

Development of Content and Language Integrated Learning Class in Japanese Language Education Based on Instructional Design for Chinese Higher Education

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<https://hdl.handle.net/2324/7362165>

出版情報 : Kyushu University, 2024, 博士 (教育学), 課程博士
バージョン :
権利関係 :



**Development of Content and Language Integrated Learning Class in
Japanese Language Education Based on Instructional Design for Chinese Higher Education**

Hao Hao

Table of Contents

List of Tables	I
List of Figures	IV
1. Research background and purpose	1
1.1. Japanese foreign language learning	1
1.2. Japanese foreign language learning in China	1
1.3. Content and Language Integrated Learning	2
1.4. Instructional design for Japanese foreign language learning	6
1.5. Authentic learning for language learning	9
1.6. Definition of evaluation and assessment in this study	18
1.6.1. Overview of evaluation and testing in education	18
1.6.2. Definitions of evaluation and assessment in this study and evaluation in the 4Cs in CLIL	23
1.7. Research purpose	27
1.8. Structure and hypotheses of this dissertation	27
1.8.1. Structure of this dissertation	27
1.8.2. Hypotheses of this dissertation	28
1.9. Thesis composition	31
2. Review of Research on Content and Language Integrated Learning Classes from the Perspective of the First Principles of Instruction	36
2.1. Content and Language Integrated Learning Classes	36
2.2. Instructional Design: The Significance of the FPI	37
2.3. Applications of ICT in Language Learning	46
2.4. Methods	47
2.5. Results and Discussion	48
2.5.1. The distribution of CLIL studies over time	48

2.5.2. The main target language for CLIL research	49
2.5.3. Analysis of the FPI elements contained in CLIL practices	51
2.5.4. The status of ICT uses in the CLIL	53
2.6. Conclusion	55
3. Practical research utilizing Instructional Design 1: Effects of Japanese language learning class based on ID	56
3.1. Practical design 1	57
3.2. Participants and Data Collection of Practical 1	62
3.3. Result of Practical 1	63
3.4. Discussion of Practical 1	65
3.4.1. Discussion on students' learning outcomes of Practical 1	65
3.4.2. Discussion on the correlation between the elements of the FPI and students' learning outcomes of Practical 1	65
3.5. Conclusions and future works of Practical 1	67
4. Practical research utilizing Instructional Design 2: Effects of CLIL class based on ID	68
4.1. Practical design 2	70
4.2. Participants and Data Collection of Practical 2	72
4.3. Result of Practical 2	86
4.3.1. Data analysis methods	86
4.3.2. Students' learning outcomes are improved through CLIL designed by the FPI	86
4.3.3. The aware of students about the designed FPI elements.	91
4.3.4. The correlation among FPI elements and learning outcomes	92
4.4. Discussion of Practical 2	92
4.4.1. Discussion on students' learning outcomes of Practical 2	92
4.4.2. Discussion the students' awareness of the designed FPI elements	96
4.4.3. Discussion on the correlation between the elements of the FPI and students' learning outcomes of Practical 2	101

4.5. Conclusions and future works of Practical 2	106
5. Practical research utilizing Instructional Design 3: Effects of CLIL class using ICT based on ID	108
5.1. Practical design 3	108
5.2. Participants and Data Collection of Practical 3	110
5.3. Result of Practical 3	113
5.3.1. Data analysis methods	113
5.3.2. Students' learning outcomes are improved through CLIL designed by the FPI.....	113
5.3.3. The aware of students about the designed FPI elements and Moodle	114
5.3.4. The correlation among FPI elements, Moodle and learning outcomes	115
5.4. Discussion of Practical 3	115
5.4.1. Discussion on students' learning outcomes of Practical 3	115
5.4.2. Discussion the students' awareness of the designed FPI elements and Moodle.....	120
5.4.3. Discussion on the correlation between the elements of the FPI and students' learning outcomes, and between Moodle and learning outcomes of Practical 3	126
5.5. Conclusions and future works of Practical 3	130
6. Extracting elements for designing CLIL lessons based on ID	131
6.1. Comparison of learning effects of three practical	131
6.1.1. Comparison of the effect quantity amount of three practical	131
6.1.2. Comparison of dialogue analysis in three practical group discussions	133
6.2. Confirmation checklist for CLIL course design based on FPI	134
6.2.1. Confirm the development of the checklist	134
6.2.2. Evaluation of the checklist by ID expert and Japanese teacher	148
6.2.3. Evaluation results	149
6.3. Confirm the final export of the checklist	196
7. Conclusion	207

7.1. Integration of CLIL 4Cs based on FPI	208
7.2. Design of checklist forms for CLIL	211
7.3. Limitations and future works	211
7.3.1. Limitations of the research	211
7.3.2. Future research directions	212
Glossary	214
References	215
Acknowledgments	228
Appendix 1 FPI Questionnaires	230
Appendix 2 Writing Evaluation Criteria	232
Appendix 3 Examination Questions	233
Appendix 4 The Review of CLIL studies (“√” means that this FPI element is included)	247
Appendix 5. Evaluation issues	263
Appendix 6. Basic Japanese in China, Curriculum and Assessment for Intercultural Exchange Programs	266

List of Tables

Table 1-1 Correspondence between Authentic Activities and FPI Principles and Examples of Practice Designs

Table 1-2. The research questions (RQs) related to hypotheses in this dissertation

Table 1-3. A view of the learning activities and real-world relevance in this thesis

Table 2-1. Comparison of ID Theories and Models

Table 2-2. Summary of Comparison of ID Theories and Models

Table 2-3. Sample of the FPI elements in the papers

Table 2-4. Included elements of FPI

Table 3-1 Example of Course Design

Table 3-2 Descriptive Statistics of Japanese Proficiency Test Score

Table 3-3 Descriptive Statistics of Writing Test Score

Table 3-4 Correlations between FPI, Writing Test and Basic Japanese Proficiency Test Score

Table 4-1. Comparison of instruction in CLIL, Japanese major course and intercultural education course

Table 4-2 Example of a 90-minute lesson

Table 4-3 Explanation of learning activities

Table 4-4 Wilcoxon signed-rank test results of pre-post Basic Japanese Proficiency Test Score (N = 16)

Table 4-5 Wilcoxon signed-rank test results of pre-post Content Knowledge Test Score (N = 16)

Table 4-6 Example of pre-post responses on the learning content

Table 4-7 Wilcoxon signed-rank test results of pre-post Writing Test Score (N = 16)

Table 4-8 Examples of students' pre-post of Writing Test

Table 4-9 Descriptive statistics of students' awareness of the FPI elements (N = 16)

Table 4-10 Spearman's rank correlation coefficient between FPI, Writing Test, and Basic Japanese Proficiency Test Scores

Table 5-1 Example of a 90-minute lesson

Table 5-2 Wilcoxon signed-rank test results of pre-post Basic Japanese Proficiency Test Score (N = 16)

Table 5-3 Wilcoxon signed-rank test results of pre-post Content Knowledge Test Score (N = 16)

Table 5-4 Wilcoxon signed-rank test results of pre-post Writing Test Score (N = 16)

Table 5-5 Descriptive statistics of students' awareness of the FPI elements and Moodle (N = 16)

Table 5-6. Correlations among FPI elements and learning outcomes

Table 5-7 Ranking of students' awareness about exercise of the 4 skills of listening, speaking, reading and writing

Table 6-1 Comparison of effect sizes of basic tests

Table 6-2 Comparison of effect sizes of writing tests

Table 6-3 Comparison of effect sizes of content tests

Table 6-4 Comparison of effect sizes (r) for correlations between FPI elements and learning outcomes.

