

Story-Listening and the Pure Optimal Input Approach: Investigating the Strong Version of the Input Hypothesis

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Abstract

This study investigates the effects of Story-Listening (SL) on vocabulary acquisition among Thai university students, examining whether carefully designed input alone—referred to as Pure Optimal Input (POI)—can support measurable language learning. Twenty first-year non-English majors participated in a SL session, followed by immediate and delayed post-tests three weeks later. Vocabulary acquisition rates averaged 0.25 words per minute, aligning with prior studies of Japanese learners, and forgetting rates indicated a 38% loss over three weeks, highlighting the importance of regular exposure. While the small sample does not allow definitive verification of the strong version of the Input Hypothesis, these findings demonstrate that SL and POI principles can be applied successfully in Thai classrooms and support further investigation with larger, more diverse populations. Results also suggest practical implications for scheduling SL sessions to maximize retention, emphasizing both efficiency and fairness in language instruction.

Keywords: story-listening, vocabulary acquisition, Thai EFL learners, optimal input hypothesis, acquisition/forgetting rates

INTRODUCTION

Two Different Approaches to Vocabulary Development

Vocabulary development is a fundamental part of language acquisition. Many students rely on traditional techniques such as rote memorization, writing words down, or using mnemonic devices (Mason, Ae, & Krashen, 2022). These methods are often inefficient and time-consuming, and learners frequently forget much of what they study. For instance, McQuillan (2019) found that even with 10–20 minutes of daily academic vocabulary instruction over a 180-day school year, students learned only about 10 words per year, with an efficiency of just 0.005 words per minute. Most classrooms devote even less time to vocabulary, making traditional methods insufficient for meaningful growth.

In contrast, Story-Listening (SL) provides a far more efficient alternative. Vocabulary acquisition through SL ranges from 0.18 to 0.25 words per minute after five weeks of input—more than 30 times faster than traditional methods. This efficiency comes from input that meets four key characteristics—comprehensible, compelling, rich, and abundant—delivered without any forced learning activities. This is referred to as pure optimal input (POI). “Pure” indicates that instruction excludes conscious learning activities before, during, or after the SL session.

Some educators may doubt that fairy tales used in Story-Listening can teach academic vocabulary. However, Walter (2020) found that students who listened to 50 Grimm’s fairy tales and read the rewritten

texts encountered 7.5 times more words than peers using a standard textbook (27,410 vs. 3,622 words), including many low-frequency words. Similarly, Hsieh, Wang, & Lee (2011) reported that children in Taiwan exposed to 65 picture books over four years encountered two to three times more unique content words than children using textbooks. By the fifth year, these children became independent English readers. These findings suggest that extensive, coherent, and engaging story-based input better prepares learners for higher stages of English learning, such as junior high school.

The Story-Listening approach is based on the Pure Optimal Input (POI) framework (Krashen, 1982; Krashen & Mason, 2020), which posits that language acquisition occurs when learners receive input that is not only comprehensible and engaging but also rich, abundant, and devoid of supplemental output activities.

THEORETICAL FRAMEWORK

Language acquisition differs fundamentally from conscious language learning (Krashen, 1981) and occurs primarily through comprehensible input (Krashen, 1982, 1985, 2003). However, “not all comprehensible input is of equal value” (Krashen, 2020; Krashen & Mason, 2020). Research shows that optimal input—input that is comprehensible, compelling, rich, and abundant—promotes faster and deeper acquisition. Input should also avoid activities that increase cognitive load or require students to compensate for classroom lessons at home.

Story-Listening (SL) operationalizes these principles by providing POI through Comprehension-Aiding Supplementation (CAS), which includes both linguistic and non-linguistic techniques to support comprehension (Krashen, Mason, & Smith, 2018). Occasional translation may be used for beginners, but delivering SL entirely in the target language is generally more effective. SL facilitates natural vocabulary acquisition through contextual understanding (Mason, 2014; Mason & Krashen, 2020, 2022; Krashen & Mason, 2022; Krashen, 2024).

