



The Impact of Multilingualism on Vocabulary Processing and Language Comprehension in Young Adults

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Abstract *Multilingualism is increasingly common among young adults, providing a variety of cognitive impacts that affect vocabulary processing and language comprehension. Although multilingualism has benefits for cognitive flexibility, complex cognitive processes can result in challenges in proper word selection as well as language comprehension, especially when switching languages. This study aims to explore how multilingualism has an impact on vocabulary processing and language comprehension in young adults, with a focus on the phenomenon of language interference. Using a qualitative method with a case study approach, data were collected through in-depth interviews with a group of young adults who mastered more than one language. Thematic analysis was applied to identify key patterns in their language processing experience. The results showed that multilingual young adults often face "tip of the tongue" and difficulties in accessing vocabulary due to interlingual competition in their cognitive systems. In addition, language comprehension was better in more frequently used languages, while infrequently used languages showed a decrease in comprehension ability. The conclusions of this study support the theory of Inhibitory Control and Competition Model, which explains how multilingualism involves a complex process of word selection. In practical terms, this study suggests the development of learning strategies that can reduce language interference, for example through intensive vocabulary practice. The implications of this study include guidance for educators in designing language curricula that are more effective and responsive to the challenges faced by multilingual individuals.*

Keywords Multilingualism, vocabulary, language comprehension, interlanguage interference

1. Introduction

Multilingualism has become an increasingly common phenomenon in the era of globalization, especially among young adults who have easy access to a wide range of languages through education, media, and digital communication. The improvement of the ability to communicate in more than one language has attracted the attention of psychologists and linguists regarding its impact on vocabulary processing and language comprehension^{1 2}. With an increasingly multicultural and

¹ Ellen Bialystok, "Reshaping the Mind: The Benefits of Bilingualism," *Canadian Journal of Experimental Psychology* 65, no. 4 (2011): 229–35, <https://doi.org/10.1037/a0025406>.

² François Grosjean, "Review of Bilingual: Life and Reality," *Cambridge*, no. June (2010): 1–276.

multilingual global population, it is important to understand how exposure to multiple languages affects linguistic skills, especially in terms of vocabulary and language comprehension, which are essential foundations of effective literacy and communication³.

Some factors that contribute to variations in vocabulary processing in multilingual individuals include the frequency of language use, the age at which additional languages are learned, and the context in which the language is used, for example in a family or work environment⁴. In addition, differences in language teaching methods, such as formal vs. informal learning, as well as the availability of learning materials that support bilingualism, also affect vocabulary mastery in multilingual individuals^{5 6}.

A combination of these factors has been found to affect language processing in multilingual young adults, with some studies suggesting that they experience difficulties in processing certain vocabulary compared to monolingual speakers. For example, bilingualism often results in a decrease in the accessibility of certain words due to competition between languages in an individual's cognitive system⁷. However, positive impacts have also been found, where multilingualism can improve cognitive flexibility and adaptability in cross-language communication⁸.

Vocabulary processing and language comprehension in multilingual young adult individuals focuses on their ability to recognize, remember, and understand vocabulary in different languages. This process involves complex cognitive abilities and is often influenced by internal and external factors such as cultural background, level of education, and accessibility to additional languages^{9 10}. This process is different from monolingualism, where there is no challenge to language competition or the effect of interference¹¹.

Penelitian ini menawarkan kontribusi baru dalam memahami bagaimana Multilingualism in young adults specifically affects aspects of vocabulary processing and language comprehension, which differs from previous studies that focused more

³ Grosjean.

⁴ Gigi Luk and Ellen Bialystok, "Bilingualism Is Not a Categorical Variable: Interaction between Language Proficiency and Usage," *Journal of Cognitive Psychology (Hove, England)* 25, no. 5 (2013): 605, <https://doi.org/10.1080/20445911.2013.795574>.

⁵ B MacWhinney, *A Unified Model*. In P. Robinson & N. C. Ellis (Eds.), *Handbook of Cognitive Linguistics and Second Language Acquisition* (Pp. 341–371) (Routledge/Taylor & Francis Group, 2008).

