

Beyond Language Barriers: Exploring the Effects of Implicit Message Decoding and Memory Retention

Insun Yoon

Branksome Hail Asia

ABSTRACT

This study examined the interplay between implicit message decoding, the time living abroad on language learning, and memory retention. The findings showed a link between the time spent studying abroad and the capacity to decode implicit messages. Additionally, having a narrator narrate educational materials visibly improved memory retention. The ability to decode implicit messages and memory retention were found to be correlated. These findings underscore the importance of interactive instruction and an immersive learning environment for language acquisition.

Introduction

Communication across cultures and crossing language boundaries have become the norm in a global society. As a result, proficiency in multiple languages has become an important survival skill that many people strive to attain, leading them to cross geographical boundaries for immersive language learning experiences. This trend underscores the importance of this research, which encompasses three key aspects of language learning: implicit message decoding, studying abroad, and memory retention.

Decoding implicit messages is an important yet easily overlooked aspect of language learning. When language learners dive in and interact in a new environment to improve their proficiency, their ability to decode non-verbal cues and underlying meanings impacts their communication success and confidence in the new language. When living abroad, language learners must push themselves hard and use their cognitive capacity to the extreme, particularly memory retention. They have so much new vocabulary, phrases, and idioms to remember. Immersing in a new language environment offers ample opportunities to practice the language and prompts cognitive engagement; doing so would enhance memory retention of the learned language.

Despite the merits of living abroad for language learning, many language learners cannot afford to travel abroad and live there. For this reason, digital platforms and services have been introduced as substitutes, offering customizable and personalized language learning experiences. Nevertheless, these platforms cannot replicate the experiential learning opportunities and cultural exposures offered in the country where the language is spoken and used.

This research examined these crucial components to identify the relationship between implicit message decoding and memory retention, the impact of living abroad for language learning purposes, and the role of learning modalities that could promote memory retention. Hopefully, the research findings will be used to devise effective language-learning strategies, thus contributing to a broader range of language learners and enhancing intercultural communication in this global society.

Literature Review

2.1 The Role of Implicit Message Decoding

Before delving into our study, it is important to clarify "decoding" in the language learning process. As is known, the term "translation" is more familiar, referring to the reception and transformation of linguistic information. The term "encoding" or "decoding" have greater relevance in cognitive and neuroscience aspects of language learning. We used "decoding" primarily because we intend to examine language learning through the lens of brain activity. This research focuses on exploring the language learning process in the context of cognitive features, such as memory retention. As such, the encoding-decoding model provides valuable insights into this topic. This model sheds light on the nature of information in our brains when we process new language information (Kriegeskorte & Douglas, 2019).

Decoding implicit messages is one distinct feature of human communication. From birth, infants communicate their needs through nonverbal cues like crying. As they mature, they pick up explicit language forms; however, non-verbal and implicit messages like the tone of voice, eye contact, or emotional outbursts. Burgoon & Le Poire (1999) argue that nonverbal cues shape our social perception. Likewise, our ability to decode nonverbal or implicit messages influences our perceptions of others and interactions.

Though having a high level of cognitive capacity, adult language learners often have their comprehension and expression of ideas constrained when they are learning a new language. This limitation translates into a heavy reliance on nonverbal cues or implicit elements, such as facial expressions, gazing behavior, body gestures, and postures, among others (Gregersen, 2005). Failing to decode these cues can lead to growing anxiety. For language learners, the implicit message they decode is only temporarily stored in the memory system, awaiting further empirical sources to confirm and validate its meaning. This process highlights the important role implicit message decoding plays in language learning, which will be further explored in the study.

2.2 Language Learning & Studying Abroad

Language learning has become an essential skillset for various professions in our increasingly globalized world. The improved mobility across borders, coupled with the surge of study abroad programs that colleges advertise, is meant to give all who learn new languages a competitive advantage. It has been widely debated that learning a language in its native country is more effective than learning it in a foreign country, where exposure is limited. Several studies have investigated this topic and found that living abroad does improve learning outcomes. Language learners can establish social networks with native speakers, thus enhancing their proficiency (Dewey et al., 2013; Kenne, 2014). Immersion in the native context provides a rich learning environment that would translate into better proficiency.

