



Flipped Learning-Based Discussion Based Learning Strategy To Improve Academic Resilience Of International Students

Junghyun LEE¹, Hyeju LEE^{2*}

¹Department of Global Korean Studies, SunMoon University, Asan, South Korea, raejuo329@sunmoon.ac.kr

²Department of Dental Hygiene, College of Health Science, Sun Moon University, Asan, South Korea ruby@sunmoon.ac.kr,

*Corresponding Author: Hyeju LEE

ruby@sunmoon.ac.kr

Citation: Hyeju LEE et al. (2024), Exploring Flipped Learning-Based Discussion Based Learning Strategy To Improve Academic Resilience Of International Students, *Educational Administration: Theory and Practice*, 30(4), 6155-6165,

Doi: 10.53555/kuey.v30i4.2347

ARTICLE INFO

ABSTRACT

Lecture teaching is a passive learning method that requires learners to comprehend the knowledge provided by the teacher in the classroom; it is, traditional teaching method with several-limitations in developing key talents. Therefore, in contrast to the existing passive learning methods, it is necessary to apply a differentiated learning model, such as learner-led flipped learning. In this study, a convenience sample of 44 international students was used to conduct a survey to analyze the impact of discussion classes using flipped learning on academic flexibility in major subjects. Data were collected through offline surveys conducted from March to June 2023 in Korean Grammar Theory class, a major course in the Global Korean Studies Department at S University, in Chungnam, South Korea. The Study results were analyzed using SPSS/WIN 23.0, and the frequency and percentage were also analyzed. For the quantitative analysis of the collected data, a response sample t-verification was conducted to determine the effect of discussion classes using flipped learning on the academic elasticity of foreign students. The analysis showed that, discussion classes using flipped learning were effective in improving the academic elasticity of foreign students, and significant effects were confirmed for sub-items such as self-control, positive attitude, task responsibility, and parental support. The international students who took the discussion class using flipped learning positive changes in the subcategories of academic resilience: "self-control," "positive attitude," "task responsibility," and "parental support," this result was statistically significant. In conclusion, the discussion class based on flipped learning was confirmed to be effective in improving

Keywords: flipped learning, DBL strategy, academic resilience, discussion class, foreign students

1. Introduction

1.1 Introduce the Problem

Lecture-style teaching is the most widely used teaching method in educational institutions. However, it has been reported that this passive lecture-style teaching method has some difficulties in improving the critical thinking, creativity, and problem-solving skills that can be gained through active learning activities (Miller et al., 2013; Choi & Kim, 2015).

To compensate for these limitations, a new teaching method was needed to secure classroom activity time by sharing class materials with learners in advance and performing tasks that could not be solved in the classroom. This form of teaching and learning is called "Flipped Learning" because it has a structure in which learning and problem solving are reversed. It has recently attracted attention as an alternative to future education that promotes character and creativity. Flipped learning has been used in both domestic and foreign universities for several years. It comprises an advanced form of blended learning that connects online

and offline learning. Learners use online content, such as videos uploaded by instructors outside the classroom, before attending school. This means conducting learning in advance and performing learner-centered learning activities such as discussions and team activities within the classroom (Bergman & Sams, 2012, 2014).

When classes are conducted using flipped learning, learners move away from the passive approach of listening to lecture content explained by the professor in a university classroom while taking notes. Instead, they engage in learner-centered activities such as Q&A sessions and discussions about the material they have studied in advance. This shift encourages active participation among learners and promotes collaborative activities within teams. This type of class encourages learners to actively engage and promotes cognitive activities by shifting their attitude from passive participation to active involvement. Because of its educational usefulness, various studies have been conducted at home and abroad on how flipped learning affects the cognitive or affective aspects of university education. For flipped learning to be used effectively, it is also important to create and provide online lecture videos that learners can access before class. However, more importantly, it is important to design and implement various teaching and learning activities centered on learners in the classroom. Therefore, for flipped learning to be used more effectively and efficiently in university classrooms, research on teaching and learning strategies that can enhance offline learning effects is essential.

Academic resilience to learning is an important competency necessary for students to proceed with flipped learning classes. Academic resilience is the ability of learners to overcome adversity in academic situations; academically resilient students show a high level of achievement motivation and learning performance in academic stress situations (Martin & Marsh, 2004, 2008). Increasing resilience to study allows learners to control their learning on their own and have a sense of self-control based on responsibility for tasks. The participants of this study were prospective Korean language teachers. They needed to improve their academic resilience to overcome learning difficulties by taking learner-centered classes in which prospective teachers voluntarily participate. To this end, it is necessary to learn self-directedly in advance, enter classes with questions, solve questions through discussions, solve problems, and build the practical knowledge necessary in the field of Korean language education. Therefore, this study aimed to confirm the effectiveness of flipped-learning-based discussion classes by analyzing changes in the academic resilience of foreign students who took Korean grammar classes.

