in tasks that tested their understanding

of vocabulary, its application in academic contexts, and the ability to manipulate language for various academic purposes.

The test was structured into four sections, each addressing different aspects of academic vocabulary knowledge and usage. In short, the first section (1) assessed the recognition and understanding of specific vocabulary items including their pronunciation and parts of speech. The second section (2) shifted focus to the application of formal academic vocabulary in rephrasing sentences and identifying parts of speech in a broader context. The third section (3) involved practical exercises in collocations and contextual vocabulary usage, crucial for academic writing and discourse, and the fourth section (4) challenged students to apply functional language in academic writing, analyzing their ability to effectively use language to fulfill specific purposes.

My methodological analysis of this test showed that there is a focus on vocabulary recognition and usage where the test begins by asking students to match definitions with the correct vocabulary items. This not only tests recognition but also their understanding of the words in context. The inclusion of pronunciation and parts of speech aspects indicated a comprehensive approach, ensuring that students were not only able to recognize these words but also use them correctly in speech and writing. It also showed that the application of these items in academic contexts is highlighted, especially in section 2 where students were required to transform informal sentences into formal academic language.

This task assessed their ability to apply learned vocabulary in a way that is germane to academic settings, reflecting their understanding of register and tone. Collocations and contextual use were also included as seen in section 3 where context-specific vocabulary use was deemed critical in assessing students' ability to apply vocabulary in a manner that is both meaningful and appropriate to the given academic context. Finally, the most challenging aspect was seen in section 4 where students were required to understand and apply functional language. This section evaluated their ability to manipulate language to serve specific academic purposes, such as defining, classifying, or arguing, a key skill in academic writing.

Taking into consideration Nation’s (2001) balanced approach to vocabulary learning and assessment that focuses on meaning-focused input, meaning-focused output, language-focused learning, and fluency development, I designed this test to align with Nation’s principles together with various dimensions of vocabulary knowledge and usage in an academic context.

The test adheres to these principles by assessing both receptive and productive aspects of vocabulary knowledge. The first section’s focus on vocabulary recognition, understanding through definitions, pronunciation, and parts of speech aligns with Nation’s emphasis on depth

of vocabulary knowledge. The second section's transformation of sentences into a formal academic register reflects Nation's viewpoint on the importance of applying vocabulary in meaningful and contextually appropriate ways. The third section, concentrating on collocations, adheres to Nation's highlighting of the significance of learning collocations as part of vocabulary knowledge. Finally, the fourth section, which assesses the functional application of vocabulary, mirrors Nation's perspective on the productive use of vocabulary through its function in communication. The tasks are practical and contextually grounded, simulating real academic scenarios, which is crucial in Nation's approach for meaningful vocabulary use.

Moreover, by moving from basic recognition to application and then to the manipulation of language for specific purposes, the test progressively evaluates the depth of students' vocabulary knowledge and challenges students to think critically.

In conclusion, the 90-minute formative vocabulary-focused test combined recognition, application, and functional use of language, providing a comprehensive measure of students' vocabulary skills in an academic context. The pilot study helped validate this test and showed that it is methodologically sound as it is designed to assess both retention of vocabulary and the ability to apply it in academic contexts.

By revisiting vocabulary and concepts from earlier weeks, the test provided insights into the extent of vocabulary retention among the students. In this light, each section of the test was intricately connected to the content and objectives of the previous lessons, and the test directly contributed to the overarching research on vocabulary attrition and retention in ESL contexts by measuring the extent to which students retain vocabulary after instruction and lose it after a long period of disuse.

To evaluate the methodological soundness of the test as a qualitative tool in collecting the desired data, credibility, transferability, confirmability, ethical validity, richness and depth of data, appropriateness of research design, and data saturation were all accounted for.

Firstly, the test's design and execution demonstrated credibility by involving a comprehensive analysis of vocabulary in varying academic contexts, ensuring that the findings (students' understanding and use of vocabulary) are a true reflection of their capabilities. The use of diverse tasks, from simple recognition to application in context, ensured a thorough examination of vocabulary knowledge.

Secondly, the detailed description of the test's structure, content, and target audience makes it easier for other educators or researchers to determine its applicability in different

linguistic contexts. The inclusion of a range of academic vocabulary ensures that the test's findings are relevant and potentially transferable to other academic language learning settings.

Thirdly, the test's focus on standard academic vocabulary and established linguistic principles helped in maintaining objectivity, reducing the influence of researcher bias. In addition, I conducted a peer review with fellow language professionals who examined the test for clarity, content validity, and alignment with learning outcomes. External validation was also sought from a subject matter expert, who provided independent feedback on the appropriateness and academic rigor of the items. Together, these measures enhanced the test's confirmability by ensuring that results could be independently reviewed and replicated.

As for ethical validity, I conducted the test with adherence to ethical standards, including informed consent and respect for participants. Moreover, all participants left their cameras on while taking the test and were closely watched for any attempts of using unallowed external sources, which did not occur in either group.

After the pilot study, the test appeared to collect rich data on students' vocabulary knowledge through the varied tasks, a multi-faceted approach that allowed for an in-depth understanding of students' vocabulary abilities and learning needs.

Finally, data saturation was shown through the broad enough range of vocabulary items that were covered to fully assess students' knowledge. In summary, based on the above, the 90-minute formative vocabulary-focused test can be considered a methodologically sound qualitative tool. Both its design and implementation align with key criteria for validity in qualitative research, including credibility, transferability, and confirmability. It appears to collect rich, relevant data appropriate for its academic context, adhering to ethical standards and reaching data saturation within its scope.

This eighth week test was an integral component of the course, providing both valuable data on the efficacy of the teaching methods and the extent of vocabulary retention among ESL students. Its comprehensive design and alignment with the course's educational aims made it an effective tool for assessing students' progress and contributing to the broader research study.

4.1.2 Duration and Nature of Instruction During Disuse Period

In this section, quantitative data from the vocabulary tests with qualitative data from participant narratives are merged to form analysis of the input variables during the disuse period. This approach enables a multifaceted understanding of how the duration and nature of

instruction, as well as the linguistic environment during the disuse period, impact vocabulary retention.

The vocabulary tests administered post-instruction and post-disuse period are the same and serve as the primary quantitative data collection tool measuring various aspects of vocabulary knowledge, including recognition and production in academic contexts. They also provide measurable outcomes for vocabulary retention, offering a baseline for comparing the effects of different instructional approaches.

In parallel, qualitative data obtained from interviews was captured to give voice to the participants' subjective experiences, shedding light on their perceptions of instructional frequency and duration effectiveness, their experiences during the disuse period, and their reflections on the nature of instruction and its impact on their abilities to retain and recall vocabulary.

Using a mixed-methods analysis was deemed appropriate as it integrates varied data strands to produce a nuanced understanding of the instructional impact. The process involves conducting participant observation to gather qualitative data, with the aim of identifying recurring themes related to the instructional impact as well as participants' experiences with using, or not using, the target language, and a comparative analysis highlighting the quantitative outcomes and qualitative experiences of the Hungarian group with those of the Moroccan and French groups to identify the differential impacts of instruction style.

It is worth remembering that the Hungarian participants received a distributed instruction model of eight 90-minutes sessions spread over 8 weeks, and the Moroccan and French participants received a more condensed instruction model of four 180-minutes sessions spread over 4 weeks.

Both groups were then subjected to a 40-week disuse period with no formal English instruction, after which vocabulary retention was assessed post-instruction. However, during this same disuse period, some participants received occasional English exposure through formal instructional stimuli, while others group did not, hence the variable of reduced input and use. Those who did receive the instructional input are hereafter referred to as Participants A, and those who did not as Participants B. Namely, Participants A included Ka, Be, Li, Ke, and Participants B included Ma, Ev, Hi, Ih, Th, Om, Ma.

By analyzing this variable, the aim is to capture the extent to which participants' exposure to English or absence thereof during disuse periods impacts vocabulary retention or attrition. To be more specific, the term "occasional exposure" implies that Participants A had

sporadic contact with the English language after the formal instruction period had ended. This did not follow the regular scheduled format of the initial instruction phase but happened at regular five 8 weeks intervals over the 40-week disuse period. Moreover, the term "formal instructional stimuli" suggests that Participants A's interaction with English was not casual or incidental, rather structured and educational in nature. It involved activities and materials similar to those used during the formal instruction phase but delivered less frequently, including:

- Two short online review sessions focusing on the academic vocabulary previously covered, including a vocabulary game where students were asked to recall all vocabulary covered during the instruction and to provide example sentences for each.
- Two vocabulary tasks reinforcing the use of academic English to be completed independently and to be sent via email.
- Encouraging the autonomous search and use of educational platforms and resources requiring the application of English language skills in an academic context.

As for Participants B, participants did not receive any such structured English language inputs. Their experience was marked by an absence of formal instructional engagement with the language, relying solely on any natural exposure they might encounter in their daily lives or academic settings, which was less frequent and systematic than Participants A's experience. To assign participants to their respective groups, the test scores of those who scored the highest and lowest were assigned to Participants B, and the remaining ones, two Hungarians, one Moroccan, and one French were assigned to Participants A.

By comparing Participants A's retention rates to those of Participants B, the study investigates whether and to what extent structured language interactions during a period of disuse can contribute to maintaining vocabulary knowledge. The assumption is that any form of continued engagement with the language, even if not intensive, can help mitigate the potential rate of vocabulary attrition. This variable is particularly important because it offers insights into the effectiveness of occasional, formal English use in maintaining language proficiency over time. To summarize the occasional input, the following figures are presented:

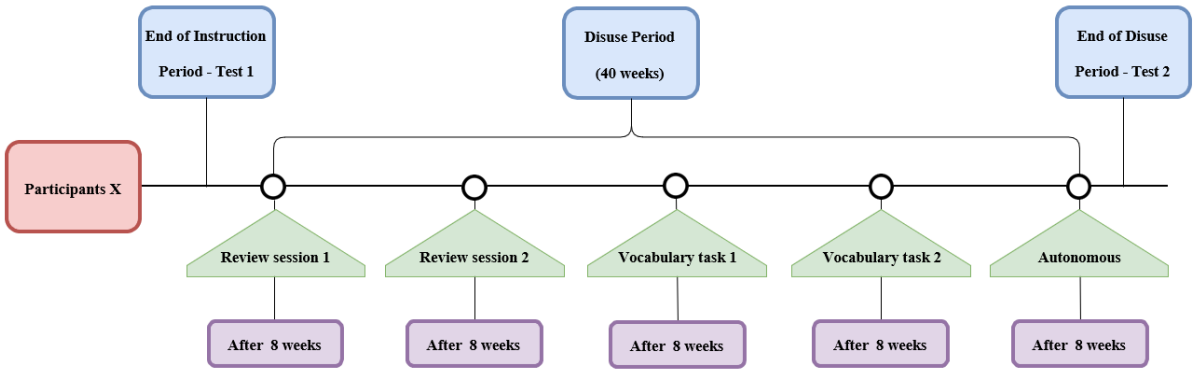


Figure 1: Timeline of occasional formal instructional exposure for Participants A during the 40-week disuse period

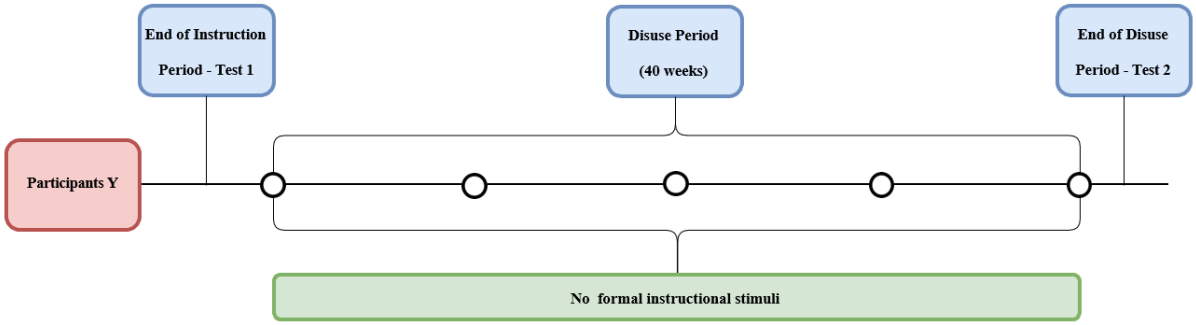


Figure 2: Timeline of occasional formal instructional exposure for Participants B during the 40-week disuse period

Drawing on the vocabulary test results, as summarized in the table below (table 8), it appeared that students who took part in the spaced shorter and less intensive sessions with prolonged disuse without instructional support (Ev and Ma) showed more attrition than students who took part in the more intensive session without instructional support during the disuse (Hi, Ih, Th, Om, Mal).

Table 8: *Vocabulary Test Scores of Participants*

Participant	Nationality	Vocabulary Test Score 1	Vocabulary Test Score 2
Li	Moroccan	84%	97%
Ka	Hungarian	83%	88%
Be	Hungarian	98%	98%
Ke	Moroccan	98%	98%
Ev	Hungarian	84%	60%
Hi	Moroccan	70%	55%
Ih	Moroccan	97%	89%
Th	French	76%	60%
Om	French	76%	65%
Mal	French	94%	86%
Ma	Hungarian	91%	70%

Conversely, participants who benefited from support during the disuse period showed more retention, regardless of the intensity of the instruction program they took part in. Naturally, longer periods without language use led to greater vocabulary attrition, which stresses the need for consistent instructional reinforcement, engagement, and attendance to prevent vocabulary attrition as evidenced through the contribution of occasional formal instructional stimuli during the disuse period to higher retention rates in Participants A (in blue color) compared to Participants B (in red color).

4.2 Data Analysis of Personal Variables

4.2.1 Vocabulary Size

In an innovative approach to vocabulary testing, Aviad-Levitzky et al. (2019), among others, developed and validated the Computer Adaptive Test of Size and Strength (CATSS) to provide a nuanced understanding of vocabulary knowledge that can inform language learning and teaching strategies. The methodological foundation of the test lies in its capacity to assess both the size and strength of a learner's vocabulary knowledge. It is built upon three core assumptions: (1) the ability to link a word form to its meaning, (2) meaning varies in strength and can be categorized into four levels: productive recall, receptive recall, productive

recognition, and receptive recognition, and (3) a broad vocabulary (knowing many words) is prioritized over a deep understanding of a few words. Moreover, the test evaluates vocabulary by testing words in four modalities corresponding to the aforementioned levels of knowledge strength. Each word is assessed through tasks that require the learner to either recall or recognize the word's meaning or form. The tasks, as they appear in Appendix 6, range from supplying a missing word based on a definition (productive recall) to choosing the correct word or its meaning from multiple choices (productive and receptive recognition). The scoring system reflects the hierarchy of difficulty among the four modalities, assigning different point values to correct answers at each level. The final score provides a detailed picture of the learner's vocabulary size and strength across these modalities. The methodology implies that correctly answering a question at a more challenging level negates the need to test that word at easier levels, optimizing the testing process. The approach is designed to offer a comprehensive assessment of vocabulary knowledge, acknowledging that word knowledge encompasses more than just recalling meanings and that a larger vocabulary is a crucial component of language proficiency. In this light, this section of the study sought to explore the impact of vocabulary size on potential vocabulary retention and attrition of language. As a reminder, the assessment comprised two summative tests: Score 1, administered immediately following the instructional period, and Score 2, conducted after a 40-week period of disuse. Participants took the online validated vocabulary size test (CATSS) at the start of instruction, and their vocabulary size and strength were recorded as portrayed in Table 9 below:

Table 9*: Vocabulary Test Scores and Vocabulary Size*

Participant	Vocabulary Test Score 1	Vocabulary Test Score 2	Vocabulary size and strength
Li	84%	97%	8150-word families
Ka	83%	88%	8000-word families
Be	98%	98%	10000-word families
Ke	98%	98%	9000-word families
Ev	84%	60%	8100-word families
Hi	70%	55%	6500-word families
Ih	97%	89%	8500-word families
Th	76%	60%	7100-word families
Om	76%	65%	7100-word families
Mal	94%	86%	8000-word families
Ma	91%	70%	6500-word families

To analyze the results, a mixed-methods approach was adopted, integrating both qualitative observations and quantitative analyses to elucidate the potential relationships between participants' vocabulary size and test scores.

Qualitatively, it can be observed that there are participants who had a:

- High vocabulary size with stable scores: for instance, participants Be and Ke from Participants A showed the biggest vocabulary sizes and maintained their first and second test scores.
- Variable vocabulary size with a score decrease; specifically, participants in Participants B showed a decrease in scores regardless of their vocabulary size. For example, participants Ev (8,100-word families) and Om (7,100-word families) both showed a significant drop in their test scores, even though there is a 1,000-word family difference between them.
- Lower vocabulary size with a score decrease: participants with lower vocabulary sizes (6,500-word families, such as Hi and Ma) in Participants B showed a significant decrease in their second test scores.
- Anomaly in score increase: Li from Participants A, with a mid-range vocabulary size (8,150-word families), showed an outstanding increase in the test score, which deviates from the afore observed pattern of score retention or attrition.

Considering these observations, there appears to be some potential relationship between vocabulary size and test score changes across both groups. Within Participants A, participants with the largest vocabulary sizes maintained their scores, suggesting that a larger vocabulary size might contribute to better retention in that particular group. While there are patterns that suggest a larger vocabulary size may be related to better retention, at least evident within Participants A, the qualitative observations do not provide enough evidence to establish a clear connection across both groups without further statistical analysis.

To give a quantitative insight into the observed variations in test score and vocabulary size, using a descriptive statistical analysis provided a foundational understanding of the central tendencies and variability within the data set. Using descriptive statistics in SPSS, the following table summarizes the quantitative analysis:

Table 10*: Descriptive Statistics for Test Scores and Vocabulary Size*

	Number of participants	**Minimum value**	**Maximum value**	**Mean**	**Standard deviation**
Score 1 (post-course test)	11	70.00%	98.00%	86.45%	9.84%
Score 2 (post disuse period test)	11	55.00%	98.00%	78.72%	16.88%
Vocabulary size and strength	11	6500.0	10000.0	7995.45	1157.68

From the table above (Table 10), it can be noticed that on average, participants scored 86.45% on the first test immediately after completing the course. There appears to be a moderate spread in the scores, with a standard deviation of 9.842%, suggesting some variability in the test results among the participants. Accordingly, it appears that the lowest score on the first test was 70%, and the highest was 98%.

The mean of test 2 scores shows that on average, participants scored 78.72% after the disuse period, indicating a decrease when compared to Score 1. The spread of scores is quite high at 16.88%, which is greater than that for Score 1, indicating a wider range of scores and suggesting that the retention of vocabulary was more variable across participants after the

disuse period. The lowest score on the second test was significantly lower than Score 1 at 55%, and the highest score remained the same at 98%.

The average vocabulary size of participants is around 7995-word families, with a standard deviation of around 1157-word families, indicating that there is variability in the vocabulary sizes of the participants. The smallest vocabulary size reported is 6500-word families and the largest is 10000-word families.

