The Flipped Classroom Model of Japanese Teaching Based on Intelligent Decision-Making System

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Invert the model of learning in the classroom as a new model in the field of education as modern Internet technologies develop and the concept of learning is updated. It is widely used and promoted in various disciplines. Scholars and front-line teachers have begun to try to introduce the flipped classroom teaching model into language classrooms. With this opportunity, practical studies on flipping classes in foreign languages have emerged. At the same time, the study of the learning process in the classroom has become a problem that needs to be urgently addressed. At present, the linguistic field generally regards the specific teacher-student discourse interaction and verbal communication patterns in the teaching process as a research trend. For the Japanese teaching field, the research on the specific characteristics and patterns of teacher-student verbal communication in classroom discourse is a top priority. Drawing on previous research theories and research methods, the two key research topics are combined. Taking the foreign language curriculum under two different classroom teaching modes as the empirical research object, this paper studies the specific classroom teaching process by using the interaction theory of sociology. At the same time, it uses the Flanders Interaction Analysis System (FIAS) to conduct detailed quantitative research on the interaction of teachers and students in classroom discourse, and analyze and discuss the statistical results. The relevant teaching suggestions for the application of the Japanese flipped classroom teaching mode are put forward, and the problems that must be paid attention to in the practical application are pointed out, in order to provide meaningful reference and reference for the construction of the Japanese teaching mode.

1. Introduction

With the popularization of the Internet, the deep integration of intelligence, digital technology, and education has become possible, which can change the classroom learning mode and has been widely used in college classroom teaching. Figure 1 shows the comparison between flipped classroom and traditional classroom. Traditional foreign language teaching in colleges and universities has common problems of varying degrees, which is time-consuming and inefficient, and the teaching quality is always uneven. It is difficult to make significant progress and breakthroughs in the teaching effect, resulting in a decline in students’ enthusiasm for learning. In the era of big data, the flipped classroom is in line with the characteristics and demands of the times, learning resources are richer, and exchange mechanisms are becoming more sophisticated. Especially with the strong support of the school and the protection of mature network technology conditions, it can fully give students the autonomy of learning and the right to explore. It highlights bidirectionality, democracy, and communication; brings a new teaching experience; and realizes the comprehensive internalization of learning Japanese knowledge. The interpretation of flipped classroom by many scholars is not uniform, mainly due to the different expressions and definition angles. In essence, the connotation and implementation process of flipped classroom tend to be the same. On the one hand, the process from learning knowledge to internalizing knowledge is still the main theme. No matter how innovative it is, it is the structure rather than the process that is flipped [1]. Active learning becomes the norm, and communication, interaction between teachers and students in the classroom...
Before
Have a class in the classroom
and listen to lectures
Discuss
answer questions and
do homework in the classroom
Go home
do your homework,
practice
Online classes at home
Listen to the lecture

Now
Intelligent Decision-Making System

Figure 1: Comparison of flipped classroom and traditional classroom.

The transformation of the roles and functions of teachers and students is extremely beneficial to the cultivation of students’ autonomous learning ability, which not only conforms to the trend and actual needs of language teaching but also greatly increases the enthusiasm of students.

2. Literature Review

Flip class is also a concept and teaching method rising in recent years. Zhou et al. stated that the so-called flipped classroom is to reverse the original classroom style and readjust the teaching mode inside and outside the classroom, which is a revolution to the traditional classroom “paradigm” [2]. Zhang et al. believe that it subverts the traditional teaching process. The traditional teaching mode is that teachers teach in class, and students digest and improve through self-practice after class. The flipped classroom is to let students become the main body and lead, self-learning and personalized learning before class, while teachers become guides and assistants to guide students to internalize knowledge in the classroom. The teaching reform based on the concept of flipped classroom has received extensive attention and research from the teaching field [3]. For example, Feng, T. et al. discussed the design of the teaching model of the knowledge internalization process in the flipped classroom, and proposed that according to the characteristics of progressive knowledge internalization and the three components of the flipped classroom, three levels of macro, meso, and micro should be considered comprehensively [4]. Afrilyasanti et al. aimed at the construction of the teaching quality evaluation system of the flipped classroom, and put forward the theoretical basis, basic principles, and construction of the evaluation system for the teaching quality evaluation system of the flipped classroom by referring to the analysis of the construction process of the evaluation system of the CDIO education model which is successful in the world [5]; Zhou et al. refined the process model of flipped classroom in six primary and secondary schools, analyzed the current practice form of flipped classroom, and reflected on the current situation of practice. Only when a suitable educational culture is formed in the school, the reverse order innovation can truly become the conclusion of a good recipe for teaching reform practice [6]; Liu et al. proposed that under the guidance of “student-centered” thinking, the inherent teaching thinking and curriculum teaching design concept should be changed to enhance students’ ability to think independently and obtain information, and analyzed the “flipped classroom” perspective. Three practical dimensions of the teaching reform of the next course [3]. Yulian et al. stated that with the promotion and application of information technology, intelligent decision-making systems are playing an increasingly important role in various fields, and it will also have a profound impact and change in the field of education [1]. Ekmecki et al. believe that how to make full use of the intelligent decision-making system combined with the teaching concept of flipped classroom, improve the problems existing in traditional classroom teaching, optimize and perfect the teaching content and structure, is the current main research direction [7]. Abdullah and others believe that traditional classroom teaching completely relies on teachers’ subjective judgments of students’ learning status and learning progress to formulate and adjust teaching. Most of them rely on teachers’ personal experience and subjective factors, and are easily affected by the external environment. The teaching decision based on the intelligent decision-making system mainly depends on the information reflected by the data. Through statistics and analysis of a large number of collected teaching data, objective conclusions are drawn based on the analysis and mining of big data of students’ autonomous learning behavior [8]. Dincer and others believe that this decision-making method can better grasp the learning effect of students and the degree of mastery of knowledge, so that the teaching content and process can be adjusted in time to achieve a more flexible and accurate teaching model [9].