⁶ Judith F. Kroll, Susan C. Bobb, and Noriko Hoshino, "Two Languages in Mind: Bilingualism as a Tool to Investigate Language, Cognition, and the Brain," *Current Directions in Psychological Science* 23, no. 3 (2014): 159, <https://doi.org/10.1177/0963721414528511>.

⁷ Bialystok, "Reshaping the Mind: The Benefits of Bilingualism."

⁸ David W. Green and Jubin Abutalebi, "Language Control in Bilinguals: The Adaptive Control Hypothesis," *Journal of Cognitive Psychology (Hove, England)* 25, no. 5 (2013): 515, <https://doi.org/10.1080/20445911.2013.796377>.

⁹ Annette M.B. de Groot, *Language and Cognition in Bilinguals, The Cambridge Handbook of Linguistic Multi-Competence* (Cambridge University Press, 2016), <https://doi.org/10.1017/CBO9781107425965.012>.

¹⁰ Kroll, Bobb, and Hoshino, "Two Languages in Mind: Bilingualism as a Tool to Investigate Language, Cognition, and the Brain."

¹¹ Tamar H. Gollan and Victor S. Ferreira, "Should I Stay or Should I Switch? A Cost-Benefit Analysis of Voluntary Language Switching in Young and Aging Bilinguals," *Journal of Experimental Psychology: Learning Memory and Cognition* 35, no. 3 (May 2009): 640–65, <https://doi.org/10.1037/A0014981>.

on children or the elderly¹². This approach provides a new perspective on how age factors and the context of language use can change the impact of bilingualism in the cognitive and linguistic realms on young adult individuals.

The importance of this research is increasingly felt in the midst of an increase in the number of young adults who must be able to communicate across cultures in the context of work and social. In the era of globalization, multilingual language skills have become an essential competency, but their effects on language comprehension and vocabulary still require further research to understand the advantages and challenges experienced by this population¹³.

This study aims to analyze the impact of multilingualism on vocabulary processing and language comprehension in young adult individuals. In particular, this study will examine the extent to which mastery of various languages affects their ability to recognize, understand, and remember vocabulary in various contexts¹⁴.

The results of this study are expected to provide new insights for educators and linguists in developing educational strategies that support language mastery in multilingual individuals. In addition, this research can be the basis for multinational companies in understanding the cognitive profile of multilingual workers, allowing them to create an inclusive work environment for multilingual individuals¹⁵.

2. Method

In this study, a qualitative approach was chosen to deeply understand how the impact of multilingualism affects vocabulary processing and language comprehension in young adults. This approach allows researchers to explore individual experiences holistically, providing an opportunity to understand their perceptions, views, and interpretations of the phenomenon of multilingualism in everyday life^{16 17}. With qualitative methods, researchers can explore the complexity of language processing that cannot always be measured by quantitative methods, especially in the context of individuals with diverse cultural, educational, and linguistic backgrounds.

This study uses a case study design, in which a group of multilingual young adult respondents will be interviewed in depth to collect data on their experiences and

¹² Mark Antoniou, Geshri M. Gunasekera, and Patrick C.M. Wong, "Foreign Language Training as Cognitive Therapy for Age-Related Cognitive Decline: A Hypothesis for Future Research," *Neuroscience and Biobehavioral Reviews* 37, no. 10 0 2 (December 2013): 2689, <https://doi.org/10.1016/j.NEUBIOREV.2013.09.004>.

¹³ Olusola O. Adesope et al., "A Systematic Review and Meta-Analysis of the Cognitive Correlates of Bilingualism," *Review of Educational Research* 80, no. 2 (2010): 207–45, <https://doi.org/10.3102/0034654310368803>.

¹⁴ Valian Virginia, "Bilingualism and Cognition," *Bilingualism* 18, no. 1 (January 2, 2015): 3–24, <https://doi.org/10.1017/S1366728914000522>.

¹⁵ Kenji Hakuta, Ellen Bialystok, and Edward Wiley, "Critical Evidence," <https://doi.org/10.1111/1467-9280.01415> 14, no. 1 (January 1, 2003): 31–38, <https://doi.org/10.1111/1467-9280.01415>.