Overall, it seems that there is a general decrease in scores from Score 1 to Score 2, indicating some level of vocabulary attrition over the 40-week period. The variability of scores increased from Score 1 to Score 2, as seen in the standard deviation, suggesting that some participants, most likely of Participants A, retained their vocabulary to varying degrees over time. Despite the variability in vocabulary sizes, there does not appear to be extreme disparities among the participants' diversity in vocabulary size. The vocabulary sizes show less variability than the Score 2 results, which might imply that while vocabulary size is relatively stable, the ability to actively recall or recognize vocabulary (as evidenced by test scores) is more susceptible to decline without regular use or reinforcement. While this descriptive analysis gives a picture of the central tendency and variability of the scores and vocabulary sizes, it does not explore the reasons behind these changes or the relationship between vocabulary size and score changes. In order to get an idea of these relationships, a quantitative correlation analysis using SPSS was employed to substantiate the qualitative findings. The findings are summarized in Table 11 below:

Table 11*: Pearson Correlation Matrix for Test Scores and Vocabulary Size*

		Score 1	**Score 2**	**Vocabulary size and strength**
Score 1	Pearson Correlation	1	.763**	.759**
	Sig. (2-tailed)		.006	.007
	Number of participants	11	11	11
Score 2	Pearson Correlation	.763**	1	.778**
	Sig. (2-tailed)	.006		.005
	Number of participants	11	11	11
Vocabulary size and strength	Pearson Correlation	.759**	.778**	1
	Sig. (2-tailed)	.007	.005	
	Number of participants	11	11	11

**. Correlation is significant at the 0.01 level (2-tailed).

Table 11 above summarizes Pearson correlation matrix, which shows the relationships between Score 1, Score 2, and Vocabulary size and strength. The Pearson correlation coefficient (r) measures the strength and direction of the linear relationship between two variables on a scale from -1 to 1, where 1 means a perfect positive correlation, 0 means no correlation, and -1 means a perfect negative correlation. The double asterisks (**) next to the Pearson Correlation coefficients indicate that correlations are statistically significant at the 0.01 level, which implies a high level of confidence in these results. Pearson's correlation coefficient, denoted as 'r', is a statistical measure that evaluates the strength and direction of the linear relationship between two continuous variables. Pearson's correlation coefficient was chosen for this analysis for the following reasons:

- Pearson's correlation requires that both variables are measured on an interval or ratio scale. In this study, both vocabulary size and test scores are ratio variables, with meaningful zeros and equal intervals between measurement units.
- Pearson's r assumes that the relationship between the two variables is linear. That is, as one variable increases or decreases, the other variable also increases or decreases in a consistent

fashion. This was assumed to be appropriate for the analysis since the qualitative hypothesis assumed that increases in vocabulary size would linearly relate to increases in test scores.

- Pearson's correlation is known for being robust, which means it can produce reliable results even if some of its assumptions are moderately violated. This is particularly relevant when dealing with small sample sizes.

To portray the significance of these results, the interpretation is presented together with the results focusing on any significant correlations between test scores and vocabulary size, highlighting how initial performance and vocabulary strength influenced retention, and showing the degree of vocabulary attrition over the disuse period.

To interpret the statistical output, data shows that there is a strong positive correlation between Score 1 and Score 2, which is statistically significant ($r = .763$, $p < .01$). This suggests that participants who scored higher immediately after the course tended to also score higher after the 40-week disuse period. There is also a strong positive correlation between Score 1 and Vocabulary size and strength, which is statistically significant ($r = .759$, $p < .01$). This indicates that participants with larger vocabulary sizes tended to have higher scores on the test immediately after the course. Moreover, a strong positive correlation exists between Score 2 and Vocabulary size and strength, which is statistically significant ($r = .778$, $p < .01$).

This means that participants with larger vocabulary sizes tended to retain their vocabulary better over the disuse period, scoring higher on the test after 40 weeks. In conclusion, the correlations suggest that test scores are somewhat consistent over time for individual participants, that a larger vocabulary size seems to be associated with higher scores both immediately after the course and after a disuse period, and that the higher the participants scored initially, the less vocabulary attrition they experienced, as indicated by higher scores on Score 2.

In comparing the qualitative observations with the quantitative findings, it appears that both analyses observed a decrease in scores from Score 1 to Score 2, which indicates vocabulary attrition over the 40-week period of disuse. This is supported by the drop in the mean score from 86.45% to 78.72%, which quantitatively confirms the qualitative observation of score decline. Likewise, the qualitative analysis noted that there was variability in the extent of score decline between participants.

This is quantitatively supported by the increase in standard deviation from Score 1 (9.84%) to Score 2 (16.88%), indicating a wider spread of scores after the disuse period.

Moreover, the qualitative analysis suggested that there might not be a direct correlation between vocabulary size and retention.

The descriptive statistics showed a relatively high mean vocabulary size (7995-word families), but without a corresponding high mean retention score after the disuse period. The standard deviation for vocabulary size is lower than that for Score 2, indicating less variability in vocabulary size than in test score retention.

Finally, the qualitative analysis suggested that Participants A retained vocabulary better than Participants B. While the descriptive statistics presented in the analysis do not show separate data for each group, certain patterns, such as high maximum scores and strong connections, indirectly suggest that some participants retained their vocabulary better. In other words, the existence of high maximum scores that match between Score 1 and Score 2 might indicate that some participants (potentially from Participants A) retained vocabulary well, which is further supported by the correlation analysis.

More specifically, the strong positive connection between Score 1 and Score 2 supports the qualitative observation that those who scored well at the end of the course tended to also score relatively well after the disuse period. This is consistent with the descriptive statistics showing a general decrease in mean scores but still within a related range (as indicated by the correlation). The descriptive statistics showed an increase in the standard deviation from Score 1 to Score 2, which suggested greater variability in retention over time.

The correlation coefficient does not directly measure variability, but the significant positive correlation implies that despite this variability, there is a consistent relationship between initial scores and those after the disuse period. Both the qualitative and descriptive analyses speculated the relationship between vocabulary size and test scores. The correlation analysis confirms this relationship, showing a significant positive correlation between vocabulary size and both Score 1 and Score 2.

This suggests that individuals with a larger vocabulary size tended to score higher both at the end of the course and after the disuse period. All analyses pointed towards the potential relationship between vocabulary size and test scores, and the degree of retention/ attrition of vocabulary knowledge over time. The descriptive analysis provided the average tendencies, while the correlation analysis quantified the strength and direction of the relationships between the variables.

The findings present a clear pattern: vocabulary size appears to be a significant factor in both immediate vocabulary recall and longer-term retention. This aligns well with cognitive theories of language acquisition, which as highlighted in the literature review section, postulate

that a bigger vocabulary size can improve the retention through the establishment of richer semantic networks and extensive rehearsal and retrieval opportunities. However, it is important to highlight the limitations due to the small sample size (N = 11), which affect the generalizability of the results. The significant correlations found, while statistically robust within this sample, may not accurately reflect trends in a larger, more diverse population. The study design also does not allow for causal inferences; consequently, while a larger vocabulary size is associated with higher retention, the directivity of this relationship cannot be definitive. These results should be ideally replicated with a larger sample to verify the findings.

So far, it has been established that vocabulary size is an important factor to be considered. While this finding lays the groundwork for understanding attrition dynamics, it does not account for other crucial variables that influence language retention. One such variable is the learner's intrinsic state. To explore this further, the role of motivation and attitude in language acquisition and attrition is turned to.

4.2.2 Motivation and Attitude

Drawing from the foundational framework inspired by Gardner's (2004) Attitude/Motivation Test Battery (AMTB), as highlighted in the literature review, this study's investigation attempts to explore how varying levels of motivation and attitudes towards English influence vocabulary acquisition and retention in the studied participants. This is specifically significant in the context of a disuse period where language exposure and instructional support are minimized. As covered, the participants are divided into two groups: Participants A, which benefitted from occasional instructional input even during the disuse period, and Participants B, which did not receive such support. By comparing these two groups, the analysis aims to observe the potential factors impeding vocabulary attrition and to identify the characteristics of learners who proved more resistant in maintaining their vocabular over the prolonged disuse time.

Descriptive statistics are used as the backbone of the analysis, offering insights into the learners' performance across the two vocabulary tests, administered immediately after the termination of the online academic English course and following the 40-week disuse period. Along with the participants performance in the test, learners' answers to an adapted version of the AMTB were collected and categorized based on their attitudes toward English speakers and the English language (AESEL), their interest in foreign languages (IFL), attitudes toward learning English (ALE), integrative and instrumental orientations (IO and IsO, respectively),

anxiety experienced in English class (ECA), parental encouragement (PE), and overall motivational intensity (MI). By finding the means and standard deviations across these categories using SPSS, the ultimate aim is to construct a narrative comparing vocabulary retention or attrition amongst the participants and to contextualize their test scores within the broader spectrum of language learning psychology. The questions exploring the implications of motivational and attitudinal patterns on language retention and attrition based on their categorization are presented in Table 12 below:

Table 12: *Categorization of AMTB Questions Based on Motivation and Attitudes*

Category	**Number of items/questions (see Appendix 4 for the full list)**
Attitudes toward English Speakers and English Language (AESEL)	20
Interest in Foreign Languages (IFL)	10
Attitudes toward Learning English (ALE)	10
Integrative Orientation (IO)	4
Instrumental Orientation (IsO)	4
English Class Anxiety (ECA)	5
Parental Encouragement (PE)	8
Motivational Intensity (MI)	9

The AMTB was adapted and piloted to the study participants. The questionnaire included 70 questions in a randomized order, each belonging to its respective category. Starting with the first category, Attitudes toward English Speakers and English Language (AESEL) consisted of 10 items about native English speakers, and 10 items about English (20 items total). Interest in Foreign Languages (IFL) consisted of 10 items that assess participants' general interest in studying foreign languages excluding any explicit languages as examples. Attitudes toward Learning English also consisted of 10 items, five of the items were positively worded, and five expressed negative sentiments. Integrative Orientation had four items highlighting the importance of learning English in permitting social interaction with other speakers of English. Instrumental Orientation on the other hand presented four items stressing the pragmatic or utilitarian value of learning English. English Class Anxiety comprised five items reflecting subjects' degree of discomfort while participating in the English class. Parental

Encouragement contained 8 items assessing the extent to which students feel their parents' support in English learning. Finally, Motivational Intensity consisted of ten multiple choice items designed to measure the participants' intensity of motivation to learn English. A high score represented students' self-report of a high degree of effort being spent in acquiring the language.

Based on the data obtained from the questionnaire (AMTB) which was conducted online using google forms, participants answers were analyzed with reference to a six-point Likert scale of AMTB, scales 0-2 (from strongly disagree to disagree to slightly disagree) were considered to show a low attitude, whereas scales 3-5 (from slightly agree to strongly agree) indicated a high attitude toward learning English. While almost all participants managed to take part in the survey, one Hungarian participant decided not to proceed with this final task and was therefore not included in this section. Once all the remaining participants' answers were collected, they were imported to an excel sheet where they were organized, categorized, coded, and analyzed in parallel with the test scores. The scores for each category questions were then averaged per participant and uploaded to SPSS where descriptive statistics were used. To summarize the scores of all participants, the following table (Table 12) is presented.

Table 13*: Descriptive Statistics of Learners' Attitudes and Motivation*

Participant	Test 1	Test 2	AESEL	IFL	ALE	IO	IsO	ECA	PE	MI
Ke	98%	98%	4.3	4.8	4.7	4.5	5.0	3.6	4.3	6.8
Li	84%	97%	4.0	4.6	0.6	5.0	5.0	5.0	3.4	5.7
Be	98%	98%	4.9	5.0	3.1	5.0	4.8	5.0	0.4	6.4
Ka	83%	88%	4.9	5.0	5.0	5.0	5.0	4.0	1.9	6.7
Ma	91%	70%	4.2	4.8	4.9	5.0	5.0	4.0	2.3	6.1
Ih	97%	89%	2.9	5.0	3.0	3.3	3.0	5.0	1.9	4.9
Hi	70%	55%	4.2	3.7	3.8	5.0	5.0	4.2	3.0	5.9
Mal	94%	86%	4.5	4.7	4.7	5.0	5.0	3.0	4.9	6.7
Th	76%	60%	4.0	4.2	3.9	5.0	5.0	0.6	4.5	5.2
Om	76%	65%	3.5	4.2	4.0	5.0	5.0	2.6	4.0	5.9

Table 13 above presents the data collected regarding the vocabulary test scores together with the participants' scores of their motivational and attitudinal characteristics. Each column header represents a variable or category measured in the study. These include the 10 students

in "Participant", the vocabulary test scores in "Test 1" and "Test 2", and the motivational and attitudinal categories as highlighted previously in the remaining headers. Likewise, each row corresponds to an individual participant and their averaged scores in the tests and categories. The blue lines refer to Participants A, and the pink ones refer to Participants B. The first two test scores display numerical values in percentages, but they were turned to decimals before running descriptive statistics. The average scores for each motivational and attitudinal category was derived from the questionnaire based on Gardner's AMTB, averaging responses to multiple questions in a Likert scale format within each category for each participant. Of course, any negative statements were reversed before they were analyzed. The elements in this specific table were calculated through Excel, where the scores for each category per participant were averaged to provide a single representative score. This ensured a structured, clear, and concise overview of these calculated scores, facilitating data analysis in SPSS where variables and their values were coded and analyzed as presented in the table below:

Table 14: *Descriptives of Participants A's Attitudes and Motivation*

	N	Minimum	Maximum	Mean	Std. Deviation
Test 1	4	83.0	98.0	90.75	8.38
Test 2	4	88.0	98.0	95.25	4.80
AESEL	4	4.00	4.90	4.52	0.45
IFL	4	4.60	5.00	4.85	0.19
ALE	4	0.60	5.00	3.35	2.01
IO	4	4.50	5.00	4.87	0.25
IsO	4	4.80	5.00	4.95	0.10
ECA	4	3.60	5.00	4.40	0.71
PE	4	0.40	4.30	2.50	1.71
MI	4	5.70	6.80	6.40	0.49

Starting with Participants A, the given data in Table 14 shows that the four participants in Participants A (N=4) scored the lowest at 83.0% and the highest at 98.0%, averaging 90.75% in the first test score, with a relatively high standard deviation of 8.3815, indicating some variability in participants' performance in the first test. As for the second test, participants' scores ranged from a minimum of 88.0% to a maximum of 98.0%, averaging a higher score of 95.25% compared to the first test (Test 1), with a smaller standard deviation of 4.85 suggesting

that participants' scores were less varied than in the first test. The increased mean score and decreased variability suggests that the studied participants' vocabulary knowledge improved and solidified over the 40 weeks disuse period, likely due to the instructional occasional input they received.

Moving to the attitudinal and motivational aspects, Table 14 shows that the scores of the first category AESEL (Attitudes toward English Speakers and English Language) ranged from 4.0 to 4.9, averaging 4.5 with a very low standard deviation of 0.45, which indicates that there is little response variability and shows that all given participants have a generally positive attitude toward English speakers and the English language. Similarly, the scores of IFL (Interest in Foreign Languages) are high, ranging from 4.6 to 5.0, averaging 4.85 with a noticeably low standard deviation of 0.19, which suggests that participants have a strong interest in foreign languages in general. Conversely, in ALE (Attitudes toward Learning English), the participants' scores extended from 0.6 to 5.0, averaging 3.35 with a standard deviation of 2.01, which shows the wide range of attitudes toward learning English across the participants. The lowest score of 0.6 particularly suggests that at least one participant has a negative attitude toward learning English, in contrast to the remaining participants. Participants showed high scores with little variability of 4.5 to 5.0, an average of 4.87 and standard deviation of 0.25 in IO (Integrative Orientation), which suggests that they all have a strong and consistent interest in integrating with English speakers. The scores are almost uniform in IsO (Instrumental Orientation), with a minimum of 4.8 and a maximum of 5.0, highly averaging 4.950, and a very low standard deviation of 0.10, which indicates that participants have a considerably consistent view and believe that English has high instrumental and pragmatic values. In contrast, the scores in ECA (English Class Anxiety) vary from 3.6 to 5.0, with an average of 4.40 and a moderate standard deviation of (0.7118), implying that there is some variability in the level of anxiety experienced by the participants in their English class. As for PE (Parental Encouragement), there is a wider range of scores (from 0.4 to 4.3) with a lower average of 2.50, and a higher standard deviation of 1.71 compared to other categories. This indicates that the experience of parental encouragement towards learning English was quite varied among the participants. Finally, the scores of MI (Motivational Intensity) were quite high, ranging from 5.70 to 6.80 with a mean of 6.40, and a low standard deviation of 0.49, signifying that participants have a strong motivational intensity that is uniform across the group.

In conclusion, the test scores average increased after the disuse period, which contradicts a natural expectancy of vocabulary attrition after a prolonged disuse period. This

suggests that the occasional instructional input that participants received potentially helped participants retain and improve their vocabulary knowledge. Likewise, the low standard variation in test 2 could suggest that the lower-performing students improved and thus the entire group became a bit more homogeneous in their vocabulary knowledge. As for the motivational and attitudinal scores, almost all the categories related to motivation and attitude towards English except for ALE showed high mean scores that are closer to the maximum scale values. This could indicate that there is a generally positive attitude and strong motivation among the participants. Moreover, participants scored nearly perfect in the category of instrumental orientation (IsO), suggesting that they highly value the practical benefits of learning English.

While the scores in English class anxiety were relatively high, indicating lower anxiety, there were still some degrees of variability, indicating that the level of comfort in English class was not uniform across all students. Conversely, the category with the most variability was Parental Encouragement (PE), which shows that participants experience differing levels of parental support in their English learning. Finally, the high mean and low standard deviation for Motivational Intensity (MI) indicate that participants are generally highly motivated, which is consistent across the group. Participants B, on the other hand, showed differing results as presented in the table below:

Table 15*: Descriptives of Participants B's Attitudes and Motivation*

	N	Minimum	Maximum	Mean	Std. Deviation
Test 1	6	70.00	97.00	73.50	33.80
Test 2	6	55.0	89.00	70.83	13.87
AESEL	6	2.90	4.50	3.88	0.58
IFL	6	3.70	5.00	4.43	0.48
ALE	6	3.00	4.90	4.05	0.68
IO	6	3.30	5.00	4.71	0.69
IsO	6	3.00	5.00	4.66	0.81
ECA	6	0.60	5.00	3.23	1.55
PE	6	1.90	4.90	3.43	1.21
MI	6	4.90	6.70	5.78	0.64

Table 15 presents the scores for the vocabulary tests together with the motivational and attitudinal factors for the group of participants who did not receive any instructional input

during the 40 weeks disuse period. Starting with the test scores, it could be observed that post instruction termination, the test results ranged from 70.00 to 97.00, with an average of 73.50. The standard deviation is very high at 33.8038, which shows the wide disparity in participants' performance at the initial testing point. In the second test, it could be noticed that there was a decline in the average score to 70.83, with scores ranging from 55.0 to 89.00. Compared to the first test of this group, the standard deviation seems to be smaller (13.87) indicating some variability. This drop in the average scores and standard deviation change suggest that some degree of vocabulary attrition occurred during the disuse period without the occasional instructional input. The decrease in standard deviation indicates a convergence in participants' performance, implying that the absence of instructional input may have led to a more uniform decline in vocabulary retention across the group participants.