Table 6-5 Summary of relevance and usefulness between course content and FPI, CLIL

Table 6-6 Checklist for Japanese CLIL course design

Table 6-7 Examples for Japanese CLIL course design checklist

Table 6-8 Elements extracted from the practices

Table 6-9 Attentions from practice

Table 6-10 Revised checklist Ver2

Table 6-11 IDer's evaluation results

Table 6-12 Examples of IDer Interview Coding

Table 6-13 Number of utterances in each category

Table 6-14 Average number of utterances per 30m in each category

Table 6-15 TJ's evaluation results

Table 6-16 Revised checklist Ver3

Table 6-17 Revised list of examples Ver3

Table 6-18 Correspondence between the 10 principles and the 4C's

Table 6-19 Course Design Acknowledgement Form applicable to CLIL class

Table 6-20 Example of classroom activity design developed based on FPI for CLIL course design

List of Figures

Fig.1-1 Relationship between Authentic Activities and Authentic Issues

Fig.2-1 Procedure for the selection of articles

Figure 2-2. Number of articles published by CLIL per year

Figure 2-3. Target language

Figure 3-1. Student-made worksheet 01

Figure 3-2. Student-made worksheet 02

Figure 3-3. Student-made worksheet 03

Fig 4-1. An example of the worksheet used in Learning Activity 1

Fig 4-2. An example of the worksheet used in Learning Activity 2

Fig 4-3. An example of the worksheet used in Learning Activity 3

Fig 4-4. An example of the worksheet used in Learning Activity 4

Fig 4-5. An example of the worksheet used in Learning Activity 5

Fig 4-6. An example of the worksheet used in Learning Activity 6-1

Fig 4-7. An example of the worksheet used in Learning Activity 6-2

Fig 4-8. An example of the worksheet used in Learning Activity 6-3

Fig 4-9. An example of the Daifuku01

Fig 4-10. An example of the Daifuku02

Fig 4-11. The look of the group discussion

Fig 4-12. Presentation in the classroom

Fig 4-13. Proportion of statements related to the 4Cs in group conversations

Figure 5-1. Summary table of daily student Moodle entries

Figure 5-2. The look of group discussion in class

Figure 5-3 Presentation in the classroom

Figure 5-4 Presentation in the classroom

Fig 5-5. Proportion of statements related to the 4Cs in group conversations

Figure 6-1 The ratio of the number of conversations about CLIL for Practice 2 and Practice 3

Fig.6-2 IDer's items scores

1. Research background and purpose

1.1. Japanese foreign language learning

With the rapid growth of trade between China and Japan, the demand for Japanese language professionals is rising, necessitating the continuous cultivation of highly qualified Japanese language experts. Consequently, more language colleges and universities are offering Japanese language programs, prompting these institutions to continuously enhance their teaching methodologies and resources (Li, 2021). At the same time, language education is becoming increasingly important as a foundation for effective communication. With the deepening of Sino-Japanese exchanges, higher demands are being placed on Japanese language education. In the new era, Japanese language education should place greater emphasis on cultivating students' comprehensive language skills and cross-cultural communication abilities (Gai, 2022).

However, a gap exists between traditional Japanese language teaching methods and the needs of Japanese language education in this new era. Traditional methods often focus heavily on basic theoretical education, overemphasizing Japanese grammar instruction and relying on a single teaching approach. This approach deprives students of opportunities to practically apply what they have learned, leading to deficiencies in their overall abilities in listening, speaking, reading, and writing (Kuo, 2020). Liu (2018) finds that current Japanese classes tend to have dull content, with students having limited opportunities to practice. Although students may score well on final exams, their actual language usage abilities remain poor. Nakanishi (2015) notes that focusing on simple word and grammar learning causes college students to repeatedly fall into a vicious cycle. They struggle to remember vocabulary and grammar, fail to understand course content, lose motivation to learn, frequently miss classes, and lack the necessary teacher guidance to help them with vocabulary and grammar retention, thereby resulting in an inability to adequately comprehend course material.

To address these challenges in Japanese language education, it is essential to not only enhance students' application of classroom learning but also develop a more rational Japanese foreign language learning curriculum supported by course design theory. Instructional design (ID) emerges as a desirable solution to these issues.

1.2. Japanese foreign language learning in China

Japanese language education in China is currently situated within a specific educational context. With increasingly frequent exchanges between China and Japan in the fields of politics, economy, and culture, the demand for foreign exchange is growing (Qi & Chen, 2017). An increasing number of people are choosing to learn Japanese to better participate in exchanges and cooperation with Japan. This rising demand for foreign exchange is driving the development of Japanese language education and, simultaneously, is placing new demands on Japanese language education.

The current approach to Japanese language education overemphasizes the teaching of

grammatical knowledge and the development of translation skills, neglecting students' ability to practically use the Japanese language (Kuo, 2020). The traditional grammar-translation teaching method limits the development of students' communicative abilities and practical application skills to a certain extent (Liu, 2018). With societal development and the increasing frequency of international exchanges, it has become increasingly essential for students to possess the ability to engage in real conversations and exchanges with people from Japanese-speaking countries (Fu, 2023; Zhang, 2023). In general, the teaching method is overly mechanized and misaligned with actual needs, resulting in difficulties for students in practical application and hindering them from flexibly utilizing what they have learned. Therefore, it is necessary to reform the teaching methods and introduce more communicative activities and practical contexts to develop students' communication skills and sociability.

Furthermore, with the advancements in modern science and technology, Japanese language education can better leverage various educational technologies for teaching. However, the present underutilization of these technological educational tools prevents the optimization of the effectiveness of Japanese language teaching (Ruo, 2023).

As exchanges with Japan become more active in the fields of economy, culture, and education, Chinese universities are establishing Japanese language-related departments to meet the growing demand for personnel with more comprehensive Japanese language skills for future exchanges between Japan and China. For instance, programs combining economics with Japanese, culture with Japanese, or computer science with Japanese are being developed. The goal is to nurture students who have proficiency in the Japanese language as well as a deep understanding of Japanese culture. However, although universities offer related courses, there is limited research on how to teach these courses effectively and how to improve the quality of teaching in these classes. Therefore, there is a need for research focused on developing teaching methods for Japanese language courses that align with the current educational context (Qi & Chen, 2017).

In summary, contemporary Japanese language teaching faces challenges such as single teaching methods, limited classroom content, and insufficient use of educational technology. To improve the quality of Japanese language teaching and to cultivate students' practical application abilities, it is essential to reform and innovate teaching methods, optimize teaching material content, strengthen teacher training, establish a scientific and effective teaching evaluation system, and fully utilize modern technological tools to support teaching. These improvements and developments will contribute to the progress and enhancement of Japanese language education in China.

1.3. Content and Language Integrated Learning

As globalization advances, countries are placing increasing emphasis on foreign language learning. An educational approach known as Content and Language Integrated Learning (CLIL) has gained popularity throughout Europe in recent years. CLIL began to gain momentum in Europe in

the 1990s and has made significant progress in a relatively short period of time (Coyle, 2005). CLIL is a dual-focused educational approach in which an additional language is used for both the learning and teaching of content and language, with the objective of promoting mastery of both to predefined levels (Wolff, 2012). Due to its ability to simultaneously teach both professional knowledge and a foreign language, it has attracted the interest of researchers.

Notably, CLIL is an umbrella term adopted by the European Network of Administrators, Researchers, and Practitioners in the mid-1990s to describe teaching whereby language and content are learned in an integrated manner. While CLIL focuses on integrating content and language learning, many learners achieve native or near-native proficiency in listening and reading skills; however, speaking and writing skills often require additional support (Kowal & Swain, 1997; Johnson & Swain, 1997; Genesee, 1994). This has led to the development of various methods, materials, and curricula to enhance CLIL (Cummins, 1999; Coyle, 2007). To realize the full potential of CLIL, Coyle (2006) proposes the 4Cs framework, originally introduced in 1999, which integrates various aspects to support CLIL. The framework emphasizes the interrelationships among content, language, cognition, and culture. Notably, CLIL classes require students to communicate in a foreign language while using their professional knowledge to solve complex problems (Marsh, 2012; Coyle, 2006; Dalton-Puffer & Smit, 2013).

Coyle (2007) organized the theories of sociocultural theory, language acquisition theory, cognitive development theory, interaction and dialogic teaching, cultural theory, and integrated learning theory to propose the 4Cs framework. The specific theories included are summarized as follows: Subject matter transcends merely acquiring knowledge and skills; it involves the learner actively constructing their own understanding and developing skills that are both relevant and suitable (Lantolf, 2000).

“Students need to communicate with the teacher, one another, or texts, in order to access or apply content. In so doing, the cognitive demand of tasks requires students to call upon their existing knowledge, concepts, skills and strategies...Research indicates that strengthening and making connections amongst concepts and knowledge increases learning and retention” states Met (1998, p.38).