¹⁶ J. W. Creswell, *Research Design: Pendekatan Kualitatif, Kuantitatif, Dan Mixed* (Yogyakarta: Pustaka Pelajar, 2015).

¹⁷ Aïcha Cissé and Andrew Rasmussen, "Qualitative Methods," *Comprehensive Clinical Psychology*, January 1, 2022, 91–103, <https://doi.org/10.1016/B978-0-12-818697-8.00216-8>.

perceptions of vocabulary processing and language comprehension in a multilingual context. Case studies were chosen because they allow for a comprehensive understanding of specific and complex phenomena, as well as provide context for sharing research results¹⁸. Primary data will be obtained through semi-structured interviews, where open-ended questions will be used to encourage respondents to provide detailed and in-depth answers. This interview approach also allows for adjustments to the questions according to the direction of the interview, so that richer and more varied information can be obtained¹⁹. Sampling was carried out purposively, with inclusion criteria such as young adults aged 20-30 years who are able to communicate in more than one language.

The selection of respondents by this method was carried out to ensure that each participant had characteristics relevant to the research objectives and could provide a useful perspective regarding the impact of multilingualism on vocabulary processing and language comprehension. The number of respondents will be adjusted until the data obtained reaches the saturation point, which is when the collected data no longer produces new information²⁰.

The data obtained from the interviews will be analyzed using thematic analysis methods. The analysis steps include data transcription, coding, theme identification, and interpretation. Thematic analysis allows researchers to identify key patterns and themes that emerge from qualitative data, which will then be interpreted in the context of this research. The coding process is done manually and iteratively, where relevant data is organized into categories and sub-categories to facilitate thematic analysis²¹²². The validity and reliability of the data are maintained through data triangulation, checking by experts, and in-depth discussions with informants, to ensure that the researcher's interpretation remains objective and accurate.

With this research method, it is hoped that the research can provide rich and in-depth insights into the influence of multilingualism on vocabulary processing and language understanding in young adults, as well as answer the research objectives while maintaining the integrity of qualitative data.

¹⁸ R. K. Yin, *Qualitative Research from Start to Finish* (New York: Guilford Press, 2011).

¹⁹ Song Lu, Guanghui Li, and Ming Xu, "The Linguistic Landscape in Rural Destinations: A Case Study of Hongcun Village in China," *Tourism Management* 77, no. 1 (April 1, 2020), <https://doi.org/10.1016/J.TOURMAN.2019.104005>.

²⁰ Greg Guest, Arwen Bunce, and Laura Johnson, "How Many Interviews Are Enough?," *Http://Dx.Doi.Org/10.1177/1525822X05279903* 18, no. 1 (February 1, 2006): 59–82, <https://doi.org/10.1177/1525822X05279903>.

²¹ Virginia Braun and Victoria Clarke, "Using Thematic Analysis in Psychology," *Qualitative Research in Psychology* 3, no. 2 (2006): 77–101, <https://doi.org/10.1191/1478088706QP0630A>.

²² Kota Ohata, "Potential Sources of Anxiety for Japanese Learners of English: Preliminary Case Interviews with Five Japanese College Students in the U.S.," *TESL-EJ* 9, no. 3 (December 2005): 1–21.

3. Result & Discussion

A. Multilingual Young Adult Experience in Vocabulary Processing

The results of the interviews showed that young adults who were multilingual tended to experience several obstacles in vocabulary processing, especially in accessing certain words when speaking. For example, respondents described frequent "tip of the tongue," or difficulty remembering certain words in a second or third language. Table 1 summarizes the responses from the participants related to obstacles in vocabulary processing.

TABLE 1. Vocabulary Processing Obstacles in Multilingual Young Adults

Respondent Code	Obstacles in Vocabulary Processing	Frequency	Examples of Cases Found
R1	Difficulty remembering words in a second language when speaking	Often	When speaking in English, it is difficult to remember common words.
R2	"Tip of the tongue" when switching languages	Often	Experiencing a pause in thinking in bilingual conversations.
R3	Effect of first language interference on vocabulary pronunciation in second language	Sometimes	Mispronunciation of words in the second language due to the influence of the first language.

These data show that multilingual young adults experience different vocabulary processing challenges, depending on the context of language use and social environment.