Moving to the attitudinal and motivational aspect, the scores in AESEL (Attitudes toward English Speakers and English Language) ranged from 2.9 to 4.5, with a mean of 3.883 and a small standard deviation (0.5845), suggesting that participants have a generally positive attitude towards English speakers and their language with little variability. Likewise, with scores ranging from 3.7 to 5.0 and an average of 4.43, the participants displayed a strong and relatively uniform interest in general foreign languages as shown in IFL (Interest in Foreign Languages). Unlike in Participants A, the scores of ALE (Attitudes toward Learning English) ranged from 3.0 to 4.9, with a mean score of 4.05 and a moderate standard deviation of 0.68, indicating that participants reported having generally positive attitudes toward learning English with some degree of variability in their answers. As for IO (Integrative Orientation), the scores varied from 3.3 to 5.0, averaging 4.71 with a standard deviation of 0.69, highlighting that participants generally have a positive orientation towards learning English for integrative purposes, however with some variation in this attitude. Conversely, the scores were uniformly high, ranging from 3.0 to 5.0, with an average of 4.66 and a small standard deviation (0.8165) in IsO (Instrumental Orientation), showing that participants seem to value the practical benefits of learning English highly and consistently. As for ECA (English Class Anxiety), there appears to be a broader range from 0.6 to 5.0 with an average score of 3.23 and a higher standard deviation 1.5513, indicating that there is considerable variability in how participants feel about English classes. With scores ranging from 1.9 to 4.9, averaging 3.43 in the category PE (Parental Encouragement), participants reported receiving a reasonable level of parental encouragement to learn English, with a standard deviation of 1.21 that reflects some variability. Lastly, in MI (Motivational Intensity), the scores ranged from 4.9 to 6.7, with a mean of 5.78

and a low standard deviation of 0.64, indicating a high and consistent level of motivational intensity among the participants.

The decline in vocabulary test scores without instructional input indicates a potential trend of attrition, which falls in line with expectations for language loss in the absence of practice or exposure. The motivational and attitudinal measures were generally positive, suggesting that participants have a favorable disposition towards English and language learning, though with some variability across different dimensions. The most substantial variability was seen in English Class Anxiety and Parental Encouragement, indicating that these are areas with the greatest difference among individual participant experiences. To conclude, the data shows a trend of vocabulary attrition, which aligns with the lack of instructional input during the disuse period. It could also be that high motivational intensity and positive attitudes towards English and foreign languages indicate potential protective factors against vocabulary loss. The disparity in ECA and PE suggests these factors could be crucial in understanding individual differences in vocabulary retention and should be explored in more depth. This descriptive analysis can form a basis for future research hypotheses, especially regarding the potential impacts of motivation and attitudes on language retention during periods without instructional support. However, it should also be acknowledged that the small sample size limits the generalizability of these results. So far, the analysis has highlighted trends in vocabulary attrition, in relation to vocabulary size and some motivational and attitudinal factors. What follows is a detailed breakdown of the used descriptive statistics in comparing Participants A and Participants B' test scores and measures of attitudes and motivation, as presented in Table 15.

Table 16: *Descriptives of Participants A and B' Attitudes and Motivation*

	N	Minimum	Maximum	Mean	Std. Deviation
Test 1	4	83.0	98.0	90.75	8.38
Test 2	4	88.0	98.0	95.25	4.80
AESEL	4	4.00	4.90	4.52	0.45
IFL	4	4.60	5.00	4.85	0.19
ALE	4	0.60	5.00	3.35	2.01
IO	4	4.50	5.00	4.87	0.25
IsO	4	4.80	5.00	4.95	0.10
ECA	4	3.60	5.00	4.40	0.71
PE	4	0.40	4.30	2.50	1.71
MI	4	5.70	6.80	6.40	0.49
Test 1	6	70.00	97.00	73.50	33.80
Test 2	6	55.0	89.00	70.83	13.87
AESEL	6	2.90	4.50	3.88	0.58
IFL	6	3.70	5.00	4.43	0.48
ALE	6	3.00	4.90	4.05	0.68
IO	6	3.30	5.00	4.71	0.69
IsO	6	3.00	5.00	4.66	0.81
ECA	6	0.60	5.00	3.23	1.55
PE	6	1.90	4.90	3.43	1.21
MI	6	4.90	6.70	5.78	0.64

In comparing the Participants A (N= 4) and Participants B(N=6) groups, it could be seen that in relation not the first test, Participants A had a slightly higher mean score of 90.75 than Participants B 73.50. Participants A also had a smaller range and standard deviation, indicating less variability in the participants' initial scores. In relation to the second test, Participants A's mean score of 95.25 increased compared to Test 1 and was significantly higher than Participants B's mean score 70.83. Participants A's scores were also less variable as shown from the lower standard deviation values.

In relation to the attitudinal and motivational aspects, both groups have moderately high means (Participants A: 4.52; control: 3.88) in AESEL, but Participants B has a slightly lower score, which may indicate a slightly less positive attitude towards English speakers and the

language. In the category IFL, Participants A shows a high interest in foreign languages with a mean of 4.85 compared to Participants B's 4.43.

Conversely, Participants A has a mean of 3.350 in ALE, which is lower than Participants B's mean of 4.05. This could suggest that Participants B, despite not receiving instructional input, has a slightly more positive attitude towards learning English. In IO (integrative orientation), both groups scored high, nevertheless Participants A's mean of 4.87 is slightly higher than that of Participants B of 4.71. In IsO (instrumental orientation), Participants A shows a slightly higher mean (4.95) compared to Participants B (4.66), indicating a slightly stronger instrumental motivation for learning English.

Likewise, Participants A reports lower anxiety in ECA, with a mean of 4.40 compared to Participants B of 3.23, indicating that occasional instructional input might help alleviate anxiety related to English class. As for PE, Participants A perceives slightly lower parental encouragement (mean of 2.50 compared to Participants B (3.43). Lastly, Participants A's motivational intensity (MI) is very high (mean of 6.40) compared to Participants B's also high but slightly lower mean (5.78). To interpret these, it seems that Participants A both retained and improved their vocabulary knowledge as indicated by the increase in mean score from Test 1 to Test 2. In contrast, Participants B experienced a decline, as shown by their lower mean score on Test 2.

Moreover, Participants A generally has high motivation and positive attitudes towards English, which may have contributed to their vocabulary retention or improvement. Despite not receiving instructional input, Participants B still reported quite positive attitudes, but this did not seem to prevent vocabulary attrition as effectively. In conclusion, the presence of occasional instructional input appears to have had a positive effect on both vocabulary retention and motivational factors. While both groups display generally positive attitudes and motivation towards English, Participants A seems to benefit more in terms of vocabulary retention and lower-class anxiety. It is important to note that these interpretations should be considered within the context of the small sample size, which limits the generalizability of the findings. However, the patterns observed here could form the basis for hypotheses in future studies with larger sample sizes. Further qualitative data could also be invaluable in providing a richer understanding of these quantitative patterns. Moreover, motivational and attitudinal factors should be studied together with other factors such as vocabulary size.

4.2.3 Vocabulary Learning Strategies

This section offers an analysis of the diverse and individualized strategies employed by students for vocabulary acquisition and retention. This is pivotal in understanding the personal variables that influence vocabulary attrition and learning among English as a Second Language (ESL) learners, particularly in the study's context. In this context, vocabulary learning strategies encompass a spectrum of practices students adopt to internalize and use newly learned vocabulary items, which in turn have implications on the realm of ESL learning. Here, we delve into the specific strategies reported by students in the free Online Academic English Course which were elicited through a diagnostic test in the form of open-ended discussion questions inspired from Nation and Nation's (2001, p. 353) taxonomy of vocabulary learning strategies.

The strategies range from traditional methods like rote learning to more contemporary approaches such as using digital tools and contextual learning. The analysis extended to explore participants' views on the effectiveness of given strategies; namely, sentence-production, dictionary use, contextual guessing, rote learning, mnemonic strategy, word formation, and semantic network strategy to provide a deeper insight into their learning processes and preferences. Moreover, students' note-taking practices while learning vocabulary were investigated to explore potential aspects that aid in the consolidation and retention of new vocabulary or the lack thereof that lead to vocabulary attrition, offering valuable insights on information management and organization in the vast array of academic settings. The importance of this section lies in its contribution to understanding the dynamics of vocabulary learning and highlighting the need for teaching methods that are responsive to the diverse needs of learners and that underscore the importance of self-directed vocabulary learning strategies inside and outside of the academic classroom context.

Analyzing the current study's participants, a diverse array of strategies employed to learn and retain vocabulary were reported, reflecting varied individual approaches to vocabulary acquisition and retention. All students were asked to engage with a series of questions designed to elicit their vocabulary learning processes. The guiding questions included a section on the selection of vocabulary where participants were asked how they choose the words to learn, delving into the criteria or reasons behind their selection of specific vocabulary items. This question aimed to unravel the decision-making process in vocabulary acquisition. Then, an inquiry was made regarding the sources of information where students find information about the words they choose to learn. This question sought to reveal the range

of resources utilized by students, from traditional dictionaries to digital platforms. Later, students were questioned about the specific strategies they utilize when learning vocabulary such as guessing the meaning from context, writing words and searching for their meanings, and using digital tools like Quizlet. The aim was to explore the effectiveness and preferences for different learning strategies. Subsequently, the frequency of using vocabulary learning strategies was explored, gauging the regularity and consistency of the participants' learning practices.

The investigation would have been incomplete without exploring the specific situations or contexts in which students used their vocabulary learning strategies to help grasp the extent of applicability of these strategies in various scenarios. Finally, students were asked to reflect on how their applied strategies support their vocabulary learning. This introspective question aimed to assess the practical impact of these strategies on their language acquisition and proficiency. These questions were instrumental in forming the basis for an in-depth analysis of the factors influencing vocabulary retention and attrition in ESL learners. This study categorizes findings into three distinct sections: participants vocabulary strategies, note-taking skills, and opinions on the effectiveness of given vocabulary strategies, as reported by students from both groups.

(1) Reported vocabulary strategies

Group 1: This group of Hungarian students produced varied responses, reflecting the diversity of participants' learning preferences, backgrounds, and the challenges they face in acquiring English vocabulary.

- **Participant 1 (Ev)** reported using university lectures and online dictionaries like Cambridge and Oxford as one of her main strategies, indicating a preference for authoritative and academic resources. Her inclination towards rote learning and memorizing as preferred strategies reflected potentially coming from a traditional educational background where such methods were emphasized. This participant's approach suggests a reliance on structured, formal learning environments.
- **Participant 2 (Be)** claimed to use rote learning, online platforms such as Quizlet, note cards, translation, contextual guessing, and watching movies with subtitles, suggesting a multifaceted approach. The blend of digital tools and traditional methods indicates a balanced approach to learning, combining the reliability of conventional methods with the accessibility of modern technology.

The use of translation and movies hints at a preference for immersive learning experiences.

- **Participant 3 (Ma)** reported learning entire sentences and using card notes and placing them in visible areas like mirrors, suggesting a kinesthetic and visual learning preference. This strategy indicates a holistic approach where the focus is on understanding vocabulary in context rather than isolated.
- **Participant 4 (Ka)** also attested using online platforms such as Quizlet and note cards together with explaining the newly learned vocabulary items to others, indicating a preference for interactive and engaging learning methods. The use of small cards and digital tools suggests an appreciation for portable and accessible learning aids. This approach might be influenced by the need for frequent revision and the utility of having a tangible record of vocabulary.

Group 2: This group of Moroccan and French students also shows varied responses, reflecting the diversity of the participants' learning preferences.

- **Participants (Li) and (Hi)** shared that her strategies of watching TV shows, engaging in daily conversations in the target language, and writing down words for productive use relate to her preference for integrating informal learning into everyday life. She also reported looking up word information on the internet and asking interlocutors for the meaning of any new words she captures in their speech, which suggests having an inquisitive nature, a desire for immediate clarification, and a preference for real-time learning.
- **Participant (Ke), however**, showed a preference for learning in formal settings and jotting down new vocabulary items as a methodical approach. She even claimed to have an 'obsession' of learning new words and a heavy reliance on extrinsic motivational factors, which potentially indicates having a high level of engagement with language learning that is mainly driven by academic or professional goals.
- **Participants (Th) and (Ne)** preferred to increase their vocabulary size through reading books and looking up word definitions in dictionaries. This suggests a preference for detailed understanding and frequent exposure to new terms in context.

- **Participants (Ih) and (Om)** shared similar strategies, including reading books, intense exposure to social media, using online dictionaries, and relying on varied multimedia resources. This approach is preferred thanks to the accessibility and immediacy of online resources which cater to different learning preferences and contexts.

Moreover, the diverse vocabulary learning strategies employed by participants in both groups are influenced by numerous factors such as their perceived effectiveness, the accessibility of resources, the learners' previous educational experiences, and their individual learning preferences. Understanding these factors is crucial in both tailoring ESL vocabulary instruction and considering the personal variables behind potential vocabulary attrition. All participants were asked to evaluate a range of given vocabulary learning strategies portrayed through contextual example situations.

The task was designed to ascertain their perceptions of the effectiveness and appeal of various approaches to vocabulary acquisition. The strategies in question were sentence-production, dictionary use, contextual guessing, rote learning, mnemonics, word formation, and semantic networks. The sentence production strategy involved learners intentionally using new vocabulary items in their own spoken or written sentences. The aim of this activity was to deepen retention by engaging in active retrieval and contextual use, rather than just passive recognition. Dictionary use entailed browsing both paper version and online dictionaries for a comprehensive learning of word meanings, pronunciations, and usage, providing a solid foundation for vocabulary expansion.

Contextual guessing required learners to infer new words’ meanings within a sentence or passage and derive these meanings from linguistic cues in their contexts or environment. Rote learning was characterized by memorization through repetition; a traditional method that involves writing down lists of words and drilling them orally and that is focused on embedding vocabulary in memory through continuous exposure and repetition.

Mnemonics relied on visual or acoustic cues to form associations with new vocabulary, fostering associative thinking to create memorable links and aiding in easier recall and retention of words. Word formation involved breaking down words into smaller parts to grasp their meanings and origins, requiring an etymological and morphological analysis that deepens the learner's conception of word construction and formation.

Finally, semantic networks regarded drawn maps and grids that connect new words with already existing ones semantically through creating visual representations of word

relationships, which in turn enhance awarenesses of interconnectedness of words and meanings.

Participants had different views. For instance, Th found mnemonic strategies too complicated, while Ma and Li found them effective due to their visual learning preferences. Ih and Om favored semantic network and contextual guessing strategies, indicating a preference for integrated learning in context, and Ke's approach was more adaptable, relying on the use of different strategies depending on the situation, highlighting thereby the importance of flexibility in learning.

Th's perception of mnemonic strategies as overly complicated suggests a preference for more straightforward, traditional learning approaches that offer direct connections between words and their meanings.

Contrastingly, Ma and Li's perception of mnemonic strategies being effective reflects a preference for a cognitive style where visualization and mental imagery significantly aid in vocabulary memorization and recalling.

Moreover, both Ih and Om lean towards semantic network and contextual guessing strategies, indicating a preference for learning vocabulary within a broader linguistic and situational context and valuing understanding words within a network of related terms and real-life contexts, a holistic learning style where connections and associations play a vital role. Ke's adaptable strategy shows flexibility in the use of different methods based on the situation, which might be indicative of a pragmatic learning style, where the choice of strategy is dictated by the specific learning objective, context, or the nature of the vocabulary being learned. Ke's perspective suggests an awareness that there is no one-size-fits-all solution.

The variety in students' opinions on vocabulary learning strategies reveals the complexity of the acquisition process. It underscores the notion that vocabulary learning is a dynamic process that is influenced by a multitude of factors including learning environments, previous educational experiences, and personal preferences.

The effectiveness of a vocabulary learning strategy is subjective and varies significantly from one learner to another. This diversity necessitates an approach to teaching vocabulary in ESL contexts, where educators need to recognize and accommodate the differing needs and preferences of their students.

In this study, students' preferences for certain strategies offer insights into their self-perceived strengths and weaknesses in language learning and reflects the evolving nature of language learning strategies in the digital age where traditional methods coexist with technologically driven approaches.

This evolution poses both challenges and opportunities for ESL education, calling for innovative teaching methodologies that can effectively integrate these diverse strategies. Recognizing and understanding these diverse preferences and styles is key to developing effective, responsive, and inclusive language teaching practices, that ensure effective vocabulary acquisition and retention alike. To provide a synthesized overview of the reported vocabulary learning strategies, the following figure is presented:

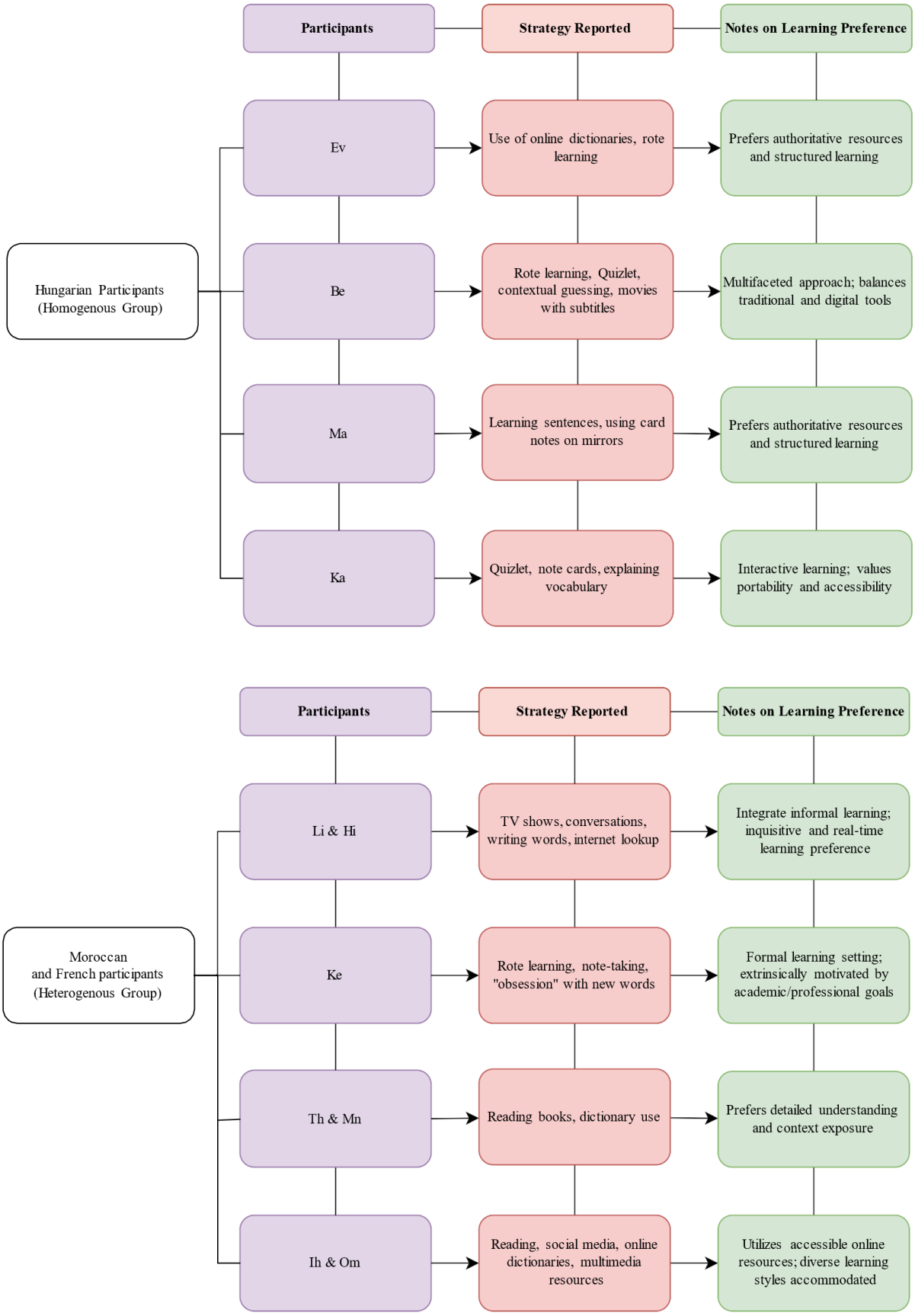


Figure 3: Overview of vocabulary learning strategies by p*articipant group*

The table below (Table 16) captures the diverse vocabulary learning strategies of Hungarian, Moroccan, and French university students, illustrating a spectrum from traditional to digital methods. Hungarian participants displayed a mix of rote learning and reliance on academic resources, hinting at traditional educational influences. In contrast, the Moroccan and French cohort integrated informal learning with daily activities, showing a preference for immersive and real-time learning experiences. The use of online platforms like Quizlet by several participants reflects the incorporation of technology in modern learning. Across both groups, strategies are tailored to individual preferences, emphasizing the need for adaptable pedagogical approaches in ESL education that acknowledge the evolving landscape of language acquisition strategies.