Living abroad can foster the learners' ability to decode implicit messages. As learners enter unfamiliar environments, they are challenged to decode verbal and non-verbal cues from native speakers. This demanding task can awaken the language acquisition device in their cognitive system. At the same time, some argue against the effects of living abroad simply because not everyone can afford to live abroad only to learn new languages. The more affordable substitute seems to be language learning platforms or software that make learning accessible virtually anytime, anywhere. These tools are often advertised as effective as immersive learning experiences because they are personalized and customizable. However, despite some of the benefits of digital platforms, experiential learning facilitated by immersion in a new environment offers unique benefits. It offers learners first-hand exposure to cultural nuances and expressions that might not be available through online platforms (Hazaymeh, 2021).

Still, it is crucial to recognize that not everyone can choose to live abroad only to improve their language proficiency. Therefore, we must investigate what factors in studying abroad contribute to better learning outcomes. By doing so, we can devise better strategies, programs, and solutions that could benefit a broader range of language learners.

2.3. Memory Retention in Language Acquisition

Most language learners aspire to internalize and carve the learned materials into their muscle memory. For this reason, they repeat their practice of the same vocabulary, grammar, and syntax over and over. To help learners retain these language details, multidimensional engagement strategies that integrate cognitive, behavioral, social, and emotional dimensions are widely used in language learning environments (Philp & Duchesne, 2016).

The relationship between memory retention and language acquisition has been the focus of various studies. In her meta-analysis, Sanatullova-Allison (2014) emphasized two major findings: First, memory in second language learning plays a crucial role in understanding and retaining implicit and explicit language components. This suggests that memory is not a passive recipient of language information but an active agent contributing to learning outcomes. Next, she identified that specific teaching and learning methods are particularly effective in language learning efforts and material retention. Lessons that focus on vocabulary and grammar processing have shown better results. These findings validate that targeted, strategic approaches to enhancing memory retention can facilitate the process of language acquisition.

Research Questions

1. What variables are correlated with the ability to decode implicit messages?
2. Does perceived memory retention differ by types of learning modalities incorporating different visual input?
3. Can the ability to decode implicit messages predict memory retention?

Methods

To address our research questions, we designed and distributed a video together with a survey questionnaire in South Korea, with 100 people participating in the study. Participants were randomly assigned to each of the three groups. The materials used in our experiment consisted of a video crafted in English, approximately three minutes in length. While all three groups were exposed to identical content and audio, the presentation varied for each group. Group #1 experienced a text and audio-only format. In contrast, group #2 viewed a video that included a narrator verbalizing the text, and group #3 viewed a video with both a narrator and supporting images.

Table 1. Descriptive Statistics

Variable	N	Mean	SD	Min	Max
Age	100	35.21	10.38	17	60
Gender	100	0.67	.47	0	1
Married	100	0.43	.50	0	1
Education	100	3.1	.92	2	6
Overseas Experience	100	6.14	6.12	0	30
Multilingual	100	0.38	.78	1	4
English Proficiency	100	3.0	.92	1	5
New Language Challenge	100	2.0	.72	1.6	5
Decoding Implicit	100	2.09	.53	2.67	5
Memory Retention	100	2.52	.76	2	5

Table 1 details the demographics of the collected sample. Females constituted 67% of the respondents. The average respondent was in their mid-30s, with a mean age of 35.21 (SD = 10.38). About 43% of them reported being

married ($SD = .50$). The sample was comprised of college-educated individuals who, on average, had 3.14 years of experience living abroad ($SD = 6.12$). Most participants were bilingual with an average 1.98 languages spoken ($SD = .78$). In terms of self-reported skills, they indicated moderate English proficiency (Mean = 3.3, $SD = .92$) on a five-point Likert scale. They exhibited a high willingness to learn a new language (Mean = 4.2, $SD = .72$) and were confident in their ability to decode implicit messages (Mean = 4.09, $SD = .53$). Their reported memory retention was average (Mean = 3.52, $SD = .76$).