Knowledge, as defined here, involves the recall of specifics and universals, that of methods and processes, or that of a pattern, structure, or setting. For measurement purposes, the recall situation primarily involves bringing to mind the appropriate material. Although some alteration of the material may be required, this is a relatively minor part of the task. The knowledge objectives emphasize most of the psychological processes of remembering. The process of relating is also involved in a knowledge test situation that requires the organization and reorganization of a problem such that it will furnish the appropriate signals and cues for the information and knowledge the individual possesses. To use an analogy, if one thinks of the mind as a file, the problem in a

knowledge test situation is that of finding in the problem or task the appropriate signals, cues, and clues that will most effectively bring out whatever knowledge is filed or stored. This represents the lowest level of understanding. It refers to a type of understanding or apprehension such that the individual knows what is being communicated and can make use of the material or idea being communicated without necessarily relating it to other material or seeing its fullest implications. Regarding the use of abstractions in particular and concrete situations, they may be in the form of not only general ideas, rules of procedures, or generalized methods but also technical principles, ideas, and theories that must be remembered and applied. Application to the phenomena is discussed in one paper of the scientific terms or concepts used in other papers. This entails the ability to predict the probable effect of a change in a factor on a biological situation previously at equilibrium.

The breakdown of communication into its constituent elements or parts is such that the relative hierarchy of ideas is clarified and/or the relations between the ideas expressed are made explicit. Such analyses are intended to explicate the communication, as well as indicate its organization and the way in which it manages to convey its effects, in addition to its basis and arrangement.

The integration of elements and parts to form a whole involves the process of working with pieces, parts, elements, and so on, and arranging and combining them in such a way as to constitute a pattern or structure that has not been clearly evident before.

Regarding judgments about the value of the material and methods for given purposes, quantitative and qualitative judgments about the extent to which material and methods satisfy criteria are essential via a standard of appraisal. "The criteria may be those determined by the student or those which are given to him," states Bloom (1984, pp.201-207).

"Language plays a crucial role in cognitive development, [The teacher plays a critical role in a mediated learning session, exploring problem definitions, encouraging students to evaluate their strategies, helping them to develop a language for discussing their thought processes, as well as engaging in 'bridging' exercises to encourage transfer to the mainstream curriculum....Language plays a crucial role in cognitive development, serving as a primary tool for thought and communication. Children's main difficulty was the absence of an adequate language for talking about thinking," states McGuiness (1999, p.9).

"Good content teaching is not necessarily good language teaching...content teaching needs to guide students' progressive use of the full functional range of language, and to support their understanding of how language form is related to meaning in subject area material. The integration of language, subject area knowledge, and thinking skills requires systematic monitoring and planning," states Swain (1998, p.68).

"Interaction in the learning context is fundamental to learning. 'If teachers can provide more opportunities for exploratory talk and writing, students would have the chance to think through

materials and make it their own',” states Mohan (1986, p.13).

“This is a challenge that educators are only beginning to address in immersion and bilingual programs around the world, but it is in these programs that there is the most potential for truly preparing citizens who can make highly significant contributions to their own and our global societies. For this to happen, however, immersion educators must explicitly locate their pedagogy and educational vision in the realm of global education,” states Cummins (2000, p.13).

Coyle et al. (2010) then classify these 4Cs in more detail based on the 4Cs of CLIL proposed in 2007, and Coyle et al. (2010) refer to the aforementioned research findings on cognition in their detailed classification of cognition. Specifically, Coyle et al. (2010) define thinking skills as basic thinking skills that only memorize, understand, and apply content (lower order thinking skills; LOTS) and application-oriented thinking skills such as analysis, evaluation, and creation (higher order thinking skills; HOTS).

“The cognitive process dimension consists of lower-order thinking (remembering, understanding and applying) and higher-order thinking (analysing, evaluating and creating), both of which are integral to effective learning. The knowledge dimension provides a framework for exploring the demands of different types of knowledge: conceptual, procedural and metacognitive,” states Coyle et al. (2010, p.30).

Notably, LOTS include memory, comprehension, and application, which are foundational skills that need to be mastered before students can engage in more complex thinking processes (Coyle et al., 2010; Bentley, 2010; Watanabe et al., 2011), whereas HOTS include analysis and evaluation. Notably, LOTS and HOTS are not contradictory but complementary (Bentley, 2010; Coyle et al., 2010; Watanabe et al., 2011). Recognizing the 4C framework allows for the design and implementation of varied and balanced educational activities to develop these thinking skills (Watanabe et al., 2011).

Through the CLIL classroom, students can enhance their sense of citizenship, increase their awareness of the value of transferable skills and knowledge, and improve their confidence and ability to use language. Moreover, CLIL can significantly enhance learners' thinking abilities and offer young people the opportunity to become bilingual (Sabet & Sadeh, 2012).

From a language learning perspective, meaningful input and output are very important. According to Krashen's (1981) comprehensible input hypothesis, effective input requires that the learner understands the speaker's intention. Simply listening repeatedly or dictating without understanding has little value. It is necessary to listen to content that is easy to understand, such as material related to a familiar field or accompanied by a video. Additionally, forcing oneself to practice speaking is inefficient unless it involves meaningful interaction. As Swain (1985) proposes in the output hypothesis, only output that is understood by the listener is valid. Output that can be

understood by others promotes language acquisition, and the act of producing the output, whether spoken or written, is essential. Teachers must provide students with opportunities to produce output accurately, consistently, and appropriately. In other words, learning in a specific language environment with contextual support is more conducive to language acquisition. The CLIL classroom aligns with these language theories, emphasizing the importance of both meaningful input and output.

However, CLIL has some limitations. Research on CLIL thus far has primarily focused on English as a foreign language (EFL); in the future, more attention should be given to the effects of CLIL in other linguistic environments and to the effectiveness of integrating language and content (Cenoz et al., 2014). Although CLIL has made significant progress over the past 20 years, ongoing innovation is necessary (Dooly & Masats, 2015). Therefore, new tools are needed to improve the quality of CLIL (Meyer, 2010).

In summary, although CLIL has the advantage of teaching both content and language, it still faces many challenges. For instance, it is common for the target language to be limited to English. The issue of balancing content and language in the classroom needs to be addressed, and further research is required to make CLIL more efficient. Additionally, CLIL design has been traditionally based on only the characteristics of CLIL itself. To fully develop its potential, it may be beneficial to consider CLIL from the perspective of a more professional ID model.

Although Meyer (2010) designs worksheets for use in CLIL course schemes based on the four features (4Cs) of CLIL, he also notes that CLIL is not a comprehensive course design theory, and more research is needed to explore CLIL design. Hao and Yamada (2021) review nearly 20 years of CLIL practice papers and find that there is limited practice in designing CLIL courses from the perspective of ID. Notably, ID encompasses numerous theories and models and has been widely used across various fields (Hernandez, 2016; McGee & Reis, 2012; Reiser, 2001; Richards & Lockhart, 1994). The use of ID in CLIL design may offer new insights for future CLIL development.

As discussed, the foundation for the proposed CLIL is constructivism (Coyle et al., 2010). As described in Section 1.4, the First Principles of Instruction (FPI) is a problem-centered theory heavily influenced by constructivism. It outlines five essential requirements for creating an effective learning environment. Building instruction around real-world problems, or those that the learner will face after the course is complete, is key to the design and delivery of effective instruction (Merrill, 2002, 2012; van Merriënboer, 1992). Therefore, considering FPI, a problem-centered theory based on constructivism, in a CLIL context may provide a new perspective for enhancing CLIL.

1.4. Instructional design for Japanese foreign language learning

Instructional Design (ID) is defined by many researchers from various perspectives. The purpose of ID theory is to provide help and guidance for people to learn better (Reiser, 2001). ID and

Instructional Technology encompass a wide range of fields. According to the definition of the Association for Educational Communication and Technology (AECT), it includes six categories of activities or practices: (a) design, (b) development, (c) utilization or implementation, (d) management, (e) evaluation, and (f) analysis (Seels & Richey, 1994), and these categories are still expanding (Reiser, 2001).

Some ID theories have been proven to be essential principles in course design. However, few studies on class design have utilized ID theory for Japanese language education. Goulah (2007) used digital video as a mediational tool to foster critical multiliteracies and transformative learning concerning geopolitics and the environment among Japanese learners. The results show that the students fully understood the teaching content and reflected on it. Kumagai, Konoeda, Nishimata, and Sato (2015) designed a video production project using the “pedagogy of multiliteracies” model (New London Group, 1996) with novice-level Japanese learners to provide an opportunity for them to communicate with a broader audience as learners drew upon a range of multimodal resources to tell a digital story. The research results showed that students’ oral Japanese abilities improved through this learning process. However, certain unresolved issues concerning foreign language learning classes remain. Regardless of the classroom mode adopted, it should be based on the needs of students to achieve the best learning outcomes (Dos Santos, 2020). When college students write reports and papers, they must be able to contextualize basic knowledge. The problem-centered approach allows students to better understand learning content in meaningful contexts. Researchers have also conducted studies to verify the educational outcomes of the problem-centered approach (Weber, 2001). Since the First Principles of Instruction (FPI) is an ID theory that emphasizes a problem-centered approach, it is suitable for language instruction to improve language ability (Kim, Mendenhall, & Johnson, 2010).