Unlike traditional storytelling in language classrooms, SL avoids pre-, mid-, and post-activities. It excludes immature forced output and comprehension questions (Krashen & Mason, 2019a, 2019b), creating a pure input-only framework. SL was operationalized to test the strong version of the Input Hypothesis, evaluating the effectiveness of non-targeted input compared to eclectic methods that incorporate output activities or grammatical syllabi (Krashen, 2013).

Although POI asserts that input alone is sufficient for acquisition, alternative perspectives exist. The Output Hypothesis (Swain, 1985) emphasizes language production; the Interaction Hypothesis (Long, 1996) highlights negotiation of meaning during communication; and Task-Based Learning (Ellis, 2003) centers on completing meaningful tasks. These perspectives are acknowledged to situate POI within the broader literature, but they are not the focus of this study. Research shows that carefully designed, optimal input alone can lead to measurable acquisition, even without forced output, interaction, or explicit tasks (Krashen, 2011; Mason, 2013, 2018).

The broader Pure Optimal Unified Input (POUI) framework unifies SL with reading (Guided Self-Selected Reading, GSSR) to create a complete input-only approach. While this study focuses only on SL (POI), it contributes to the ongoing investigation of POUI’s generalizability across languages and learner populations.

Empirical Support for Input-Only Approaches

Decades of research on POI and POUI provide strong evidence that carefully designed input accelerates language acquisition. While much of this research comes from our studies, there are no other published investigations that systematically evaluate methods based specifically on pure optimal input principles.

Prior Evidence Across Learner Groups

Previous studies have shown that vocabulary acquisition rates range from 0.10 to 0.25 words per minute across diverse populations when a delayed posttest was administered one to seven weeks later. These include:

- American high school students learning Japanese (Mason & Krashen, 2018)
- Japanese university students learning German (Mason, Vanata, Jander, Borsch, & Krashen, 2009)
- Japanese university students (Mason & Krashen, 2004)
- Junior college English majors (Clarke, 2019, 2020)
- Beginning-level Japanese junior high students (Mason & Ae, 2021, 2023, 2024)
- Students from five Asian countries (Mason, Smith, & Krashen, 2020)

In comparison, traditional textbook-based vocabulary learning only produces about 0.005 words per minute (McQuillan, 2019). These results demonstrate that learners whose first language is not closely related to English—such as Japanese and other Asian learners—can acquire vocabulary efficiently through attentive listening alone.

Extension to Thai Learners

While most prior studies focused on Japanese learners, the current study examines Thai students. Like Japanese, Thai is not closely related to English. Demonstrating the effectiveness of SL for Thai learners could support its adaptability for students in neighboring Asian countries and further validate the broader applicability of Pure Optimal Input principles.

Key Empirical Findings

1. General language competence, writing fluency, and accuracy develop more effectively through reading than traditional methods (Mason & Krashen, 1997; Mason, 2004).
2. Motivation to read in English can be fostered by engaging with comprehensible and interesting books (Krashen & Mason, 1997).
3. TOEFL and TOEIC scores increase significantly with input alone (Constantino, 1995; Mason, 2006, 2011, 2013a, 2013b).
4. Daily pure optimal unified input accelerates language progress compared to weekly or intermittent input (Mason, Smith, & Krashen, 2020; Smith, Mason, & Krashen, 2021).
5. Form-focused vocabulary instruction does not produce worthwhile gains (Mason & Krashen, 2004; Clarke, 2019, 2020).
6. Story-Listening is more efficient than memorization-based approaches for increasing vocabulary size among junior high students; advanced learners continue to benefit more from SL/GSSR than output-based approaches (Mason & Ae, 2024; Mason, 2011, 2021).
7. Eliminating traditional practices—such as forced output, grammar drills, comprehension questions, memorization, testing, and homework—enhances learning efficiency (Mason & Ae, 2023).
8. Self-Selected Reading (SSR) produces consistent gains; readers improve ~0.6 points on the TOEIC per hour. Over three years (~1,095 hours) of relaxed, self-selected reading, learners can progress from Elementary to near-International proficiency. Pleasure reading alone also leads to proficiency without formal test preparation (Krashen & Mason, 2017; Mason, 2017).

