

査読論文

Quantitative Analysis of the Interaction Between the Quality of Motivation and Learning Behavior in English Learning and Its Relationship to Speaking Ability

MIYAJIMA Tatsuya

Abstract

This study empirically examined the effects of motivation (intrinsic and extrinsic) and out-of-class learning behaviors (frequency of English use and study time) on speaking ability in university students' English learning. A questionnaire survey and the CEFR-aligned PROGOS[®] test were administered to 32 first-year students in the Faculty of Fine Arts, followed by correlation analysis and multiple regression analysis. The results showed that neither factor exhibited a statistically significant correlation with speaking ability. This indicates that learners' motivation and out-of-class activities may not necessarily directly translate into short-term speaking proficiency. This study suggests the need to reexamine conventional theoretical frameworks toward a multifaceted understanding of learning outcomes in foreign language education.

Keywords : Foreign language education, English learning motivation, Speaking proficiency, Multifaceted understanding of learning outcomes

1. Introduction

In a society where the flow of people, information, and values across borders has become commonplace, the ability to communicate in English for cross-cultural understanding is positioned as a critical factor influencing an individual's social and professional success. English proficiency is increasingly viewed as forming the foundation for international competitiveness and collaboration, extending beyond mere language skills. Speaking ability, in particular, is an indispensable skill for intercultural exchange and building international careers, and

it is positioned as an area that should be prioritized for strengthening in university English education (Ministry of Education, Culture, Sports, Science and Technology, 2012). Within the CEFR (Council of Europe, 2001) framework, speaking is also defined as “interactive competence,” a core ability enabling spontaneous and collaborative communication.

However, Japanese English education has long prioritized reading and grammar, resulting in insufficient training opportunities for speaking. Consequently, multiple studies indicate that Japanese learners tend to have lower proficiency in speaking compared to reading and listening

skills (JACET, 2020; EF EPI, 2022). Furthermore, many students experience significant anxiety (foreign language anxiety) in English-speaking situations (Horwitz et al., 1986), which hinders the development of practical speaking abilities.

To address these challenges, it is crucial to focus not only on learning environments and curriculum design but also on individual learners' psychological factors and learning behaviors. In particular, the distinction between intrinsic and extrinsic motivation, based on Deci & Ryan's (1985) self-determination theory, has been widely applied in language acquisition research (Noels et al., 2000; Ushioda, 2011). Intrinsic motivation promotes sustained learning and self-regulated learning behaviors, while extrinsic motivation contributes to short-term outcomes but is considered limited in the long term (Deci & Ryan, 2000). However, for Japanese university students, extrinsic factors such as exams and job hunting remain strongly influential, and the precise impact of these on speaking ability remains insufficiently clarified.

Furthermore, alongside motivation, the quality and quantity of learning behavior warrant attention. The frequency of English use outside class and the allocation of time for self-directed learning are crucial elements for accumulating practical experience to enhance speaking skills (Richards & Renandya, 2002; Saito & Hanzawa, 2016). In particular, the effect of "learning experiences outside the classroom" on language acquisition has been consistently emphasized in Second Language Acquisition (SLA) research (Ellis, 2015).

This study aims to clarify the effects of motivation quality (intrinsic/extrinsic) and learning behaviors (frequency of English use outside class and weekly study hours) on English speaking ability among Japanese university

students. Specifically, it statistically examines, through multiple regression analysis, the extent to which these factors can explain individual differences in speaking ability.

2. Existing Studies

Learner motivation in second language acquisition has been theorized and empirically examined by numerous researchers as a crucial psychological factor influencing learning outcomes. Among these, Self-Determination Theory (SDT), proposed by Deci and Ryan (1985), is widely accepted as the theoretical foundation for motivation research in language learning. This theory broadly categorizes learner motivation into "intrinsic motivation" and "extrinsic motivation," viewing their respective impacts on learning behavior and outcomes as qualitatively distinct.

Intrinsic motivation refers to motivation driven by the learner's own internal factors, such as interest in the learning itself, a sense of accomplishment, or a desire for self-growth. In contrast, extrinsic motivation is based on external factors such as grades, rewards, social approval, or a sense of obligation, and learning behavior is not necessarily driven by the individual's own volition. Research based on SDT frequently reports that intrinsic motivation tends to lead to more sustained and deeper learning outcomes (Noels et al. 2000).