B. The Effect of Multilingualism on Language Comprehension

The study also explored how multilingualism affects language comprehension in young adult respondents. Most respondents admitted that their ability to understand language was higher in frequently spoken languages, while less frequently used languages tended to be more difficult to understand. Figure 1 shows a thematic diagram that illustrates the effect of language frequency on respondents' language comprehension.

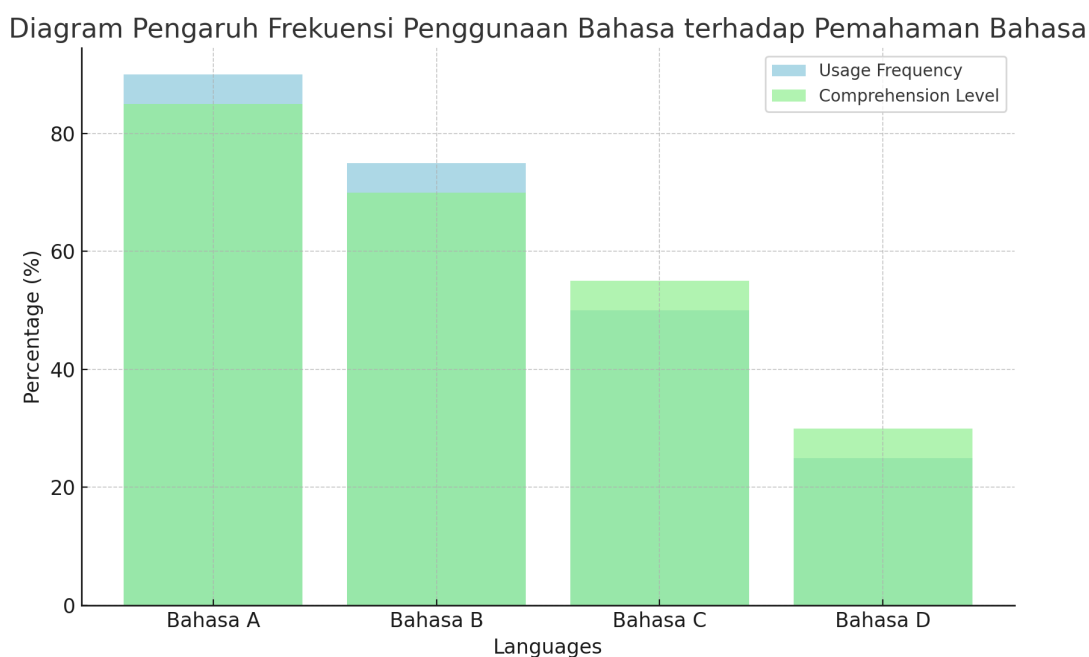


FIGURE 1. Diagram of the Effect of Language Use Frequency on Language Comprehension

The diagram shows the correlation between the frequency of use of a particular language and the level of language understanding of respondents. The diagram above illustrates that more frequent language use correlates with better language comprehension, while less frequently spoken languages have lower levels of comprehension. This reinforces the hypothesis that the frequency of language use greatly affects language comprehension in multilingual young adults.

C. Benefits and Challenges of Multilingualism in Young Adults

From the results of the interviews, it was found that multilingualism provides benefits in the form of cognitive flexibility, especially in social and professional contexts. For example, some respondents admitted that their ability to master several languages allows them to adapt more easily in a multicultural environment. Table 2 summarizes the respondents' views on the benefits and challenges they experience as multilingual individuals.

TABLE 2. Benefits and Challenges of Multilingualism in Young Adults

Respondent Code	Benefits of Multilingualism	Challenges of Multilingualism
R1	Facilitating adaptation in a multicultural environment	Difficulties in accessing vocabulary when speaking in a second language
R2	Increased cognitive flexibility, more creative thinking	Experiencing interlanguage interference in a conversation

R3	Wider job opportunities thanks to diverse language skills	It takes longer to switch between languages
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D. Detailed Understanding of Vocabulary Processing and Language Comprehension

An in-depth analysis of the interviews showed that vocabulary processing and language comprehension skills in multilingual individuals were greatly influenced by the context of use and exposure to the discussion with in-depth research, including the results of previous studies. Make a sub in accordance with the purpose of the research and is an explanation of the research results. Respondents who often use more than one language in their daily lives tend to have better access to vocabulary, although they occasionally experience language interference. Figure 2 shows a diagram illustrating the main factors that affect vocabulary processing and language comprehension.