9. Story-Listening produces stronger vocabulary retention than list-learning methods (Mason & Ae, 2025).
10. Input-based methods create independent readers who continue reading long-term (Mason, 2017, 2025).
11. Immersion-based approaches may not be as effective as the POUI approach (Mason & Krashen, 2019, 2020).

Why Ask Whether the Strong Version of the Input Hypothesis is Correct

In scientific theorizing, a hypothesis can often be framed in either a strong or weak form. The Input Hypothesis—the claim that language acquisition occurs only when learners receive comprehensible input—cannot accommodate a weak form without contradicting its foundation. Some scholars claim to support the Input Hypothesis while also asserting that other factors, such as interaction, negotiation of meaning, or output, are necessary for acquisition. These modifications, however, abandon the Input Hypothesis. The original claim is that comprehensible input is both necessary and sufficient for acquisition. If acquisition depends on anything other than input, the theory ceases to be the Input Hypothesis and becomes something else. Accepting a “weak” version—suggesting that input is important but not sufficient—would therefore undermine the hypothesis itself.

Investigating whether the Input Hypothesis is correct is necessary to determine reality. Scientific inquiry is not about loyalty to a theory; it is about discovering reality, even when that reality challenges long-standing practices. If the strong version of the Input Hypothesis is correct, it demonstrates that much of traditional language teaching—emphasizing conscious learning, output, error correction, and eclectic methods—has been misguided. Acknowledging this error is the first step toward creating better conditions for language acquisition, designing more effective learning experiences, and improving educational systems. Verifying the strong version of the Input Hypothesis is an act of intellectual responsibility and of fairness toward learners, ensuring that educational practices respect their time, cognitive load, and potential for language acquisition.

Krashen emphasized that scientific progress depends on clarity in theoretical foundations. Accepting eclectic approaches, which blend incompatible ideas, makes it impossible to accurately test or apply the theory. Combining practices based on opposing assumptions does not allow us to study language acquisition itself; it merely compares different amounts of input under traditional methods. With this theoretical and empirical background, we now turn to the specifics of the study, beginning with its purpose.

Purpose of the Study

This study investigates the vocabulary acquisition rate of Thai university students using the Story-Listening (SL) method. It also examines the forgetting rate associated with SL and aims to explore the optimal frequency of SL sessions for efficient vocabulary acquisition in formal education.

The study replicates prior research conducted with different learner groups and in different countries to determine whether the success of SL—observed in earlier studies—can be generalized to Thai university students. Previous research in Indonesia demonstrated that SL was effective for Asian students at an intermediate level of English proficiency (Mason, Smith, & Krashen, 2020), suggesting similar outcomes might be expected for Thai learners. Investigating the forgetting rate provides additional insight into how long the interval between SL sessions can be before effects begin to diminish, informing practical recommendations for classroom scheduling.

The key research questions guiding this study are:

1. Does the evidence from this study support the strong version of the Input Hypothesis?

2. What is the vocabulary acquisition rate through SL after three weeks?
3. What is the forgetting rate following SL after three weeks?

Note: This study involves a small sample of 20 participants and cannot conclusively verify the strong version of the Input Hypothesis on its own. However, it serves as a replication and extension of prior research, providing valuable data to examine whether the effects of SL can be observed in a new learner population. This approach contributes to the broader empirical evidence supporting the hypothesis.

METHODOLOGY

Participants

The participants in this study were 20 first-year university students (aged 18–19) from Walailak University in Thailand. They were non-English majors enrolled in the Schools of Pharmacy, Medicine, Nursing, and Medical Technology. According to the department head (the second author), although the students had received 12 years of English education prior to university, their proficiency remained at the CEFR A2 level. At the time of the experiment, they had completed 35 hours of university-level English instruction.