In 2002, Merrill proposed the First Principles of Instruction (FPI), which integrates many ID and learning models. As Merrill (2002) noted, FPI is a comprehensive ID theory based on constructivism that integrates many ID theories such as the Learning Cycle of Star Legacy (Schwartz et al., 1999), 4-MAT (McCarthy, 1996), Instructional Episode (Andre, 1997), Multiple Approaches to Understanding (Gardner, 1999), Collaborative Problem Solving (Nelson, 1999), and Constructivist Learning Environments (Jonassen, 1999). FPI is a constructivist theory for designing and developing learning environments that promote active student learning and participation (Badali et al., 2022). It can enhance student performance (Gardner, 2011), content understanding, critical thinking, metacognitive skills (Nielsen & Archibald, 2010), creativity (Jalilehvand, 2016), and problem-solving abilities (Zarei et al., 2014).

As a common strategy for many ID theories, FPI, which was proposed under the influence of constructivism, organizes the five requirements necessary to create an effective learning environment as follows: “(The) five principles are: (a) Problem-centered: Learning is promoted when learners are working to solve real-world problems; (b) Activation: Existing knowledge

learning is promoted when activated as a basis for new knowledge; (c) Demonstration: Learning is promoted when new knowledge is presented to the learner; (d) Application: Learning is facilitated when new knowledge is applied by the learner; (e) Integration: Learning is promoted when new knowledge is integrated into the learner's world” (Merrill, 2002, p. 43).

At the beginning of the course, the teacher presents a problem for the students to solve. Students are expected to solve the problem through learning activities that incorporate the activation, demonstration, application, and integration principles. As students become more capable, the problems they solve become progressively more difficult to ensure that the new knowledge they have acquired can be applied. Courses can be designed using FPI to anticipate its educational effects.

Moreover, simply combining these elements does not necessarily lead to a more effective course design. Merrill proposed an FPI strategy when designing courses in 2012. The strategy divides the design of courses using FPI into three levels (not counting Level 0). Level 0: contains only information (learning content); Level 1: contains information (learning content) and demonstrations about the content; Level 2: contains information (learning content), demonstrations, and learning activities that allow students to apply what they have learned; Level 3: builds on Level 2 by designing real-life-related problems that allow students to feel that what they have learned is relevant to them and then apply what they have learned to solve these problems. Students can then apply their knowledge to solve problems and present their learning results. Typically, Level 2 FPI design strategies have been found to be more productive. The Level 3 strategy can be used to achieve even greater results.

In addition, FPI and language learning theories are well integrated. For example, Krashen's (1981) comprehensible input hypothesis states that effective input involves understanding the speaker's intent. Simply listening repeatedly or dictating without understanding is ineffective. It is necessary to listen to content that is easy to understand, such as material related to a familiar field or accompanied by images. Forcing oneself to practice speaking is not efficient unless it involves meaningful interaction. The output hypothesis (Swain, 1985) states that output that is comprehensible to others promotes language acquisition. The act of producing output, whether spoken or written, is essential. It is necessary to provide opportunities for students to produce output accurately, consistently, and appropriately.

The aforementioned linguistic theories emphasize meaningful input and output. In other words, actively applying language knowledge in communication promotes language learning. All elements of FPI emphasize the practical application of learned knowledge. Thus, FPI is expected to have a positive educational effect in the field of language teaching.

Furthermore, FPI emphasizes the importance of cognitive processes and thinking skills in effective ID (Gardner, 2011). Specifically, the FPI principles related to cognition in the 4Cs are outlined below.

The problem-centered principle of FPI pertains to the cognitive aspect of structuring learning around realistic problems. Students acquire new knowledge and skills by solving a series of problems. This principle emphasizes the combination of theoretical knowledge with real-world application (Merrill, 2007). Bloom (1984), for example, states that when students apply what they have learned to solve real-world problems, they must use both existing and new knowledge and make their own choices about which knowledge and methods to use. This process, in which students organize what they have learned in their own way and make decisions, helps improve their analytical and evaluative skills. For example, Bloom (1984) presents scenarios in which learners employ knowledge in real-world contexts, such as using manuals to calculate employee leave or applying statistical laws to evaluate test reliability. This encourages learners to move beyond rote memorization and apply their knowledge in practical ways that address analytical and evaluative competencies.

Llinares et al. (2012) investigate the learning effects of CLIL classes within the 4C framework. Specifically, they examine the role of language in CLIL classes, focusing on how students use language and subject knowledge to solve concrete real-world problems. The study shows that students can effectively use what they learn through communication and discussion in their project work. It is revealed that this not only improves their language skills but also enhances their HOTS analytical skills.

Based on the above, the problem-centered, activation, application, and integration principles of FPI are considered to be closely aligned with the cognitive aspects of the 4Cs.

1.5. Authentic learning for language learning

Authentic learning is an educational approach that emphasizes learning through solving real-world problems and engaging in practical endeavors. Authentic learning is characterized by providing students with opportunities to experience situations related to real-world events in their lives, cultures, and professions (Herrington et al., 2010; Herrington & Kervin, 2007; Wornyo et al., 2018). This approach emphasizes learning through practical methods, with the belief that students are better able to retain what they have learned when the learning has a realistic purpose, meaning, and relevance to them (Herrington et al., 2010; Herrington & Kervin, 2007).

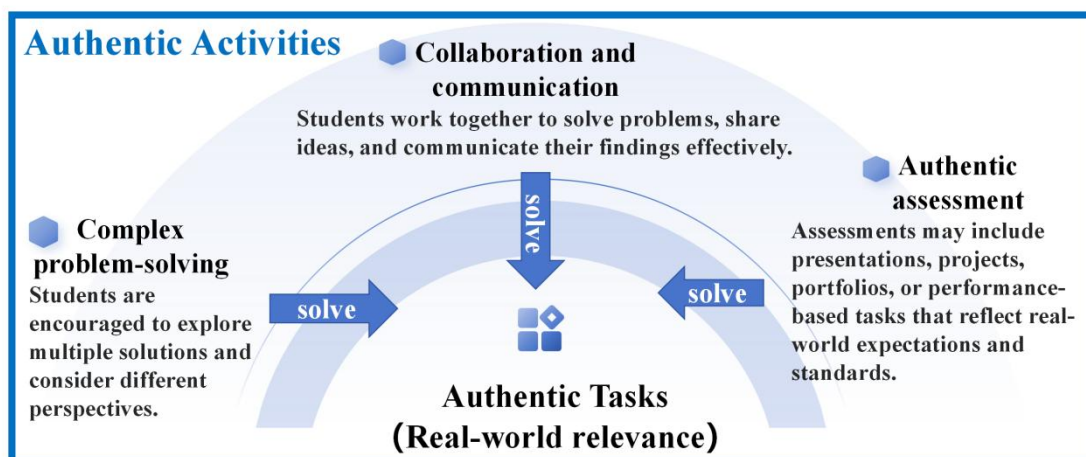
Furthermore, the uses of authentic learning are diverse, and it can be applied in many different situations. Authentic learning can be implemented on a small or large scale. Small-scale authentic learning refers to practical, realistic learning activities. It involves learning based on problems and challenges that students encounter in their daily lives and real-life situations. Examples include project-based learning, where students work in teams to tackle real-life problems and propose solutions, and role-playing activities where students act out real-life scenarios, such as mock trials or Model United Nations simulations.

Large-scale authentic learning involves tackling broader, more complex problems or projects, often requiring more participants and resources. Examples include activities that involve the entire school or local community in tackling large-scale social issues, such as local environmental initiatives or poverty reduction efforts, and learning activities where students collaborate with peers from other countries to address international challenges, such as international exchange programs aimed at enhancing cross-cultural understanding and global problem-solving skills. These approaches can be applied across different grade levels, learning environments, and language backgrounds (Zwahlen, 2018).

Roach et al. (2018) state that the key to authentic learning lies in cognitive realism. Cognitive authenticity emphasizes the authenticity of learning tasks at the cognitive rather than the physical or environmental level. The idea is that learning activities should simulate or reflect real-world cognitive tasks—such as problem-solving processes, decision-making, and critical thinking—rather than simply replicate real-world physical environments or situations.