Results

Table 2. Cronbach's *Alpha*

Variables	Sample Question Items	Cronbach's <i>alpha</i>
English Proficiency	I can read English well. I can understand English well. I can speak English well. I can write in English well.	.92
New Language Challenge	English proficiency will help accomplish my future plan. Given a chance, I want to learn a new language. If my company provides support, I want to learn a new language. If I have spare time, I want to learn a new language. I'm sure I will excel at learning a new language.	.87
Decoding Implicit Message	I can easily distinguish between jokes from serious comments. I can easily understand technical jargon, professional or idiomatic expressions. I quickly understand what a speaker wants to emphasize. I can understand the rationale or context a speaker wants to convey. I can quickly grasp the logic behind a speaker's argument. I can determine whether a speaker's message is ambiguous or clear	.82
Memory	I'm satisfied with my memory. I remember important details well. I have confidence in my memory. My memory is good for my age.	.90

The sample question items used in the study are shown in Table 2. We calculated Cronbach's alpha coefficient to evaluate each scale's internal consistency. According to Field (2013), a value of 0.7 or greater is typically regarded as acceptable, and a minimum threshold of 0.8 is advised when using psychometrics. All constructs have alpha coefficients of 0.8 or greater, as shown in Table 2, indicating that they have significantly more than 50% of covariance and can therefore be combined into a single variable.

Table 3. Pair-wise Correlation

	Age	Gender	Married	Edu	Group	Overseas	Multilingual	Proficiency	Language	Implicit	Memory
Gender	-.11										
Married	.74***	-.03									
Edu	.59***	-.08	.36***								
Group	.15	-.29**	.22*	.06							
Overseas	.33***	.12	.17	.25*	-.13						
Multilingual	.00	.17	.00	.11	-.14	.15					
Proficiency	-.10	.13	-.20	.18	-.11	.48***	.42***				
Language	.04	.06	.10	.31**	-.04	-.02	.18	.16			
Implicit	.11	-.01	-.05	.26**	-.05	.27**	.07	.28**	.04		
Memory	.01	-.02	-.07	.10	.11	-.01	.09	.15	.16	.28**	

Then we explored various links related to our language skills and memory. Despite unveiling multiple statistically significant associations, our attention was concentrated on the findings that closely aligned with our research objectives. We found that a higher level of education was associated with a greater willingness to learn a new language ($r = .31, p < .01$) and an enhanced capacity to interpret implicit messages ($r = .26, p < .01$). Additionally, individuals with overseas living experiences showed a strong and positive relationship with their proficiency in English ($r = .48, p < .001$) and their ability to decode implicit messages ($r = .27, p < .01$). Furthermore, a positive relationship was observed between English proficiency and the number of languages an individual can communicate in ($r = .42, p < .001$), as well as the capacity to interpret implicit messages ($r = .28, p < .01$). Finally, a positive correlation was evident between the capacity to decode implicit messages and memory retention ($r = .28, p < .01$).

Table 4. Mean Differences across Three Groups

Memory	Mean	SD	Freq.
Audio & Text	3.28	.74	34
Narrator	3.83	.81	30
Narrator & Image	3.49	.66	36
Total	3.52	.76	100

Table 5. Analysis of Variance

Source	SS	df	MS	F	Prob > F
Between Groups	4.78	2	2.39	4.48	.01
Within Groups	51.80	97	.53		
Total	56.59	99	.57		
Bartlett's test for Equal Variance:				$chi^2 (2) = 1.36$ Prob > $chi^2 = .51$	

To examine memory retention across three groups, we conducted a one-way Analysis of Variance (ANOVA). The result indicated a significant difference between groups ($F = 4.48, p < .01$), suggesting distinct disparities in perceived memory retention among three groups. The mean memory retention score for each group is illustrated in Table 4. Participants who viewed educational material with the narrator alone showed the highest mean score compared to the other two groups.

In addition, Bartlett's test for equal variances indicated that the assumption of equal variances was satisfied ($X^2(2) = 1.36, p = .51$). Therefore, the observed differences in memory retention scores cannot be attributed to unequal variance, thus providing higher confidence in our findings.