While this study involves a small sample, it is designed as a replication and extension of prior research. The strong version of the Input Hypothesis has been investigated extensively over the past 35 years through studies of Story-Listening, Guided Self-Selected Reading, and Extensive Reading across multiple age groups, proficiency levels, and contexts (Krashen, 2003, 2004, 2011, 2024). The current study contributes additional evidence to this larger body of research, illustrating that carefully designed input alone can support measurable acquisition, even in learners whose first language is not closely related to English. By situating this investigation within the broader empirical context, the findings help explore the generalizability of the strong version of the Input Hypothesis to Thai university students.

Methods

Story-Listening (SL) is a Pure Optimal Input (POI) method developed specifically to test the strong version of the Input Hypothesis. It is designed to provide learners with optimal input: language that is comprehensible, compelling, rich, and abundant, while excluding conscious learning activities such as pre-teaching vocabulary or comprehension questions (Krashen & Mason, 2019a, 2019b).

In an SL session, the storyteller presents a carefully selected narrative and supports comprehension through both linguistic and non-linguistic supplementation. This creates conditions that closely mirror the natural process of first language acquisition, maximizing opportunities for subconscious language growth.

For this experiment, the storyteller (the first author), who had no prior contact with the students, presented *The Wonder Tree* using the SL method. Although the first author did not know the students' individual proficiency levels in detail, information from the department head allowed her to adjust Story-Listening strategies and select test items appropriate for learners at the CEFR A2 level, consistent with students in previous SL studies.

To ensure the story was both engaging and comprehensible, the storyteller selected a narrative likely to capture the students' interest and prepared a "Prompter," a teaching aid designed to support clear and fluent delivery. For the vocabulary test, 20 words from the story were chosen: 10 words that the storyteller anticipated the students would already know, and 10 words expected to be unfamiliar. Including both familiar and unfamiliar words helped avoid discouragement from testing only unknown

items. Additionally, because students' exact "i" level could not be known in advance, some words presumed to be familiar might turn out to be new for certain learners.

Measurement and Procedure

A **pre-test** was administered before students heard the story, followed by an immediate post-test after the Story-Listening (SL) session. A delayed post-test was conducted three weeks later to assess vocabulary retention. In each test, students were asked to provide Thai translations for each English word.

The students' regular instructor was a native English speaker from England. While students were accustomed to hearing English through story-based conversational activities, they had not previously experienced extended storytelling using complete sentences and structured narratives with comprehension-aiding supplementation.

To minimize cognitive load for students encountering SL for the very first time by a stranger, the Story-Listening session was kept under 20 minutes, and the vocabulary test included only 20 items. The session length was verified using a recorded video of the SL session. The regular instructor was instructed not to use any of the target vocabulary words during the three-week interval until the delayed post-test.

To ensure reliability, two Thai teachers independently graded the students' responses. Any discrepancies were resolved through discussion until a consensus was reached, and consistent word-scoring methods were applied across all tests by both raters.

Research Compliance and Study Ethics

Written consent was obtained from all participants to include their performance in oral and written reports. The study adhered to established ethical standards, ensuring the confidentiality and anonymity of all participants' personal information throughout the research process. The research protocol was reviewed and approved by the Walailak University Ethics Committee prior to the commencement of the study.

FINDINGS

The results revealed a vocabulary acquisition rate of 0.25 words per minute (wpm) after three weeks. This rate aligns closely with acquisition rates observed in previous studies involving Japanese learners (Tables 1 and 2), confirming that Thai students can also benefit from listening to stories for vocabulary acquisition.