1. What is the effect of discussion classes that use flipped learning on the academic elasticity of prospective Korean language teachers?
2. What is the meaning of relief in discussion classes using flipped learning in terms of academic elasticity of prospective Korean language teachers?

2. Theoretical Background

Since the mid to late 2000s, blended learning, which combines online learning and offline classroom classes, has attracted attention, and domestic universities have conducted various teaching and learning activities using blended learning. Before coming to school, learners use online content, such as videos uploaded by instructors outside the classroom, to perform learner-centered learning activities such as discussions and team activities in the classroom. These flipped learning methods have various educational characteristics that Hamdan, McKnight, McKnight, and Arfstrom(2013) explain in four ways. First, flipped learning requires a flexible learning environment; second, a change in the learning culture; third, intentional content; and fourth, professional instructors.

For flipped learning to occur, the learning environment must be flexibly changed. The learning environment becomes more flexible and dynamic through various questions and answers, discussions, project activities conducted by teams, applications, and problem-solving activities, rather than the instructor's explanatory lecture-oriented learning environment. This learning environment soon entails changes in the learning culture. After learners study the content of the class through self-directed learning in advance, the classroom actively participates in exploring learning topics and conducting in-depth learning, transforming instructor-oriented classes into a learner-centered teaching culture. In addition, for learner-centered classes to be conducted effectively, video content produced and provided by instructors in advance, active learning strategies, peer-teaching methods, and problem-oriented learning in the classroom must be intentionally and systematically developed and used according to the characteristics of the activity.

2.1 Key Elements of Flipped Learning

According to Bergman, J. (2013), flipped learning increases the time for interaction and individualization between teachers and students, makes students responsible for their own learning, and prevents students with learning deficits from lagging behind in learning. It also increases understanding through a continuous review of learning content and has educational usefulness in that all students have opportunities for individualized learning.

The Flipped Learning Network Committee (FLN board) is a key element of flipped learning and identifies the following four categories (the Four Pillars of F-L-I-P), as shown in Figure 1.

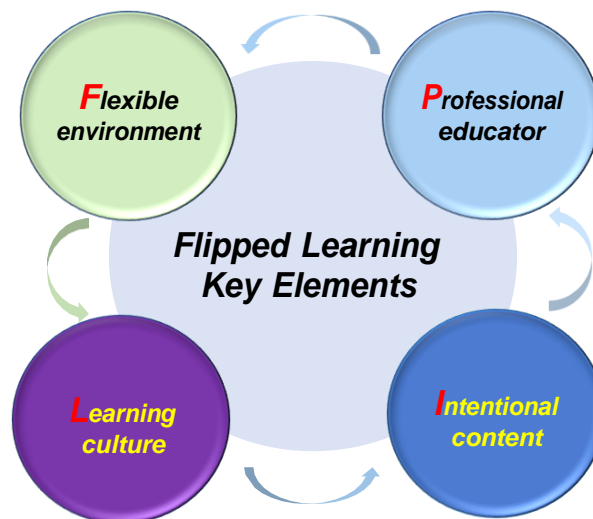


Figure 1. Flipped Learning Key Elements (Adapted from flippedlearning.org/domain.46)

(1) Flexible Environment

Flipped learning provides a flexible learning environment in which various learning methods can be used. Instructors often rearrange learning spaces according to the learning unit or content or allow group activities or independent study. Instructors make the space flexible so that students can learn anytime and anywhere.

(2) Learning Culture

In flipped learning, the subject of learning becomes the student, forming a learner-centered learning culture. In existing traditional instructor-centered classes, the instructor is at the center of the class, as a person with important information about the learning content. However, in flipped learning, the focus shifts to the students, as they actively contemplate the topic and learn more deeply, thereby creating increased learning opportunities. Therefore, students are not only actively involved in fully acquiring the knowledge they have learned but also attributing personal meaning to it.

(3) Intentional Content

Although flipped learning is a learner-centered approach, the learning content is selected by the instructor. Therefore, instructors should design the class well in the intended direction so that the learning content can be acquired well. In flipped learning, instructors always consider how to apply the class model and how to make it easier for students to understand concepts or learning content. To apply a student-centered teaching method, instructors use active learning strategies according to the level of students and the content of the curriculum, and use class materials so that students can learn the intended learning content.

(4) Professional Educator

In flipped learning, more specialized instructors are required compared to traditional classes. In class, instructors should constantly observe the students, provide feedback at every moment, and evaluate their activities. Professors should also relate to each other and accept constructive criticism so that specialized instructors can reflect on the class and improve their understanding of learning content.

2.2 Features of Flipped Learning

The educational advantages and usefulness expected when flipped learning is applied IN university education are summarized as follows.

