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Semantic Priming in the Process of Learning English: Peculiarities of Bilinguals and Monolinguals

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Abstract: This paper examines the role of semantic priming in foreign language acquisition (English among bilinguals and monolinguals. The study aimed to determine how bilinguals acquire English vocabulary when they are proficient in Ukrainian and a language with the Latin alphabet, and how semantic priming influences this process. The bilingual model of interactive activation was tested through an experimental study involving Group 1 (15 monolingual Ukrainian speakers learning English) and Group 2 (15 bilinguals, native speakers of a Latin-alphabet language, also learning English). Participants completed lexical decision and priming tasks to assess the interaction between L1 and L2 in vocabulary acquisition. The results indicate that semantic priming occurs when words from both the target and non-target languages compete for selection and acquisition. Among Ukrainian-speaking participants, L1 influenced semantic association selection, while in bilinguals, typological similarity played a role in English vocabulary acquisition. Overall, the study demonstrates that language switching effectiveness can be explained by semantic priming, which creates associative links in the mind. Additionally, the findings suggest that interference between L1 and L2 is minimized when the received language input is partially predictable (e.g., when both languages share the Latin alphabet), allowing direct access to target language representations and easier assimilation.

Keywords: Language Learning, Monolingualism, Bilingualism, Semantic Priming, Information Processing, Meaning Contouring

1. Introduction

The intersection between linguistics and psychology has long been established, dating back to the seminal works of Ferdinand de Saussure in Europe (Seuren, 2016). The formalisation of psycholinguistics as a distinct field began in 1954 with the emergence of the "first psycholinguistics," which integrated late behaviourist principles with linguistic theories (Sumary et al., 2023). In subsequent years, Noam Chomsky's theories revolutionised the field, giving rise to what is now known as the "second psycholinguistics" (Rastetang et al., 2022). Central to Chomsky's argument was the assertion that linguistics is fundamentally a part of cognitive psychology. This perspective aligns with the idea that syntax serves as the foundation for linguistic formalisation, following a strongly deductive approach.

One of the most radical aspects of Chomsky's theory is the concept of innatism, which posits that language functions as a mental organ (Piantadosi, 2023). According to this view, the human capacity for language acquisition is an innate trait, facilitated by a universal grammar that acts as a prerequisite for language learning (Jalilbayli a, 022). Psycholinguistics, as an extension of universal grammar, seeks to validate Chomsky's generative framework through experimental methodologies. This approach assumes that linguistic processing is initially governed by syntax, with semantic interpretation occurring as a secondary step (Tsurkan et al., 2020). Within the second psycholinguistics, the concept of symbolic representation is particularly significant, as it underpins the analysis of both inter-philosophical and inter-psychological dimensions of language.

Alongside this syntactically driven approach, an alternative stream of psycholinguistics has emerged, focusing more on the semantic aspects of psychological processes underlying language. This perspective is rooted in a broader theory of psychological activity that conceptualises cognition as an information-processing system (Collignon and Crepaldi, 2022). Within this framework, language processing involves an initial input phase, during which external stimuli are perceived and encoded by perceptual mechanisms. This is followed by a central cognitive phase, where the encoded information is transformed into mental representations and, if necessary, an execution phase that manifests in linguistic actions. Originally develop-

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-ed to study attention and memory, this theoretical model has since been adapted to explore language comprehension and discourse production, providing a comprehensive framework for understanding the cognitive mechanisms that govern linguistic behaviour.

Despite significant advancements in psycholinguistics, there remains a critical gap in understanding how cognitive mechanisms, particularly semantic priming, shape real-time language comprehension and decision-making. Existing research has primarily explored either syntactic models or lexical retrieval processes in isolation, leaving limited empirical evidence on their combined influence in linguistic decision-making. Furthermore, while working memory is known to contribute to sentence comprehension, the precise cognitive processes that allow near-instantaneous language interpretation remain underexplored. This study aims to bridge this gap by investigating how cognitive processing interacts with semantic priming to influence rapid linguistic decision-making.