In his discussion on authenticity, Gilmore (2007) uses terms such as genuine, real, and natural as synonyms for authenticity, and terms such as inauthentic, artificial, fake, unreal, and contrived as its antonyms. Therefore, the terminology used to describe authentic learning is not necessarily the same as that used to describe the real world. The authenticity of authentic learning means that the problem to be solved is one that the learner may encounter in everyday life or future work, even if the student is not physically present in the real-life scenario (e.g., going to the supermarket to buy groceries as a real-life shopping experience). However, if students recognize that the problem they are attempting to solve is one they may encounter in their daily life or future work, they can engage in authentic learning. Authentic learning allows students to solve real-world problems in the classroom without being in an actual real-world scenario, thus making the classroom experience more realistic (Guariento & Morley, 2001).

Ozverir et al. (2017) define learning tasks as solving real-world problems introduced in the authentic learning classroom. Learners are presented with a real-world, challenge-based situation and are required to collaborate with peers to think deeply about a complex problem, propose a solution as an outcome, and share it with a larger audience. Learning activities designed to address these challenges are called authentic activities, which are learning experiences designed to simulate real-world situations and challenges that students may encounter outside the classroom. Authentic assignments are the learning tasks that students complete as part of these authentic activities. The diagram below illustrates the relationship between authentic activities and authentic assignments.



Summary based on Ozverir et al,(2017)

Fig. 1-1 Relationship between authentic activities and authentic issues

In foreign language learning, authentic learning allows students to solve real-world problems in the classroom without being in authentic scenarios, making the classroom more connected to the real world (Guariento & Morley, 2001). It helps language learners use language functions in meaningful ways, which, it is argued, further develops their language skills (Gilmore, 2007). Authenticity is especially important in foreign language learning environments because second language learners are learning the target language as it is spoken in their context, whereas foreign language learners are often confined to the classroom environment provided by the teacher (Ellis, 2017; Pica, 2005). As Roach et al. (2018) note, authentic learning can enhance the application of a foreign language by making students aware that the problems they solve in the classroom are real problems—not necessarily on a physical or environmental level, but in a way that enables them to communicate and solve problems in a foreign language. Such authentic activities can bridge the gap between classroom language learning and real-life situations in foreign language learning (Herrington et al., 2010; Ozverir & Herrington, 2011).

Foreign language learning requires students to use the target language to solve reality-related problems presented by the teacher. However, Maina (2004) points out that simply introducing real-life problems into the classroom is insufficient. Through an analysis of authentic learning case studies, Maina (2004) highlights that in authentic learning, there may be variations in learning participation, especially in group learning, and that the skill of thinking deeply about problems may not be adequately trained. Furthermore, the difficulty of maintaining the necessary conditions to simulate events that may occur in learners' daily lives within the classroom is identified as a problem. Other studies have shown that in many language classrooms, the teacher specifies the learning

questions, controls the order of utterances and how questions are answered, decides how to conduct the activities, and evaluates the learners' responses (Branden, 2006; Willis, 1996). For example, Maina (2004) describes a scenario in which students interview community members after the teacher has specified all the questions in advance. In this case, the students merely record the respondent's answers and do not attempt to interpret the meaning of such answers.

Therefore, authentic learning questions and activities must be carefully designed to fulfill their pedagogical role. Ozverir et al. (2017) also note that authentic activities must be meticulously designed to match the authentic experiences that students encounter outside the classroom. These activities must be continually updated and adapted to changes in the real world.

In the classes conducted in this study, the real-world problems introduced were designed according to the problem-centered approach of FPI theory. As mentioned earlier, among the many ID theories, FPI theory is based on constructivism and emphasizes placing real-life problem solving at the center of the lesson. This approach helps students acquire both content knowledge and language skills. The problem-centered component of FPI emphasizes that the problems students are asked to solve should be related to real-life situations—problems that students may encounter in their lives—and that these problems should be systematic, gradually increasing in difficulty, and interrelated (Merrill, 2012).

In designing the authentic problems introduced, the FPI's problem-centered principles were followed, along with the 11 principles of authentic activity, which were proposed by Ozverir et al. (2017) to guide the design of authentic activity. Specifically, the 11 principles are:

1. Authentic activities have real-world relevance

The study results show that a strong connection to the real world is a key element of learning activities that helps learners bridge the gap between what they learn in school and its practical application. Participants were satisfied with taking on the role of journalists and were excited about being able to offer real solutions to real-world problems that they considered important. Additionally, learners recognized the use of the target language in real-life situations, which not only brought enjoyment and motivation to their learning process but also helped them build relevant knowledge and skills.

2. Authentic activities are complex and ill-defined

Learning environments and tasks require learners to navigate ill-defined stages that are not explicitly planned by the teacher. This increases the complexity and difficulty of activities, requiring sustained mental and interactive effort as learners identify a path to complete the activity.

3. Authentic activities should be layered and long-term

Authentic activities should not end with a single learning task; they should be long-term and involve solving a series of interrelated problems that students may encounter in real life or their future workplaces.

4. Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources

The study notes that giving learners the opportunity to look at the task from multiple perspectives creates multiple possibilities for the development of professional skills. Students indicated that focusing on different perspectives led to a diversity of outcomes, which they considered a strength of the activity.

5. Authentic activities provide the opportunity to collaborate

Collaboration is a crucial design element that promotes learning. Some learners indicated that they might not have been able to complete the task on their own, as it contained many different aspects. They appreciated the opportunity to engage in joint problem-solving, with peer collaboration further facilitating complex and ill-defined activities.

6. Authentic activities provide the opportunity to reflect

Reflection is another fundamental design feature that facilitates learning through meaningful discussion. Learners were given opportunities at different stages to reflect on learning resources, problem-solving processes, and learning strategies.

7. Authentic activities lead beyond domain- and skill-specific outcomes

Learners recognized that authentic tasks helped them acquire skills that could be useful in the future, such as designing, presenting, and influencing an audience—skills that transcend the immediate learning domain.

8. Authentic activities are seamlessly integrated with assessment

Learning activities provide opportunities for learners to use the target language in practical situations, with assessment allowing them to measure their abilities in real-world contexts.

9. Authentic activities yield polished products valuable in their own right rather than as preparation for something else

The task outcomes are sophisticated products that are valuable on their own, not merely preparatory exercises. Writing stories, for example, allowed learners to establish authentic communication with their audience.

10. Authentic activities foster multiple solutions and diverse results

The research project was designed to be open-ended, facilitating multiple solutions and a range of outcomes. This flexibility inspired learners to create varied and captivating narratives, even when dealing with similar subjects.

11. Authentic activities enhance both learning and communication

The study highlights the importance of integrating learning with practical application, demonstrating that authentic activities benefit both learning and communication. Participants valued the activity for its dual focus, enabling them to use language effectively to convey their messages.

Authentic learning helps students develop cognitive skills by contextualizing learning activities, designing complex real-world tasks, and emphasizing collaborative learning to achieve knowledge acquisition and application (Herrington & Kervin, 2007; Ozverir et al., 2017). The cognitive aspects of authentic learning can be summarized as follows:

In language learning, students can often discuss grammatical rules but struggle to apply them in real communication; Johnston and Goettsch (2000) point out the significant gap between understanding (knowing) and application (doing). Authentic learning allows students to apply what they have learned in contextual situations. Authentic learning tasks are often complex and long-term, requiring students to explore different perspectives and learn through multiple resources (Guariento & Morley, 2001; Ozverir et al., 2017). Given this, authentic learning emphasizes real-world contexts and complex problems that require students to use HOTS such as analysis and evaluation. The cognitive processes involved in authentic learning are considered to have commonalities with the cognitive aspects of the 4Cs.

As explained above, authentic learning tasks involve real-world problems introduced into the classroom, aligning with the problem-centered approach of FPI. Authentic activities refer to the learning tasks implemented to solve these problems and correspond to the application and integration principles of FPI.

The following learning activities were designed to promote cognitive skills within the 4Cs of CLIL, as implemented in this study.

Role-playing: Students are asked to play various roles to simulate real conversations and situations. These activities allow students to use language in concrete situations and enhance language application skills (Ertmer et al., 2010; Rashid & Qaisar, 2017). Designed and practiced activities included scenarios such as going home to meet parents and siblings, meeting peers at school, and encountering a stranger on the street and asking for directions.

Problem-solving and group discussion: Sabur et al. (2021) found that students who engaged in

group problem-solving significantly improved their critical thinking compared with those in a traditional classroom format. Students also reported that group discussions helped them improve their ability to interpret, analyze, evaluate, and reason. Designed and practiced activities involved giving students a choice of several problems, with different groups potentially choosing the same topic to solve and then presenting their results to the class. Various solutions were discussed within the group, allowing students to consider and reflect on the differences in other groups' presentations.