First, learners who are passive in lecture-style classes become active learners as the subject of the class. Because flipped learning is based on learners' self-directed participation activities, learners act as voluntarily active learners in the process of pre-study through videos and, subsequently, perform learner-centered learning activities in the classroom (Cheng, S. C., Hwang, G. J., & Lai, C. L. 2022). Second, various interactions and communication activities are promoted between instructors and learners and between learners. In the process of conducting question-and-answer activities with learners who have already watched videos or checking and feedbacking the progress of learning by the team, instructors have more conversations with learners than in traditional classes (Lindeiner-Stráský, K. V., Stickler, U., Winchester, S. 2022). Third, the understanding of the learning content is improved by repeatedly learning the contents of the class through online and offline activities and performing in-depth supplementary activities. In instructor-centered lectures, there is no opportunity to review content when the instructor's real-time class lecture is over. However, in flipped learning, online videos can be repeatedly learned, and in the classroom, in-depth discussions, applications, and problem-solving activities are carried out based on the learned content so that the learning content can be understood more deeply (Eryilmaz, M., Cigdemoglu, C. 2019). Fourth, concentration in class increases, motivation improves, and attitudes toward class also change

positively and actively. In flipped learning, learner-centered participatory classes are conducted; therefore, learners cannot passively listen to lectures or doze off. During activity-oriented teaching and learning that involves constant performance, learners become immersed in the class, and they become more actively engaged (Hwang, G. J., Chang, S. C., Song, Y., Hsieh, M. C. 2021). Fifth, it is possible to enhance learners' self-directed learning skills by participating in online pre-learning and various activities in the classroom as subjects. To pre-learn the video courses provided, one must autonomously adjust one's schedule to self-study. In addition, confidence and self-directed learning ability can be improved in this process because one has to participate in content understanding and team activities rather than listening to someone's lectures in the classroom (Chiang, T. H. C. 2018).

2.3 Teaching Structure of Flipped Learning

Traditional education involves lectures where instructors explain the topics during class, followed by learners independently completing assignments after the class. This educational approach, being professor-centered, has limitations in motivating learners and enhancing learning outcomes. Unlike this, the overall level of learning performance improves because learners self-directedly prepare e-learning content for topics produced by instructors and apply the learned knowledge to actual problem solving or in-depth learning activities in actual classes (Jdaitawi

M. 2019). As such, owing to the nature of flipped learning, academic achievement can be maximized by using information technology. Rather than a unilateral instructor-centered lecture, this effect can be achieved only by making the most of the data provided before class and inducing sufficient interaction between learners during class (Elmaadaway, M. A. N. 2018).

2.4 Evaluation Criteria in Discussion-Based Learning (DBL)

The teaching method used in this study for Korean grammar classes was based on Discussion-Based Learning (DBL) with a foundation in flipped learning. This research adopts DBL as it naturally facilitates learners' active participation and the extraction of knowledge and experiences through the utilization of time and space. This approach involves learners prestudying online and actively participating in classroom discussions. It is applied in actual teaching situations to clarify ambiguous points and promote mutual understanding through discussion. In this context, DBL refers to a learner-centered teaching method that enhances learners' social decision-making skills and higher-order thinking abilities during the process of recognizing and reaching a consensus on thoughts among diverse members through discussions. In other words, it is an instructional method in which educators and learners exchange experiences, knowledge, and ideas through verbal communication, fostering problem-solving, analytical, and creative skills, and ultimately aiming to enhance communication skills.

Through DBL, students gather the necessary information to solve presented problems, analyze the collected data, and develop logical reasoning to support their arguments. Furthermore, they learn to understand the core of others' presentations, gain insight into situations, and enhance creative problem-solving skills, as well as persuasive communication skills, through the process of convincing others of their own logic. Despite its numerous advantages, DBL has not yet been widely implemented in universities. Traditional lecture-based education is the predominant method used in large classrooms. External factors make it challenging to conduct discussion-based classes; however, another critical factor is that many professors are not accustomed to this teaching style.

DBL has several advantages. However, the professor's role is crucial in ensuring the success of discussion-based classes. Professors must guide discussions, provide appropriate responses to unexpected situations, and ensure that discussions maintain direction. Discussion-based teaching methods can be applied in various ways and interconnected with other teaching methods to promote group participation, expand perspectives on problems, and understand others' viewpoints and opinions. This not only facilitates active participation and the natural extraction of knowledge and experiences but also proves to be a useful method for clarifying unclear points and promoting mutual understanding.

This type of learning has many advantages, but it has not been actively implemented in universities, possibly because of factors such as the slow pace of class progress and the potential loss of direction during discussions. Therefore, the professor's role is crucial in guiding and ensuring that the discussion progresses smoothly, even in unexpected situations. To develop effective discussion-based teaching methods, it is essential to establish appropriate evaluation criteria. For Korean grammar students, the evaluation criteria include:

- 1) Preparation: Has the student adequately prepared the materials and information for the discussion?
- 2) Participation: Did the student actively participate in the discussion?
- 3) Communication Skills: Did the student express their opinions persuasively?
- 4) Contribution: Did the student play a key role in deriving the final resolution of the discussion?
- 5) Attitude Towards Discussion: Did the student conduct the discussion while respecting others' opinions?