This study seeks to address these gaps by investigating how cognitive processing influences semantic priming in linguistic decision-making. Specifically, it examines the speed and accuracy of word and sentence recognition, aiming to provide a more comprehensive understanding of implicit psycholinguistic mechanisms. By integrating experimental methodologies with cognitive theories, this research contributes new insights into the underlying processes that facilitate real-time language comprehension and decision-making. Although language-related actions may seem intuitive, the complex cognitive operations behind them remain largely unexplored and require further empirical analysis to be fully understood (Hendrix and Sun, 2021).

2. Literature Review

There are many subfields of psycholinguistics that examine the relationship between language and human psychology. This paper discusses some of these subfields that have gained popularity among researchers in recent years. One of the most prominent areas is language acquisition, where scientists investigate the processes and strategies used by children and adults to learn a language. This research enhances our understanding of how individuals acquire a complex linguistic system and develop their communication skills (Semenets-Orlova et al., 2021; Jamalli, 2023).

Another promising area is cross-linguistic research, which explores how different language systems influence language acquisition. Such studies help identify linguistic features that affect language development and learning processes. Additionally, the study of language disorders within psycholinguistics is crucial. Researchers in this field examine speech and language disorders, such as dyslexia and aphasia, to understand their causes and potential treatments (Benítez-Burraco, 2023).

The impact of ageing on language has also received significant attention. McMurray, Baxelbaum, Colby, and Tomblin (2023) analyze changes in speech and language skills associated with ageing, highlighting cognitive processes involved in language decline and proposing methods for maintaining language function. Similarly, Wong and Law (2022) investigate word recognition processes, focusing on human perception and the cognitive mechanisms that facilitate word identification in speech. Understanding these processes provides insights into how language is perceived and processed in the brain.

Another key area is narrative comprehension, which explores how humans interpret stories and texts. Morgan-Short and Ullman (2022) and Bimler et al. (2023) examine cognitive perception and the processes involved in understanding narratives. Additionally, language production and inference in comprehension are fundamental aspects of psycholinguistics, involving the mechanisms of speech production and the interpretation of linguistic information through contextual cues and different types of linguistic knowledge.

It is essential to recognize that all subfields of psycholinguistics contribute to a holistic understanding of language and its interaction with human psychology (Grüter, 2022). In the context of this study, research at the intersection of cognitive linguistics and psycholinguistics will provide deeper insights into thinking, perception, and language usage (Zhabotynska, 2020).

Scholars emphasize that studying language comprehension aids in understanding how language and cognition interact (Aliyeva, 2023). Linguists, psycholinguists, and philosophers largely agree that comprehension involves the construction of meaning. Cognitive psychologists argue that meaning—whether in an utterance, discourse, or text—is represented mentally before speech production and is fully realized upon interpretation by the listener (Maraieva, 2022).

Communication involves both implicit and explicit use of linguistic structures. Speakers form utterances based on an internalized sense of how their message will be understood, while listeners engage in comprehension, utilizing their linguistic knowledge and cognitive resources to interpret meaning (Sofilkanych, 2022). Comprehension requires integrating physiological and mental processes with linguistic and contextual knowledge to form an accurate mental representation of the speaker's intended message.

This cognitive approach to meaning suggests that mental representations serve as the foundation of linguistic comprehension. However, meaning is not always fixed; ambiguity and variability in interpretation may arise due to differences in cognitive processing, language experience, or neural mechanisms. Some scholars, such as Skakun

(2022), argue that universal cognitive and neural mechanisms help minimize individual variations in meaning, leading to shared terminal representations. However, in contexts where multiple mechanisms influence meaning construction, ambiguity is inevitable. This flexibility in language interpretation is an intrinsic property of language and can be examined through psycholinguistic frameworks.