Table 17*:Vocabulary Learning Strategies and Preferences of Studied Participants*

Participant	**Score 1**	**Score 2**	**Vocabulary strategies**	**Category**	**Notes on learning preferences**
Li	84%	97%	Tv shows, internet, interactions with NNS and NS, online dictionary	Computer assisted language learning (CALL)	Integrate informal learning; inquisitive and real time learning preference
Ka	83%	88%	Quizlet, note cards, production	Metacognitive, output, multimodal learning, spaced repetition	Interactive learning, values portability, and accessibility
Be	98%	98%	Quizlet, contextual guessing, movies, rote learning	Multimodal learning, contextual guessing, rote-learning	Balances traditional and digital tools and methods
Ke	98%	98%	Note-taking , production, daily new word, rote learning,	Metacognitive strategies, spaced repetition, rote-learning	Formal learning, extrinsically motivated by academic/prof goals
Ev	84%	60%	Rote learning, online dictionaries	Rote-learning, explicit vocabulary learning	Prefers authoritative resources and structured learning
Hi	70%	55%	Tv shows, internet, interactions with NNS online dictionary	Computer assisted language learning	Integrate informal learning; inquisitive and

				(CALL), explicit vocabulary learning	real time learning preference
Ih	97%	89%	Reading, social media, online dictionary, multimedia resources	Extensive reading, multimodal learning, explicit vocab learning, computer-assisted language learning	Online resources, diverse learning styles accommodated
Th	76%	60%	Dictionary use, reading	Extensive reading, explicit vocabulary learning	Detailed understanding and context exposure
Om	76%	65%	Reading, dictionary use	Extensive reading, explicit vocabulary learning	Detailed understanding and context exposure
Mal	94%	86%	Reading, social media, online dictionary, multimedia resources	Extensive reading, multimodal learning, explicit vocab learning, computer-assisted language learning	Online resources, diverse learning styles accommodated
Ma	91%	70%	Note cards, learning full sentences,	Metacognitive strategies,	Prefers authoritative resources and structured learning

Key observations noted from the table are that multimodal learning, metacognitive strategies, spaced repetition, and balanced use of traditional and digital tools appear effective learning strategies, as evidenced by higher retention in Participants A (e.g., Be and Ke). Conversely, rote learning and extensive reading without spaced repetition or multimodal method appeared to be less effective for long-term retention. Moreover, participants with a mix of strategies and preferences (e.g., Li, Mal) tended to show better retention, indicating that diversity in learning methods may enhance vocabulary retention. Of course, these need to be coupled with reinforcement and continuous exposure especially during a disuse period. Rote

learning seemed to be linked to divergent retention, which could mean it is not the sole factor affecting retention, but rather its combination with other strategies.

In conclusion, mixed strategies including metacognitive elements and spaced repetition seemed to relate to better retention. Strategies relying on only rote learning or lacking a variety of approaches seemed to relate to greater attrition. Finally, no single strategy stood out as universally effective or ineffective; rather, combinations of strategies seem to impact long-term retention.

4.2.4 The Multilingual Background

This inquiry into the dynamics of vocabulary attrition and retention amongst English as a Second Language (ESL) participants could not be complete without highlighting the role of their multilingual backgrounds in influencing their retention/attrition. Although the initial participant group was eleven, the subsequent analysis was conducted with only a subset of five individuals.

This reduction occurred due to participant attrition during the follow-up phase, which is a common challenge in longitudinal research. To address this issue, I maintained regular communication with participants, but some still became unresponsive or unavailable. While this inevitably limits the generalizability of the findings, the rich, in-depth data gathered from the remaining five participants still provides valuable insights.

Such reduction in participant numbers, while not uncommon in longitudinal research, does impose limitations on the study and underscores the challenges inherent in maintaining participant engagement over extensive research durations. The results therefore cannot be generalized, rather they provide insights into the five participants studied.

Framed by both qualitative interviews and the quantitative pre-test and post-test results, this analysis section sheds light on the relationship between vocabulary attrition/retention, and individual learner variables; notably, the multilingual background.

In analyzing qualitative data interviews conducted upon termination of the disuse period and test achievement, a couple of themes emerged within the preset categories that initially guided the interview schedule both in the pilot and extended studies; namely, origin, identification, competence, and function, all of which were highlighted in detail in the literature review and are further explained in Ezzaouya (2023). The identified themes provide insights into the multilingual experiences of the five participants from Hungarian, Moroccan, and French backgrounds, two from Participants A (one Moroccan, one Hungarian), and three from

Participants B (two French, and one Moroccan). First, after each interview was conducted and recorded online via the platform zoom, the transcripts were transcribed, merged where each question was followed by each participant's answer beneath it, and read several times to familiarize with data and note down any initial observations and potential patterns. Then, data was coded for any repeated ideas, concepts, or patterns within each pre-defined category. The focus was mainly on their language learning experiences, feelings towards native and second languages, strategies for learning and retaining vocabulary, personal narratives related to language use and attrition, and feedback regarding the online Academic English course together with their language use during the disuse period. Then, several themes emerged across each category which were then coded as summarized below in table 18:

Table 18*: Overview of Themes Emerging from the Category of Origin*

Category 1: Origin		
Theme	**Key Findings**	**Examples from Participants**
Linguistic Origins and Early Exposure	Diversity in linguistic backgrounds	Be (Participants A) exposed only to Hungarian early on Ke, Ih (Participants B) exposed to Arabic, French, and additional languages Mal, Om (Participants B) raised bilingual in French and Arabic.
Socio-linguistic Environments	Mixed practices in family language use and social interactions	Be's family spoke only Hungarian. Ke's family used Arabic, French, and occasionally Spanish and English. Ih interacted in both Arabic and French socially. Mal, Om predominantly used French in social settings.
English Learning History	Varied histories of learning English, reflecting educational, societal, and personal factors.	Be transitioned from Russian to English due to political changes. Ke, Ih engaged in formal and extracurricular English learning. Mal, Om shifted focus to English in higher education for academic/professional reasons.

- Theme 1: Linguistic Origins and Early Exposure

The data reveal significant diversity in linguistic backgrounds and early language exposure among participants. For instance, participant Be (Hungarian; Participants A) reported exclusive exposure to Hungarian until the introduction of English and German later. In contrast, participants from Moroccan and French backgrounds, such as Ke, Ih, Mal, and Om, reported exposure to a mix of Arabic (including dialects), French, and other languages from a young age. This early multilingual environment appears to have set a foundation for ease in acquiring additional languages, including English. The Moroccan participants (Ke and Ih) had a rich linguistic environment encompassing Arabic, French, English, Japanese, and Romanian, suggesting a high degree of linguistic flexibility. Similarly, French participants (Mal and Om) reported early bilingualism in French and Arabic, with subsequent exposure to English and other languages.

- Theme 2: Socio-linguistic Environments

Family language practices varied among participants, with some homes practicing monolingualism (e.g., participant Be only used Hungarian) and others a blend of languages (e.g., participants Ih and Ke used both Arabic and French). The diversity in family language use likely contributed to the participants' linguistic identities and proficiencies. For example, participant Ke's family communicated in Arabic and French, with some members also speaking Spanish and English, indicating a multilingual family environment that could encourage language learning and acquisition. Other social interactions also may have played a crucial role in language development. Participants like Mal and Om, who grew up in France, primarily used French with friends and in their neighborhoods, suggesting a strong French linguistic influence. Similarly, participant Ih's interactions in Arabic and French, with early exposure to English through media and formal education, highlight the potential complex interplay of social and educational factors in language acquisition.

- Theme 3: English Learning History

Participants' histories of learning English varied, reflecting different educational systems, personal motivations, and opportunities. Be's (Hungarian) experience of shifting from Russian to English due to political changes underscores the impact of societal factors on language education. Similarly, Ke and Ih's (Moroccan) descriptions of learning English through both formal schooling and extracurricular activities, such as the American Language Center, suggest a proactive approach to language learning influenced by familial encouragement and personal interest. Mal and Om's transitions to English in higher education, particularly in specialized fields like medical school, indicate the practical implications of

English proficiency for academic and professional advancement. This transition also suggests a late intensification of English usage.

Table 19*: Overview of Themes Emerging from the Category of Identification*

Theme	Description	Concrete Examples
Language Identity	Participants associate their native language with their identity, influenced by early exposure and daily use.	Be identifies with Hungarian due to its use in her daily life. Ke sees Moroccan Arabic as his native language because it's what comes most naturally.
Emotional Attachment	Participants express affection and pride towards their native languages.	Be finds Hungarian colorful and expressive. Ih feels comfortable in Moroccan Arabic but prefers English for expression.
Family Influence	Family practices significantly impact language preferences and proficiencies.	Mal notes a family shift towards French over Arabic. Om discusses the transition from Algerian dialect to French due to schooling.
Societal Perceptions	Societal views on languages influence participants' perceptions and language learning motivations.	Mal points out societal ambivalence towards French in Algeria. Ih notes a societal shift in Morocco, favoring English over French.
Personal Stance	Participants express personal views that engage with broader societal beliefs about languages.	Ke is proud of Moroccan Arabic's cultural significance. Om adopts a neutral stance towards French, recognizing its utility.
Motivations for English Language Learning	Diverse motivations for learning English, including communicative needs and academic advancement.	Be learns English for cultural interest. Mal studies English for academic reasons and its global status.
Linguistic Self-Perception	Participants reflect on their language learning journeys and current proficiencies.	Ke identifies as multilingual. Be aspires to bilingualism but questions her qualification.

As far as the second category of inquiry, identification, is concerned, several themes emerged as participants' answers were analyzed. Of these, language identity shows that participants identified their native languages based on their personal and cultural identities and were influenced by early exposure, authentic daily use, and interactions in social spheres, as seen in the examples provided in the table. Next, emotional attachments to language showed the sorts of regards, feelings, and pride associated with native and second languages, showing the integrality of languages with individual identities and cultural heritage. Family influence proved fundamental in shaping participants' narratives on their linguistic choices. Similarly, societal perceptions of languages seemed to influence participants' perceptions and learning motivation, informing the preference for a shift towards prioritizing English over other languages due to its utility in broader contexts. This goes hand in hand with the theme of motivations for English language learning which encompasses a variety of needs; notably, communicative, academic, and cultural, underscoring the importance of English in achieving personal and professional objectives in a globalized era. As far as linguistic self-perception is concerned, it mirrors participants' reflection on their language utility, competencies, and multilingual identity.

Table 20: *Overview of Themes Emerging from the Category of Competence*

Theme	**Key Findings**	**Participant Examples**
Self-Assessed Competence	Proficiency in native language; some bilingual.	Be: Proficient in Hungarian and English. Ih: Equal proficiency in English and French.
English Development practices	Active use and contextual learning are key.	Ke: Conversations in English. Mal: Interaction with people.
Vocabulary Learning	Contextual learning through media is effective.	Ke: Thinks in English to find words. Ih: Learns from podcasts.
Vocabulary Retention	Repetition and practical context help retention.	Mal: Uses flashcards. Om: Engages with English media.
Vocabulary Attrition	A common occurrence across languages.	Ke: Forgets daily but recovers. Be: Uses synonyms to recall.

Touching upon the third category of competence, several themes emerged: notably, self-assessed competence, English development practices, vocabulary learning, vocabulary retention, and vocabulary attrition.

Firstly, there appeared to be a natural tendency for most participants to identify the native language as the most proficient due to daily use and immersion in the culture, with the exception of participant Ih who provided an interesting nuance, indicating having an equal competence in English and French as foreign languages rather than Arabic, the native language. Similarly, participant Be claimed having bilingual competence in both Hungarian and English, suggesting a dual dominance of the two languages.

Secondly, participants reported varied practices to develop English, active productive use being the most common amongst them. For instance, participants Ke, Mal, and Om all highlighted the importance of actively engaging in conversations in varied social contexts as a way of improving their competence, which falls in line with participant Be's reflection on the difficulty of learning vocabulary outside of practical contexts.

Thirdly, participants' experience with learning vocabulary showed that the most frequently cited technique was contextual learning. For instance, participants Ke, Ih, and Mal pinpointed their habit of learning through exposure to English whether while reading or listening, which closely relates to the participants' different practices of vocabulary retention, the fourth theme.

Of these, context and repetition were the most prevalent as noted by participant Ke who emphasized repetition, participant Mal who exemplified context through flash cards and sentence construction, and participant Om who resorted to intensive reading and learning apps.

The fifth theme had to do with participant's reported frequency and perception of vocabulary attrition and showed that all participants have had instances of word forgetting. While participant Be and Ih felt it was less common, participants Ke, Mal, and Om acknowledge it as a common occurrence. The difference in these frequencies leads participants do adopt varied strategies to face the phenomenon; notably, the use of synonyms and online searches to make up for communication breakdowns as reported by participants Be and Ih, respectively.

As far as their perception of attrition is concerned, all participants saw attrition as a natural part of the learning process and that does not exclude native languages as well. They also identified potential contributing factors leading to attrition as a lack of practice, as reported by participant Ih who noted that reading less led her to rely on more frequent words rather than richer vocabulary, and participant Om who attributed it to low proficiency.

Moreover, some participants viewed the occurrence of vocabulary forgetting as a phenomenon to be accepted and even embraced, as noted by participant Ke who was asked about their perception of speakers who commonly experienced vocabulary forgetting, and answered “they might be more proficient than people who don't forget them, because by looking forward every time, sometimes they might not get it right, so they might stumble upon new vocabulary that they didn't know before and get better with time”, a view shared by participants Be and Mal. Other participants, Ih and Om, showed more resistance towards the phenomenon and advised against its occurrence.

Table 21: *Overview of Themes Emerging from the Category of Function*

Theme	**Key Findings**	**Participant Examples**
Engagement with English	Daily practice varies, integrating English into routines.	Ke: Practices English every day. Om: English practice is daily, even phone settings are in English. Mal: About 1 hour per week of personal English practice, despite studying in English.
Native Speakers Interactions	Limited interactions with native English speakers.	Be: Interacts with native speakers very often daily via internet and phone. Mal & Om: Rare interactions with native speakers, mostly engaging with international students or teachers who are non-native speakers.
Learning Abroad	Immersive experiences abroad enhance language learning.	Ih: Interesting experience in America, noting the challenge of understanding diverse accents. Mal: Great experience in London, emphasizing syntactic learning. Om: Positive experience in London, fascinated by the variety of accents.

The last category, function, shows that participants’ functional engagement with English is varied as revealed through their narratives and personal experiences. A couple of themes emerged as their responses were analyzed, namely, engagement with English, native-

speaker interactions, learning abroad, and acquisition of new vocabulary. The first theme tackles participants' dedicated time to practicing English, showing that while some integrated English practice to their daily routines, others relied solely on formal instructional input as shown by participants Ke and Be who engage daily in English practice, and Mal who places more importance on the instructional input and spares no more than an hour of their personal time to practice English. The second theme shows that for all participants except Be, interacting with English speakers was a limited, if not rare, opportunity. Be reported engaging frequently with native speakers through digital platforms.

This is closely linked to the final theme, learning abroad, which showed the participants' unique experiences of interacting in countries where English is the native language. While somsoce visiting such countries reported having had influential learning opportunities, such as Ih and Om, who were particularly drawn to accents rather than vocabulary learning, and Mal who learned more about syntactic structures and colloquialism, other reported benefiting from interactions with other speakers of English as a second language. Linking participants' answers to their test scores, a couple of findings were observed as summarized in the table (Table 19) below.

Table 22: *Insights on Vocabulary Attrition and Participant Examples*

Theme	Insight on Attrition	Participants Examples
Linguistic Origins and Early Exposure	Early multilingualism might add complexity in retaining second language vocabulary due to divided linguistic focus.	Mal, Om, Ih were exposed to multiple languages early on compared to Participants A participants Be and Ke
Socio-linguistic Environments	Using English less frequently in daily contexts and informal settings may lead to greater potential attrition of English vocabulary.	Mal and Om predominant use of French in social settings and scored lower after the disuse period
English Learning History	Varied educational backgrounds and shifts in focus to English can result in differential rates of vocabulary attrition, depending on continued use and practice.	Be shifted to English learning due to political changes from an early age. Mal and Om increased shifted to English for academic reasons at a later age.
Language Identity and Societal Perceptions	Societal valuation of English and personal language identity may motivate continued engagement with English but may not necessarily mitigate attrition.	Ih: Societal shift favoring English in Morocco.
Engagement with English and Learning Strategies	Active use, immersive experiences, frequent engaged practice, structured learning, and specific strategies are crucial for mitigating vocabulary attrition.	Be: Daily interaction with native speakers. Ke: Daily practice in English.