2.5 Academic Resilience

Academic resilience refers to the ability to attain high levels of academic achievement, have high motivation and interest in school life, and faithfully follow school norms, even in the face of adversity. Regarding

resilience in school, Havighurst (1972) stated that the characteristics of students with academic resilience, from the perspective of the development process, are high levels of academic achievement, being well-matched with peers, and maintaining positive behavior in school activities. In addition, Hernandez (1993) emphasized that in defining academic resilience, it is necessary to consider not only high achievement motivation or performance but also complex qualities and abilities that are positively related to success in school and subsequent achievement in the field of work. Therefore, students overcome stressful situations, maintain high academic achievement, are highly motivated for school, and engage in socially responsible behavior in interpersonal situations.

3. Research Method

3.1 Study Design

A survey was designed and conducted for this study. The participants of this study were foreign students attending the Department of Global Korean Studies at S University, located in city A, who aimed to become Korean language teachers after graduation. The researchers conducted a study with a limited number of students over a semester. Because it was not possible to recruit sufficient participants to obtain generalizable research results using random sampling, the participants were recruited using convenience sampling. The study was fully explained to all students enrolled in the flipped learning course, and all applicants who agreed to participate were recruited. Ultimately, 44 male of 16 and female of 28 college students participated in this study. A structured questionnaire survey was administered before and after the flipped learning lectures. Before conducting the study, the researcher obtained consent after fully explaining the title of the study, its purpose, schedule, time of participation, and the researcher's contact details. In addition, the researcher explained to the participants that participation was voluntary, that it was possible to withdraw consent, and that there would be no disadvantage if consent was withdrawn. It was explained that if the participants stopped or withdrew from the study, the collected information would be discarded. Moreover, it was also explained that any personal information collected from participants would be encrypted and protected, maintained for three years after the end of the research, and then destroyed so that it could not be recovered.

3.2 Research Procedure

Based on previous studies, such as Winfield (1991), Alva (2001), academic resilience can be defined as the ability to effectively handle study failures, stress, and pressure in the context of study. To this end, e-learning content was loaded onto the school's LMS server from March to June 2023, and discussion classes were conducted after the prior learning. One hour of the three-hour class consisted of cyber lectures as pre-learning, and two hours of face-to-face education consisted of question-and-answer and mini-lectures, group discussions and individual learning, group presentations and group discussions, professor feedback, and discussion paper submissions. To help students understand the discussion class using flipped learning, an orientation was conducted in the first week of the semester. Cyber lectures were approximately 30 min long, and lectures could be taken on the corresponding week on the cyber campus and watched repeatedly until the end of the semester for review. The discussion class using flipped learning, which will be held this semester, aimed to encourage students to take the lead in learning and increase their academic elasticity. It also explained the concepts and characteristics of flipped learning, guided the flipped learning class method that would take place during the semester, and explained how to use the content, how to perform tasks, the role of instructors, and the activities that learners should perform. Table 1 presents an example of a discussion class overview on this subject.

Table 1. Overview of Discussion Classes Using Flipped Learning in Korean Grammar Class

Week	Subject of a class	Pre-study Learning Contents	Discussion and Learner Activities				
		1. Korean Sentence Components	Let's look at the following example sentences and make two examples that fit the sentence structure and discuss why.				
			<table border="1"> <thead> <tr> <th>Sentence Structure</th> <th>Example</th> </tr> </thead> <tbody> <tr> <td>2. Basic Sentence Subject+Verb</td> <td>The sky is blue. The flowers have bloomed.</td> </tr> </tbody> </table>	Sentence Structure	Example	2. Basic Sentence Subject+Verb	The sky is blue. The flowers have bloomed.
Sentence Structure	Example						
2. Basic Sentence Subject+Verb	The sky is blue. The flowers have bloomed.						

5	Korean sentence structure	Types in Korean and Example Sentence	Subject+Object+Verb	I eat bread
			Subject+Complement+Verb	He has become an adult. The student is not a soldier.
			Subject+Object+ Obligatory Adverbial Phrase +Verb	Orange is different from Hallabong.
			Subject+Object+Adverbial Phrase +Verb	My parents raised me to become a professor
			Subject+ Adverbial Phrase +Object+Verb	I gave a gift to my friend.

Before learning the content presented in Table 1, the learners were introduced to sentence components. Subsequently, they attended an online lecture on sentence structure and were given time, organized into groups, to create example sentences. Within a sentence, there are components serving specific grammatical functions that form its backbone. These include the main clause, which constitutes the core and expresses the main idea with a subject and verb. Additionally, subordinate clauses, also known as modifying or dependent clauses, supplement and qualify the main clause. Finally, clauses exist independent of other sentence elements. Having pre-learned the theory of these sentence components, the learners were tasked with creating group-specific example sentences based on the sentence components of Korean, as shown in Table 1. Subsequently, they engaged in discussions on the sentence structures of their examples and explored the reasons for their chosen structures.