3. Method

3.1. Design of Flipped Classroom Teaching Mode Based on Intelligent Decision-Making System

3.1.1. Overall Frame Design. The intelligent flipped classroom is an intelligent classroom teaching system based on the network resource database platform, teachers and
students, and learning activities. Its general structure is shown in Figure 2. The smart flip class architecture includes the whole class flip-learning process, network learning resources, auxiliary multimedia platform, and big data analysis in 4 parts.

The whole process of flipped classroom teaching: the whole learning process is based on the idea of flipped classroom learning and divides classroom learning into 3 parts before, in the classroom, and after class. The pre-class stage includes knowledge preview, teaching design, and student situation analysis; the in-class stage includes learning discussion, knowledge introduction, real-time monitoring, summary evaluation, and answering questions; and the post-class stage includes after-class practice, micro-class learning, and summary feedback.

Online learning resource platform: relying on the national teaching resource library, the platform takes a school as the main organizer and organization unit, and cooperates with many well-known colleges and universities across the country to jointly build hundreds of thousands of professional teaching resources such as courses, micro-courses, and material centers. There are thousands of professional courses, training courses, and micro courses on the Internet as a platform for users to learn, work, and reflect. It can meet the needs of users at different levels, such as students, teachers, and social educators. At the same time, teachers can also timely adjust the curriculum and content according to this platform in real time to master the student and the state [10, 11]. Based on this platform, pre-class online learning is carried out, using Internet links to update learning resources, and assigning heuristic questions before class. Teachers guide the exchange and learning of the online resource library platform in class, use the platform to arrange homework, set up open-ended questions and interest modules, guide students to broaden their horizons, enhance the interaction between teachers and students, and improve students’ enthusiasm for learning and discussion [12–14].

Auxiliary multimedia platform: the auxiliary multimedia platform is an application environment for intelligent flip class, an application platform for teachers and students, and an educational application support platform. It provides auxiliary learning, management and application service functions, and realizes support for teaching communication, resource transmission, and information services before, during, and after class.

Big data analysis. This part is the main part of the design and is mainly based on big data analysis technology, which allows scientific assessment of the quality of teaching and learning, final assessment and diagnostic analysis in decision-making, including testing systems, learning quality assessment systems, and dynamic assessment analysis.

3.1.2. Instructions of Teaching Process Design. Analysis and processing of data: the research group selected the main courses in the basic stage of Japanese majors—Japanese intensive reading, Japanese audio-visual, Japanese reading, and Japanese overview courses for reform attempts. Using Excel and Infographic as the basic data analysis tools, it can realize the analysis and processing of data type classification, cluster screening, and so on. Excel is the most commonly used information visualization tool, which can present the information contained in the data in the form of intuitive curve graphs, bar charts, or radar charts, and other analytical graphs. Infographic is a technology for visual display of information data, which can organically integrate information and images. Through information visualization, teachers can understand the hidden information content in complex data through intuitive information graphs, so as to scientifically grasp students’ learning situation and status information in a shorter time. At the same time, based on Excel and Infographic statistics of student data, and using the feature selection algorithm in machine learning to eliminate redundant and incomplete data, build a feature set...
library for students' individual learning, which is conducive for personalized guidance for students' learning conditions. At this stage, with the help of data mining technology and big datasets, by searching, extracting, and exchanging big data, integrating data of various types and structures, performing correlation analysis on various data, presenting statistical results in the form of visual interactive charts and mathematical models, and creating a database for analysis and learning, the database can also be used for analysis by other researchers in the field of education [15].