Cultural exploration: Learning and exploring the language and customs of different cultures can enhance the understanding of linguistic diversity and cultural backgrounds, thereby improving intercultural communication skills (Amor et al., 2023; Lee et al., 2023). Designed and practiced activities included discussing the similarities and differences between Chinese and Japanese proverbs.

Examples of corresponding practice designs are provided below.

Table 1-1 Correspondence between authentic activities and FPI principles and examples of practice designs

11 Principles of Authentic Activity	FPI	Examples of learning activities designed in practice
1. Authentic activities have real-world relevance	Problem-centered principles Engage learners in solving problems that are likely to occur in the real world.	Learners were asked to act out real-world scenarios. For example, in Practices 2 and 3, role-playing was used to help students understand the distance between people. Students were asked to act out situations such as "going home to see your parents or siblings," "meeting your peers at school," and "meeting a stranger on the street and asking for directions."
2. Authentic activities are complex and ill-defined	Problem-centered principles Take the learner to a deeper level than just the operating procedure or methodology level.	Complex learning activities were designed to encourage learners to express their thoughts and feelings and use language in creative ways. For example, in Practices 2 and 3, students were asked to write their own scripts and lines and then perform the skits.
3. Authentic activities should	Problem-centered principles Make the problem to be	The questions in the practices were gradually varied from easy to difficult. For example, in

be layered and long-term	solved progressively more difficult and challenging over and over again, and clearly show what makes the problems different from each other.	Practices 2 and 3, in the first session, students were asked to understand the concept of self-disclosure by introducing themselves individually in front of the class or by forming pairs and introducing themselves respectively. In the second session, to help students understand interpersonal distance, we had them do a role-play activity that simulated a real-life situation.
4. Authentic activities provide the opportunity for students to examine the task from different perspectives, using a variety of resources,	Problem-centered principles Require learners to solve different problems sequentially	In the Practice 1, 2, and 3 lessons, a wide variety of questions appropriate to the learner's language ability were introduced, depending on the content of the study.
5. Authentic activities provide the opportunity to collaborate	Principles of integration Encourage learners to problem-solve collaboratively on new knowledge and skills	Practices 1, 2, and 3 consisted of problems that required students to work together to solve. For example, students were required to work in small groups of 4–5 students to create a script and complete a performance.
6. Authentic activities provide the opportunity to reflect	Principles of integration Encourage learners to reflect on new knowledge and skills.	In Practices 1 and 2, students were asked to write a brief summary at the end of each day. In Practice 3, at the end of each day, students were asked to enter their impressions and reflections on their learning into Moodle when they returned home.
7. Authentic activities lead beyond domain- and skill-specific outcomes	Principles of application Engage learners in integrated problem solving that uses newly learned knowledge and skills.	In Practices 2 and 3, students were designed to use their linguistic knowledge as well as the specialized knowledge they had learned in class to solve problems. For example, after learning about interpersonal distance, students were asked to use what they

		had learned to create their own friend-making maps.
8. Authentic activities are seamlessly integrated with assessment	Principles of application Identify and correct errors and provide appropriate feedback and coaching to guide learners in problem solving.	In Practices 1, 2, and 3, teachers read and evaluated the students' written comments and reflections daily. They then picked up noteworthy issues to be addressed in the next day's class.
9. Authentic activities yield polished products valuable in their own right rather than as preparation for something else	Principles of integration Give learners the opportunity to demonstrate their new knowledge and skills in front of everyone.	In Practices 1, 2, and 3, students were given the opportunity to present what they had learned. For example, the results of group discussions were presented in front of everyone.
10. Authentic activities foster multiple solutions and diverse results	Principles of integration Encourage learners to think, explore, and create their own ideas about how to use new knowledge and skills.	In the practice, students were given the opportunity to work on the same problem with different ideas. For example, in the practice, several problems were given and students could choose from among them. Different groups could choose the same topic to solve and present their results in front of the class. Various solutions were then discussed within the group, and students were able to see and think about the differences when other groups presented their solutions.
11. Authentic activities enhance both learning and communication	Principles of integration Encourage learners to discuss and collaborate on new knowledge and skills.	Each of the Practice 1, 2, and 3 classes included a learning activity for group discussion.

1.6. Definition of evaluation and assessment in this study

1.6.1. Overview of evaluation and testing in education

In this study, student evaluation and teacher evaluation are defined differently.

First, from the teacher's perspective, evaluation can be divided into the evaluation of student learning outcomes and that of student issues and feedback during the learning process. Teacher evaluation during the student learning process involves providing feedback.

The following is a description of evaluation from the teacher's perspective.

Evaluation involves not only the systematic collection of information and objective data to make a decision but also some form of value judgment (Davies et al., 1999). Evaluation focuses on making judgments about the effectiveness or quality of teaching. Teachers can evaluate lessons based on information obtained from tests and measurements (Rohmah, 2022). The teacher's evaluation, as discussed in this section, is broader than formal testing and includes questions from learners and tools for gathering information, such as impression sheets, observations, and questionnaires.

Assessment in general foreign language instruction has historically developed around grammar and translation, with the purpose of measuring learners' knowledge and skills, evaluating the effectiveness of instructional programs, advancing and selecting learners, and granting qualifications. To achieve these objectives, various methods are used, including written tests, translation exercises, oral examinations, assignments and projects, and portfolio assessments (Ricardo-Osorio, 2008; Turnbull, 2020).

The most basic purpose of assessment tests is to measure achievement and proficiency (Alderson et al., 1995). On the one hand, achievement measures how much of the previous course content has been mastered, with the assessment based on prior learning. It is based on the assumption that there is clear instructional content; for example, if there are 100 pieces of content taught and the student has mastered half of them, they receive a score of 50 points, indicating that 50% of the content has been mastered. This may be a relatively well-defined language component, such as vocabulary or grammar, or it may be an operational language skill, such as the ability to speak, for which it is difficult to distinguish what has been learned from what has not. Proficiency tests usually aim at summative assessment, and their content is consistent with the syllabus and textbook material (Alderson et al., 1995).

Proficiency, on the other hand, measures what one can do with a language at present and what level of proficiency is expected in the future. The most representative examples are the TOEIC and TOEFL examinations (Alderson et al., 1995).

The role of assessment in CLIL is essentially the same as that of testing in regular foreign language instruction. The major difference lies in the handling of the content of the assessment test (Ikeda, 2016). Therefore, CLIL aims to improve language skills (language knowledge and the four skills) as well as to teach students about the specialized content that should be understood and communicated through language. For example, the topics of reading comprehension tests are based on the specialized content covered in class (Izumi et al., 2012).

However, CLIL assessment criteria are not uniform, and CLIL teachers disagree on whether content and language should be assessed separately or in an integrated manner. Some researchers (e.g., Frigols & Marsh 2007; Serragiotto, 2007; Wewer, 2014) support assessing content and language separately. Currently, the most widely used method of assessing CLIL is to assess language and content separately (Rohmah, 2022). Specifically, Serragiotto (2007) states that assessment must be structured so that there is no doubt as to whether missing elements or errors are linguistic, content-related, or both. He contends that it is important to differentiate between content and linguistic aspects in assessments. Frigols & Marsh (2007) argues that in CLIL, foreign language grades should be kept separate from content grades and skills, so that no points are deducted in assignments or exams because of language issues.

Other researchers (e.g., Coyle et al., 2010; Marsh et al., 2012; Massler, 2011) argue for integrated assessment. Integrated assessment is a method in which both aspects (content and language) are assessed simultaneously within a single task or organized within a test (Marsh et al., 2012). Coyle et al. (2010) argue that language is used to support content-related communication. Massler (2011) contends that language assessment in CLIL requires attention to the focus of CLIL (whether the focus is on language teaching or specialized content), as well as the foreign language proficiency level of CLIL students.

Another perspective on linguistic aspects related to assessment focus depends on the subject matter taught in the foreign language (Bentley, 2010). For example, subjects such as mathematics, where the language used to present content is explicit, will be treated differently in terms of linguistic features compared with science subjects, where the language used to express content involves both theoretical knowledge and practical testing.