A Korean sentence consists of at least one subject and predicate. In Korean, the subject precedes the predicate. The basic sentence structure in Korean is formed by the interplay between subject, predicate, object, complement, and adverb. The subject is the agent of the action or the target of the state or attribute expressed by the predicate, whereas the predicate describes the subject or object. The object is the target of the action represented by the predicate and the complement provides additional information about the predicate. Additionally, adverbs indicate the place, time, cause, materials, and tools used in the action expressed by the predicate.

The first sentence structure in Table 1 is subject + predicate. This corresponds to the most basic structure of Korean, in which the predicate is composed of a verb or adjective. However, only intransitive verbs that do not require an object can be used in this structure. The second sentence structure in Table 1 is subject + object + predicate. In this case, a transitive verb that takes an object is used as the predicate. The third sentence structure in Table 1 is subject + complement + predicate structure. In this case, the complement is a word that supplements an incomplete meaning in a sentence in which the subject and predicate alone cannot convey a complete sense. In other words, it is a sentence component required by predicates such as “become” and “not be,” among the predicates that are used as the main verb. The fourth sentence structure in Table 1 is subject + obligatory adverbial phrase + predicate structure. In this structure, the predicate requires an adverbial phrase to complement the sentence. Verbs such as “give, differ, be the same, arise, resemble, fight,” among others, may appear to be intransitive, but because they require an adverbial phrase, the adverbial phrase used in such cases is referred to as an obligatory adverbial phrase. The fifth sentence structure in Table 1 is subject + adverbial phrase + object + predicate. In this case, the adverbial phrase is not obligatory, unlike the fourth obligatory adverbial phrase. It functions as a sentence component that modifies verbs and is not essential for the construction of a sentence. Therefore, it falls under the category of subordinate elements. Additionally, as indicated in the sixth sentence structure in Table 1, the positions of the object and adverbial phrase can be swapped.

After understanding the basic structure of Korean sentences, as shown in Table 1, we analyzed the sentence structures and components in literary works and K-pop lyrics and grouped them accordingly. For example, we presented the following team project:

The team project was as follows:

For each module, let's extract and analyze sentences from literary works and K-pop, as shown in the “Example” below. The relationships and structures of the sentences were analyzed and discussed.

“The girl is standing by the stream, locking her hands and playing with water. - Hwang Sunwon (1953), “Shower,” a novel -”

This sentence is a compound, specifically, a coordinate sentence. The antecedent clause “The girl” functions as the subject, “by the stream” as an adverbial phrase, “her hands” as the object, and “locking” as the predicate. The subsequent clause has an omitted subject, which is “The girl,” and “playing with water” is the

predicate, while “her hands” serves as the object. Additionally, “locking” is a form combining the verb “lock” and the conjunctive ending

“-고” connecting the antecedent and subsequent clauses. Thus, we recognize that this is a coordinate sentence.

3.3 Academic Resilience Test Tool

Data were collected from March to June 2023 through surveys using offline questionnaires. Data were collected after the purpose of this study, survey contents, confidentiality of personal information, voluntary participation in the study, and no disadvantages of dropout during study participation. A structured questionnaire consisting of 29 questions on academic elasticity was used in this study. The Academic Elasticity Scale developed by Kim Nuri (2009) was used to measure academic elasticity. The Academic Resilience Scale comprises a total of 29 questions, as presented in Table 2. The sub-factors include the following six components: learning control, friend support, self-control, positive attitude, task responsibility, and parental support. All questions are structured on a Likert scale ranging from “It's not quite.(1 point)” to “It's very much so.(5 points).” The scores range from a minimum of 29 to a maximum of 145. A high score indicates a high level of subacademic resilience.

Learning control includes engraving new learning goals and resolutions and setting and adjusting time or schedule plans. Friend support includes spending time with friends, talking, opening up about problems, and finding friends to help with problems. Self-control includes recalling successful learning experiences and strengths, checking school-life behavior, controlling emotions, accepting difficult situations as part of life, and feeling liberated after exams. Positive attitudes include believing in oneself, instilling courage in oneself, and not giving up easily, even if one feels frustrated with studying with confidence. Task responsibility includes completing a given task well to the end on one’s own and studying silently without delaying it for others. Parent support includes solving problems with parents, listening to parents' warm encouragement, encouraging them, talking to them often, and recalling their expectations. In Kim's (2009) study, the reliability of the tool was Cronbach's =.72 to .78.