Independent study before class: the learning platforms of the national learning libraries are predominantly dominated in combination with Internet links that update the learning resources of the Internet. The national-level teaching resource library is favored by students in higher vocational colleges because of its professionalism, comprehensiveness, and interaction, and plays an active exemplary role in integrated teaching practice, vocational training, resource digitization, multimedia, and knowledge expansion. Students select the corresponding course resource library on the national teaching resource library platform, including various multimedia resources (pictures, texts, rich texts, web pages, engineering files in other formats, etc.). This allows learners to be familiar with relevant background knowledge and concepts in advance. By using students to study on the teaching resource library platform, the corresponding data records can be collected and statistics. For example, course subscription on the library platform, number of clicks, most visited type of resource, teacher-student interaction information, student feedback on issues, and more. Big data analysis draws the above data into a visual dynamic data graph, enabling educators to continuously improve the learning library according to students' learning needs and habits, as well as the challenges encountered in the preclass learning process so as to timely adjust courses and learning contents, achieve the best learning efficiency, and make it more in line with students' needs. Once students complete a self-paced course, they will be able to take an online test on the library platform. The data analysis tools Rapidminer and data mining tools are used to analyze the main learning problems of students. Through data collection and statistics, each data indicator is classified and analyzed to obtain common problems reflected by students [16]. Among them, one type of data indicator is the overall data information of the students, including the average score of the class, the accuracy rate of each question, and the number of revisions of each question; the other type of data indicators is the individual data information of the students, including answer time of each question, the score of each type of question, etc. Through data analysis, the results of statistical analysis are fed back to teachers. If the systematic analysis result obtained by a student is that the theoretical guidance score is higher than the average score, the free-play questions take a long time to answer, and the number of revisions is large, then under the guidance of data analysis, the teacher can understand the student's pre-class learning status and basis. It can be concluded that the student has a solid foundation, but the actual hands-on design ability is weak and lacks practice judgment in this regard. Teachers can adjust teaching content and methods accordingly, provide targeted guidance to students, and formulate personalized teaching plans that meet students' learning conditions and needs, so as to truly teach students in accordance with their aptitude. Teachers can also classify the characteristics formed by the data indicators, and use Infographic to draw a clear data analysis diagram. Comparing the learning situation of a specific student with the overall feature database can help students reflect on their own learning process and learning methods, adjust their learning habits, and help students develop a scientific and autonomous way of learning Japanese.

Guided learning in class: according to the conclusions drawn from big data and data mining analysis, teachers can guide and explain the common problems in the course of class learning, and use group discussions, hands-on exercises, project-driven and other methods to enable students to complete knowledge in class of confusion, consolidation, and internalization. At this stage, teachers focus mainly on the breakthrough in emphasis and learning content difficulties and provide targeted mentoring to students in need based on the findings of the feedback that was based on earlier big data. For example, some students have a weak foundation, and teachers need to use simple and easy-to-understand language when explaining theoretical explanations, and use vivid examples to deepen their understanding; some students have weak hands-on ability, and teachers can give more training in the practical stage chance. At the same time, teachers should also track and record students' learning situation and group discussions in a timely manner to form diversified and multi-type data information. This information constitutes a big data collection of students' classroom learning status. By mining students' learning behaviors and habits, and analyzing each student's different reactions to the classroom teaching contents at different explanation stages, teachers can clearly grasp which contents need more time to explain, which contents need to strengthen teaching, and which teaching examples and resources can stimulate students' interest and enthusiasm [17]. The learning behavior of each student may have particularity, but big data gather a large amount of data, and mine and present the implicit laws and trends of the overall data through data mining methods. By analyzing such laws and trends, we can get better classroom teaching effect, and improve teaching quality and teaching efficiency. Students in the Japanese learning stage can query different databases in the basic Japanese network according to their learning needs, and obtain information such as voice, vocabulary, grammar, articles, historical background, cultural background, etc., so as to solve problems in learning and realize independent learning in the classroom.

Consolidate learning after class: this stage is mainly for students to consolidate and expand their knowledge. According to the teaching content and students' mastery of learning, teachers arrange comprehensive exercises that meet the training objectives of the course, so that students can apply what they have learned, and can further consolidate and strengthen the learning effect. A professor's course is used as an example to illustrate. Familiarize yourself with the basic
grammatical structures of database instructions in the pre-course phase so that students know commonly used instruction forms. In the class, he focused on explaining database management skills, and carried out WEB database management operations based on actual engineering projects. In the post-class consolidation stage, by arranging exercises and conducting extended training for the problems that arise in the actual management process, students can freely implement a similar database management process to achieve the effect of analogy. Teachers use data analysis tools, graphs, and mathematical models to analyze student learning performance throughout the process. In addition, these data have good reference and reference value for other courses and educators.