Table 1.
Remembering Rate by A2-Level Thai College Students

Dates of the test	8/21	8/21	9/11
	Pre-test	Post-test	Delayed
Mean (SD)	10.1 (3.35)	18.05 (1.39)	15.01 (2.81)
Gain	-	7.95	4.91
Remembering rate	-	0.40wpm	0.25 wpm
t-test (p-level)			9.02 (0.0001)

Note: k=20; time spent telling the story 20 min; delayed post-test=3 weeks later

Despite being their first experience with Story-Listening (SL), participants achieved a rate of 0.25 wpm. Based on this rate, it can be projected that students might acquire approximately 1,000 words with just 4,000 minutes (about 67 hours) of SL sessions.

However, forgetting must also be considered. In previous studies, delayed post-tests were conducted at intervals ranging from one to seven weeks after the initial post-test. Acquisition rates naturally slow as the delay increases. To contextualize the current results, forgetting rates from prior experiments were calculated. Table 2 presents the relevant data, including the forgetting rates, with the most recent data highlighted in bold.

Forgetting Rates

As Ebbinghaus demonstrated with “nonsense words,” vocabulary knowledge decays over time unless reinforced. For learners whose first language (e.g., Thai or Japanese) is typologically distant from English, many new English words may feel like “nonsense words” and therefore may be more prone to forgetting. Consequently, any estimate of long-term vocabulary growth must consider both the acquisition rate and the retention of newly learned words.

We calculated forgetting rates for each study using Thalheimer’s formula and compared them with the current findings (see Table 2). The data show that Story-Listening (SL) can maintain relatively high retention rates over several weeks, though forgetting still occurs. Specifically, the forgetting rate reaches about 40% by the three-week mark.

Table 2 demonstrates that SL consistently produces high retention rates, even after five weeks. For example, after one week, only 6% of newly learned vocabulary was forgotten, but after three weeks, the loss increased to nearly 40%. Awareness of these forgetting rates is crucial for maximizing the benefits of SL. Except for two studies involving junior high students, all participants in studies investigating SL for vocabulary acquisition were college or university students.

- Lowest Forgetting Rate (6%): Observed in The Juniper Tree study, with a delayed post-test conducted after one week.
- Highest Forgetting Rates (58–79%): Found in studies with extended intervals between instruction and delayed post-tests (4–7 weeks), demonstrating that less frequent SL sessions lead to greater vocabulary loss over time.

Regular SL sessions, conducted at least weekly, significantly reduce vocabulary loss. For instance, The Juniper Tree showed only a 6% loss, while sessions spaced three weeks apart, as in The Wonder Tree, resulted in a 38% forgetting rate.

- After two weeks, forgetting triples (6% → 19%)
- After three weeks, forgetting increases sixfold (6% → 38%)
- After four weeks, forgetting rises tenfold (6% → 61%)

Frequency Impact

Table 2.
Forgetting Rates of all the SL Studies

Story Title	N	Students Level	Remembering Rate (wpm)	Number of Words on test	Forgetting Rate (%)
1) The Juniper Tree (Mason, et al. 2020)	11	Asian College Students	0.24	31	6% (after 1 wk)
2) Lazy Jack (Mason & Ae, 2022)	30	7th graders	0.20	35	19% (after 2 wks)

3) The Wonder Tree (Current Study)	20	Walailak University	0.25	20	38% (after 3 wks)
4) Carpenter and the Cat (Mason & Krashen, 2018)	21	American High school students learning Japanese	0.17	38	68% (after 4 wks)
5) The Three Little Pigs (Mason & Ae, 2022)	36	7th graders	0.21	35	61% (after 4 wks)
6) The Three Little Pigs (Mason & Krashen, 2004)	27	University 1st year	0.25	20	58% (after 5 wks)
7) The Frog Prince (Clarke, 2019)	8	Junior college	0.19	26	68% (after 5 wks)
8) The Frog Prince (Clarke, 2020)	15	Junior College	0.18	30	68% (after 5 wks)
9) A long German story in three sections (Mason, et al, 2009)	7	University German as a second foreign language	0.10	103	66% (after 7 wks)
10) 3 short German Stories (Mason, et al, 2009)	7	University German as a second foreign language	0.10	60	79% (after 7 wks)