Faktor-Faktor yang Mempengaruhi Pengolahan Kosa Kata dan Pemahaman Bahasa

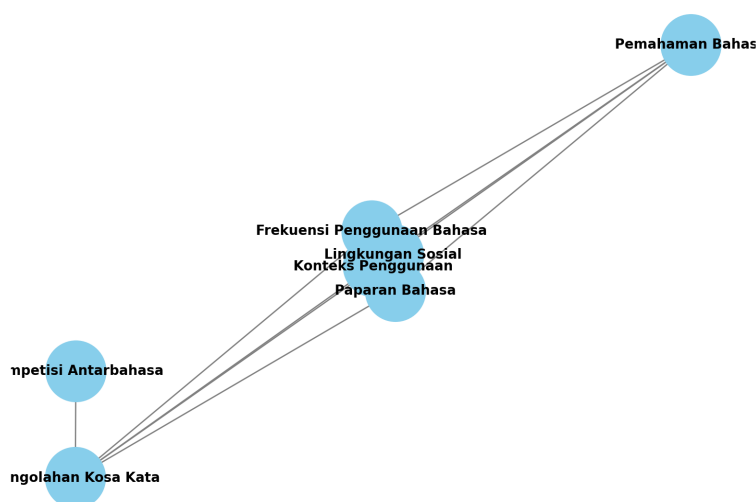


FIGURE 2. Factors Affecting Vocabulary Processing and Language Comprehension

This diagram illustrates various factors that affect vocabulary processing ability and language comprehension in multilingual individuals. These results emphasize that the interaction between language usage frequency, social environment, and context of use plays an important role in vocabulary processing and language comprehension for multilingual young adults. These findings are expected to provide deeper insights into how multilingualism affects vocabulary processing and language comprehension in individuals in the young adult age range.

Discussion

A. Multilingual Young Adult Experience in Vocabulary Processing

This study reveals that young adults who are multilingual face challenges in processing vocabulary, especially in accessing certain words when switching languages. The phenomenon of "tip of the tongue" is one of the main complaints,

where respondents find it difficult to find the right word, even though the concept in question is clear in their minds. The study found that the incidence increased when respondents were in bilingual situations or had to speak quickly in certain social environments.

Bialystok explained that multilingual individuals often have difficulty finding the right words due to interlingual interference in the cognitive system²³. According to the Bialystok language processing model, the multilingual brain has a more complex memory network because it has to store words and concepts in more than one language. As a result, the word selection process involves competition between multiple options, which slows down vocabulary access. In the context of this study, the phenomenon often occurs when respondents have to switch from one language to another, especially in informal situations where they feel pressured to respond quickly.

Research by Gollan and Ferreira also corroborates these results by showing that pauses in bilingual conversations, known as "lexical retrieval delay," are common in multilinguals²⁴. This phenomenon arises as a result of the need for the cognitive system to make word choices from two or more different languages. In addition, Gollan et al. found that this interference can be exacerbated when the two languages have similarities in phonology or word meaning, leading to more confusion in the word selection process. These findings are relevant to the experiences of respondents in the study, where they reported that words with similar sounds or meanings in other languages were more difficult to access without a break²⁵.

The findings are also in line with research by Green and Abutalebi, who developed the theory of the "Inhibitory Control Model" in bilingualism. According to this model, bilingual or multilingual individuals must constantly undergo an inhibitory control process to suppress access to language that is not being used at the time²⁶. This mechanism causes delays in vocabulary access because the brain has to disable one language and activate another language in their cognitive system. In the context of this study, respondents who used a certain language more often in social interactions seemed to be faster in accessing vocabulary in that language, but experienced a lag when switching to another language.

In addition, MacWhinney developed the Competition Model, which emphasizes that the process of word selection in the multilingual brain is the result of competition between various linguistic representations²⁷. This model explains that when an

²³ Bialystok, "Reshaping the Mind: The Benefits of Bilingualism."