3.1.3. Implementation Effect Analysis. The object of this study is a college of students, a total of 150 people. In order to understand whether the intelligent classroom learning model is useful for the overall learning process of students, a survey was conducted mainly on three aspects: whether it is effective to help students improve their independent learning ability, whether it is effective to help students improve their practical ability and internalize knowledge. The survey was conducted in a multimedia training classroom that can promote intelligent flipped classroom teaching. The survey results show that 74.58% of the students believe that this teaching mode is very helpful to improve their autonomous learning ability; 9.47% of students believe that this teaching mode is helpful to improve their autonomous learning ability. And, 89.28% of the students think this teaching mode is very helpful to improve their practical ability; 10.62% of the students think it is helpful (as shown in Figure 3). The results of the survey on knowledge internalization ability show that 82.46% of students believe that they have a deeper understanding of the knowledge they have learned and grasp it more firmly; 76.41% of students believe that it can stimulate their interest and enthusiasm for learning; 75.09% of the students thought that the improvement of knowledge internalization ability was helpful to improve the ability of learning, cooperation and exploration (as shown in Figure 4).

3.2. Introduction of Flanders Interactive Analysis System (FIAS)

3.2.1. Composition of FIAS. The Flanders Interaction Analysis System (FIAS) consists of three parts: (1) a set of coding systems that describe classroom interaction behaviors. (2) A set of prescribed standards for the coding of observations and records. (3) A matrix table used to display data, analyze data, and achieve research purposes.

3.2.2. Interactive Categories for FIAS. This system divides all teacher-student language interactions in the classroom into 10 categories, and these 10 categories belong to 3 major sections: teacher language, student language, and invalid language [18]. Among them, codes 1 to 7 are teacher language, that is, the type of speech teachers speak to students; codes 8 to 9 are student language, that is, the type of speech students speak to teachers; and the last code 10 is invalid language, that is, the quietness or confusion that may occur in the classroom, etc. The detailed interactive category introduction is shown in Table 1.

3.2.3. Determination of FIAS Speech Acts. The “indirect influence” behavior in teachers’ language can be divided into four categories. These behavioral categories belong to a more open teaching style. The first 3 categories are driven by students and can often cause students to actively express

![Figure 3: Statistical results of the survey on the help of learning ability. Note. The abscissas 1–4 are very helpful, certainly helpful, generally helpful and unhelpful, respectively.](image1)

![Figure 4: Statistical results of the investigation on the effect of knowledge internalization. Note. The abscissas 1–4 represent deeper knowledge understanding, firmer grasp, more interest, and longer memory time.](image2)
TABLE 1: Classification of Flanders Interactive Analysis System.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Code</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher language</td>
<td></td>
<td><em>Indirect effects</em></td>
</tr>
<tr>
<td>Student driven</td>
<td>1</td>
<td>Receiving student emotions: receiving and clarifying students’ attitudes or emotional tone in a nonthreatening way. This category, in which student emotions can be positive or negative, also includes projections or retrospectives of student emotions.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Praise or encourage student behavior: including jokes that ease tension without hurting people. Nod, or “ah,” or “go on.”</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Accept or use student ideas: refine, expand, or develop opinions or ideas expressed by students. This category includes teachers who expand the opinions or ideas of students, but are they in the fifth category when teachers show more personal opinions or ideas.</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Ask students questions: based on the opinions or ideas of teachers, ask students questions about content or steps and expect answers from them.</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Teachers’ explanation: provides facts or insights on steps or content; expresses the teacher’s own ideas, presents the teacher’s own interpretation, or cites the opinion of an authority (nonstudent).</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Give instructions or orders: this type of behavior has the function of expecting students to obey.</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>Critically criticize students or maintain authority: the content of the statement is an attempt to change the behavior of students and move from an unacceptable form to an acceptable one; scold students; explain why teachers behave in this way with extreme self-reference.</td>
</tr>
<tr>
<td>Student language</td>
<td></td>
<td><em>Direct impact (teacher initiative)</em></td>
</tr>
<tr>
<td>Teacher driven</td>
<td>8</td>
<td>Student discourse: the student speaks passively, such as answering the teacher’s questions. Teachers develop student responses, either by provoking them to speak or script dialogue, and students’ free expression of their ideas is limited.</td>
</tr>
<tr>
<td>Student initiative</td>
<td>9</td>
<td>Student discourse: students speak on their own initiative; express your thoughts, bring up new topics; freely express their opinions and ideas, as if they were asking questions of a conceivable nature; beyond the existing architecture.</td>
</tr>
</tbody>
</table>

| Invalid language | 10   | Quiet or chaotic; temporary pause, silence of time or chaos; so observers cannot understand the communication between teachers and students. |