Looking at each participant case, it appears that Both Ke and Be maintained their test scores at 98%, suggesting a strong retention of English vocabulary despite the disuse period. From the interviews, both Ke and Be seemed to have a favorable attitude towards English, with Be expressing a love for the language and a habit of actively expanding its vocabulary. Ke's

motivational history with English, such as the desire to speak well to fulfill a promise to their father, indicates a strong personal connection to the language. Positive attitudes, personal motivation, and active engagement,are all likely to contribute to successful retention of vocabulary, in addition to the instructional input they received during the disuse period.

For Participants B, there was a noticeable decline in test scores, potentially indicating vocabulary attrition. Mal showed a high initial proficiency but experienced a decline. Despite stating a preference for English, Mal mentioned the transition to studying in English was initially challenging, which might indicate why there was some attrition but not as significant as Om's, who had the lowest initial proficiency.

This suggests that although a positive disposition towards English is helpful, the lack of consistent instructional support can lead to attrition, particularly if self-directed learning strategies are not as effective or not in place. Om's decline from 76% to 65% was the most significant drop among all participants, which could be related to their lower initial proficiency, indicating a less solid foundation in English vocabulary. Om's interview revealed a tendency to forget words and an acknowledgement that losing vocabulary is not uncommon. This attitude may reflect a less proactive approach to retention, possibly contributing to their steeper decline.

Finally, Ih experienced a moderate decline but still maintained a relatively high proficiency. Ih's engagement with English in daily life for work purposes and an active approach to learning (using English with friends and enjoying the language) may have mitigated the potential for greater attrition. However, without the instructional input, even Ih's proactive strategies could not completely prevent a decline.

As summarized in table 19, it appears that participants with diverse backgrounds who got exposed to multiple languages in their early ages faced more challenges in retaining vocabulary items. Although multilingualism has been characterized with its ability to enrich a speaker's linguistic repertoire, facilitating thereby the cognitive flexibility and metalinguistic awareness, it also appears to introduce some level of difficulty in retaining vocabulary items in each language system, falling in line with Sweller 's (1988) Cognitive Load theory which suggests that managing multiple language systems may increase cognitive demands, potentially hindering the consolidation of vocabulary in each language.

Sociolinguistic environments seem to play a potential role in vocabulary retention, as participants who scored lower on the second test predominantly used their native languages on a day-to-day basis, which highlights the essential role of use frequency in retention, this aligns well with Tomasello's (2003) Usage-Based Theory which posits that language use impacts the strength of lexical representations in memory.

Thereafter, having fewer opportunities to use English may foster circumstances conducive to vocabulary attrition. Histories of Learning English reflect the impact of educational reforms, societal shifts towards promoting English for academic and professional advancement, and motivations for learning English on language learning and retention, as seen in the case of participants Be, Mal, and Om, suggesting that continued exposure and use of the target language early on are critical for the long-term retention of second language vocabulary.

The next theme relates to the role of language identity and societal perceptions in influencing the extent of engagement with the language, showing how such elements can be significant motivators in promoting language use, but not necessarily in preventing vocabulary attrition. The last theme shows the possible effect of immersive experiences and deliberate learning strategies on vocabulary attrition, where frequent practice, native speaker interactions, and the deliberate use of vocabulary development and retention strategies are pivotal in increasing chances of vocabulary retention. The experiences of participants Be and Ke illustrate the efficacy of consistent and engaged practice, which aligns with the Interaction Hypothesis that highlights the role of social interaction and meaningful use in language acquisition and retention.

In conclusion, in both Participants A and Participants B, the participants who expressed a strong personal connection to English, a positive attitude towards learning, and engagement with the language outside of formal instruction (Ke, Be, and Ih) had better retention outcomes. This suggests that while instructional input is a key factor in vocabulary retention, individual factors such as motivation, personal interest, practical use of the language, a multifaceted approach that considers learners' backgrounds, motivations, and the sociocultural context all play a crucial role in mitigating L2 vocabulary attrition, especially during periods of reduced formal learning.

4.3 Data Analysis of Sociolinguistic Variables

Linking the participants' vocabulary test results to the systematic review (as highlighted in section 2.10 of the literature review), it appears that participants from Hungarian backgrounds who maintained or improved their test scores, likely benefit from the growing presence of EMI courses. This exposure to English within their academic environment reinforces vocabulary retention. Similarly, the obligation for English proficiency by Hungarian institutions also extrinsically motivated students to achieve higher education requirements, contributing to better vocabulary retention. Participants aspiring to advanced academic careers

were driven to maintain high levels of English proficiency, as seen in Participants A's stable test scores. Speaking of drive, participants' perceived utility of English's status in both Hungary and international also seemed to impact their motivation and retention of vocabulary.

As for Moroccan participants from Participants B, there seemed to be a clash between the perceived utility of French and that of English as each has a different social status in their environments. While Moroccan participants use French in most academic endeavors within Morocco, English seemed to be more appreciated and needed, especially for participants involved in international academic careers. Moroccan participants generally showed positive attitudes towards English, however, without consistent instructional support, this positive attitude alone seemed insufficient to prevent attrition, as evidenced by Participants B's declining scores. The decline could also be due to an unfair educational divide between participants of higher and lower socioeconomic status that gives access to more advanced and higher quality initial English language acquisition and resources.

French participants seemed to experience a balanced adaptation to English in academia, incorporating English into their personal and academic spheres without fully abandoning their native linguistic identity that incorporates both French as the dominant first language, some Arabic as a religious and cultural identity carrier, and a lot of English due to their recognizing its practical benefits for career advancement.

4.4 Data Analysis of Linguistic Variables

4.4.1 Vocabulary Characteristics

This section provides a detailed linguistic examination of the vocabulary items incorporated in this study to account for the linguistic variables affecting vocabulary attrition and retention. Relying mainly on the analytical capabilities of the online tool "Text Inspector", this section delves into general statistics about the selected words, lexical diversity, parts of speech, lexis analysis according to the Common European Framework for Reference (CEFR), to the British National Corpus (BNC), and to the Academic Word List, collocation types, and a final scorecard of the vocabulary items. The analysis begins with a statistical overview of the vocabulary items utilized in the online Academic English Course to establish a foundational understanding of the vocabulary's overall composition and scope within the course. Then, lexical diversity, which is indicative of the variety and breadth of the vocabulary used, is scrutinized to evaluate the representativeness and comprehensiveness of the language sample provided to the learners. An analysis employing a part-of-speech tagger follows, categorizing

the vocabulary into nouns, verbs, adjectives, and other grammatical forms. This segmentation facilitates a deeper understanding of the grammatical complexity and diversity present in the vocabulary. Then, the proficiency levels required for the comprehension and use of the vocabulary items in accordance with the CEFR are offered. The vocabulary is further examined according to the BNC to evaluate the real-world applicability and frequency of the vocabulary within contemporary English usage. Considering the academic orientation of the course, the study also assesses the vocabulary against the AWL to contextualize the relevance and suitability of the vocabulary for academic purposes. To conclude the analysis, an exploration and categorization of collocations within the course content is offered, all to offer a consolidated view of the efficacy of the vocabulary in the context of the current research. To give an overview of all vocabulary items, please refer to Appendix 1.

i. Vocabulary complexity

To offer a detailed quantitative analysis of the vocabulary under study as supported, the list of vocabulary items was run through "Text Inspector", an online tool designed to provide detailed linguistic analysis of texts based on over 200 metrics. The generated statistical scorecard suggested that the vocabulary items are both diverse and complex, with a significant presence of polysyllabic words indicative of an academic register. Likewise, the type/token ratio showed a rich lexical variety, which is beneficial for diversified exposure to vocabulary. Moreover, it showed a high percentage of words with more than two syllables, which could present a general phonological challenge to ESL learners, especially those from language backgrounds with predominantly monosyllabic or bisyllabic word structures. These findings are instrumental in evaluating the potential difficulties learners faced in retaining vocabulary, especially after a period of disuse. To be more elaborate, the scorecard is presented below, and each of its metrics are scrutinized.

Scorecard 1*: Vocabulary Complexity Metrics*

1. Token count (excluding numbers)	169
2. Type count (unique tokens, excluding numbers)	143
3. Type/token ratio	0.84
4. Syllable count	345
5. Words with more than 2 syllables	47
6. Words with more than 2 syllables - Percentage	27.81
7. Average syllables per word	2.04
8. Syllables per 100 words	204.14

The first column shows that the total number of lexical items (or 'tokens') analyzed amounts to 169. This excludes any numerical tokens, ensuring that the focus remains solely on linguistic elements. In the second column, a high count of 143 unique words is recorded, indicating the number of distinct lexical items and rich vocabulary within the sample. The type/token ratio in the third column is sitting at 0.84 and measures the variety of vocabulary by comparing the number of unique types to the total number of tokens. A ratio closer to 1 would indicate a high degree of lexical richness. A ratio of 0.84 is relatively high, denoting a substantial diversity in the selected vocabulary. Moreover, the syllable count totals 345 for the entire set of tokens; a metric that is crucial for understanding the phonological complexity of the vocabulary. Out of the total vocabulary, 47 words contain more than two syllables. These words are typically considered to be more complex and can be indicative of a higher lexical standard or academic level. Words with more than 2 syllables represent 27.81% of the total vocabulary. The relatively high percentage of multisyllabic words underscores the complexity and potential difficulty posed for participants, particularly for those whose native languages have different phonological structures. At 2.04, this average indicates that the words chosen for the study are, on average, bi-syllabic or more, which is consistent with academic vocabulary that often consists of polysyllabic terms. Lastly, a syllable frequency of 204.14 per 100 words is yet another indicator of the phonological demand of the vocabulary items. The higher the

count, the more syllabically dense the words are, potentially impacting the ease with which the participants can master pronunciation and oral fluency.

ii. Lexical diversity

To offer a nuanced understanding of the vocabulary's lexical diversity, advanced VOCD (Vocabulary Diversity) and MTLD (Mean Segmental Type Token Ratio) metrics are used. Each metric offers a unique perspective on the text's lexical richness and variety, which is critical in assessing the depth and breadth of vocabulary that ESL learners are exposed to. Their values in the dataset suggest that the academic English course materials possess a high level of lexical richness. This richness is paramount for ESL learners, as it provides them with the opportunity to encounter and engage with a wide range of vocabulary, which is likely to facilitate both immediate learning and long-term retention of new lexical items. To elucidate this lexical diversity, the following scorecard is presented:

Scorecard 2: *Lexical Diversity Metrics*

	VOCD	**MTLD**
Lexical diversity	200.00	210.48

To explain the lexical diversity metrics, the VOCD (vocabulary diversity) score stands at 200.00, indicating a high level of lexical diversity within the corpus of the academic English course. Developed by McKee, Malvern, and Richards (2000), VOCD is a measure designed to quantify the diversity of vocabulary in a given text or spoken corpus. A higher VOCD score typically reflects a broader range of vocabulary, which can enhance language comprehension and retention by exposing learners to a wider array of lexical items. It is particularly relevant in an academic context where the introduction of varied terminology is essential for students to develop a comprehensive academic lexicon. On the other hand, the MTLD (Mean Segmental Type-Token Ratio) metric is reported as 210.48, which also suggests a considerable degree of lexical diversity. MTLD is an alternative measure that addresses some of the limitations of traditional type-token ratios, such as their sensitivity to text length. It provides a more stable and reliable measure of lexical diversity by calculating the average length of sequential word strings that maintain a given type-token ratio. In the context of ESL instruction, a higher MTLD value indicates the introduction of new vocabulary across different segments, potentially leading to better vocabulary retention due to repeated exposure to varied language patterns.

iii. Parts of speech

To detail the distribution of parts of speech of the selected vocabulary, "Text Inspector" was used as a linguistic tagger. The tagger categorizes words into their respective grammatical classes, such as nouns, verbs, adjectives, and so forth. This categorization is pivotal for understanding the grammatical composition of the course material and its potential impact on language learning. While this speech tagger is automated, it is worth highlighting that it allows for input modifications and necessary corrections when double checking the assigned speech parts. To show a summary of the parts of speech, the following scorecard is provided:

Scorecard 3*: Parts of Speech Metrics*

Parts of Speech	First Occurrence/ Total Occurrence
CO *(coordinating conjunction)*	1 / 1
DAT *(determiner, article)*	7 / 2
DT *(determiner)*	2 / 1
IN *(preposition/subord. conj.)*	13 / 10
JJ *(adjective)*	19 / 18
NN *(noun, singular or mass)*	43 / 38
NNS *(noun plural)*	9 / 8
NP *(proper noun, singular)*	11 / 11
PP$ *(possessive pronoun)*	2 / 1
RB *(adverb)*	6 / 6
TO *(to)*	7 / 1
VD *(verb do, base form)*	1 / 1
VV *(verb, base form)*	34 / 32

VVD *(verb, past tense)*	3 / 3
VVG *(verb, gerund/participle)*	7 / 7
VVP *(verb, present, non-3rd p.)*	2 / 2
VVZ *(verb, present 3d p. sing.)*	2 / 2

The scorecard is structured into two columns: Part of Speech, which lists the abbreviations for various grammatical categories alongside their full descriptions, providing a reference for interpreting the abbreviations used in the tagger's output, and First Occurrence/ Total Occurrence, which represents the number of unique instances a particular part of speech appears in the vocabulary list and the total number of times each part of speech was used, respectively. The part of speech distribution shows that nouns (NN, singular or mass; NNS, plural) and verbs in various tenses and forms (VV, base form; VVD, past tense; VVG, gerund/participle; VVP, present non-3rd person; VVZ, present 3rd person) are a vital component of the analysis, as these word classes are central to constructing meaning in language. The occurrence of nouns (43 unique / 38 total) and base form verbs (34 unique / 32 total) indicates a strong emphasis on these core parts of speech in the vocabulary list, which is crucial for ESL learners to build fundamental sentence structures. Moreover, adjectives (JJ) and adverbs (RB) are significant as they modify nouns and verbs respectively, adding detail and nuance to descriptions and actions. The relatively balanced presence of adjectives (19 unique / 18 total) and adverbs (6 unique / 6 total) suggests that learners are being exposed to a variety of descriptive language that can enhance their communicative competence. Likewise, the frequent occurrence of determiners, articles (DAT, DT) and pronouns (NP, PPS) is indicative of the list's complexity, as these parts of speech are essential in clarifying noun references and possessive structures. Finally, prepositions (IN) and conjunctions (CO) are crucial for illustrating relational concepts and joining clauses or phrases. Their presence in the dataset (prepositions: 13 unique / 10 total, conjunctions: 1 unique / 1 total) implies their usefulness in complex sentence structures.

In summary, the varied proportions of different parts of speech are reflective of the linguistic complexity of the material and are indicative of comprehensive linguistic input. For ESL learners, an understanding of this diversity is instrumental in developing both receptive (reading and listening) and productive (writing and speaking) language skills. Moreover, this

diversity is not only foundational for language comprehension, but also critical for fostering the learners' ability to express complex ideas and engage with advanced academic content.

iv. Lexis analysis (CEFR)

To understand the distribution of vocabulary across various proficiency levels and provide insight into the lexical demands placed upon learners within the academic English course, the vocabulary list was studied against the Common European Framework of Reference for Languages (CEFR) levels. The lexis analysis reflected a structured approach to vocabulary inclusion, spanning all CEFR levels with a strategic emphasis on B2 levels, which are essential for fostering independent language use in academic contexts. The presence of unlisted vocabulary highlights the course's alignment with academic English objectives, preparing learners for the breadth of language they will encounter in academic discourse and study. To illustrate the analysis, the following scorecard and its corresponding graph are presented:

Scorecard 4: *Lexis Analysis According to the CEFR*

Word List	Types	Tokens	cumul% Types	cumul% Tokens
A1	33 (23.57%)	50 (30.30%)	23.6%	30.3%
A2	12 (8.57%)	15 (9.09%)	32.1%	39.4%
B1	22 (15.71%)	25 (15.15%)	47.9%	54.5%
B2	29 (20.71%)	30 (18.18%)	68.6%	72.7%
C1	11 (7.86%)	11 (6.67%)	76.4%	79.4%
C2	8 (5.71%)	9 (5.45%)	82.1%	84.8%
Unlisted	25 (17.86%)	25 (15.15%)	~100%	~100%

The types and tokens associated with the A1 level, which signify the basic ability to communicate and understand simple phrases, constitute 23.57% and 30.30% respectively. The cumulative percentages indicate that A1 vocabulary forms a foundational layer of the lexical content, ensuring that learners have a solid base of elementary language from which to build

upon. Progressing to the A2 level, the data suggests a smaller representation of types (8.57%) and tokens (9.09%), summing to 32.1% and 39.4% cumulatively. This indicates a selective advancement in complexity, providing learners with more challenging vocabulary suitable for elementary users who can handle communication related to tasks of immediate relevance. At the B1 level, where users are expected to understand and produce text on familiar topics, types and tokens represent 15.71% and 15.15% respectively. The cumulative percentages (47.9% for types and 54.5% for tokens) reveal a significant inclusion of intermediate vocabulary, equipping learners with language skills that enable independence in most situations. B2 vocabulary, which is characteristic of a higher standard of independence in language use, shows types and tokens at 20.71% and 18.18%. This reflects the curriculum's commitment to preparing learners for complex communication and detailed text comprehension, as indicated by the cumulative percentages (68.6% for types and 72.7% for tokens). The C1 level signifies a proficient user capable of understanding and producing complex texts. The corresponding types and tokens are 7.86% and 6.67%, cumulatively reaching 76.4% and 79.4%. This suggests that advanced vocabulary is incorporated, though less prominently than the previous levels, which is appropriate given the higher difficulty and specificity of C1 lexicon. Representing near-mastery of the language, C2 vocabulary accounts for 5.71% of types and 5.45% of tokens, cumulating to 82.1% and 84.8%. The presence of such advanced vocabulary prepares learners for almost complete fluency and understanding of complex texts and subtleties in the language. The analysis also identifies a notable proportion of unlisted vocabulary types and tokens (17.86% and 15.15%), which represents academic or field-specific terminology not classified within the standard CEFR levels. This inclusion is critical in academic settings, where specialized vocabulary is frequently encountered and necessary for full academic literacy.