²⁴ Gollan and Ferreira, "Should I Stay or Should I Switch? A Cost-Benefit Analysis of Voluntary Language Switching in Young and Aging Bilinguals."

²⁵ Gollan and Ferreira.

²⁶ Green and Abutalebi, "Language Control in Bilinguals: The Adaptive Control Hypothesis."

²⁷ MacWhinney, *A Unified Model*. In P. Robinson & N. C. Ellis (Eds.), *Handbook of Cognitive Linguistics and Second Language Acquisition* (Pp. 341–371).

individual uses multiple languages regularly, his brain builds a denser network of language representations. The more often a person uses a particular language in various situations, the stronger the association of the word in his brain. However, it also means that vocabulary from less frequently used languages will be harder to access. In this study, the results of the interviews showed that respondents who used a certain language less often tended to have difficulty remembering words or expressing concepts quickly in that language.

The results of this study also support the view of Kroll and Dussias, who highlight that the experience of multilingualism requires the development of different cognitive structures compared to monolingual individuals. Kroll and Dussias suggest that in an effort to master multiple languages, multilingual individuals create new neural pathways that support access to vocabulary in different contexts. However, they also emphasize that language disorders or interference can occur, especially when the brain has to choose words from languages that have a low frequency of use in daily life. In this study, some respondents stated that vocabulary in a third or rarely used language became more difficult to access directly, which supported the concept of interference put forward by Kroll and Dussias ²⁸.

The findings in this study have important implications in understanding the mechanism of vocabulary processing in multilingual young adults. Their experience in accessing certain words provides evidence that interlingual competition and the frequency of language use directly affect the speed and efficiency of vocabulary processing. For educators and psychologists, these results can guide the development of language learning strategies that can reduce interlanguage interference, for example through more intensive vocabulary mapping exercises on less frequently used languages.

Thus, this study adds empirical evidence to cognitive theories in bilingualism and multilingualism, especially regarding vocabulary access in the multilingual brain. The findings also open up opportunities for further research on strategies to minimize the effects of "tip of the tongue" and interlingual competition, which is expected to help multilingual individuals in optimizing vocabulary access in a variety of situations.

B. The Influence of Multilingualism on Language Comprehension

The findings of this study show that multilingual young adults understand the language they use more often, while the understanding of the language they use less often becomes more limited. A study by Grosjean shows that the ability to understand language in multilingual is highly dependent on the frequency of daily language use. In this context, Grosjean states that low exposure to a particular language tends to

²⁸ Kroll, Bobb, and Hoshino, "Two Languages in Mind: Bilingualism as a Tool to Investigate Language, Cognition, and the Brain."

weaken the ability to comprehend that language, while high exposure significantly improves comprehension skills ²⁹.

The results of this study are also supported by the findings of Kroll et al. , which show that language comprehension in multilingual individuals is highly dependent on how often and in what context the language is used. They noted that language comprehension in multilingual individuals became more optimal in contexts that were in accordance with their usage habits. Therefore, it is important to consider the context of the language environment, especially to support the development of language competencies in young adults ³⁰.

C. Benefits and Challenges of Multilingualism in Young Adults

This study shows that multilingualism offers benefits in the form of increased cognitive flexibility and adaptability in social environments, but still faces challenges in terms of language interference. These findings are in line with research by Green and Abutalebi, which found that multilinguals have more flexible cognitive abilities because they often have to choose the right language according to the context of the conversation. This process involves intensive activity in executive control, which is a cognitive system that regulates decision-making and adjustments between the languages used, which ultimately strengthens adaptive abilities in communication ³¹.

On the other hand, the challenges faced by multilingual individuals, such as interlingual interference, are also supported by a study from Antoniou et al.. Their study shows that this interference arises as a result of interlingual influences, which hinder the ease of access to vocabulary in a particular language. These findings provide an idea that although multilingualism enriches an individual's communication skills, there are obstacles in language management that need to be considered, especially in social and professional environments that demand the use of language quickly and appropriately ³².