Their wishes, while the “direct influence” behaviors, namely, the 5th, 6th, and 7th subcategories, belong to the structural teaching style, which is actively issued by teachers. Sometimes it restricts the range and emotions of students’ expression, and becomes a single cycle of one question and one answer. The static state in “invalid language” sometimes needs to be determined according to the actual classroom teaching situation, such as “reading the text with the recording, dictating,” and so on. Although they are classified as “invalid language,” they are actually meaningful for classroom learning but meaningless for teacher-student speech behavior observation. According to the actual teaching in the classroom in the experimental class in the flip class mode in the Chinese Teachers’ Training Center of a specific college, this paper codes the segments every 3 seconds, and identifies the difficult-to-determine behaviors in the classroom speech behaviors of teachers and students as follows:

1. If there are multiple classroom behaviors in the same 3 seconds, then according to the design requirements of this study, the main behaviors that occurred in these 3 seconds were recorded.

2. If the student’s question is only to clarify the teacher’s question, although he or she speaks actively, the question is generated in the dialogue situation given by the teacher, so it is still recorded as “8.”

3. There are three definitions of “invalid language”: (1) In the dozens of seconds before the start of the class and after the end of the class, the classroom behavior of teachers and students with static or chaotic footsteps is recorded as “10,” that is, “invalid language.” (2) While studying the text link, the teacher allows the students to follow the text to record; the students appear motionless while listening to the record, also written as “10.” (3) In the game link, if a situation arises when the student uses the native language of his or her country for explanation, and the teacher cannot understand the meaning in it, and the observer cannot recognize the connection between the teacher and the student, write it as “10.”

4. During the interaction between teachers and students in the speech act class, students act on their own initiative without provoking the teacher, such as asking questions to teachers and expressing their own opinions. These instances are recorded as “9,” that is, “students take the initiative to speak.”

5. The words that the teacher uses to give instructions during the exercise, including the teacher’s question, the teacher’s request to repeat it, or the request to continue, are recorded as “6,” that is, “instruction.”

6. Correction of errors made by the teacher to the words of students in the classroom, mainly consists in timely correction of students’ pronunciation, word errors, grammatical errors, and so on, and are recorded as “7,” that is criticism. However, in most cases, teachers’ criticism is based on encouragement, which is very
3.2.4. Improvements of the Flanders Interactive Analysis System (FIAS). The Flanders interactive analysis system has obvious structural and quantitative characteristics, and is an ideal technology for analyzing classroom behavior. However, this interactive analysis system also has major limitations in practical application, such as requiring observers to take samples every 3 seconds in the field and immediately write down the code. This is too difficult for the observer, and in most cases it cannot be done normally. With the leap of modern information technology to make data recording more accurate, Chinese scientists have made two improvements to Frances interactive analysis technology:

(1) The assignment method of the observation code is changed. The original on-site observation, sampling every 3 seconds, was changed to classroom record observation. Also taking 3 seconds as an observation unit, by constantly comparing the video and classroom records, we can find the meaning of the classroom language behavior corresponding to each time segment, and finally assign a value to the language behavior in each time segment.

(2) The analysis process is computerized. Most of the researchers have specially designed computer analysis programs according to the research content, completed the input and analysis of coding assignments, made tables according to the calculation results, and drawn the dynamic characteristic curves of the main parameters to make them more vivid and intuitive.

3.2.5. Variable Analysis with Flanders Interactive Analysis System (FIAS). Flanders (1970) combined the interaction analysis matrix method, and proposed the use of variable analysis method to further analyze the obtained data. He lists 13 indicators (i.e., variables) to explain the hidden meaning behind each teaching behavior. In the process of practical research, it is found that not every index is suitable for the research of this paper, so the author will select 6 of them for variable analysis. Then, according to the results of various data analyses, make a further summary, and try to summarize the interaction mode of Japanese classroom discourse under the flipped classroom teaching mode [19]. The Chinese translations of the variable names, English abbreviations, and norm of FIAS are shown in Table 2.

4. Results and Analysis

4.1. Analysis of the Implementation of Flipped Classroom

4.1.1. Course Resources. An important feature of the flipped classroom is that teachers provide students with resources such as course learning videos and tests before the course starts. In the survey, statistics were made on the sources of teachers’ curriculum resources, and teachers were asked to select 3 main source channels in sequence according to their actual situation from the 8 main source channels provided. Then, we weighted and ranked the results selected by teachers according to the importance of the options, and calculated the weight of each source channel. A higher ranking of weights means greater prevalence. As can be seen from Figure 5, among the main sources of teachers’ curriculum resources, “self-made video” ranks first, followed by “online search teaching video” and “school purchased teaching video resource library.” 85% of the respondents list “self-made video” as the first source of curriculum resources. At the same time, in the supplementary open questions, some teachers mentioned that the main source channels of their course videos are relatively concentrated. So there will not be multiple sources. In addition, some teachers also choose free resources of open courses at home and abroad to meet their teaching needs.