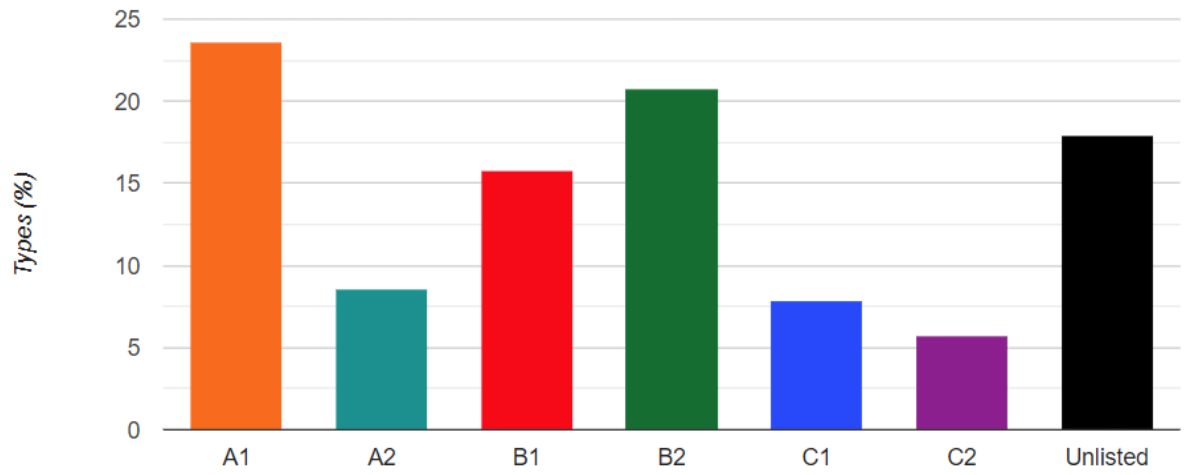


Figure 4: CEFR-Level distribution of vocabulary types

The graph in Fig. 3 above visualizes the percentage of vocabulary types categorized by CEFR levels, including the category for unlisted terms. It illustrates a strategic approach to vocabulary selection in the academic English course, with a clear progression from basic to independent user levels and an appropriate inclusion of proficient-level and specialized vocabulary. This distribution is crucial for ensuring that learners develop a comprehensive lexical repertoire that supports their academic endeavors.

The orange bar representing the A1 level is the second highest in the graph, demonstrating a significant portion of the vocabulary (just over 20%). This suggests an emphasis on ensuring that learners have a strong foundation in the basic lexical items necessary for fundamental English communication. The A2 level, depicted in light blue, shows a smaller percentage compared to A1, which is consistent with the progression in learning where the foundational vocabulary has already been established, and new, slightly more complex terms are introduced. The red bar signifies the B1 level and illustrates a substantial presence of intermediate vocabulary types, albeit less than the A1 level.

This reinforces the course's focus on equipping learners with the language skills necessary to navigate common situational contexts independently. The B2 level, shown in dark green, is the highest bar on the graph. This prominence indicates a strong emphasis on higher intermediate vocabulary necessary for more complex communication and understanding, which is essential for academic success. The C1 level, represented in blue, has a modest representation, which aligns with the academic objective of preparing students for advanced but less frequent aspects of English use. The purple bar for the C2 level indicates that the

highest level of language mastery is represented to a lesser extent, consistent with its complexity and lower frequency of use. The black bar for unlisted vocabulary is notable and suggests that a significant portion of the course material includes specialized academic terms that are essential for scholarly discourse but not typically categorized by general language proficiency standards.

v. Lexis analysis (BNC)

The distribution of vocabulary types by frequency in the academic English course, as informed by BNC data, demonstrates a structured and comprehensive approach to vocabulary acquisition. The analysis showed that a heavy focus on high-frequency vocabulary is suitable for establishing a strong foundation in English, while the presence of lower-frequency vocabulary is indicative of an intention to develop a learner's language capabilities to deal with a wide range of topics and contexts that they may encounter in an academic environment. To be illustrative, the following graph represents the distribution of vocabulary types according to their frequency bands as derived from the British National Corpus (BNC). Each bar on the graph indicates the percentage of vocabulary types falling within specific frequency ranges, with the x-axis displaying frequency bands and the y-axis representing the percentage of types.

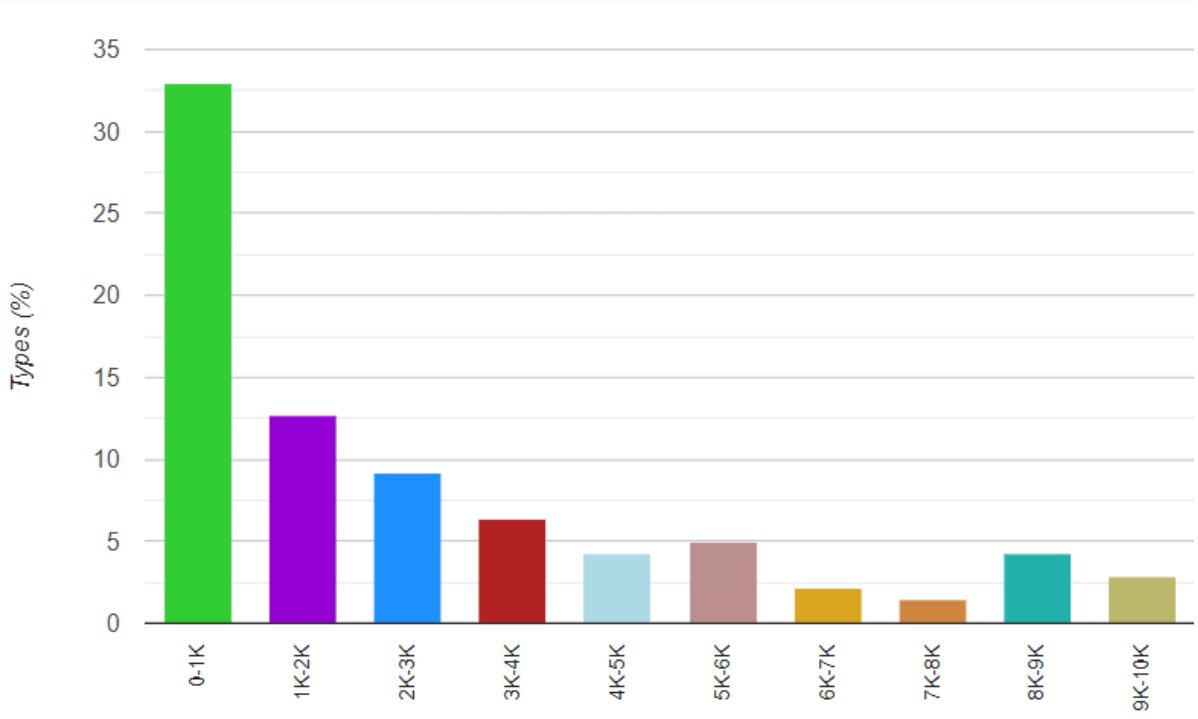


Figure 5: Distribution of vocabulary types by frequency bands (BNC data)

The green bar representing the most frequently used 0-1K words is significantly the highest, indicating that over 30% of the vocabulary types taught in the course fall within the most common words in the English language. This suggests that the course places a strong emphasis on ensuring that learners are well-versed in the most used English words, which is essential for basic communication and understanding. The purple bar for the 1K-2K frequency band shows that approximately 15% of the vocabulary types are from this range. This indicates a progression to slightly less common, yet still frequently used words that help learners to start engaging with more varied language. As we move towards the less frequently used vocabulary, represented by the subsequent bars from the 2K-3K band up to the 9K-10K band, there is a noticeable decrease in the percentage of vocabulary types. This gradual decline in frequency corresponds with the inclusion of more specialized and complex vocabulary that ESL learners would encounter less often in everyday English but might find in academic or specific professional contexts.

The graph's descending pattern reflects a balanced approach to vocabulary instruction, starting with the most foundational and commonly used words and progressively introducing learners to less common and more specialized terms. This approach aligns well with pedagogical practices that build a learner's language from the ground up, ensuring a solid base of high-frequency vocabulary before introducing more specialized language that is crucial for advanced fluency and comprehension, especially in academic settings.

vi. Lexis analysis (AWL)

The Academic Word List (AWL) is a compilation of words that are frequently used across a wide range of academic texts but are not found in the most frequent 2,000 words of English. It is divided into sublists, with AWL 1 containing the most frequent words in the list and AWL 10 containing the least frequent. The Academic Word List (AWL) distribution analysis demonstrates that the academic English course's vocabulary content is thoughtfully designed to prioritize high-frequency academic words while also providing exposure to a wider academic lexicon. This balanced approach ensures that learners are prepared to comprehend and engage with general academic texts and are also equipped to deal with the linguistic demands of more specialized academic discourse. To be precise, the following graph depicting the distribution of vocabulary types as per the Academic Word List (AWL), across its various sublists (from AWL 1 to AWL 10) is presented:

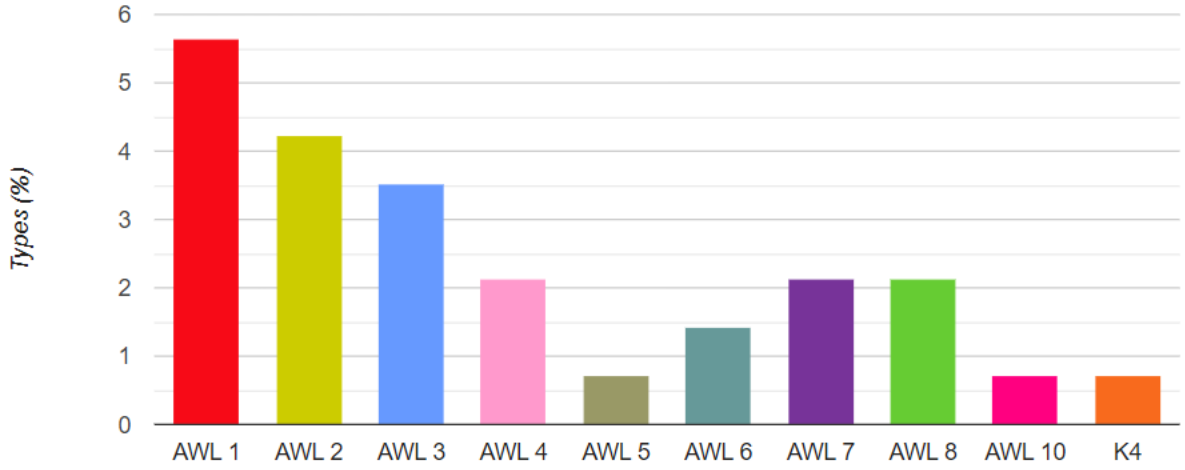


Figure 6: Distribution of vocabulary types across AWL sublists

The red bar for AWL 1 represents the highest percentage of types (over 5%) from the AWL used in the course. This suggests that the course strongly focuses on introducing ESL learners to the most commonly occurring academic vocabulary, which forms the core of academic English proficiency. Then, there is a general descending trend in the percentage of types from AWL 2 onwards, which is indicative of the decreasing frequency of words in each successive sublist. AWL 2, represented by the yellow bar, still holds a significant presence, suggesting a substantial integration of these terms in the course. As we move to AWL 3 and beyond, the percentages decrease, which is expected given the nature of the AWL, where words become progressively less frequent in academic texts. The orange bar representing the K4 category shows a small percentage, which implies that the course includes a limited selection of vocabulary from beyond the top 3,000 words in English, representing very specialized or less common academic terms. The predominance of AWL 1 and AWL 2 words reflects an educational strategy that prioritizes the most essential academic vocabulary for ESL learners. This strategy ensures that learners are equipped with a foundational academic lexicon that will be encountered frequently across various disciplines. The inclusion of words from further sublists and beyond shows a comprehensive approach, aiming to develop a deeper academic vocabulary that may be necessary for specialized fields or higher-level academic study.

vii. Collocation types

Collocations play a crucial role in language fluency and comprehension. Therefore, it was integral to incorporate them into the academic course. The analysis shows the integration of varied collocation types that were classified and distributed as follows:

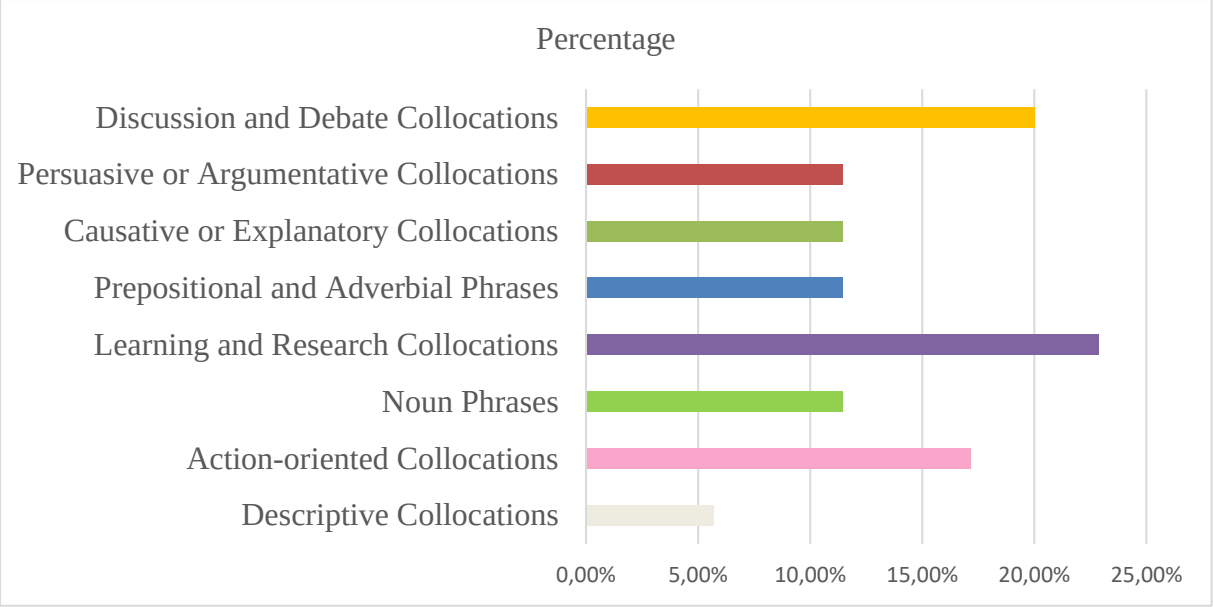


Figure 7: Collocation types classification and distribution

Collocations were classified based on their main functions. Descriptive collocations are phrases that describe certain states or qualities. Action-oriented collocations involve verbs that signify an action, often used in procedural or instructional contexts. Noun phrases are combinations of nouns with other words that together form a single idea. Learning and research collocations are specific to academic contexts, particularly in learning and research. Prepositional and adverbial phrases often start with a preposition and add context to the action or state. Causative or explanatory collocations imply some causation or explanation. Persuasive or argumentative collocations are typically used in persuasive writing or arguments. Finally, discussion and debate collocations are often used to describe the process of discussing or debating topics.

The figure displays a horizontal bar graph titled "Percentage," which shows the distribution of different types of collocations used in the academic English course. Discussion and debate collocations are the most prevalent in the course material, as indicated by the longest bar, accounting for approximately 22.5% of all collocations. Their prominence suggests a strong emphasis on language skills necessary for engaging in academic discourse, debates, and discussions, which are fundamental activities in higher education settings. Persuasive or argumentative collocations, which are essential for writing essays or presenting arguments, comprise around 17.5% of the collocations. Their significant representation indicates a focus on critical thinking and the articulation of persuasive points, aligning with the objectives of academic English to prepare learners for argumentation and persuasion in academic contexts.

Causative or explanatory collocations express cause and effect or are used to explain concepts account for about 15% of the total. Their substantial presence reflects the importance of explaining and reasoning in academic work, where the ability to describe processes and results is key. Prepositional and adverbial phrases form approximately 10% of the collocations. They are integral for clarifying relationships between ideas and actions, indicating a balanced inclusion to aid learners in complex sentence structuring. Making up just under 10%, learning and research collocations are integral to academic tasks such as research and studying. Their presence underscores the course's alignment with activities learners will likely engage in during their academic pursuits. The graph also shows noun phrases at around 7.5%, signifying a moderate use of compounded nouns. Noun phrases are fundamental in academic writing for the formation of subject-specific terminology and complex ideas. With a smaller representation of around 5%, action-oriented collocations are less prominent but still relevant for active descriptions of processes and methodologies in academic writing. Finally, descriptive collocations appear to be the least represented at around 2.5%, suggesting that while descriptive language is included, the focus is less on vivid description and more on functional language for academic purposes.

In summary, the graph illustrates a strategic prioritization of collocations that facilitate academic communication. The focus on discussion, argumentative, and explanatory collocations suggest a curriculum designed to develop students' ability to engage critically and effectively in academic discourse, with adequate attention given to other functional types of collocations to support a well-rounded academic language proficiency.

4.4.2 Change in Vocabulary

Having covered characteristics of the instructed vocabulary items, this section follows up on the dynamics of vocabulary attrition or retention amongst the studied participants over a period of 40 weeks of disuse. Specifically, it analyzes changes in vocabulary by focusing on the number of retained or lost words per task, and the number of error-free responses. Based on quantitative and qualitative observations, the following table (Table 23) summarizes changes in vocabulary and accuracy together with explanations of why such changes occurred.

Table 23: *Summary of Vocabulary Retention and Attrition Observations*

Type of Vocabulary	Vocabulary items	Observations	Explanations for Attrition
Single-Item Words	"adjudication," "instigation," "germane"	Varying retention, with less common words being more prone to being forgotten.	Infrequent use in daily contexts leads to less reinforcement and thus easier attrition. Complexity and abstractness also contribute.
Collocations	"put forward, a theoretical framework," "find a pathway through"	Frequently forgotten, especially without instructional input.	Require memory of word combinations, often specific to certain contexts like academia, and without practice, these patterns are lost.
Academic Terms	"theoretical framework," "conceptual framework"	Terms specific to academic discourse were easily forgotten.	Lack of regular engagement with academic writing or research leads to loss of contextual reinforcement for these terms.
Complex Verbs	"to encapsulate," "to corroborate"	Attrition noted in verbs that are abstract and less common.	Nuanced understanding diminishes without practice; these words are not reinforced in everyday use.
Adjectives	"untenable," "seminal"	Specific to certain discussions and often forgotten when those discussions cease.	Specificity to certain contexts means they are rarely used in daily language, leading to attrition when not in use.

It was already established that Participants A participants generally showed stable or improved scores on their second tests and that Participants B showed a remarkable decline on their second test scores. Participants A participants Ka and Be maintained high retention rates. Moroccan participants Li and Ke displayed impressive retention, with Li notably improving and Ke maintaining a perfect retention rate. In Participants B, Hungarian participants Ma and Ev's scores dropped from 91% to 70% and from 84% to 60%, respectively, indicating a substantial loss in vocabulary. Moroccan participants Hi and Ih showed declines, with Hi's score decreasing markedly from 70% to 55% and Ih's score falling from 97% to 89%. French participants Th, Om, and Mal also exhibited declines in scores, with notable reductions. Liking participants' test achievements to the lost and retained vocabulary items, it was noticed that on the one hand, single-item words showed varied retention rates.

Higher frequency vocabulary items such as "attempt," "primarily," and "noteworthy," were retained better than more specialized terms like "adjudication," "germane," and "encapsulate." This pattern could be due to the frequency of usage and the degree of semantic specificity as common and broad-meaning words are less likely to be forgotten. In other words, the single-item words that were forgotten tended to be less embedded in everyday language and not often encountered outside specialized contexts. For instance, "adjudication" is a term more commonly found within legal or formal settings, which may not be relevant to the daily life experiences of the participants. The lack of contextual reinforcement means such words are more easily forgotten.