Although no unified evaluation criteria exist, Watanabe et al. (2011), after discussing previous research and practice on CLIL, suggest the following points to keep in mind when designing tests to evaluate CLIL learning outcomes. First, content knowledge is crucial for learning a foreign language through CLIL. As background knowledge significantly impacts the learner's grade level (elementary, secondary, or high school), a test that integrates language and other knowledge and skills is needed. Second, when dealing with highly specialized content, the language should use simple structures and multiple-choice tasks. This is especially important for beginners and intermediate-level students. Finally, topic knowledge is important for motivating candidates. Including topics that test-takers are

familiar with or that catch their interest in the test will increase their motivation. The fact that content learned in class is also covered in the test positively affects test-takers' psychology. Watanabe et al. (2011) also highlight the need for CLIL tests to examine not only language proficiency but also content knowledge, academic skills, and community-building skills. However, it is impossible to assess all these aspects in a single test. Therefore, it is necessary to evaluate them from multiple perspectives by collecting a portfolio of each class assignment and assigning speeches and essay writing as extracurricular tasks.

Evaluation during learning activities is considered the teacher's evaluation and feedback on the students' learning process. In addition to the purpose of assessment, evaluation and feedback during learning have a significant pedagogical role. For example, in a foreign language class, feedback can guide students to other texts they are about to write, help them explore the possibilities of the text, assist them in understanding the context, give them a sense of audience, and clarify the expectations of the community they are writing for (Hyland & Hyland, 2006).

Assessment and teacher feedback during learning activities also differ between foreign language classes and CLIL classes. First, the form of feedback differs: according to Milla & Mayo (2014), feedback in a foreign language classroom is often more explicit (e.g., explicit correction, metalinguistic hints, repetition), whereas feedback in a CLIL classroom is often recast (i.e., the teacher reformulates the learner's incorrect utterances in the correct form). The content of the feedback also differs. Most feedback in foreign language classrooms is related to grammar, spelling, and sentence structure (Hyland, 2003; Seker & Dincer, 2014; Sermsook et al., 2017). Conversely, feedback in CLIL is related to both language and specialized content. For example, in a CLIL biology class, teacher assessment and feedback facilitated students' language development and acquisition of the content being learned. In particular, assessments and feedback that encouraged students to articulate reasons were effective in deepening their understanding of scientific concepts (Tagni & Ní Riordáin, 2021).

Despite differences in the form and content of feedback, the results of the aforementioned studies indicate that teacher feedback positively impacts student learning in both foreign language learning and CLIL.

The evaluation of the practices in this paper is presented as follows:

As the class for Practice 1 in this paper was a basic Japanese course, the evaluation items were limited to language-related aspects. The assessment items included listening, vocabulary, grammar, and writing. The specific test items are detailed in Appendix 3 of the manuscript.

Practices 2 and 3 in this study were CLIL courses on intercultural communication. These courses focus on teaching specialized knowledge, with the primary objective being for students to understand specialized concepts and apply their knowledge to solve problems. Therefore, based on

the findings of Wewer (2014), the tests were divided into a language portion and a specialized content portion. In other words, the most widely used method in CLIL—separating language and content—was adopted. Additionally, the points suggested by Watanabe et al. (2011) for creating CLIL tests were considered. The final assessment items included both Japanese language knowledge and skills and specialized knowledge. The assessment items related to Japanese language knowledge included reading comprehension, listening comprehension (multiple choice), and writing. The test items related to specialized knowledge assessed students by asking them to explain the definition of a learned concept and discuss how the concept could be applied to real-life situations in the future. Specific test items are detailed in Appendix 3 of the manuscript.

As Coyle et al. (2010) mention, language is used to support communication about content. Therefore, in the practice of this paper, an integrative evaluation approach was used for the regular assessment. In other words, students' performance in tasks such as group discussions or presentations in a foreign language was evaluated in an integrated manner. At the end of each lesson, students were also asked to write their impressions and questions about what they had learned, and the teacher provided feedback on each student's reflections. These were also used as part of the evaluation of the students' regular grades at the end of the course.

Regarding teacher evaluation during learning activities, in the practice of this paper, the teacher evaluated and provided feedback on students' comments and reflections during and after learning activities. For example, the teacher visited the classroom while students were engaged in group discussions, and students could ask questions at any time. After each lesson, students were asked to write a reflection, each of which the teacher then evaluated and responded to.

For student evaluation, this paper focuses on research questions related to CLIL, particularly the "evaluation" component in the 4Cs of CLIL, which relates to the evaluation process during student learning activities. This process involves making judgments about the content and information learned and evaluating its value and usefulness (Coyle, 2006).

Social constructionism asserts that the existence of all cultural and social realities, including values and meaningful behaviors, is due to social actions and practices. These actions and practices are generally taken for granted and shaped by social conventions (Berger & Luckmann, 1966). The meaning and reality of things are shaped by sociocultural contexts, making language, communication, and dialogue central processes for understanding the world and ourselves (Galbin, 2014).

Moreover, CLIL is influenced by social constructivism, which advocates solving learning problems through group activities (Coyle, 2010). Through language use, people interpret reality and generate social meaning. From a social constructionist perspective, it is important how individuals and groups jointly construct and share reality (White, 2004). The process of accepting feedback from others and reevaluating one's actions and ideas based on it in group discussions promotes an

understanding of how knowledge is constructed (Burr, 2015; Chernilo, 2008).

The specific assessment process in CLIL is shown below. Evaluating the reliability and validity of information and forming opinions based on evidence, for example, learning activities in which groups of students evaluate the same subject and form sentences, is considered evaluation (Watanabe et al., 2011). Selecting the best of different options and solutions, for instance, choosing between two heating devices, discussing their advantages and disadvantages as a group, and summarizing them in a table, is considered an evaluation (Ikeda, 2016). Collecting various information (charts, newspapers, etc.) and discussing a real-life issue—for example, taking a historical event and related articles and documents, discussing the causes of the historical event, connecting it to contemporary social issues, considering how it can be used to solve current problems, and evaluating the proposed solutions—is another form of evaluation (Ikeda, 2016).

Nikula (2012) noted that through group discussions, students became more aware of how foreign language vocabulary related to specialized content should be used. She also observed that students had the opportunity to collaboratively construct meaning and practice subject-specific language use through discussion.

There are also learning activities whereby students learn a foreign language through group activities in a foreign language class. In Klenowski's (1995) study, students participating in a foreign language writing class were divided into groups of 3–4. Students read their writing to group members, who then provided content feedback. The feedback given by other students was used by the students to revise their own essays. Discussions in the groups included grammar and content accuracy. Consequently, students became aware of their strengths and areas for improvement through the learning activity, providing them with an interactive and meaningful writing experience and promoting revised output in both written content and grammar. In Bohari's (2020) study on foreign language learning, it was noted that after listening to other students' opinions through discussion, students needed to integrate their knowledge of the language they had learned and find the appropriate vocabulary to express their opinions, which helped improve their foreign language speaking skills. It was also noted that through discussion, students could enhance their skills in thinking critically and expressing their own ideas in response to other opinions.

The aforementioned studies indicate that group discussion is a valuable learning activity in both foreign language classes and CLIL, positively impacting learning outcomes. However, the focus of group discussions in foreign language classes is on language proficiency, whereas in CLIL, group discussions focus on specialized knowledge in addition to language skills.

The practices in this paper also included learning activities designed to promote students' assessment skills. These activities emphasized both foreign language learning and the acquisition of specialized knowledge. In Practices 2 and 3 of this paper, group discussions were held in each session, in which students were asked to solve problems provided by the teacher. During these group

discussions, the teacher also provided worksheets (to be completed in a foreign language) for students to organize their ideas. Students discussed what they recorded on the worksheet with their group members and made changes to the worksheet based on their peers' opinions. Finally, students presented their opinions and ideas in a foreign language before the entire class. The issues to be discussed, such as the texts and articles (in the foreign language) to be read, were strongly related to the specialized content of the study. For example, in Practices 2 and 3, students were tasked with reading an article containing elements of stereotypes and prejudice, discussing and evaluating its content, and finally summarizing their opinions.

Specific course examples for the Basic Japanese Course, the Intercultural Communication Course, and the CLIL Course are listed in the Appendix.

1.6.2. Definitions of evaluation and assessment in this study and evaluation in the 4Cs in CLIL

Evaluation is an activity designed to measure the achievement of educational goals and to help improve the educational process. Evaluation is a systematic operation conducted through data collection, observation, and analysis to derive value judgments about the quality of the program as a whole or its components (Rossi, 1985). Evaluation utilizes both quantitative and qualitative data collection methods, allowing for in-depth analysis of the program and increasing the reliability of evaluation results. Examples of these methods include questionnaires, interviews, and observations (Rossi, 1985).