Specifically in second language learning, Noels et al. (2000) used the SDT framework to investigate the relationship between the structure of motivation and language proficiency in English learners. Their findings confirmed that learners with intrinsic motivation tend to exhibit

higher autonomy and demonstrate superior language proficiency, particularly in speaking, compared to learners motivated by extrinsic factors. This aligns with the view that language learning is inherently a socially interactive activity, where output accompanied by autonomy and spontaneity is essential.

Regarding research on the development of speaking ability, Swain's (1985) Output Hypothesis serves as a crucial theoretical pillar. This hypothesis posits that output in language acquisition—the process by which learners themselves generate language—plays a central role in integrating internalized knowledge, forming grammatical awareness, and making corrections through feedback. From this perspective, opportunities to actually use English outside the classroom, such as participating in English conversation clubs, online language exchanges, or interacting with international students, are positioned as important practical settings for promoting speaking skill development, extending beyond classroom speaking activities.

Furthermore, Ushioda (2011) highlights the relationship between identity, autonomy, and motivation in language learning, noting that linking language study to one's personal values and goals enables more sustained and deep learning. This resonates with the concept of the "continuum of self-determination" proposed by SDT, suggesting that extrinsic motivation is not necessarily detrimental and can approach intrinsic motivation through a process of internalization (integrated motivation).

As outlined above, prior research has theoretically and empirically demonstrated that the qualitative aspects of learning motivation and

practical output opportunities within the learning environment are crucial factors for improving speaking ability. However, much of this research has focused on Western countries or regions with relatively well-established English learning environments. Consequently, there remains insufficient examination of which factors significantly contribute to the development of speaking ability among Japanese learners, who often face limited speaking opportunities.

This study aims to clarify, using statistical methods, the effects of different types of motivation and actual learning behaviors on speaking ability among Japanese university students, taking into account these gaps.

3. Research Methods

3.1 Research Purpose and Design

This study aims to quantitatively examine the relationship between factors influencing university students' English-speaking ability: motivation for English learning (intrinsic and extrinsic) and out-of-class learning behaviors (frequency of English use and study time). Specifically, it explores the possibility that motivation influences speaking ability through the mediating effect of learning behaviors.

The research design employed a cross-sectional quantitative approach. Descriptive statistics, correlation analysis, and multiple regression analysis were used to examine relationships among variables.

3.2 Participants

The sample consisted of 32 first-year students enrolled in the Faculty of Fine Arts at this university, all taking "Basic English I and II." All participants had learned English as a second language throughout junior high and high school

and were enrolled in courses including speaking components.

3.3 Measured Variables and Operational Definitions

3.3.1 Intrinsic Motivation

Intrinsic motivation was measured using three items related to enjoyment of English learning, sense of self-growth, and sense of accomplishment. Each item was rated on a 7-point scale (1 = Strongly Disagree to 7 = Strongly Agree), and the mean score was calculated.

- Q1: "I find learning English itself enjoyable."
- Q2: "I feel I am growing through English learning."
- Q3: "I feel a sense of accomplishment when I become able to use English."

3.3.2 Extrinsic Motivation

Extrinsic motivation was measured using three items related to career paths/employment, evaluation by others, and sense of obligation. Each item was similarly answered on a 7-point scale, and the mean was calculated.

- Q4: "I learn English because I think it will be useful for my future career path or employment."
- Q5 "I think learning English will lead to recognition or evaluation from others."
- Q6 "I study English because it's a required class, so I have no choice."

3.3.3 Frequency of English Use Outside Class

For Q7 "Number of times you used English outside class (per week)," actions recorded in free-response format (e.g., conversations in English, SNS, watching videos) were quantified and tallied as the number of uses per week.

3.3.4 English Study Time

Q8 "Time spent studying English outside class (per week)" recorded self-reported study time (e.g., vocabulary study, reading aloud, using online materials) in 0.1-hour increments.

3.3.5 Speaking Score

English speaking ability was assessed using the PROGOS[®] test, aligned with the international language proficiency standard CEFR (Common European Framework of Reference for Languages). Scores are provided on a 6-point scale from 1 (Beginner) to 6 (Advanced). This study directly used the provided scores for analysis.

3.4 Data Collection Procedures

Data collection was conducted at the end of the first semester (Weeks 30-32). Responses to questions regarding motivation and records of learning behaviors were collected via Microsoft Forms.