While previous studies have examined various aspects of psycholinguistics, including language acquisition, cross-linguistic influences, and cognitive mechanisms in comprehension, there remains limited empirical research on how semantic priming and lexical selection interact in bilingual language processing. This study addresses this gap by investigating how bilingual speakers activate and select lexical representations in real-time language processing, particularly in typologically similar languages. Despite extensive research on bilingual lexical access, there is limited understanding of how bilinguals select words under conditions of lexical competition. Studies o cross-linguistic influences suggest that typological similarity may influence lexical retrieval, but few st dies ha investigated its role in real-time lexical decision-making using semantic priming. This study builds on p viou psycholinguistic models by examining how bilinguals manage cross-linguistic interference and language-sp ific selection in lexical processing.

2.1. State Hypotheses and Their Correspondence to Research Design

This paper proposes the following hypothesis: Selective access to language-sp ific re esen ions and indiscriminate access to representations are both common in bilingual language process (L1 a L2).

According to the indiscriminate access hypothesis, any linguistic stimulus can ac ate le ical rep esentations in both languages (in this case, Ukrainian and English, assuming the recipient is bili al in lang s with similar alphabets). This activation occurs based on the stimulus's orthographic nd phonolo al similarity to words in both languages. Only after this indiscriminate stage does the system us lan e-spec information to select the correct lexical representation.

In bilingual interactive activation (BIA) models, language selection urs through top-down processing, where higher cognitive mechanisms regulate the activation f linguistic rep entations. This regulation involves language nodes, which integrate stimulus information with co extual cues to e termine the likelihood that a given stimulus belongs to a specific language. The activation level se language nodes indicates the probability that a linguistic input belongs to either L1 or L2.

The Selective Interactive Language Activation (SILA model b nds upon these principles by proposing late selection mechanisms. According to this model op-d n from language nodes influences word-level representations, ensuring that after sufficient pr essi tim e, only L2-specific representations remain activated. This process allows bilingual individual o refin anguage election during comprehension and word recognition, providing insights into how cognitive me nisms ana cross-linguistic interference.

3. Methodology

The process of using semantic pri ing as a timulus for determining the speed and accuracy of lexical decision-making in the acquisition of L2 (se nd lang ge) vocabulary is studied by means of a scientific experiment. The experiment involved bili tude o speak one of the languages (Romanian, Polish, Hungarian) and monolingual students (m nolin t environment—Ukrainian) of higher educational institutions of Ukraine. To prove the hypothesis f s ma ic pr ng in foreign language acquisition (English), students in Group 1 should be native speakers of e of the ang ges with the Latin alphabet.

1.3. 3.1 Ide ty Su ections

The described m thod o e experiment allowed us to study the effect of priming on the speed of lexical decision-makin s use in order to study the relationships between different linguistic elements and their influence on cogn ive p cesses. The results of the presented experiment may be important for understanding the mechanisms of la ge and human cognitive functioning.

.4. 3.2 cipant (Subject) Characteristics

erimental methodology used in the study corresponds to the paradigm of lexical priming and lexical decision-making (Lexical Decision Task) (Delétang et al., 2022). The experiment involved native speakers of Ukrainian, monolingual and bilingual students, native speakers of one of the languages with the Latin alphabet (L1) (native language). All of them were learning English (L2). For the first group, English L2 is typologically closer to L1 (Romanian, Polish, Hungarian) due to the Latin alphabet. For the second group, the L2 has no typological connections. In general, the aim of the study was to find out the mechanism of lexical selection in bilinguals and monolinguals.

1.5. 3.3. Sampling Procedures

It was necessary to assess whether semantic typology affects lexical control in bilinguals and monolinguals. More precisely, if typological proximity to L1 is sensitive to the typological proximity of the language to L2, then the experiment expects switching costs and error rates to be higher for monolinguals. In order to assess the influence of semantic typology on lexical control in bilinguals and monolinguals, the presentation of language stimuli

through text was used: (words and nonwords were presented on a computer screen in written form, lexemes from different languages were displayed randomly, which allowed us to assess whether typological similarity influenced reaction times and error rates). Audio files were also used to present languages with different typologies to participants. If the typological proximity to the L1 increased the efficiency with the L2, monolinguals were expected to make more errors and spend more time when switching to processing stimuli from languages with dissimilar typologies.