After the statistics of “how much course content has been converted into video,” it is found that there are significantly more people with a conversion rate of less than 50% than those with a conversion rate of more than 50%. At the same time, among those with a conversion rate of less than 50%, the majority of them chose 0–20%, and 11 teachers chose not to convert the course content into videos. In general, the rate of conversion of course content into video is not very high for the surveyed subjects [20].

4.1.2. Participation before Class. Different from the traditional classroom, in the flipped classroom teaching method, students need to study the course content before class. To this end, we investigated the students’ participation before class, mainly to understand the amount of tasks students studied before class and the frequency of video viewing. Judging from the statistical results of the time to complete pre-class learning tasks, the practice reported by the surveyed teachers for students to complete pre-class tasks is generally concentrated in 20 to 40 minutes, accounting for 45% of the total. 6% of the total tasks took more than 80 minutes to complete. 22% of the teachers surveyed also control the time for students to complete pre-class tasks to less than 20 minutes. There is a certain connection between teachers’ control of students’ task time before class and their own understanding of the role of pre-class learning. It should be noted that the time for the students to complete the pre-class tasks here is the result of the teacher’s estimation, and there will be a certain deviation from the actual completion time of the students. The actual degree of deviation needs to be known through surveys of students. Judging from the statistical results of the frequency of watching courses (Figure 6), the students who “required to watch a video before every class” and “required to watch a video every two classes on average” accounted for the majority, reflecting the high frequency of watching the course video. In addition, there are also groups who choose to watch lessons less frequently or even never watch videos. This reflects that teachers may still have different understandings on the form and meaning of flipped classrooms.
At the same time, more than half of the respondents agree that students of all levels can benefit from flipped classrooms. Compared with the above evaluation results, teachers’ choices in “improving students’ performance” are more conservative. Although the group that believes that there is no benefit accounts for a small part, the group who chooses significant and above benefits also does not account for the majority. More people opted for the “somewhat benefited” option, partly reflecting vague attitudes about it. The relationship between flipped classroom teaching and student achievement still needs to be discovered through further investigation and research. From the statistical results of teachers’ job satisfaction change data (Figure 8), it can be found that most of the surveyed teachers’ evaluation of their own work is positively affected by flipped classroom teaching, and 85% of the total number of teachers think that it has an improvement effect, of which the significantly

<table>
<thead>
<tr>
<th>variables</th>
<th>Abbreviation</th>
<th>Calculation formula</th>
<th>meaning and norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher speaking rate</td>
<td>TT</td>
<td>( \frac{\sum_{i=1}^{7} \text{Row}(i)}{\text{Total}} \times 100 )</td>
<td>The rate of teacher speaking during the teaching period. The higher the data, the higher the rate of teacher speaking during class. The norm is about 68.</td>
</tr>
<tr>
<td>Student speaking ratio</td>
<td>PT</td>
<td>( \frac{\sum_{i=1}^{9} \text{Row}(i)}{\text{Total}} \times 100 )</td>
<td>The rate of students speaking during the teaching period. The higher the data, the higher the rate of students speaking during the class. The norm is about 20.</td>
</tr>
<tr>
<td>Ratio of teachers’ indirect influence to direct influence</td>
<td>I/d ratio</td>
<td>( \frac{\sum_{i=1}^{9} \text{Row}(i)}{\sum_{i=8}^{7} \text{Row}(i)} \times 100 )</td>
<td>The ratio formula is used when the number of observations is greater than 1000. When the data are greater than 100, it means that teachers use the words and time of indirect influence more than the words and time of direct influence.</td>
</tr>
<tr>
<td>Quiet or chaotic ratio</td>
<td>SC</td>
<td>Row(10) \times 100</td>
<td>Quiet and chaotic situations during teaching. The higher the teaching evidence, the less poor quality of oral interaction between teachers and students. The norm is about 11 or 12.</td>
</tr>
<tr>
<td>Teacher question ratio</td>
<td>TQR</td>
<td>Row(4) \times \sum_{i=4}^{9} \text{Row}(i)</td>
<td>The teacher’s tendency to use a question-based approach to guide discussions. The higher the data, the more frequently teachers use questions to guide discussions in class. The norm is about 26.</td>
</tr>
<tr>
<td>Student spontaneous ratio</td>
<td>PIR</td>
<td>Row(9) \times \sum_{j=9}^{7} \text{Row}(i)</td>
<td>The proportion of student utterances initiated by students. The higher the data, the more courageous the students are to express their opinions actively. The norm is about 34.</td>
</tr>
<tr>
<td>Teacher prompt question ratio</td>
<td>TQR</td>
<td>( \frac{\sum_{i=8}^{9} \text{cell}(i, 4)}{\text{Total}} \times \sum_{j=3}^{5} \frac{\sum_{i=8}^{9} \text{cell}(i, j)}{\text{Row}(i)} )</td>
<td>The teacher uses the student’s point of view to immediately respond to the annoyance of the student’s words by asking questions. The higher the data, the more the teacher can ask the students’ words in real time. The norm is about 44.</td>
</tr>
<tr>
<td>Steady state region ratio</td>
<td>SSR</td>
<td>( \frac{\sum_{i=10}^{10} \text{cell}(i, j)}{\text{Row}(i)} \times 100 )</td>
<td>The tendency of teachers and students to stay in the same behavior category for more than 3 seconds.</td>
</tr>
<tr>
<td>Student steady state area</td>
<td>PSSR</td>
<td>( \frac{\sum_{i=9}^{9} \text{cell}(i, j)}{\text{Row}(i)} \times 100 )</td>
<td>The higher the data, the more stable the interaction between teachers and students. The norm is around 50.</td>
</tr>
</tbody>
</table>