For speaking scores, after the proficiency assessment, each participant was asked to submit a screenshot showing their score. This served as the basis for recording and verifying the scores. The submitted images reflected the CEFR-aligned PROGOS[®] test results and were adopted as the data subject for analysis, ensuring the reliability of the speaking scores used in the analysis.

3.5 Analytical Methods

For statistical analysis, descriptive statistics were first calculated for all variables. Next, Pearson's correlation coefficients were obtained to examine the relationship between intrinsic motivation, extrinsic motivation, out-of-class learning behaviors, and speaking scores. Furthermore, to identify predictors of speaking

ability, multiple regression analysis was conducted with intrinsic motivation, extrinsic motivation, frequency of English use outside class, and study time as independent variables, and speaking scores as the dependent variable. The significance level was set at $p < .05$.

4. Descriptive analysis

4.1 Dataset (Scores - 32 University Students)

The following statistical analyses were performed on the data from these 32 participants.

1. Descriptive statistics (mean, standard deviation, minimum value, maximum value)
2. Correlation analysis (Pearson correlation coefficient)
3. Multiple regression analysis (dependent variable = speaking score; independent variables = intrinsic motivation, extrinsic motivation, frequency of English use outside class, study time)

ID	Intrinsic Motivation (1-7)	Extrinsic Motivation (1-7)	Frequency of English Use Outside Class (times/week)	Study Time (hours/week)	Speaking Score (1-6)
1	3.3	3.7	2	0.5	2.5
2	5.3	5	0	3	1.5
3	5.7	6	0	1	1
4	5	5	4	0.5	2.5
5	5.3	4.3	30	0.5	1.5
6	5.3	5.3	5	0.5	2
7	3	6	1	0	2.5
8	5.7	4.7	2	0.5	2.5
9	5.3	6.3	0	5	1
10	5.3	4.3	1	0.5	2.5
11	5.3	4	3	0.5	1.5
12	5.7	4.7	2	2	2.5
13	5	4.3	2	0.5	1.5
14	5.7	4.7	0	0	2
15	5.3	5	0	0	3
16	5.3	5.3	3	0.5	1
17	5	5	4.5	0.5	1
18	5.3	5.3	1	0.5	2.5
19	5	4.7	2	0.5	1.5
20	4.3	4	0	0	1
21	7	6.3	10	1	1
22	3.3	4.3	0	0	1.5
23	6.3	6	1	2	1.5
24	6.7	6.3	1	1	1.5
25	4.3	4.7	0	1	2.5
26	4.7	4.7	2	0.5	1.5
27	7	5	2	0.5	2.5
28	5	5	3	0.5	1
29	4.3	4.3	5	0.5	1
30	5.3	5.3	0	0	1
31	5	5.7	3	3	2
32	5	5	20	0.5	1.5

4.2 Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Intrinsic Motivation	5.16	0.92	3.0	7.0
Extrinsic Motivation	5.01	0.71	3.7	6.3
Frequency of English Use Outside Class (times/week)	3.42	6.17	0	30
Time Spent Learning English Outside Class (hours/week)	0.83	1.09	0	5
Speaking Score	1.73	0.63	1	3

On average, motivation is moderate to high, while speaking scores remain around 1.7 out of 3 points (leaning toward beginner level on a 6-point scale).

4.3 Correlation Analysis (Pearson)

Variable	Correlation with Speaking Score
Intrinsic Motivation	$r = -0.096$
Extrinsic Motivation	$r = -0.182$
Frequency of English Use Outside Class	$r = -0.160$
Time Spent Studying English Outside Class	$r = -0.170$

No significant correlation was found between any variable and the speaking score; rather, a weak negative relationship was observed. Notably, “frequency of use” and “study time” showed no association with speaking ability.

4.4 Multiple Regression Analysis

Dependent variable: Speaking score

Independent variables: Intrinsic motivation, Extrinsic motivation, Frequency of English use outside class, Study time

- Coefficient of determination $R^2 = 0.080$ (Adjusted $R^2 = -0.056$)
- Overall model significance: $F(4,27) = 0.589, p = .674 \rightarrow$ Not statistically significant

· Coefficients for each predictor:

- o Intrinsic motivation: $\beta = 0.014, p = .924$
- o Extrinsic motivation: $\beta = -0.136, p = .511$
- o Frequency of English use outside class: $\beta = -0.020, p = .306$
- o Time spent learning English outside class: $\beta = -0.079, p = .521$

Neither variable significantly predicted speaking scores.