Table 2. Overview of Discussion Classes Using Flipped Learning in Korean Grammar Classes

No	Statements	Strongly disagree	Disagree	Neutral	Agree	Strogly agree
1	I believe in myself.					
2	I set new learning goals.					
3	Reminds me of a learning experience where I was successful.					
4	I do well on assigned assignments or studies on my own.					
5	I spend a lot of time with my friends.					
6	I work out problems or difficulties with my parents.					
7	I think I'm living a happy life.					
8	I reschedule my time plan or schedule.					
9	I recall my strengths.					
10	Even in the difficult school life, I do my job until the end.					
11	I have time to hang out with my friends.					
12	I gain strength by listening to my parents' warm encouragement.					
13	I instill courage in myself.					
14	I make a study plan.					
15	I check my behavior in school life.					
16	I don't delegate assignments to others.					
17	I talk with my friends.					
18	I talk to my parents often.					
19	I have confidence in my studies.					
20	I make a new resolution.					
21	I try to control my emotions.					
22	I consistently work on the tasks assigned to me.					
23	I open up about my problems to my friends.					
24	I remember the expectations my parents placed on me.					
25	Even when I feel frustrated, I don't give up easily.					
26	I control my study time myself.					
27	I accept difficult situations as part of life.					

28	I look for friends to help me with my problems.					
29	I recall feeling liberated after an exam.					

The survey methodology employed in this study utilized the Resilience Scale, which is characterized by its distinctive feature of quantifying responses by placing positive and negative attributes at opposite ends. Commonly used in surveys, this approach primarily focuses on ranking opinions or attitudes on a scale that typically ranges from strongly agree to strongly disagree. Respondents quantitatively expressed their attitudes toward the research's focal point, "academic resilience," through a survey similar to the one presented in Table 2.

3.4 Statistical Analysis

Frequency analysis was performed to understand the general characteristics of the study participants and analyze the frequency and percentage. For the quantitative analysis of the collected data, a response sample t-verification was conducted to determine the effect of discussion classes using flipped learning on the discussion efficacy and academic elasticity of foreign students. Data were analyzed using SPSS (version 23.0; IBM Co., Armonk, NY, USA), and statistical significance was defined as $p < 0.05$.

4. Results

4.1 General Characteristics of the Participants

The general characteristics of the study participants are shown in Table 3. The gender distribution was confirmed as 28 women (63.6%) and 16 men (36.4%). The grade distribution was in the order of 2nd, 3rd, 1st, and 4th graders. Vietnam had the highest number of foreign students (54.5%) with 24 foreign students.

Table 3. General Characteristics of the Participants

(n=44)

General Characteristics		N	%
Gender	Male	16	36.4
	Female	28	63.6
School year	1	7	15.9
	2	20	45.5
	3	11	25.0
	4	6	13.6
Nationality	Japan	4	9.1
	China	4	9.1
	Vietnam	24	54.5
	India	2	4.5
	Nepal	5	11.4
	Philippine	1	2.3
	Uzbekistan	4	9.1

4.2 The Effect of Discussion Class Using Flipped Learning on Academic Resilience of Foreign Students

As shown in Table 3, looking at the detailed items of academic resilience, learning control increased from a pre-test average of 3.52 (SD=0.75) to a post-test average of 3.71 (SD=0.79), but no statistically significant difference was confirmed. Friend support increased from a pre-test average of 3.28 (SD=0.59) to a post-test average of 3.51 (SD=0.78), and similarly, no statistically significant difference was identified. Self-control increased from a pre-test average of 3.51 (SD=0.64) to a post-test average of 3.91 (SD=0.56), which showed a statistically significant difference at the significance 0.002 level ($t=-3.282$). Positive attitude increased from a pre-test average of 3.59 (SD=0.85) to a post-test average of 3.91 (SD=0.77), which showed a statistically significant difference at the significance 0.011 level ($t=-2.675$). Task responsibility increased significantly from a pre-inspection average of 3.51 (SD = 0.71) to a post-inspection average of 4.07 (SD = 0.62), which showed a statistically significant difference at the 0.001 level ($t=-4.466$). Parent support increased significantly from a pre-test average of 3.41 (SD = 0.95) to a post-test average of 3.72 (SD = 0.96), which showed a statistically significant difference at the 0.040 level ($t=-2.113$). Thus, the results suggest that discussion classes using flipped learning are effective in improving foreign students' academic elasticity. Significant effects were confirmed for sub-items such as self-control, positive attitude, task responsibility, and parental support.