### 4.1.3. Evaluation

The effect of flipped classroom implementation is the aspect that this survey is very concerned about. We start from the three perspectives of teachers’ evaluation of the effect of course practice, evaluation of their own satisfaction, and whether they will continue to use the flipped classroom to understand teachers’ attitudes and action tendencies towards the flipped classroom teaching method. Figure 7 is the statistical result of the data of the teacher’s evaluation of the effect of curriculum implementation. It can be seen that most teachers believe that students can benefit from the flipped classroom teaching method. Among them, flipped classroom has significant positive effects in “improving students’ motivation and interest,” “promoting students’ knowledge and skills mastery,” and “improving students’ self-confidence in learning.” At the same time, more than half of the respondents agree...
improved 42% and 43% slightly improved. At the same time, some teachers (15%) believe that the flipped classroom has not improved or even lowered their job satisfaction. When asked whether they would continue to use the flipped classroom teaching method, the vast majority of teachers (98%) chose to continue to use it, and a small number (2%) of teachers chose not to use it. In general, in the evaluation of the implementation effect, teachers generally give positive feedback to the flipped classroom, which shows that the current flipped classroom has achieved certain results. However, we also see

that some teachers think that the implementation effect of flipped classroom is not satisfactory, and gives negative evaluations. For such results, we also need to further explore the reasons for their formation, so as to have a more comprehensive understanding of the practical difficulties in the implementation of the flipped classroom.

4.1.4. Existing Challenges. Although teachers have a positive attitude towards the flipped classroom teaching model, contradictions and challenges also exist in the implementation process. Figure 9 shows the results of teachers’ selection of possible challenges. Among them, “course design and content production require time and energy,” which pose a major challenge to most teachers. Implementing the flipped classroom means saying goodbye to the traditional teaching design method, and teachers need to reexamine the existing curriculum framework to formulate lesson plans and produce curriculum resources. Moreover, the use of technical means imposes higher requirements on the competence of teachers in the field of information technology. This, to a certain extent, increases the burden on teachers. Evaluating the effectiveness of the practice of flip classes is also not very difficult for teachers. The evaluation of students in traditional paper-based tests is more at the level of memory and abstract application of concepts. The development of advanced level skills through the application and practice of knowledge is not well assessed in this way. This may be one of the possible reasons for the difficulty of flipped classroom evaluation. More than half of the major and above challenges included “searching for high-quality teaching resources related to course content,” “environment and equipment for shooting video courses,” “learning new technologies to support flipped classroom teaching,” “have students complete curriculum tasks in front of the class,” such as “watching the instructional video, making good use of class time,” and “transitioning from a teacher- to a student-centric model.” This reflects the teachers’ demand for
three types of support, one is the demand for high-quality course resources, the second is the demand for software and hardware equipment and technical support, and the third is the demand for instructional design and organization methods under the flipped classroom model. In the flipped classroom, the lectures that used to occupy the dominant position in the classroom are placed before the class. This side makes higher demands on the independence of students in learning, and the other side on the ability of teachers to develop and organize learning activities in the classroom. When teachers switch from traditional teaching to flipped teaching, and from teacher-centered to student-centered, they also face problems in methods and strategies.