3.3.1. Sample Size, Power, and Precision

Semantic priming depends on the effect of L1-L2 typological proximity. This indicates that the selection process considers not only the target language but also the non-target language. If the non-specificity of the Ukrainian language is considered (since L1 and L2 are not typologically close languages for monolinguals, as this term refers to the fact that Ukrainian, as the L1 for monolinguals, is not typologically close to English, which is the L2 in the experiment). This means that Ukrainian does not contribute to natural semantic priming for English, as their lexical, grammatical, and phonological structures are significantly different. The costs of switching from one language to another are expected to affect L2 comprehension performance. Positive outcomes in English language learning are expected to depend on the typological closeness of bilinguals' L1 and L2. In particular, if L2 processing is influenced by L1 typological proximity, this may indicate that when L2 processing is planned, the L1 forms semantic priming (associative series).

3.3.2. Measures and Covariates

Groups G1 (bilinguals) and G2 (monolinguals) started learning English at the same time from the A1 level. A total of 30 students (8 males and 22 females with an average age of 18–22 years) took part in this experiment. Group 2 (15 participants) grew up in a monolingual environment and started learning English at school. Group 1 (15 participants) were bilinguals, native speakers of one of the above languages with a Latin alphabet, who also learned English at school.

3.3.3. Research Design

After a year of studying English, the participants were assessed on their speaking, listening, writing, and reading skills. The assessment was based on a 10-point scale, where 0 = no knowledge of the language and 10 = B1 level proficiency. To further investigate the level of English proficiency, the participants were offered a vocabulary task. The experimental groups were asked to translate unfamiliar words (A2 level) into lists that included words from one semantic category (e.g., hands, head, feet for the body parts category) and lists of mixed categories (e.g., shirt, sink, apple). Consistent with the DMIA, they found that L2-to-L1 translation (for bilinguals) was faster and more accurate than L2-to-L1 translation for monolinguals and that only the latter was affected by the nature of the topic.

3.3.4. Experimental Manipulation or Interventions

In the context of the second line of research, participants were shown a sequential presentation of two linguistic elements with a specific interval between them. They had to provide a translation of the second item based on knowledge and association. The time required to decide depended on the relationship between the first and second items, such as associative or semantic connections. To ensure the optimal configuration of the stimulus presentation, the new English vocabulary was separated on the computer screen at 150-millisecond intervals. This prevented the participants from "thinking" about two words consecutively. The central phenomenon was the activation of the participants' ideas about the first word, particularly its semantic component, which quickly spread in the neural network to semantically similar meanings. This activation facilitated a faster response to the second item.

In the task, participants were asked to name as many words as possible that were related to a given topic (i.e., phonemic subtest) or belonged to a specific semantic category (semantic subtest) in 60 seconds. Verbal fluency measures are thought to reflect the ease with which lexical representations are retrieved from the mental lexicon and are therefore considered a good indicator of language proficiency.

The total score for this item was calculated by adding the correct answers from the phonemic and semantic subtests. Proper names, mispronounced terms, and words that were repeated more than once were considered incorrect answers. As expected, G1 participants (bilinguals) performed better than monolinguals.

4. Results

Semantic priming is a method used to study the psycho-cognitive foundations of language (Cornish, 2023). This method has various theoretical interpretations, but fewer critical approaches have been considered. The first line of research argues that if it is possible to formulate a hypothesis about the relationship between elements of one language based on linguistic or psycholinguistic data, then it is worth testing whether the presentation of these elements leads to a reduction in decision-making time related to another language (Gatti et al., 2023). The second line of research examines the reduction in decision-making time for a second language when the first language uses the same alphabet. It suggests that there may be a connection between first and second-language perception (Liu et al., 2022).