Table 4. Results of PrePost-Research on Academic Resilience of Foreign Students
(n=44)

Classification		Average	Standard deviation	t	P-value
Learning control	Pretest	3.52	0.75	-1.337	0.188
	Posttest	3.71	0.79		
Friend support	Pretest	3.28	0.59	-1.808	0.078
	Posttest	3.51	0.78		
Self-control	Pretest	3.51	0.64	-3.282	0.002
	Posttest	3.91	0.56		
Positive attitude	Pretest	3.59	0.85	-2.675	0.011
	Posttest	3.91	0.77		
Task responsibility	Pretest	3.51	0.71	-4.466	0.001>
	Posttest	4.07	0.62		
Parental support	Pretest	3.41	0.95	-2.113	0.040
	Posttest	3.72	0.96		

Obtained by paired t-test

5. Discussion

The results of this study showed that the positive influence of discussion classes based on flipped learning on the improvement of students' discussion effectiveness could not be confirmed. These results are in line with those of previous studies that have verified the effectiveness of flipped learning. In those studies, the effectiveness of flipped learning could not be confirmed because of students' lack of adaptation or resistance to flipped learning, lack of time to adapt to changes in teaching and learning methods, and lack of self-directed learning skills (K. Y. Lee., 2019). Therefore, what determines the success or failure of learning in flipped learning is whether video lectures are appropriate to the learner's level outside the classroom and learner-centered activities such as appropriate application, analysis, evaluation and creation inside the classroom.

By contrast, many studies have reported that flipped learning improves learning outcomes. Flipped learning has the advantage of allowing learners to learn at their own pace, as it is possible to repeat learning by rewatching parts of the content that are not understood or are missing (H. S. Lee., 2021). It also changes the relationship between teachers and learners, allowing students to learn independently and teachers to become facilitators or guides to help them learn. In particular, student participation in class can increase. Students could understand the content of the class through video lectures before class and participate in the class, thereby increasing their motivation and performance. In addition, flipped learning allows teachers to provide individual instruction in a more leisurely way by conducting individual or group activities during class time. Additionally, the interaction among learners can become more active, which can increase the teacher's understanding of the students and their satisfaction with the class. Therefore, in order to maximize the benefits of flipped learning, further research is needed to design effective subjects by taking into account the characteristics and classroom environment of foreign students.

Academic resilience is the personal ability of learners to overcome adversity in academic situations, and academically resilient students show a high level of achievement motivation and learning performance in academic stress situations. The results of this study confirm that flipped learning-based discussion classes have a positive effect on the academic elasticity of learners (K. Y. Lee.,2019). These results are in line with the results of research on Korean students in previous studies. In flipped learning, it is widely known that pre-learning can help group discussions, help students cooperate well with friends, better understand the class, focus on the class, and build practical knowledge by expressing what they have learned in words. To increase learners' academic elasticity, instructional strategies and operations that can positively affect learning outcomes are required, and the theoretical focus should be on improving learners' ability to apply and utilize learned knowledge in practice. Students in the Global Korean Studies department, who have taken the Korean Grammar course, will need a significant effort to enhance academic flexibility, especially as they will be teaching foreign students in the future: therefore, efforts to increase academic elasticity are required.

According to the February 2023 monthly statistical report released by the Ministry of Justice's Immigration and Foreign Affairs Policy Headquarters, by the end of February, the total number of foreign students, including those for language training purposes, was 205,167. The number of foreign students has exploded owing to the influence of the Korean Wave, but systematic support at the university level seems insufficient.

For foreign students, discussion is an essential communication skill required in domestic university mathematics courses (Y. M. Ko., 2022). According to previous studies that analyzed the journals of international students, the demand for discussion was the highest in all activities except listening to lectures related to studies (Y. I Kim., 2017). In order to improve the discussion skills of foreign students, practical discussion class methods suitable for learners' tendencies and levels are needed in consideration of the limitations of students. By providing foreign students with appropriate scaffolding settings, they should be able to participate in discussions. Until now, research on improving the quality of classes for foreign students studying at domestic universities has been insufficient. As in this study, a class case study analyzing foreign students is expected to help improve the international competitiveness of domestic universities suffering from a decrease in the school-age population.

5. Conclusion

According to the research results, the international students who took the discussion class using flipped learning reported positive changes in the subcategories of academic resilience: "self-control," "positive attitude," "task responsibility," and "parental support." This result was statistically significant. In conclusion, the flipped classroom was effective at improving international students' academic resilience.

In the era we are currently living in and in the future, digital literacy, the ability to understand and utilize computer and IT technology, will be essential. Digital literacy refers to a high level of understanding and proficiency in computer and IT skills. In the age of the Fourth Industrial Revolution, a learning method based on debate, such as flipped learning, is considered a crucial teaching approach for learners. Through this research, it can be argued that active problem-solving attitudes, collaborative approaches with fellow learners, and a sense of responsibility for practical learning and its outcomes are elements that can be acquired through flipped learning based on debate, which is highly necessary for learners in the future.