4.5 Interpretation

I. No direct relationship between motivation and speaking ability was found.

Both intrinsic and extrinsic motivation were weak predictors.

II. Frequency of English use outside class and study time also showed no significant association with speaking ability.

For use and study to affect speaking ability, “quality” is likely more important than mere “quantity.”

III. This data has a small sample size ($N=32$), so even if an effect exists, it may not have been detected due to insufficient power.

5. Discussion

This study quantitatively examined how motivation (intrinsic and extrinsic) and out-of-class learning behaviors (frequency of English use and study time) relate to university students' English-speaking ability. The results showed that neither factor exhibited a statistically significant correlation with speaking scores. Below, we discuss the implications of these findings, referencing theoretical background and prior research.

First, the relationship between motivation and speaking ability was found to be limited. Neither intrinsic motivation ($r = -.096$) nor extrinsic motivation ($r = -.182$) showed a significant correlation with speaking scores, nor did they emerge as significant predictors in the multiple regression analysis ($p > .50$). This result suggests that motivation does not necessarily translate directly into language ability. According to Self-Determination Theory (Deci & Ryan, 1985), motivation directs learning, but learning behaviors must mediate for its effects to translate into ability. Our findings support this theoretical position.

Next, frequency of English use outside class and study time also showed no significant association with speaking ability (frequency $r = -.160$, study time $r = -.170$). This appears to contradict Swain's (1985) Output Hypothesis and Nation's (2007) learning theory. However, given that participants' out-of-class activities were relatively low on average (frequency $M = 3.42$ times/week, study time $M = 0.83$ hours/week) and qualitative aspects (e.g., differences between SNS interactions and grammar exercises) were not considered, the lack of effect on speaking

ability does not necessarily invalidate these theories. Rather, it suggests that "quality of learning" may be more decisive for skill development than "quantity of learning."

Furthermore, the results of the multiple regression analysis ($R^2 = .080$, $p = .674$) also indicate that motivation and behavioral factors did not statistically predict speaking ability. This may be due to factors such as: ① insufficient statistical power due to sample size constraints ($N = 32$), ② failure to control for other factors influencing speaking ability (e.g., opportunities for pronunciation practice, study abroad experience, personality factors), and ③ reliance on self-reports for measuring usage frequency and study time.

In light of the above, this study provides the important finding that "high learner motivation and the number of out-of-class activities alone cannot fully explain speaking ability." That is, for motivation to translate into learning outcomes, the presence of more specific and qualitatively rich learning activities is necessary.

6. Conclusion

This study quantitatively examined the relationship between intrinsic and extrinsic motivation in English learning, frequency of English use outside class, study time, and speaking ability among 32 first-year students in the Faculty of Fine Arts. Analysis revealed that none of these factors statistically significantly predicted speaking scores. However, the findings extend beyond mere "non-significant results" and offer academically significant implications in the following respects.

First, this study clarified that traditionally emphasized factors like motivation and learning behavior do not necessarily directly determine speaking ability. This demonstrates the complexity of language acquisition and highlights the reality that learning outcomes cannot be explained by simple indicators like motivation or behavioral quantity. Speaking ability likely depends heavily on elements such as “qualitatively rich output experiences” and “social interaction.”

Second, this study clearly demonstrates the need to question the “quality” rather than the “quantity” of learning. The lack of correlation between out-of-class English use and study time with speaking ability indicates that merely increasing frequency or duration is insufficient. This aligns with the Output Hypothesis (Swain, 1985) and the Input Reinforcement Theory (Nation, 2007), underscoring the need to precisely capture the qualitative aspects of “which learning activities contribute to ability development and how.”

Third, as a methodological contribution, this study holds significance in examining intrinsic and extrinsic motivation, behavioral indicators, and speaking ability within a consistent quantitative framework, despite its small sample size. Specifically, targeting a non-English major group (art students) offers a new perspective compared to previous research (primarily focused on English majors or general university students). This provides a complementary approach to the issue of motivation research in language learning being biased toward specific learner groups.

In terms of educational implications, university English education should prioritize enhancing the quality of opportunities for learners to use

English over merely ensuring a certain volume of study. For example, introducing peer interactions outside class or international online exchange activities could potentially promote the development of speaking ability. Furthermore, it is crucial for teachers to consciously design “mediating support” that connects learners’ motivation to speaking practice.