The phenomenon of language switching illustrates the interconnection between linguistics, cognitive psychology, and neuroscience, making it a promising area of psycholinguistic research. The two theoretical processes under consideration, activation and propagation, are borrowed from the classical neurobiological conceptualisation (Müller, 1996). These processes are assumed to occur in neuronal configurations. The experiment was designed to demonstrate that students who are native speakers of a Latin-alphabet language respond more quickly to these phenomena by activating "representation," which is defined linguistically and psychologically as "word meaning." However, it should be noted that this has not been anatomically identified. The explanation of priming involves linguistic and psychological relationships, such as "semantic proximity," which in psycholinguistics can be defined and achieved in several ways. However, attributing this effect solely to spatial proximity in the brain would be a mistake.

In the bilingual interactive activation model, for languages that share the same alphabet (e.g., English and Polish, Romanian, Hungarian), a visual representation of a word triggers the activation of orthographic representations in both languages, depending on the degree of similarity between the orthographic representations and the stimulus. Any representation activated by the stimulus competes for lexical identification. The probability that a given word corresponds to the stimulus word is modulated based on the likelihood that the stimulus belongs to a particular language, as reflected in the activation of language nodes.

4.1. Recruitment

This unique approach to the lexical processing of monolinguals and bilinguals highlights two essential aspects. Firstly, it is impossible to completely "switch off" a language that does not fit the context (e.g., Ukrainian). Due to the principle of language-independent feedback, both languages remain activated to some extent. Secondly, jointly activated representations of a non-target language influence the processing of the target language. Because of lateral inhibition, which operates between all lexical representations regardless of their language, the interference affecting the target language involves representations of the non-target language that were activated by the stimulus word.

4.2. Statistics and Data Analysis

After a year of training, participants were assessed on their English speaking, listening, writing, and reading skills. The assessment was conducted on a 10-point scale, where 0 = no knowledge of the language and 10 = B1 level proficiency. The results of the assessment are shown in Table 1.

Table 1: Mean scores (standard deviations in parentheses) for English speaking, listening, writing, and reading assessments

	Speaking	Understanding	Writing	Reading	Average score
G1 bilinguals	7.8 (0.9)	8.1 (1.2)	7.7 (1.3)	8.4 (1.3)	8.1 (1.1)
G2 monolinguals	6.1 (1.5)	6.8 (1.4)	6.3 (1.5)	7.7 (1.3)	6.7 (1.7)

Source: author's own development

To further investigate the level of English proficiency, participants were offered a vocabulary volume and recognition task. The experimental groups were asked to translate the words presented to them into lists that included words from one semantic category (e.g., hands, head, feet for the “body parts” category) and lists of mixed categories (e.g., shirt, sink, apple). Consistent with the DMIA model, findings showed that L2-to-L1 translation (for bilinguals) was faster and more accurate than L2-to-L1 translation (for monolinguals) and that only the latter was affected by the nature of the topic.

Therefore, according to this theoretical approach, it should be possible to observe cross-linguistic interference even in the most monolingual processing situations (e.g., reading a book written in one language). However, most early studies of cross-linguistic interactions confirmed the hypothesis of selective access by language. These results were obtained through language-switching experiments (de Bruin, Samuel & Duñabeitia, 2020), which demonstrated that switching from one language to another entails processing costs compared to a situation without switching.

4.3. Ancillary Analyses

n this task, participants were asked to name as many words as possible related to a given topic (i.e., phonemic subtest) or belonging to a specific semantic category (semantic subtest) within 60 seconds. Verbal fluency scores are thought to reflect the ease of lexical retrieval from the mental lexicon and are therefore considered a good indicator of language proficiency.

The total score for this task was calculated by adding the correct answers from the phonemic and semantic subtests. Proper names, mispronunciations, and repeated words were considered incorrect answers. As expected, G1 participants (bilinguals) performed better than monolinguals (Table 2).