The limitations of this study and suggestions for follow-up research are as follows: First, because this study only applied flipped learning classes to students from global Korean studies in some regions, it is necessary to apply them to more foreign students and verify their effectiveness for future generalization. Second, prior studies have shown that the educational value of discussion classes using flipped learning varies; therefore, follow-up studies need to verify the educational effects of flipped learning from various angles by examining the effects of foreign students' nationality, propensity to cooperate, self-efficacy, and self-directed learning ability. Third, this study verifies the effectiveness of discussion classes using flipped learning in increasing the discussion efficacy and academic elasticity of foreign students. Future studies are needed to examine the effects of flipped learning by combining various student-centered learning activities such as quizzes, games, problem-oriented learning, and project activities. Fourth, most respondents were female (63.6%). Previous studies have reported that gender differences among college students affect academic-related indicators, such as academic achievement and motivation. Therefore, follow-up research is needed to present findings that eliminate gender bias.

Acknowledgement

This paper received research funding from Sunmoon University, Republic of Korea, in 2019 to support a newly appointed professor's research project.

References

1. Alva, S.A. Academic invulnerability among Mexican-American students importance of protective resources and appraisals. *Hispanic Journal of Behavioral Sciences*, 13, 19-34, 2001
2. Bergmann, J. & Sams, A. *Flip your classroom: Reach every student in every class every day*. Oregon: ISTE, 2012 Bergman, J. "The second hurdle to flipping your class." *Flipped Learning Global Initiative*: Irvine, CA, USA, 2013 Bergmann, J. & Sams, A. *Flipped learning: Gateway to student engagement*. International Society for Technology in Education, 2014
3. Cheng, S. C., Hwang, G. J., & Lai, C. L., Critical research advancements of flipped learning: A review of the top 100 highly cited papers. *Interactive Learning Environments*, 30(9), 1751-1767, 2022
4. Chiang, T. H. C., Analysis of learning behavior in a flipped programming classroom adopting problem-solving strategies. In *Learning Analytics*, pp. 47-60, 2018
5. Elmaadawy, M. A. N., The effects of a flipped classroom approach on class engagement and skill performance in a blackboard course. *British Journal of Educational Technology*, 49(3), 479-491, 2018
6. Eryilmaz, M., Cigdemoglu, C., Individual flipped learning and cooperative flipped learning: Their effects on students' performance, social, and computer anxiety. *Interactive Learning Environments*, 27(4), 432-442, 2019
7. Gray, J. P., The relations of teacher education, student' resiliency, work, motivation, and school-level resilience, *Doctoral Dissertation*, University of Houston, 2001
8. H. S. Lee., *A Study on the Application Method of Learner-Oriented Military Spiritual Combat Power*

- Education-With a Focus on Flipped Learning, *Psychological Power Research*, (64), 215-256, 2021
10. Havighurst, R. J. *Developmental tasks and education*; New York, D. McKay Co, 1972
 11. Hwang, G. J., Chang, S. C., Song, Y., Hsieh, M. C. Powering up flipped learning: An online learning environment with a concept map-guided problem-posing strategy. *Journal of Computer Assisted Learning*, 37(2), 429-445, 2021
 12. J. B. Choi E. & K. Kim, Developing a Teaching-Learning Model for Flipped Learning for Institutes of Technology and a Case of Operation of a Subject, *Journal of Engineering Education Research*, 18(2), 77-88, 2015
 13. Jdaitawi M. Effect of flipped classroom strategy on students' learning outcomes. *International Journal of Instruction*, 12(3), 665-680, 2019
 14. K.Y. Lee, The Effects of Discussion Classes Using Flipped Learning in an Early Childhood Education on the Passion for Teaching and Academic Resilience of Pre-Service Early Childhood Teachers, *Children's Media Research*, Vol 18, No 3, pp.27-57, 2019
 15. Lindeiner-Stráský, K. V., Stickler, U., Winchester, S., Flipping the flipped. The concept of flipped learning in an online teaching environment. *Open Learning: The Journal of Open, Distance and e-Learning*, 37(3), 288-304, 2022
 16. Martin, A. J. & Marsh, H. W Academic resilience and its psychological and educational correlates: A construct validity approach. *Psychology in the Schools*, 43(3), 267-281, 2004
 17. Martin, A. J. & Marsh, H. W Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology*, 46(1), 53-83, 2008
 18. N. R. Kim, A Study on the Development and Validity of the Scale of Academic Resilience, Graduate School of Sookmyung Women's University, PhD thesis, 2009.
 19. Wang, M.C., Heartel, G.D. & Walberg, H.J, Educational resilience in inner cities. in M. C. Wang & E. W. Gordon (Eds.), *Educational resilience in inner cities in America: Challenges and prospects* (pp.45-72). Hillsdale, NJ: Lawrence Erlbaum.
 20. Winfeild, L. A, *The resilient self: How survivors of troubled families rise above adversity*. New York: Villard, 1991
 21. Y. I Kim, A Study on Debate Class Plans for Foreign Students - Focusing on Activities in the Pre-debate Stage, *Korean Journal of General Education*, 11(6), 93-133, 2017
 22. Y. M. Ko., Effects of flipped learning-based coaching class activities on the perception and satisfaction of college English learners. *Korean Journal of General Education*, 16(3), 135-150, 2022