D. In-Depth Analysis of Vocabulary Processing and Language Comprehension

The results of the analysis showed that the frequency and context of language use greatly affected the vocabulary processing ability and language comprehension in multilingual young adults. This is supported by the findings of MacWhinney which states that diverse language experiences enrich the neural networks associated with language processing, but also increase the risk of interlanguage interference in vocabulary processing. According to MacWhinney, the multilingual process of language processing requires complex coordination between the various language

²⁹ Grosjean, "Review of Bilingual: Life and Reality."

³⁰ Kroll, Bobb, and Hoshino, "Two Languages in Mind: Bilingualism as a Tool to Investigate Language, Cognition, and the Brain."

³¹ Green and Abutalebi, "Language Control in Bilinguals: The Adaptive Control Hypothesis."

³² Antoniou, Gunasekera, and Wong, "Foreign Language Training as Cognitive Therapy for Age-Related Cognitive Decline: A Hypothesis for Future Research."

systems that have been integrated in the brain, which can increase cognitive flexibility but pose challenges in terms of choosing the right words ³³.

Furthermore, the research of Kroll and Dussias also shows that vocabulary processing in multilingual young adults is influenced by the context of language use. They concluded that diverse language experiences not only enrich vocabulary mastery, but also affect language comprehension patterns based on frequently used contexts. This suggests that multilingual experience provides an advantage in language and vocabulary flexibility, albeit with the added challenge of interlingual competition in the individual's mind ³⁴.

E. Implications of Research Findings

The findings of this study provide important insights for the development of education and training programs for multilingual individuals. A study conducted by Adesope et al. suggests that learning programs designed for multilingual should consider reducing interlingual interference and focus on developing vocabulary in contexts that are often used by learners. In relation to this study, the findings provide an important justification for designing language education curricula that take into account the context of daily use, which is expected to minimize the challenges faced by multilingual individuals ³⁵.

In addition, the results of this study can be useful for multinational companies in understanding and managing a multilingual workforce. Understanding the challenges faced by multilingual employees can help companies create a more inclusive work environment that supports language diversity. This is in line with research by Hakuta et al., which emphasizes that a multilingual environment can improve employees' cognitive performance and provide additional benefits in the context of globalization and international trade ³⁶.

With a deeper understanding of the influence of multilingualism on vocabulary processing and language comprehension, it is hoped that this study can encourage further research on the adaptation of appropriate educational and professional strategies for multilingual young adults, as well as support the development of policies that accommodate language needs in a multicultural environment.

4. Conclusion

The conclusion of this study reveals that multilingual young adults experience challenges in vocabulary processing and language comprehension, especially related to interlanguage interference and frequency of language use. These findings suggest

³³ MacWhinney, *A Unified Model*. In P. Robinson & N. C. Ellis (Eds.), *Handbook of Cognitive Linguistics and Second Language Acquisition* (Pp. 341–371).

³⁴ Kroll, Bobb, and Hoshino, "Two Languages in Mind: Bilingualism as a Tool to Investigate Language, Cognition, and the Brain."

³⁵ Adesope et al., "A Systematic Review and Meta-Analysis of the Cognitive Correlates of Bilingualism."

³⁶ Hakuta, Bialystok, and Wiley, "Critical Evidence."

that the phenomenon of "tip of the tongue" and pauses in vocabulary access often occurs due to interlingual competition in the cognitive system, which inhibits word pickup. Theoretically, this study supports the Inhibitory Control and Competition Model models in bilingualism studies, which explain how word selection mechanisms are disrupted by the need to suppress unspoken language. In practical terms, these results can be the basis for the development of language education programs that reduce interlanguage interference, such as by improving vocabulary exercises for rarely used languages. However, this study has limitations in the number of samples and the cultural context of respondents that may affect the results. Therefore, further research is recommended to expand the sample and cover various cultural backgrounds to strengthen the findings. The suggestion for this study is to develop more intensive learning strategies for multilingual users, especially in the development of vocabulary access in a particular language. The main contribution of this research is to provide new insights into the cognitive challenges faced by multilingual young adults, which is expected to support the development of more effective and inclusive language learning methods.

5. Declaration of Conflicting Interests

The authors state that there is no conflict of interest in the publication of this article.

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7. Acknowledgment

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8. References

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