Table 2: Average cross-linguistic interference rates for L1 vs L2 in repetition and switching during the lexical task

Participants	Repetition %	Switching %
G1 bilinguals	13,3 (22)	39,4 (65)
G2 monolinguals	3,7 (6)	11,5 (19)

Source: author's own development

Table 2 shows that responses to lexical tasks were slower for monolinguals. This finding aligns with the DMI model, which suggests that the activation of language nodes is faster when languages are typologically similar. If the word belongs to a different language (with a different alphabet), the activation of language nodes is initially incompatible with the current task, leading to processing difficulties. This suggests that language switching does not always facilitate selective language access.

4.4. Participant Flow

Some researchers argue that it is necessary to conduct experiments where the non-target language is not explicitly activated to obtain more convincing evidence in favour of nonselective access (John, 2017). According to proponents of selective access, the mere presence of a word from a non-target language, as was the case in the Stroop interference experiment, is enough to prevent processing exclusively within one language (Rozan & Pinet, 2020). Similar criticisms have also been raised regarding studies on cross-linguistic homographs and homophones, as these stimuli inherently involve words from another language.

4.5. Intervention or Manipulation of Fidelity

The dominant theoretical approach to second language vocabulary acquisition is the revised bilingual interactive activation model. According to this model, as L2 acquisition progresses, there is a gradual transition from indirect access to meaning (through semantic priming in L1 with translational equivalents) to direct connections between L2 words and concepts (see Figure 1).

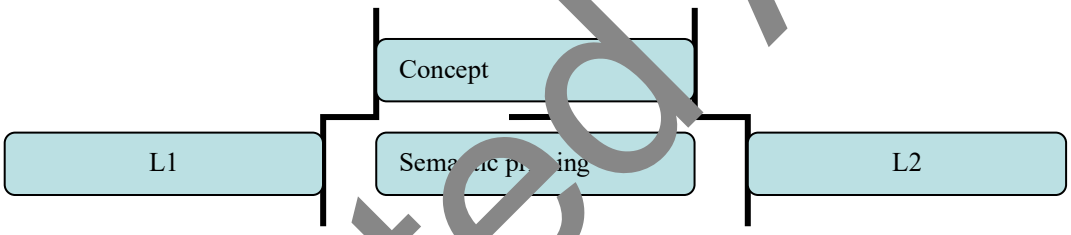

Figure 1: Bilingual model of interactive activation. Source: author's development

Thus, in this experiment, participants learning English were asked to classify words into semantic categories. The application of the DMI method demonstrated that L2-to-L1 translation (perception of L2 through L1) was faster and more accurate than L1-to-L2 translation. This difference was attributed to the peculiarities of word emancipation.

4.6. Baseline Data

In this context, challenges related to studying cognitive linguistics within psycholinguistics can be categorized. A key issue is integrating the cognitive approach to language learning with disciplines such as syntax, phonetics, and phonology. Addressing this challenge requires combining research from various linguistic fields.

4.6.1. Statistics and Data Analysis

The bilingual interactive activation model (BIA) illustrates the relationship between formal representations of words in L1 and L2, combining cognitive and psycholinguistic approaches. The Bilingual Interactive Activation Model is a psycholinguistic framework that describes the relationship between formal representations of words in two languages. This model assumes that words denote not only sounds or written symbols but also concepts associated with these words (Figure 2).

Thus, it can be concluded that, according to this model, each word has two formal representations—one in L1 and one in L2. These representations include lexical and semantic information: Lexical information relates to the word's sound or written form, while semantic information reflects its meaning and concept.

The interaction between these formal representations is analysed using the interactive activation model. It is proved that when a bilingual begins to think or speak a word in the L2, sounds or written symbols activate the formal representation of this word in the native language system. The two-way interaction between formal representations is considered an essential tool for studying multilingual word processing and language comprehension. It helps explain how people can activate and understand words in two different languages and how their relationship is maintained.