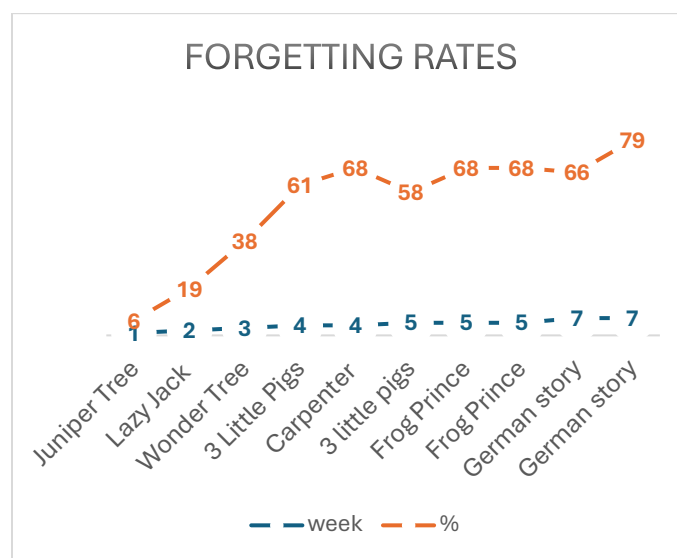


Figure 1. illustrates the forgetting rates (%) across ten SL studies conducted with different stories and student groups

Forgetting rates were calculated as the proportion of newly learned words no longer recalled at delayed post-test (see Appendices A and B for a worked example and detailed tables).

IMPLICATIONS FOR PRACTICE

Previous research (e.g., Mason & Ae, 2024) showed that conscious memorization can produce vocabulary gains, but it requires sustained effort and extra time for students to retain new words. Story-Listening (SL), in contrast, reduces this burden. By presenting engaging stories with universal themes regularly — even daily—SL lowers cognitive load, supports comprehension, and encourages long-term engagement in English acquisition.

While even occasional SL sessions produce measurable vocabulary growth, the natural recycling of words across stories indicates that daily or near-daily sessions would maximize long-term retention. Frequent exposure reinforces previously encountered words before they are forgotten and provides opportunities to acquire new words at each student's "i+1" level.

The benefits of SL are observed even when sessions are not daily: weekly sessions can still significantly minimize forgetting. Importantly, SL does not depend on high levels of motivation or self-discipline; it supports all students, including both highly motivated learners and those who are more reluctant. The results from Thai learners suggest that SL could also be effective in neighboring Asian countries with similar linguistic contexts.

Finally, while providing daily SL sessions may present challenges for teachers in sourcing and delivering materials, the approach's demonstrated impact on student proficiency provides a strong rationale for its adoption in formal education settings.

CONCLUSION

This study examined the effects of Story-Listening (SL) and Pure Optimal Input (POI) on vocabulary acquisition among a small sample of Thai university students. Here, POI refers to the theoretical framework that underpins SL, describing input that is comprehensible, compelling, rich in quality, abundant in quantity, and free from instructional interference. In practice, Story-Listening (SL) is a primary method for delivering POI in the classroom. Consistent with prior research, the findings suggest that such input can support measurable language acquisition, even for learners whose first language is not closely related to English.

While the current study is limited by its small sample size and focus on a single university program, these results align with decades of research across multiple contexts, age groups, and proficiency levels. Previous studies have shown that input-only instruction through SL and Guided Self-Selected Reading can improve grammatical accuracy without correction, raise standardized test scores, accelerate progress through daily input, enhance retention compared to traditional list-learning, and foster lifelong reading habits.

Although this study cannot conclusively confirm the strong version of the Input Hypothesis, it provides evidence on the vocabulary acquisition rate and forgetting patterns through SL, demonstrating the applicability of SL and POUI principles in Thai classrooms and supporting further investigation with larger, more diverse samples. The forgetting rate data suggest that SL sessions should ideally be provided at least weekly to maintain vocabulary retention, with more frequent exposure likely further enhancing learning.