4.2. Statistical Results

4.2.1. Statistical Results. Based on the results of a quantitative analysis of the practical lessons of teaching Japanese in the flip-learning mode in the classroom, we made a characteristic curve of the relationship of discourse in the classroom between teachers and students, as shown in Figure 10.

4.2.2. Meanings of Each Data. Combined with the Flemish variable analysis method, the value of the ratio of each variable was analyzed, and compared with the value of the norm ratio, so as to further analyze the significance of each data, as shown in Figure 11.

(1) (TT) The teacher speaking ratio is 40.98 (norm is about 68).
(2) (PT) The student speaking ratio is 52.34 (norm is about 20).
(3) (i/d ratio) The ratio of teachers’ indirect influence to direct influence is 121.02 (the norm is about 100).
(4) (SC) Quiet or confused ratio is 6.68 (norm is about 11 or 12).

(5) (TR) Teacher feedback ratio is 54.76 (norm is about 42).
(6) (TQR) teacher questioning ratio is 39.13 (norm is about 26).

Referring to Table 1 and Table 2, we try to summarize the interactive mode of classroom teaching of elementary Japanese skills [21]:

(1) Teacher discourse is the language used by the teacher in the learning process, and teacher discourse in the classroom is closely related to the successful implementation of the curriculum, and also has to do with whether the student can easily access a clear entrance, which has a direct impact on students’ language acquisition to which they are directed. Compared with Japanese teachers, the teaching task is to teach Japanese. Teachers’ discourse bears the dual tasks of realizing teaching goals and language input. It can be seen from the above teacher discourse ratios that the Japanese teachers’ classroom discourse under the flipped classroom model is more concise, which is consistent with the Japanese teaching principle of “speaking carefully and practicing more.” Reflects that teachers placed the main emphasis on students in the process of interaction in the classroom, and makes full use of the time in the classroom to achieve the effectiveness of interaction in the classroom.

(2) For many Japanese teachers, it is common for students to be afraid to speak and fail to learn about the actual learning of students to the extent that it affects the completion of the entire curriculum. If the students dare to speak up and actively cooperate with the teacher’s guidance to carry out a large number of repetitive or inspiring language exercises, then the teacher-student classroom interaction under the guidance of the teacher is of high quality and effective. It can be seen from the abovementioned
(3) The indirect influence factors of teachers’ discourse are larger than the direct influence factors, and the ratio of the two is 12 percentage points higher than the norm. It can be seen that in the teaching process, teachers inject more emotion and give more praise and encouragement in teaching. Teachers are not mechanical orders or instructions, nor are they filled with individual performances, nor are they simply and rudely criticizing students and trying to change their behavior. Instead, they are good at accepting students’ emotions and accepting or using students’ ideas to guide them. Teachers generally set up their own situations and clarify their ideas, and then ask students about relevant content, so as to obtain positive answers from students. In the classroom under this teaching mode, the teacher’s words can greatly encourage students to participate in the classroom, improve the students’ discourse volume, and promote the improvement of students’ expression ability.

(4) The teacher’s questioning ratio accounts for a relatively large proportion, which is higher than the norm. This shows that in the course of teaching, teachers can grasp the problems in time, frequently use the questions to trigger students’ responses, and conduct questions and communicative question-and-answer interactions on the content of the text and the students’ real grasp of the situation in a question-and-answer process.

(5) Teacher feedback rates are also higher than the norm. This shows that teachers adopt positive feedback attitudes when constructing teacher-student dialogue scenarios, and can make more accurate judgments on students’ responses, which not only arouses students’ desire for free expression but also responds to students’ opinions and feelings. It increases the interest of classroom teaching and promotes participation in classroom discussions [22].

5. Conclusion

The flipped classroom teaching mode has brought development impetus to deepening the teaching reform. This article uses the study of action as an invader, creates a flirty class teaching mode in teaching Japanese linguistics, and applies some teaching strategies to achieve the goal of teaching the course. After the contrast between the classroom learning mode and the traditional learning mode, it is concluded that the flip classroom learning mode can improve the teaching effect of Japanese. A teacher-centric learning mode from the beginning is transformed into a student-centered learning mode that captures students’ attention and interest in learning, maximizes their enthusiasm for learning, streamlines their learning approach, improves Japanese application skills, and enhances learning efficiency. Of course, the model also imposes new requirements on the professional qualities of teachers: teachers must not only have a high level of professionalism and operational competence but also teaching and research methods and modern teaching aids. Teachers can only use the flip classroom mode to improve the teaching effect if they constantly update the philosophy of teaching and learning, improve the knowledge structure, and improve professional qualities.
Data Availability
No data were used to support this study.

Conflicts of Interest
The authors declare that there are no conflicts of interests.

Authors’ Contributions
All authors have read the manuscript and approved.

References