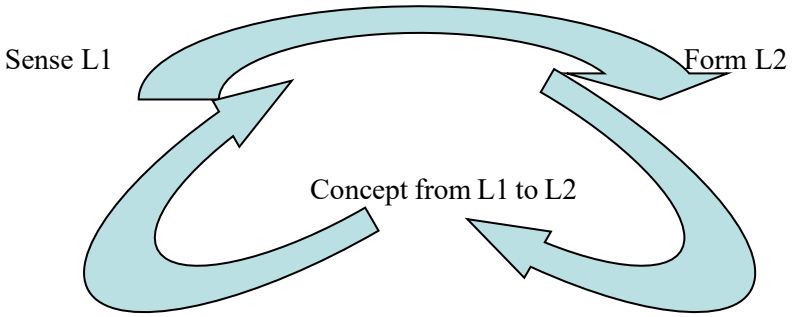

Figure 2: The relationship between the formal representations of words in two different languages. Source: author's own development

4.6.2. The asymmetry in associative connections

According to the bilingual interactive activation model, there is an asymmetry in the strength of associative connections in vocabulary acquisition and language switching. This asymmetry depends on the direction of translation and the sensitivity of translation tasks to semantic information. The experiment confirmed that bilinguals have stronger associative connections between L2 lexical representations than monolinguals. Additionally, L2 representations in bilinguals showed stronger semantic connections compared to those of monolinguals.

5. Discussion

5.1. The Relationship Between Semantic Priming and Interactive Activation in Bilinguals

The bilingual model of interactive activation suggests that lexical representations in two languages are associatively linked, influencing how bilinguals access and process words. This study confirms that semantic priming occurs between translation equivalents, particularly when the prime is in L2 and the target is in L1. These findings highlight the cross-linguistic activation mechanisms that shape bilingual word recognition and lexical decision-making.

5.2. Comparison with Previous Research

Zhabotynska (2020) provides a foundational framework for understanding Ukrainian language acquisition among bilinguals, emphasizing semantic priming as a key factor in language learning. This study builds on Zhabotynska's work by demonstrating that semantic priming not only facilitates language learning but also influences lexical selection and decision-making in bilinguals. The results confirm that specific semantic stimuli enhance word association, reinforce lexical networks, and improve retrieval efficiency.

The role of semantic priming in cross-linguistic influence is particularly significant. Prior studies (Morgan-Short & Ullman, 2022; Di[illegible] et al., 2023) have focused on semantic associations in language comprehension, but fewer have examined how these associations shape bilingual lexical access and selection. By addressing this gap, the present study expands the application of semantic priming research to bilingual lexical processing.

Additionally, this research reinforces the argument that psycholinguistic and cognitive mechanisms play a crucial role in learning Ukrainian as a second language. Given that typological similarity between L1 and L2 influences lexical activation, these findings provide practical insights into how bilinguals manage cross-linguistic interference during language learning.

5.3. The Role of Cognitive Processes in Bilinguals and Monolinguals

Interlingual influences, as examined by Kovalevska and Kovalevska (2020), suggest that structural similarities between languages facilitate lexical acquisition. This study supports their findings by showing that bilinguals with Latin-alphabet L1s demonstrate faster and more accurate L2 lexical decision-making than monolinguals.

Similarly, Koval (2021) emphasizes the role of cognitive processes—attention, memory, and metacognitive awareness—in grammar acquisition. This study aligns with that perspective, showing that semantic priming and lexical decision-making are reinforced by cognitive control mechanisms, particularly in bilinguals. The ability to switch between L1 and L2 representations depends on both semantic associations and cognitive flexibility.

However, findings from Mosca (2019) and Fernández-López et al. (2023) challenge the universality of semantic priming effects. Mosca's study reported no significant priming effect for translation equivalents, while Fernández-López et al. (2023) found that masked priming did not enhance lexical decision-making for non-cognate words. In contrast, Oğuz (2023) found that semantic priming effects do occur in categorization tasks, particularly when participants rely on semantic meaning rather than form-based recognition. These mixed findings suggest that semantic priming may be task-dependent, reinforcing the need for further exploration into bilingual word recognition models.