Moreover, investigating POI/SL emphasizes fairness and equitable learning, showing that carefully designed input can provide all learners a practical, accessible, and efficient path to meaningful language acquisition.

Notes:

- Note on the Story: The Wonder Tree is an Indonesian folktale from Asian-Pacific Folktales and Legends (ed. Jeanette Faurot). Due to copyright restrictions, the full text is not provided here. Readers are encouraged to consult the original publication
- The 20 words on the test were orphan, parents, field, harvest, December, cage, lay, frequently, steaming hot, daily, uncooked rice, uncle, borrow, lend, whisper, bone, bury, silk, and jewel.
- Forgetting Rate: In this report, the percentage of forgetting was calculated following Thalheimer's method: (% Correct on Initial Test minus % Correct on Subsequent Test) divided by % Correct on Initial Test. More succinctly, if A = % Correct on the Initial Test and B = % Correct on the Subsequent Test, then Forgetting = $(A - B) / A$.
- Story-Listening Webpage: <https://www.story-listening.net>

Acknowledgement

We extend our heartfelt thanks to Vice President Associate Professor Dr. Surin Maisrikrod for his unwavering support and for promoting input-based methods in the language department at Walailak University. We also thank Ms. Pavirasa Praditsorn and Assistant Professor Dr. Kannika Thongkhao for their meticulous efforts in grading the tests and Mr. Andrew Lush for generously allowing us to utilize his class time for this experiment. We are further indebted to the SOLGEN Officers for their assistance in documenting the experiment. Lastly, we sincerely thank the staff of the School of Languages and General Education at Walailak University for their warm welcome and hospitality during my (the first author) visit. Thanks to Dr. John Truscott (2024) for his invaluable feedback and comments on this paper.

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Appendix A Example of Forgetting Rate Calculation (Thalheimer's Method)

For clarity, the forgetting rate was calculated following Thalheimer's method:

- Forgetting Rate = $\frac{\% \text{Correct on Initial Test} - \% \text{Correct on Subsequent Test}}{\% \text{Correct on Initial Test}} \times 100$
- Forgetting Rate = $\frac{\% \text{Correct on Initial Test} - \% \text{Correct on Subsequent Test}}{\% \text{Correct on Initial Test}} \times 100$

Worked Example using A2-Level Thai College Students Data:

- **Pretest (Prior Knowledge):** 10.1 words
- **Posttest (Initial Test):** 18.05 words
 - **Gain:** $18.05 - 10.1 = 7.95$ words
- **Delayed Post-test (3 weeks later):** 15.01 words
 - **Retained Gain:** $15.01 - 10.1 = 4.91$ words

Forgetting Rate = $\frac{7.95 - 4.91}{7.95} \times 100 \approx 38.2\%$

Forgetting Rate = $\frac{7.95 - 4.91}{7.95} \times 100 \approx 38.2\%$

Interpretation: Students retained approximately **61.8%** of the newly acquired vocabulary over the 3-week interval.

Additional Notes:

- Time spent telling the story: 20 minutes
- Number of participants: 20
- Delayed post-test administered 3 weeks after the post-test

Appendix B Worked Example Table – Forgetting Rate for Thai A2-Level Students

Test Date	Pretest (words)	Posttest (words)	Delayed (words)	Gain (Posttest – Pretest)	Retained Gain (Delayed – Pretest)	Forgetting Rate (%)
8/21 (Initial)	10.1	18.05	–	7.95	–	–
9/11 (3 weeks later)	–	–	15.01	–	4.91	38.2

Notes:

1. Gain = number of newly learned words at posttest relative to pretest.
2. Retained Gain = number of words still remembered at delayed post-test relative to pretest.
3. Forgetting Rate = $(\text{Gain} - \text{Retained Gain}) \div \text{Gain} \times 100$ (Thalheimer, 2006).
4. N = 20 participants; Time spent telling the story = 20 minutes.