Moreover, the semantic complexity of terms like "germane" demands a deeper understanding and more frequent use to be retained effectively. On the other hand, collocations such as "to put forward" "find a pathway through" and "in light of" showed a higher rate of attrition, especially in Participants B, indicating that language chunks, despite being used to aid retention, may be more susceptible to being forgotten without regular usage. Since collocations represent a unique challenge in language retention because they require both the memory of individual words and the memory of how they are commonly combined, the attrition seen in collocations among Participants B could stem from the absence of instructional input, which typically helps in reinforcing the patterns of word pairing and usage.

Academic language collocations often demand a higher level of language proficiency and a more in-depth engagement with the subject matter. In addition, academic discourse items such as "theoretical framework" and "conceptual framework" were more susceptible to attrition since most of participants did not frequently engage in academic research or writing during the disuse period. Complex low frequency verbs that are more abstract such as "to encapsulate" or

"to corroborate" required a more nuanced understanding leading them to be forgotten by most participants in Participants B. Finally, adjectives such as "untenable" and "seminal" were not retained as they are often specific to certain contexts or discussions, making them rare in everyday conversations.

The overarching reasons behind vocabulary attrition and retention across participants were mainly due to frequency of use, contextual associations, cognitive load, and motivation and relevance. Specifically, words which were used frequently in a variety of contexts were more likely to be remembered. Less frequent words that were not reinforced regularly were more prone to being forgotten. Likewise, words associated with specific contexts, such as academic discourse are more susceptible to being forgotten when not used in context and environment. As for cognitive load, learning and retaining language are cognitive processes, and more complex structures and collocations impose a greater cognitive load, which may lead to attrition if cognitive engagement with the language decreases. Finally, vocabulary retention is often tied to personal motivation and the relevance of the language to their lives. If certain vocabulary is not perceived as useful or necessary, it may be more readily forgotten.

The given observations suggest that the retention of second language vocabulary is influenced by multiple factors, including the nature of the words themselves, the contexts in which they are used, and the frequency and quality of engagement with the language. This underscores the importance of diverse and frequent exposure to language, as well as the maintenance of a rich and varied linguistic environment, in order to support the retention of a wide vocabulary range and mitigate its attrition.

5 Discussion

It is worth reminding that this dissertation endeavors to elucidate the factors influencing vocabulary attrition and retention in English as a second language and to examine their subsequent implications for language pedagogy. It is guided by the following inquiries:

1. How do intrinsic, extrinsic, and linguistic factors influence L2 vocabulary attrition and retention among the studied participants?
2. How does the studied participants' vocabulary attrition relate to established theories of second language attrition?
3. How does the studied participants' experience of vocabulary attrition/ retention inform pedagogical practices?

In this section, a summary of the key findings is presented, with an emphasis on the most important results that directly address the research questions outlined above. Next, these findings are compared with existing literature to situate them within the broader context. Finally, the implications of these findings are highlighted across theoretical, practical, and methodological levels.

To answer the first research question, the study reveals that all the studied intrinsic, extrinsic, and linguistic factors interact in complex ways and have an impact on second language vocabulary attrition and retention in the studied participants.

Starting with the intrinsic factors that fall into the category of personal variables; namely, vocabulary size, motivation and attitudes, vocabulary learning strategies, and the multilingual background, it was observed that each of these factors had its own unique way of influencing vocabulary attrition and retention, as outlined below.

Vocabulary size seemed to be an important differentiator as participants with larger vocabulary sizes had either stable or improved vocabulary test scores, indicating that a strong vocabulary foundation supports better retention in the case of reinforcement and re-exposure to the target vocabulary during a prolonged disuse period. Having a large vocabulary alone, however, was not sufficient to prevent some vocabulary attrition, as evidenced in Participants B.

In a similar vein, high motivation and positive attitudes towards English were shown to be influential as they supported all learners in scoring initial high vocabulary test scores. However, only learners with instructional support during the disuse period showed improved or maintained test scores, which indicates that motivation needs to be coupled with reinforcement in order to mitigate attrition. Moreover, lower classroom anxiety in the supported Participants A correlated with better retention, suggesting that reducing anxiety can positively influence vocabulary retention. Conversely, parental support varied and did not seem to be a sole determinant of retention. Participants A performed better despite lower parental encouragement, indicating that other factors such as instructional support are more critical.

As for learning strategies, it seemed that participants who resorted to using a mixture of traditional and digital strategies, who adapted their learning methods based on context, and who engaged in active and meaningful learning practices (e.g., contextual guessing, sentence production) demonstrated better retention. Moreover, strategies catering to different learning styles, such as mnemonic devices and note-taking, helped enhance retention by making

learning more engaging and memorable. Again, this was coupled with occasional instructional input that supported learners.

Moving to the multilingual background, the results only showed insights on a subset of five participants due to engagement challenges over the research duration. The key findings indicated that participants who reported early exposure to multiple languages seemed to have more linguistic flexibility. However, their multilingualism also posed some challenges due to divided linguistic focus. It also seemed that using English in social settings outside of academic ones positively influenced retention, whereas predominant use of native languages led to greater attrition. Again, these factors alone could not prevent attrition without consistent practice and support during disuse periods.

Next comes sociolinguistic factors, namely status of the target language and attitudes towards it. The systematic review showed that each country's variables provided an extended understanding of participants' vocabulary attrition or retention. In this sense, Hungarian participants seemed to benefit from having EMI courses, international collaboration opportunities, and a positive social attitude towards English. Moroccan participants appeared to both benefit from a social high regard towards English and face challenges due to socioeconomic disparities, contributing to vocabulary attrition without consistent support. French participants seemed to have a balanced approach between adopting English for practical benefits and preserving their other linguistic identities, resulting in medium retention outcomes, which could have improved with support during disuse periods. This goes hand in hand with the result that positive attitudes towards English that are driven by its perceived utility for academic and professional advancement promote better initial acquisition and retention. Most importantly, consistent exposure, solid socioeconomic factors, and practical use are decisive in sustaining these positive outcomes.

Linguistic factors undeniably play their own role in the retention/attrition equation. Variables such as distance between L1 and L2, vocabulary characteristics, and change in vocabulary all contribute to a comprehensive understanding of the participants.

As far as the distance between the L1 and L2 is concerned, two Hungarian participants tended to struggle more with pronunciation and grammar in English, while the other two (Ma and Ev) appeared to have more issues with vocabulary retention. This could be due to the lexical, grammatical, and phonological differences between English and Hungarian as highlighted in the analysis section. Moroccan participants had similar difficulties with pronunciation and vocabulary, but more so with vocabulary, as evidenced in the lower second test scores, mostly due to the distance between Moroccan Arabic and English. French

participants were expected to perform better in vocabulary retention due to lexical similarities with English, however, some still showed a decline in scores, likely due to a discontinued use without exposure to English.

Analyzing the list of the instructed vocabulary items and its characteristics showed that a rich and varied vocabulary set with high lexical diversity, lexical richness, phonological complexity, varied parts of speech including nouns, adjectives, adverbs, and words of different frequencies and CEFR levels was adopted. While some of these items were retained, others posed challenges for learners and were lost, as shown in the analysis section of change in vocabulary. In particular, single item words of higher frequency were better retained than specialized terms of low frequency, high semantic specificity words. Collocations witnessed higher attrition rates, especially without regular instructional input, likely because collocations require recognizing the combinations of multiple individual words rather than single item words in specific contexts, making them more susceptible to forgetfulness without consistent use. Similarly, academic terms were forgotten without practical and regular academic discourse usage.

Last but not least, input variables such as duration and nature of the program of instruction both during instruction and disuse periods played an essential role in affecting the outcomes of both vocabulary acquisition and retention or attrition. Firstly, during the instruction period a blend of instructional methods was used to reinforce and maximize learning outcomes. Of these, the behaviorist approach PPP was implemented to provide a structured reinforcement and facilitate active use in context. A text-based approach was also used to integrate vocabulary with receptive skills and enhance retention through context. Receptive skills were also addressed and used as a framework to pre-teach vocabulary, paving the way for vocabulary familiarization and exposure to the target language in context. Productive skills of speaking and writing were similarly used as frameworks to teach vocabulary to promote active usage and retention through production. The online course was delivered in two ways; eight 90-minute sessions over 8 weeks with a disuse period of 40 weeks for Hungarian participants, and four 180-minute sessions over 4 weeks with a disuse period of 40 weeks for Moroccan and French participants. The prolonged instruction period with shorter, more frequent sessions aimed to create a strong foundation in vocabulary retention and the more intensive, shorter instruction period aimed to intensify learning. Through participant observation, there appeared to be a tendency for students who attended spaced, shorter, and less intensive sessions, combined with prolonged periods of language disuse and limited instructional support, to show greater signs of vocabulary attrition compared to those who

participated in more intensive sessions. However, due to the small sample size, this observation should be interpreted as a preliminary trend rather than a definitive conclusion. Nonetheless, although unintentional, the smaller, more interactive sessions allowed for personalized feedback and stronger rapport with students compared to the larger group dynamics that required adaptation in teaching methods.

Conversely, participants who benefited from support during the disuse period showed no attrition signs, regardless of the type of instruction they received. Naturally, longer periods without language use led to greater vocabulary attrition, which stresses the need for consistent instructional reinforcement, engagement, and attendance to prevent vocabulary attrition as evidenced through the contribution of occasional formal instructional stimuli during the disuse period to higher retention rates in Participants A compared to Participants B.

To answer the third research question: “How do established theories of second language attrition explain the studied participants?”, it is important to link the current study’s findings to the established theories and hypotheses of second language attrition. To facilitate understanding, the following table is provided.

Table 24*:* *How Established Attrition Theories Relate to the Studied Participants*

Theory details	Theoretical Framework	Study's Findings
Psychologists assume that forgotten language input is still available and not totally erased from memory (Loftus & Loftus, 1976), cited in (Weltens & Grendel, 1993). It follows therefore that vocabulary is forgotten but not permanently lost. (Hansen, 2013)	Dormant Language Hypothesis	**Participants A:** Improved/ stable scores may indicate reactivation of dormant vocabulary due to continuous instructional support. **Participants B:** Score declines suggest vocabulary became dormant without ongoing engagement.
The path of attrition will be the reverse of the path of acquisition. For example, in a 12-year longitudinal study of the retention of Japanese particles by returned missionaries, (Russell, 1999) reported that the particles acquired most recently tended to be lost first. (Hansen, 2013).	Regression Hypothesis	**Participants B:** Most frequently lost items "put forward, a theoretical framework," "find a pathway through", "conceptual framework", "to encapsulate," "to corroborate" "untenable," "seminal" were introduced in later sessions: (4, 5, 7) suggesting that recently acquired vocabulary was more susceptible to loss during the disuse period.

In L2 acquisition theory, hierarchies of markedness impose paths of least resistance (acquisition orders) in language learning. The least marked classifiers tended to appear earlier and to be retained longer. (Hansen, 2013)	Markedness Theory	**Participants A:** Continuous exposure helped retain less marked vocabulary items. **Participants B:** greater loss of marked vocabulary without reinforcement during disuse period
There are levels of attainment above which a linguistic system is immune to attrition (best learned, last out). (Bardovi-Harlig & Stringer, 2010)	Critical Threshold Hypothesis	**Participants A:** Continuous support may have helped participants reach the critical threshold, as indicated by stable/improved scores. **Participants B:** Despite initial high scores (e.g., Ih), significant attrition suggests participants did not reach the threshold needed to resist attrition without reinforcement.

As seen in this summative table (table 24), the Dormant Language Hypothesis was manifested in Participants A's stable or improved scores, indicating that continuous instructional support reactivated dormant vocabulary items, while Participants B's lack of instructional support led to its decline. Likewise, the Regression Hypothesis was evident in Participants B's loss of the more recently acquired vocabulary. The Markedness Theory was seen in Participants A who managed to retain higher frequency and less complex vocabulary items compared to Participants B who failed to do so. Lastly, the Critical Threshold Hypothesis was reflected in Participants A who may have reached a potential attainment that prevented attrition thanks to the instructional support during the disuse period, unlike Participants B, which, despite high initial scores, showed significant attrition.

Linking the study to further theoretical frameworks on attrition, the following table presents a comparative summary of the current study's findings to the previously conducted research, as highlighted in the literature review section.

Table 25*: Study's Findings vs Literature on Language Attrition and Retention*

Literature	Factors	Study's Findings
(Xu, 2010) found that Dutch university students of English maintained their vocabulary, while Chinese university students of English experienced lexical attrition.	Distance between L1 & L2	The study also found that linguistic distance between L1 and L2 does indeed influence retention, with greater distance leading to more attrition.
Hansen (2011) found that words relearned by returned missionaries in 2010 differed in length between words they had forgotten before 2000 and words they had forgotten between 2000 and 2010.	L2 word length	The study observed that collocations were more susceptible to attrition, which may in some way relate with word length, or specifically chunk length.
Dutch and German students returned from study abroad in Spain and named high-frequency Spanish words faster and more correctly than medium- and low-frequency words in a picture-naming task (Mehotcheva, 2010)	L2 word frequency	It was observed that high-frequency words were better retained than lower-frequency and specialized items.
An overall comparison of acquisition and attrition data of the missionary population supports Weltens and Grendel's (1993) conception of affect playing a relatively minor role in L2 vocabulary loss (Hansen, 2013).	Attitudes and motivations	The study indicates that motivation can have an essential impact but is insufficient without reinforcement, somewhat contradicting the suggested minor role.

Learners who learn more words retain a larger proportion of the words known. (Hansen, 2013)	Vocabulary size	the study showed that vocabulary size appears to be a significant factor in both immediate vocabulary recall and longer-term retention.
A reduced amount of English in rote learning led to more attrition in word knowledge by Saudi EFL graduate learners (Alharthi, 2014).	Vocabulary learning strategies	The study found that using diverse learning strategies, coupled with instructional support, mitigated attrition.
There are many kinds of reasons perceived by the study participants to contribute to their lexical attrition. For example, type and level of materials used by the study participants in teaching classes, teaching methodology used to deliver the target language, lack of adequate facilities provided by some institutions. (Alharthi, 2015)	Instructional and input factors	The study found that instructional support during disuse periods, even if occasional, was critical in preventing attrition, and that diversified methodologies were important in ensuring a solid initial acquisition.

The table above (Table 25) displays how the study's findings align with established research on language attrition and vocabulary retention. Notably, vocabulary size is linked to better retention, showing that having a strong lexical foundation is pivotal. Motivation and attitudes play a significant role when coupled with instructional support and reinforcement. Vocabulary learning strategies that are mixed and adaptive echo the value of learner- and context-sensitive strategies. Sociolinguistic factors such as distance between L1 and L2 and attitudes towards them resonate with theories on the role of environmental features. Linguistic factors mirror the significance of frequent exposure. Lastly, input variables emphasize that ongoing instructional support is critical as seen in research advocating spaced repetition and continuous engagement.

6 Implications

To answer the second research question, the study gives several insights into the pedagogical practices that can be implemented through the experience of the studied participants as per personal, sociolinguistic, linguistic, and input factors finding.

As far as personal factors are concerned, first, it is suggested that language instruction should emphasize building a broad and deep vocabulary to enhance long-term retention. Learners' vocabulary size should also be measured before instruction to ensure a comprehensive understanding of the learners at hand. Spaced repetition and active recall exercises should also be incorporated into curricula to help mitigate vocabulary attrition. As vocabulary learning varies with students' individual needs, tailoring syllabi to address them is strongly recommended through diversified contextual usage. Moreover, regular or occasional instructional support, spaced repetition, and varied vocabulary teaching methods proved to be crucial elements in supporting both acquisition and maintenance.

Second, motivation should be enhanced through creating a positive low-stress classroom environment that prioritizes building rapport and learners' needs and preferences. Emphasizing and linking learning goals to students' instrumental and integrative motivations can additionally help sustain engagement and lower anxiety.

Third, learners should be encouraged to be mindful of their own learning preferences and strategies and use them autonomously outside of the formal instructional environment. Instructors should also offer tools that promote autonomy and interactive learning and combine traditional techniques with digital tools and multimedia resources that emphasize contextual and integrated learning. Immersive learning experiences such as resorting to TV shows, daily conversations, and social media can make vocabulary learning both entertaining and practical.

Last, learners' multilingual backgrounds should be accounted for by acknowledging the cognitive demands of multilingualism and designing strategies that reduce cognitive load and balance linguistic focus. Likewise, encouraging the frequent use of English in daily social interactions or during immersive learning opportunities such as exchange programs or native speaker interactions can strengthen lexical representations and reduce attrition. Early and consistent exposure to English even after formal education is of utmost importance and should be emphasized to help build a solid foundation for long-term retention. Evidently, highlighting the societal value and practical benefits of English coupled with regular practice and personal connections to English through culturally relevant and engaging content can also enhance motivation and retention.

Moving to the sociolinguistic insights, integrating regular reinforcement and instructional support by Hungarian, Moroccan, and French universities should be endorsed through more varied EMI courses and extra-curricular programs such as conversation clubs or language labs that expose learners consistently to English. To address the economic disparities within each society, providing free learning resources, support programs, and scholarships have

the potential to help reduce the privilege gap and fulfill learners' potential equally. Such opportunities would also impact motivation, which would in turn affect retention or attrition. Along with these, programs aiming at language anxiety reduction such as workshops, mentor and peer support, and effective pedagogical approaches are recommended.

Effective pedagogical approaches include tailoring and diversifying learning strategies such as combining traditional and contemporary approaches, including immersive experiences, and considering the learners' profile. Others include balancing global integration with learners' local identities through cultural studies and multilingual programs promoting both English and native languages. Including awareness of language attrition studies and research along with their implications in teacher training programs would additionally enhance the learning and teaching experiences and would require regular monitoring, assessment, policy development, and educational reforms that address language learning in a holistic manner.

As for linguistic variables, the distance between learners' mother tongue and English as a second language ought to be accounted for through awareness of learners' backgrounds and provision of early solutions to potential problematic areas such as syntax, prepositions, article usage, tense structures, pronunciation, stress patterns, intonations, lexis, etc. Reinforcing lexis implies including cultural and context-based instruction, use of varied vocabulary learning strategies, integration of vocabulary into skills development, emphasis on lexical precision and correct usage of false cognates, and consideration of the instructed vocabulary characteristics. When detailing such characteristics, it follows that a structed learning path should be put forward; meaning following a CEFR-aligned vocabulary sequence would help learners progress systematically and usefully. Advanced and technical vocabulary items would prepare learners for specialized academic discourse, and high frequency items would help build a strong foundation. After this comes the gradual introduction of less frequent words and ensuring constant recycling, receptive, and productive uses.

While more specialized vocabulary items are more susceptible to attrition, they are nonetheless useful in equipping learners for general academic texts, specialized fields and higher-level study. Of course, collocations should also be diversified and taught as language chunks rather than isolated words. As was seen in the study's results, high lexical complexity and diversity may initially pose challenges but will ultimately enrich vocabulary and aid its retention if properly recycled and reintroduced during periods of disuse. This also falls in line with the results in the section "change in vocabulary", which showed that frequently used vocabulary with personal relevance and motivation is more likely to be retained, and that vocabulary that is associated with specific contexts and complex structures impose a greater

cognitive load and is more susceptible to attrition if learners are not supported during disuse periods.