This study also builds on Bottini et al. (2022), who argue that lexical decisions can be influenced by formal aspects rather than meaning. Our results suggest that semantic relationships still play a crucial role in bilingual word selection, particularly in cases where typological similarity strengthens cross-linguistic associations.

Given these findings, this study supports the hypothesis that bilingual lexical decision-making is influenced by pre-existing semantic networks, particularly in typologically similar languages. As cognate-based associations strengthen, L2 lexical representations become more tightly integrated into the mental lexicon, resulting in faster processing speeds and reduced interference.

Furthermore, the DMIA model (Hendrix & Sun, 2021) proposes that as L2 vocabulary expands, bilinguals develop greater inhibitory control over non-target lexical representations. This aligns with our findings, which suggest that bilinguals exhibit improved L2 activation control, minimizing lexical interference and facilitating more efficient lexical selection.

5.4. Critical Evaluation of the DMIA Model

The Bilingual Interactive Activation Model (DMIA) plays a central role in explaining how bilinguals manage lexical selection. This study supports the core premise of the DMIA model—that bilingual word recognition relies on dynamic interactions between language nodes and lexical representations.

One of the key contributions of this study is demonstrating that semantic priming facilitates bilingual lexical activation even in non-cognate translations. While prior research suggests that lexical activation is strongest for cognates, our results indicate that semantic priming effects extend beyond direct lexical overlap, influencing broader conceptual associations.

Furthermore, this study reinforces findings that efficient management of language mode activation reduces cross-linguistic interference. As bilinguals expand their L2 vocabulary, their ability to control lexical activation improves, leading to greater accuracy and speed in language processing. This supports the claim that semantic priming plays a crucial role in bilingual lexical integration.

6. Limitations and Future Research

Although the results provide new perspectives on understanding foreign language acquisition, a number of limitations should be noted. First, the study focused on bilinguals and monolinguals learning English, but the limited sample may not fully reflect the diversity of linguistic and cognitive profiles. Recruiting more participants with different language backgrounds would have broadened the applicability of the results. Second, the study mainly considered typologically similar languages. Future work should include languages with greater typological distance to study how these differences affect semantic priming and lexical control.

There are also certain limitations in the methodology. The experimental tasks were based on specific cognitive tests such as lexical decision and naming. Other methods, such as neurolinguistic tests, could provide more detailed data on the interaction between L1 and L2 at the level of brain activity.

Prospects for further research in this area are to develop a working model for the effective acquisition of second language (L2) vocabulary by learners. This implies a thorough analysis of the developmental process from the initial phase of L2 acquisition to the achievement of high L2 proficiency. This perspective also implies the study of critical phenomena related to word recognition among bilinguals, as it is expected to depend significantly on the level of proficiency in the first language (L1). In addition, analysing the equivalent initial translation load that refers to the understanding of the amount of effort and cognitive resources required when learners try to translate words or sentences from their native language to Ukrainian is promising. This can be a challenging task for late learners, as they have already developed a strong reliance on their native language and may struggle to switch between languages quickly. Studying the speed of switching while learning the Ukrainian language in late learners can provide insights into how efficiently individuals can transition between languages and how this affects their overall language-learning process. It can help determine whether late learners are able to develop fluency in Ukrainian or if they continue to rely heavily on their native language. Exploring these aspects is a promising area of research because it can contribute to understanding the specific challenges faced by individuals learning Ukrainian as a second language.

7. Conclusions

The conclusion of the study shows that language comprehension is a complex process that depends on cognitive functions and the interaction between perception and memory. The study examines how both bilinguals and monolinguals learn a foreign language, in particular English, and how it was shown in the discussion of learning Ukrainian. It also reveals that the typological similarity of languages affects the level of vocabulary acquisition. The study confirms that semantic priming affects word selection and acquisition and that the effectiveness of switching between languages can be explained by this mechanism. Furthermore, the results show that interference between the mother tongue and the foreign language decreases when the languages are typologically similar. Thus, the study extends our understanding of language comprehension and the importance of semantic priming in foreign language acquisition.

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