Table 6. Regression Model Predicting Perceived Memory Retention

<i>Memory</i>	Unstandardized Coefficient		<i>Standardized</i>	<i>t</i>	<i>p</i> -value
	<i>B</i>	Standard Error			
Const.	.94	.78		1.20	.24
Decoding Implicit	.41	.15	.29	2.71	.01
Age	.01	.01	.07	.51	.61
Gender	-.03	.16	-.02	-.18	.86
Education	-.04	.11	-.05	-.38	.71
Overseas	-.02	.02	-.16	-1.26	.21
Multilingual	.02	.11	.02	.14	.89
Proficiency	.11	.11	.14	1.02	.31
New Language	.15	.11	.14	1.30	.20

To investigate the connection between independent variables and people's memory retention, a regression model was developed. The R^2 value of the model was .12, indicating that approximately 12% of the variance in memory retention can be explained by the independent variables included in this model. The fitted regression model was more predictable than a model using the mean values of the independent variables.

The regression result shows that the ability to decode implicit messages significantly predicts memory retention. Specifically, for every one-unit increase in people's ability to decode implicit messages, there is an expected increase of 0.41 units in memory retention, holding other variables constant. This result confirms that the observed relationship is unlikely to have happened by chance.

Table 7. Variance Inflation Factor

	<i>VIF</i>	<i>1/VIF</i>
Age	2.02	.49
Education	1.96	.51
Proficiency	1.93	.52
Overseas	1.72	.58
Multilingual	1.28	.78
New Language Challenge	1.19	.84
Decoding Implicit Message	1.17	.86
Gender	1.08	.93
<i>Mean VIF</i>	<i>1.54</i>	

To assess the possibility of multicollinearity in the regression model, we examined the variance inflation factor, as recommended by James et al. (2013). A VIF value greater than 10 indicates a high correlation between the independent variables, suggesting the presence of multicollinearity. However, we found that no VIF value exceeded 10, indicating that multicollinearity is not a concern in this case. These findings suggest that the estimates of the regression coefficients in the model are reliable and unbiased.

Table 8. Normality Assumption Check

Variable	Observation	Skewness	Kurtosis	Adj. Chi ²	Prob. > Chi ²
Residuals	100	.35	.16	2.86	.24

To assess the normality assumption of the regression model, we examined the skewness and kurtosis of the residuals. The skewness of the residuals was 0.35, which is well below the threshold of 2, and the kurtosis was 0.16, which was well below the threshold of 7. These results indicate that the normality assumption of the regression model is satisfied, and the distribution of the residuals is reasonably close to a normal distribution.

Conclusion & Discussion

In an era where global borders are blurred, the findings of this research take on greater relevance. Living abroad offers a rare chance for people to venture outside their linguistic comfort zones and interact in a language environment distinct from their own. People's need to navigate through unfamiliar linguistic landscapes compels them to rely on an array of verbal and nonverbal cues, thus sharpening their ability to decode implicit and explicit messages. Therefore, communicating with people who speak different languages helps us decipher and exchange meanings in such settings.

The transformative potential of these international language terrains is highlighted by our research findings. We discovered a positive correlation between the ability to decode implicit messages and the duration of living abroad. These findings imply that language learning should not be restricted to the walls of traditional boundaries. Instead, it needs to be designed to expose learners to rich and diverse environments, and to promote opportunities to engage in various linguistic and cultural contexts.

This study also found the role of interactive learning modalities in enhancing memory retention when learning a second language. We discovered that educational materials featuring a narrator proved most effective in memory retention, suggesting the importance of interactive components in language learning. But a caveat needs to be heeded when interpreting these findings. Because the integration of a narrator and images did not lead to the highest level of memory retention, overusing visual stimuli might result in reverse effects. Thus, it is important to strike a balance. Interestingly enough, a direct relationship between people's ability to decode implicit messages and their memory retention was confirmed, adding yet another dimension to the matrix of factors that influence successful language learning outcomes.

This research sheds light on the interplay between implicit message-decoding abilities, memory retention, and learning modalities. The results show that language learning strategies must be designed to cultivate learners' ability to decode implicit messages by exposing them to diverse environments where they can explore the cultural elements embedded in the new language. Using rote memorization and focusing on explicit elements in languages may not help learners reap the most benefits. Therefore, a more comprehensive approach would enhance the learners' memory retention, thus paving the way for better language learning outcomes.

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