Last but not least, insights from input variables imply that students who are engaged in less intensive, spaced sessions but do not benefit from follow-up reinforcement are more prone to experiencing vocabulary attrition even though the shorter interactive sessions offer personalized feedback and stronger student-teacher rapport, which can enhance language learning outcomes. It is then of utmost importance to provide support during periods of disuse such as summer breaks or long holidays as evidenced by the lack of attrition among students who received such support. Even minimal instructional engagement during breaks can prevent significant vocabulary loss and sustain proficiency levels, regardless of the session type or intensity.

7 Conclusion

The study explored second language vocabulary attrition and retention among Hungarian, Moroccan, and French speakers of English as a Second Language (ESL) through an in-depth examination of intrinsic, extrinsic, and linguistic factors. The main aim was to show how these elements interact to influence vocabulary all together rather than as isolated items. The study also sought to assess the relevance of existing L2 attrition theories within the context of the participants studied and to derive practical implications for language pedagogy. The findings from this research demonstrate that vocabulary size, motivation, attitudes, vocabulary learning strategies, multilingual background, status of the target language, distance between L1 and L2, vocabulary characteristics, and instruction programs all shape retention outcomes.

Specifically, the results demonstrated that learners with larger vocabulary experienced less attrition, while those with high motivation achieved better scores when supported with regular reinforcement. Attrition was more prominent among participants with greater L1–L2 distance, and low-frequency or specialized vocabulary, particularly collocations and multi-word chunks, were especially vulnerable.

Mixed-method instruction, combining traditional approaches (such as PPP and Test-Teach-Test) with digital tools and skill integration, enhanced retention. Sentence production and active engagement were particularly effective. Instructional support provided during the disuse period reactivated dormant vocabulary in Participants A, contrasting with noticeable loss in Participants B.

Short, spaced sessions strengthened learner–teacher rapport and allowed for valuable feedback, although they did not directly impact retention without reinforcement strategies. Most importantly, it showed that continuous instructional engagement, especially during periods of disuse, is of utmost importance in preventing vocabulary attrition, aligning with established theories of language attrition such as the Dormant Language Hypothesis and the Critical Threshold Hypothesis.

As far as theoretical implications are concerned, the research contributes to the broader field of language attrition studies by both validating previous findings and challenging some assumptions on attrition, such as the minor role attributed to motivation. On a practical level, the study offered recommendations to enhance the learning experience and reduce the risk of vocabulary attrition, including integration of spaced repetition, recycling, active recall, and integrating vocabulary teaching into diversified, context-sensitive teaching strategies that cater

to individual learner needs. Language instruction should also account for the cognitive demands of multilingualism and provide tailored support to learners from different linguistic backgrounds.

8 Limitations and Future Recommendations

As is the case with most research, this study has limitations to be acknowledged. Of these, the small sample size and the challenges faced when maintaining participant engagement over the long research duration put a constraint on the generalizability of the findings. Likewise, focusing solely on the studied participants means that the results may not be fully applicable to other linguistic or cultural contexts.

To address these challenges, future studies are encouraged to build on this research by engaging larger and more diverse populations, not only in terms of nationality and language background, but also age, educational status, and learning contexts. This includes, for example, school-age learners in bilingual education programs, or professionals engaging with English in domain-specific environments. Including such groups would allow researchers to investigate how real-world motivations, time constraints, and domain-specific vocabulary demands shape vocabulary retention or attrition. Additional factors worth exploring include the role of emotional engagement, perceived language identity, language anxiety, and metacognitive awareness in retention outcomes.

Moreover, the impact of different digital learning environments, ranging from adaptive learning apps to AI-powered language tutors, is worth close investigation, especially given their growing presence in post-pandemic education. Such research could also benefit from incorporating neurolinguistic tools or longitudinal tracking via learning analytics to better understand cognitive and behavioural dimensions of attrition across diverse learner profiles. Implementing this longitudinal, action research study across culturally and linguistically diverse groups exposed the inherent tension between research design and pedagogical reality. While the original plan sought uniformity, the necessity to respond to learners' differing schedules, levels of autonomy, and cultural learning norms demanded flexibility in delivery.

Maintaining consistency in instructional time and content required continual recalibration, especially as the Hungarian group followed a weekly model, while the Moroccan and French cohorts opted for intensive blocks. This divergence, though unplanned, became an opportunity to examine how instructional pacing intersects with retention.

Sustaining engagement across the disuse period proved particularly challenging. As the researcher and instructor, I occupied a hybrid role that allowed unique proximity to the learning process but also required vigilance in separating instructional responsiveness from research influence. Each session functioned as both an intervention and an inquiry point, demanding critical reflection on how even minor adjustments might affect outcomes.

In the end, the dual role of teacher and researcher allowed me to stay close to the participants' learning experience and respond to emerging challenges in real time. It also demanded constant negotiation between research goals and pedagogical decisions. While this duality was exhausting at times, particularly during the data collection and analysis phase, it added depth to the study by bridging theory and practice.

The study also provided practical insights into how online instruction can be effectively conducted across varied learner groups. One of the most important lessons was that effective online instruction is not about replicating in-person teaching on a screen, but about re-engineering interaction.

The most successful sessions were those that maximized structured participation. This meant designing input in short, purposeful segments, frequently pausing for application, reflection, or discussion. For example, rather than presenting vocabulary in bulk, introducing 4–5 items through a relevant task, followed by peer interaction or writing practice, led to better results, especially when tasks mirrored authentic academic use.

What did not work was assuming digital presence meant engagement. Camera-on policies were ineffective without purpose; instead, engagement improved when students had specific roles in breakout rooms, were tasked with evaluating each other's output, or had to bring in personal examples.

Finally, conducting post-session reflections provided invaluable insight into what needed to be improved and what was effective. These small feedback loops, built into the design, were critical not just pedagogically but for refining the action research process itself. The spiral model of action research proved essential, not just as a theoretical framework, but as a working method. Iterative cycles enabled grounded decisions: instructional frameworks were not merely selected but also tested and adapted.

Ultimately, this was not just a study about attrition, it enacted the very processes it examined. What was retained, what was lost, and what was reactivated were not only properties of the learners' vocabulary but also mirrored in the research process itself: iterative, context-dependent, and shaped by use or lack thereof.

In conclusion, to maintain language proficiency, one must use it, otherwise lose it, as is commonly known in the field of neuropsychology. Just like muscles, language skills must always be trained to progress, otherwise they regress. This understanding reminds us not to take for granted an acquired language, as there is always a risk for it to be lost. Therefore, learners and language users ought not ever consider attaining high proficiency a milestone, rather a lifelong learning journey. This research affirms that retention is not solely a matter of what is taught, but how consistently and meaningfully learners continue to engage with it.

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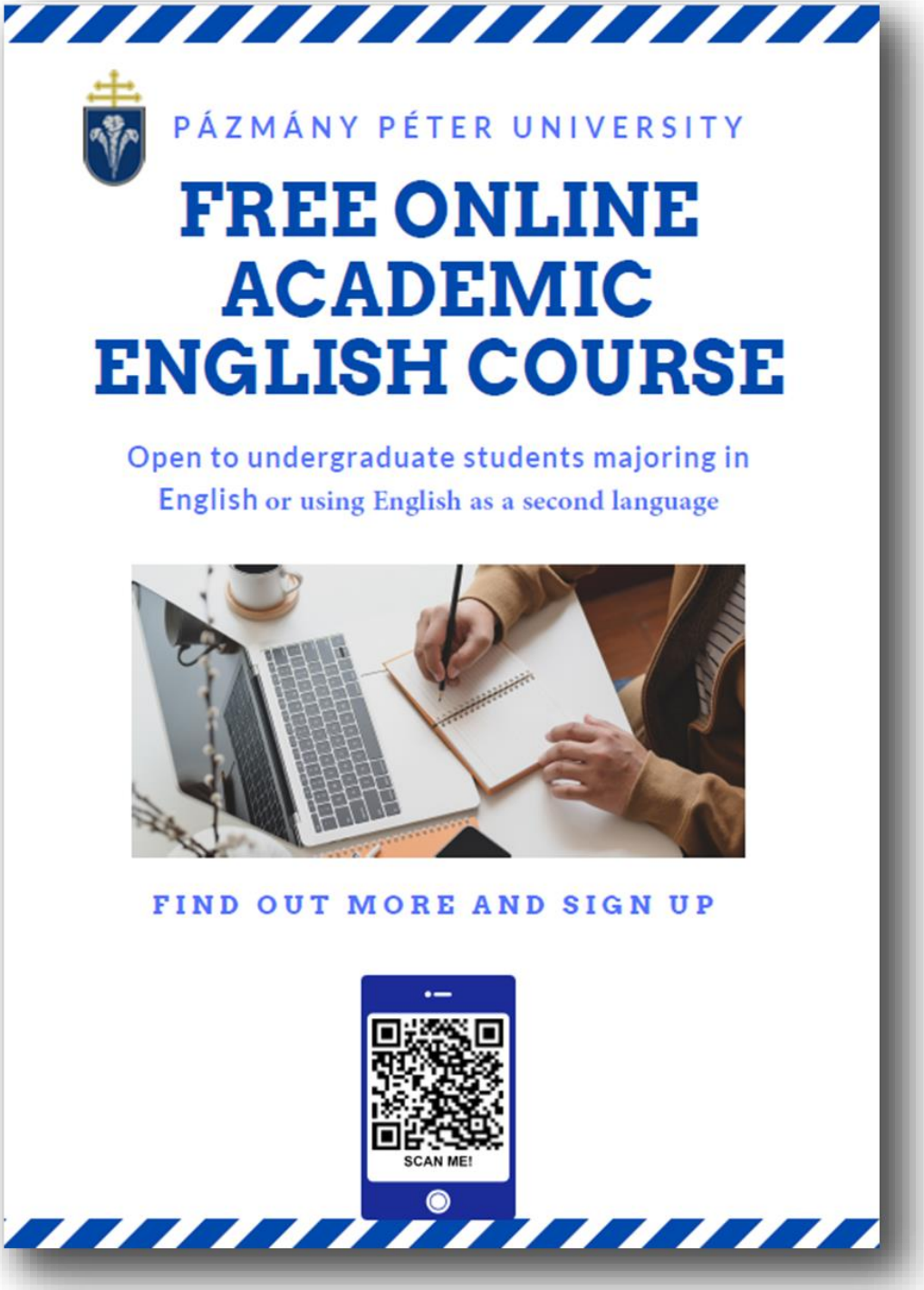
Appendices

1. List of Instructed and Tested Vocabulary Items

Single item words	Adjudication	Repertoire	Formulate	Classify	Observe
	Instigation	Retention	Relevant	Describe	Argue
	Germane	Consistent	Annotate	Compare	Assert
	Attempt	Cramming	Encapsulate	Contrast	Contend
	Primarily	Visualizing	Juxtaposing	Argue	Describe
	Virtually	Mnemonics	Corroborate	Define	State
	Solely	Pinpoint	Untenable	Explain	Emphasize
	Comprise	Encounter	Scepticism	Implicate	Demonstrate
	Title	Abstract	Introduction	Methods	Results
	Discussion	References	Stance	Evaluation	Hedging
	Boosting	Only	Seldom	Highlighted	Seminal
	Recalling	Noteworthy	Robust	Outweigh	Soundly
Collocations	Characteristic of	To request an extension	Find a pathway through	Linking words	Borne out by
	Put forward to	Extra-curricular activities	In light of	Research question	Acknowledge
	My mind starts to wander	Rote learning	Show cause and effect	Theoretical framework	Weighing up
	My mind goes blank	A first draft	Cast doubt on	Conceptual framework	Course of action
	To meet a deadline	Time management	Literature review	Research methods	Relevant aspects
	To make a to do list	Note- taking	Topic sentence	Data collection	Drawing conclusions
	To draw a mind map	A study plan	Supporting sentences	Under/in no circumstances	Points raised
	Rush into	At-a-glance	Concluding sentence	On no account	Drawbacks

2. Invitation to Enroll in the Online Academic English Course

https://sites.google.com/view/academicenglish/home (link to the website/QR code)



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3. Detailed Lesson Plans of the Online Academic English Course

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Preview:

Lesson Plan 1

Name:	**Hanae Ezzaouya**	**Date:**		**N of Ss**	
Level:	**Upper Intermediate- Advanced**	**Lesson length:**	**90 mins**	**Lesson no.**	**1**

Personal aim(s):

- To build good rapport with the participants in the first lesson.
- To ensure the lesson doesn't overrun the allocated 90 mins.
- To ensure clarity of instructions using demonstrations and ICQs where necessary, particularly in the virtual classroom environment, which may be new for them.

Main aims(s):

- To introduce vocabulary learning strategies and notetaking and provide students practice using them.
- To clarify the meaning, form, and pronunciation of the vocabulary items "adjudication, instigation, and germane" in the context of academic English.

Learning outcome: By the end of the lesson, students will be aware of the various vocabulary learning strategies and notetaking skills needed for the remaining of the course. Moreover, they will be able to understand and use the introduced vocabulary in an academic context.

Subsidiary aims(s): ***(when appropriate)***

- To go through the course description and state the aim of the course and the research.
- To receive the participants' spoken consent for taking part of this course and committing to regular attendance.
- To collect some background information about participants' vocabulary learning strategies and notetaking skills, particularly drawn from tasks 2.A. & 2.B, which are open-ended discussion questions inspired from Nation's (2001, p.353) taxonomy of vocabulary learning strategies; aiming to better understand the participants' vocabulary learning practices prior to their taking part of this course. Their responses will be later used in the research analysis, specifically in the analysis of individual factors involved in vocabulary attrition.

4. Attitudes and Motivation Test Battery (Gardner)

https://publish.uwo.ca/~gardner/docs/englishamtb.pdf

Preview:

Following are a number of statements with which some people agree and others disagree. Please circle one alternative below each statement according to the amount of your agreement or disagreement with that item. The following sample item will serve to illustrate the basic procedure.

a. Spanish football players are much better than Brazilian football players.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

In answering this question, you should have circled one alternative. Some people would have circled "Strongly Disagree", others would have circled "Strongly Agree", while others would have circled any of the alternatives in between. Which one you choose would indicate your own feeling based on everything you know and have heard. Note: there is no right or wrong answer.

1. I wish I could speak many foreign languages perfectly.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

2. My parents try to help me to learn English.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

3. I don't pay much attention to the feedback I receive in my English class.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

4. I don't get anxious when I have to answer a question in my English class.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

5. I look forward to going to class because my English teacher is so good.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

6. Learning English is really great.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

7. If Japan had no contact with English-speaking countries, it would be a great loss.

Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

5. Interview Schedule

Introduction

Greetings! Thank you very much for your willingness to take part in this interview. I will be your interviewer for this study. My name is Hanae Ezzaouya. I am studying for a Ph.D. at the Doctoral School of Linguistics in Pázmány Péter Catholic University in Budapest, Hungary. I am currently conducting research on language pedagogy. You are one of the students who agreed to take part in this longitudinal study and to participate in this interview from your university.

Purpose of the study

The purpose of this study is to explore the multilingual profiles of students using English as a second language. I am particularly interested in your perspective, experience, and feelings as they relate to your life as a multilingual individual and as a multilingual student. I have prepared a series of questions which I will also use with the other students. Once I have collected all the students' answers, I will analyze them towards the end of the longitudinal study and include the findings in my dissertation. The findings may as well be used in journal articles and conference papers.

First category of inquiry [origin]

Let's start out with some questions about the languages you speak and how you grew to be a multilingual person. I will be asking you both about your native language(s) and your second language.

A. What language or languages can you currently speak? Please include the dialects as well.
B. Which one(s) did you grow up speaking until the age of 12?
C. Tell me about the family members you grew up with and the languages they spoke at home.
D. What about the friends you would hang out the most with until the age of 12? What was the main language(s) they used?
E. What was your neighborhood culture like until the age of 12 and what language(s) did your neighbors speak up until you reached the age of 12?
F. What is your full history of learning English?

Second category of inquiry [identification]

Now, we will talk a bit about how you identify with these languages.

A. What language(s) do you identify as your *native language*? Why?
B. What feelings do you hold towards this/these native language(s)?
C. What views do your family members hold about this/these language(s)?
D. What views or beliefs are widely spread in your society about this/these language?
E. What is your opinion about these beliefs?
F. What language(s) do you identify as your *second language*? Why?
G. What feelings do you hold towards this second language?
H. What views or beliefs are widely spread in your society about this/these language?
I. What is your opinion about these beliefs?

J. What word do you think describes you the best and why? Monolingual, Bilingual, Trilingual, or multilingual?
K. What are your motives behind learning English?

Third category of inquiry [competence]

Let's talk about your competence now.

A. If you were to make a self-assessment of your competence in the languages you speak, which would you choose as the one(s) you're most proficient at? Why?
B. Have you ever taken any language tests to assess your level of proficiency in any of the languages? When did you? What were the results?
C. What are some practices you adopt to develop your English?
D. What is your experience with learning English vocabulary?
E. What are some practices you adopt to retain the vocabulary you learn?
F. How often do you experience forgetting a word or expression? What do you do about it?
G. What do you think of the language proficiency of people who frequently experience the loss of second language vocabulary?

Fourth category of inquiry [function]

I just have a couple more questions about the frequency of your language use.

A. What language do you most often use at home, at university, and with your friends?
B. How many approximate hours do you practice your English per week?
C. How often do you interact with native speakers of English?
D. Have you ever used English in a country where English is the native language? If so, what was the experience like? Did you learn any new words? Do you still remember some of them?

Thank you very much for your time and enlightening answers. I appreciate it.

6. Samples from the Computer Adaptive Test of Size and Strength (CATSS)

Productive recall

The task is to supply the L2 target word (*melt*). The first letter of the word is provided in order to avoid non-target words which have the same meaning.

Turn into water m_____
(In the bilingual version, the prompt is the L1 translation of 'melt')

Receptive recall

The task is to demonstrate understanding of the meaning of the L2 word (*melt*) which is embedded in a phrase, or a short sentence to be completed by the test taker.
In this instance there are a range of acceptable responses (e.g. *water, fluid, liquid*).

When something *melts*, it turns into _____.
(In the bilingual version, the word 'melt' is presented and learners are asked to translate it into L1.)

Productive recognition

The task is to choose the target word from four options (a b c d). The distractors, which are semantically unrelated (as we are not testing fine shades of meaning), are taken from the same frequency level as the target word.

Turn into water
a. elect
b. blame
c. melt
d. threaten
(In the bilingual version, the L1 translation of 'melt' is provided as the prompt)

Receptive recognition

The task is to choose the meaning of the target word from the four options provided.
Most of these options are paraphrases of the distractors that appear in the productive recognition mode.

When something *melts*, it
a. chooses
b. accuses
c. makes threats
d. turns into water
(In the bilingual version, the distractors are translations into L1)