Overall, this study demonstrated that the process linking motivation and learning behavior to ability development is not linear but significantly influenced by qualitative factors and the learning environment. Future research should combine longitudinal designs and qualitative analysis to more precisely elucidate the causal process of motivation → behavior → ability development.

This study, through statistically non-significant results, highlighted new challenges in understanding the development of English-speaking ability. It strongly suggests that language ability should not be explained solely by the quantity of learning or the strength of motivation but rather requires a comprehensive understanding that includes the quality of the learner’s experiences and the surrounding educational environment.

References

- Council of Europe. (2001). *Common European framework of reference for languages: Learning, teaching, assessment*. Cambridge University Press.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. <https://doi.org/10.1207/S>

15327965PLI1104_01

- Ellis, R. (2015). *Understanding second language acquisition* (2nd ed.). Oxford University Press.
- EF Education First. (2022). EF English proficiency index (EF EPI). <https://www.ef.com/epi/>
- Horwitz, E. K., Horwitz, M. B., & Cope, J. (1986). Foreign language classroom anxiety. *The Modern Language Journal*, 70(2), 125–132. <https://doi.org/10.1111/j.1540-4781.1986.tb05256.x>
- Japan Association of College English Teachers. (2020). JACET basic word list 2020. JACET.
- Ministry of Education, Culture, Sports, Science and Technology. (2012). Five proposals and specific measures for developing proficiency in English for international communication. MEXT.
- Noels, K. A., Pelletier, L. G., Clément, R., & Vallerand, R. J. (2000). Why are you learning a second language Motivational orientations and self-determination theory. *Language Learning*, 50(1), 57–85. <https://doi.org/10.1111/0023-8333.00111>
- Richards, J. C., & Renandya, W. A. (Eds.). (2002). *Methodology in language teaching: An anthology of current practice*. Cambridge University Press.
- Saito, K., & Hanzawa, K. (2016). The role of input in second language oral proficiency development: A cross-sectional study of Japanese learners of English. *Language Teaching Research*, 20(3), 323–343. <https://doi.org/10.1177/1362168815606166>
- Ushioda, E. (2011). Motivating learners to speak as themselves. In G. Murray, X. Gao, & T. Lamb (Eds.), *Identity, motivation and autonomy in language learning* (pp.11–24). *Multilingual Matters*. <https://doi.org/10.21832/9781847693747-003>
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Dörnyei, Z. (2001). *Motivational strategies in the language classroom*. Cambridge: Cambridge University Press.
- Ellis, R. (2003). *Task-based language learning and teaching*. Oxford: Oxford University Press.
- Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. London: Edward Arnold.
- Lyster, R., & Ranta, L. (1997). Corrective feedback and learner uptake: Negotiation of form in communicative classrooms. *Studies in Second Language Acquisition*, 19(1), 37–66.
- Noels, K. A., Pelletier, L. G., Clément, R., & Vallerand, R. J. (2000). Why are you learning a second language Motivational orientations and self-determination theory. *Language Learning*, 50(1), 57–85.
- Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In S. Gass & C. Madden (Eds.), *Input in second language acquisition* (pp. 235–253). Newbury House.
- Nation, I. S. P. (2007). The four strands. *Innovation in Language Learning and Teaching*, 1(1), 1–12. <https://doi.org/10.2167/illt039.0>

英語学習における動機づけの質と学習行動の相互作用が スピーキング能力に関連する数量的分析

宮 嶋 達 也

要旨

本研究は、大学生の英語学習における動機づけ（内発的・外発的）および授業外学習行動（英語使用頻度・学習時間）がスピーキング能力に及ぼす影響を実証的に検討したものである。美術学部の大学1年生32名を対象に質問紙調査とCEFR準拠のPROGOS[®]テストを用い、相関分析および重回帰分析を実施した。その結果、いずれの要因もスピーキング能力との間に明確な結びつきは見いだされなかった。これにより、学習者の動機づけや授業外行動が必ずしも短期的なスピーキング能力に直結するわけではない可能性が明らかとなった。本研究は、外国語教育における学習成果の多面的理解に向け、従来の理論的枠組みに対する再検討の必要性を示唆するものである。

キーワード：外国語教育，英語学習動機づけ，スピーキング能力，学習成果の多面的理解