According to Fien et al. (2001), evaluation is the process of measuring and analyzing the outcomes or changes achieved by a particular program, project, or activity. Specifically, evaluation falls into three categories:

Outputs: Refer to the physical products of the project. They often have no value in themselves but serve as tools or contributions toward achieving outcomes or impacts.

Outcomes: Refer to the results or changes brought about by a program, project, or activity. These are potentially short-term but provide a supportive context and infrastructure for long-term cumulative effects and impacts.

Impacts: Refer to the long-term cumulative effects of a program, project, or activity that embody lasting change. This includes sustained improvements in practices, local conditions, the way education is delivered, and the way people think and live.

The definition of evaluation given by Harvey (2002) refers to the process of monitoring and analyzing quality in higher education with diverse objectives and methods. Evaluation in Kreber and

Brook's (2001) paper refers to the process of assessing educational programs through quantitative and qualitative data. Lyons et al.'s (2006) study defines evaluation as a systematic process of determining the merit, value, and significance of financial education programs. The purpose of evaluation is to assess both the effectiveness and impact of these programs in achieving their intended objectives and improving the financial literacy of participants. The data collected are both quantitative and qualitative.

Typically, evaluations are used extensively. Evaluation refers to the broader process of interpreting assessment data and making judgments about student learning and program effectiveness (Brown & Knight, 1994).

In summary, evaluation in education is a systematic process of collecting, analyzing, and interpreting information to assess the effectiveness and efficiency of educational programs, practices, and processes. It is used to make informed decisions and improve educational outcomes (Brown & Knight, 1994; Fien et al., 2001; Kizlik, 2012).

According to Anderson (2005), evaluation can also refer to activities that assess preset educational goals. For example, he states that setting specific learning goals for students at different levels can improve the quality of assessment. Teachers can improve their teaching methods based on segmented assessments as well as the final overall assessment.

Some researchers also refer to these "segmented assessments" as "assessments." Per Kizlik (2012), assessment is a process that provides information for making decisions about a particular situation. This involves making judgments about value, appropriateness, and so on, based on the results of an assessment. Assessment is complex and involves value judgments. It is the process of gathering information related to specific goals and objectives to determine student progress and skill acquisition. Kizlik (2012) notes that assessment often functions as summative evaluation and is usually conducted at the end of a semester or program. Assessment in Knight's (2002) study is understood as a systematic process of collecting and interpreting data or outcomes of student learning. It involves determining the extent to which students have achieved the learning objectives set in the curriculum.

Assessment refers to the various methods and processes used to evaluate learning processes and outcomes. This includes tests and tasks to measure the extent to which students have achieved their goals (Pereira et al., 2016).

Assessment is used to not only measure student skills and knowledge but also help teachers improve their teaching as part of the classroom process. Various methods are used in education to assess learners' understanding and skills. Traditional methods of assessment have focused heavily on comprehensive end-of-semester exams, but in recent years, module-based assessment has gained attention (Davies, 2004; Martínez Melis & Hurtado Albir, 2001; Wiley, 2019). For example,

traditionally, the priority in translation education has been on the assessment of deliverables (summative assessment), but increasingly, the importance of process-oriented assessment (formative assessment) is being recognized (Davies, 2004; Martínez Melis & Hurtado Albir, 2001).

Formative assessment: Conducted during the learning process, it assesses students' progress in reaching learning goals. It aims to improve learning and increase student understanding through feedback.

Summative assessment: Conducted at the end of a semester or course, it summatively assesses student learning outcomes and is commonly used for grades and accreditation (Pereira et al., 2016).

In some courses that require assessment of students' overall competence, the end-of-semester test alone may be insufficient to comprehensively assess student learning outcomes. For example, translator competence is considered a complex process consisting of multiple interrelated skills and sub-competencies. Multiple and varied assessments are needed to assess these competencies (Davies, 2004; Martínez Melis & Hurtado Albir, 2001). Multiple assessments refer to modular assessments that formatively assess students at the end of each unit, whereas diverse assessments include not only multiple-choice or fill-in-the-blank tests but also oral presentations, mini-essays, and group work (Davies, 2004; Martínez Melis & Hurtado Albir, 2001; Pereira et al., 2016). In Richardson's (2015) study, a combination of modular assessments improved student learning outcomes compared to end-of-term assessments alone and reduced anxiety levels compared to end-of-semester assessments alone.

Based on the foregoing discussion, the definitions and differences between evaluation and assessment in education are summarized below.

Definition:

Assessment:

Refers to the various methods and processes used to evaluate learning processes and outcomes. This includes tests and tasks to measure the extent to which students have achieved their goals.

Evaluation:

Refers to the process of measuring and determining the quality and outcomes of a particular program or project. It is conducted to determine the extent to which a program has achieved its goals.

Comparison of similarities and differences:

Objective:

Assessment: The purpose is to track learning progress and skill acquisition and provide feedback.

Evaluation: The purpose is to make not only value judgments based on assessment results but also decisions about the educational program and student performance.

Focus:

Assessment: Focuses on the acquisition of specific skills and knowledge and emphasizes individual student learning processes and outcomes.

Evaluation: Focuses on overall performance and program effectiveness and emphasizes broader educational goals, such as program effectiveness.

In what follows, we will discuss evaluation and assessment as they appear in CLIL.

First, some CLIL studies mention program evaluation. It is said that test results are used to examine the effectiveness of the curriculum, the efficacy of instruction, the outcomes of teachers' instruction, and whether the curriculum was effectively organized (Lancaster, 2018; Pérez Cañado et al., 2023; Watanabe et al., 2011). However, program evaluation is outside the scope of this paper's discussion, as the paper's main focus is on the effectiveness of pedagogy and learning in CLIL classes and does not address the evaluation of large-scale projects.

The assessment of learning outcomes using tests, as discussed earlier, is included within the scope of assessment. Testing is a form of assessment, and all testing is assessment, but not all assessment is testing. Assessments are used to track educational progress and make educational decisions (Black & Wiliam, 1998; Brown & Knight, 1994; Kizlik, 2012). Assessment methods vary widely and include questionnaires, interviews, focus groups, reports, oral and practical tests, and spreadsheet software (Cassidy, 2007; Fitzpatrick, 2006; Lew et al., 2010; Orsmond & Merry, 2013). The assessments addressed herein are considered in a broader sense than formal testing and include questions from learners and information-gathering instruments such as impression sheets, observations, and questionnaires. This is consistent with prior research.

"Evaluation" in the 4Cs of CLIL, specifically vis-à-vis "cognition," refers to the process by which students think critically about what they learn, evaluate it, and form opinions. This includes the ability to judge the relevance and usefulness of information, compare different standpoints, and explain one's thinking with evidence (Coyle, 2006). For example, this may involve analyzing and evaluating information on the same topic, expressing opinions, comparing the functions of two similar objects (e.g., heating equipment), assessing their pros and cons, and concluding which is more applicable; or analyzing and evaluating historical events and applying the findings to real-world problems (Ikeda, 2016; Watanabe et al., 2011). As can be seen from the above definition and examples of "evaluation" in the 4Cs of CLIL in "cognition," evaluation in the 4Cs of CLIL is not

exactly the same as the evaluation or assessment described earlier. Therefore, a new term, "evaluation in 4Cs," is introduced to distinguish between general education evaluation, assessment, and evaluation in 4Cs. In this paper, we refer to assessment in 4Cs as "4Cs-evaluation."

1.7. Research purpose

According to the previous research review, most CLIL courses are designed based on the 4Cs of CLIL. However, the 4Cs of CLIL are not a course design theory but rather four elements that need to be included in a CLIL class. Therefore, the goal of this thesis is to not only implement CLIL classes using ID theory but also identify the course design elements that effectively promote learning performance through practical application.

The author aims to analyze the results of designing Japanese CLIL classes using ID theory and ultimately develop a checklist for course design using ID theory that is applicable to Japanese CLIL classes. This checklist is intended to assist teachers in designing effective courses.

1.8. Structure and hypotheses of this dissertation

1.8.1. Structure of this dissertation

This study was conducted according to the following procedure:

Chapter 1 (this chapter) describes the definition and background of CLIL, ID, and FPI, as well as the background, role, and challenges of CLIL course design. Based on this background, the aim of the study is clarified, and the hypotheses and research questions are presented.

Chapter 2 provides a review of practical research on CLIL from the perspective of ID theory, specifically FPI. From the results of this review, the current problems in CLIL classes and potential directions for future improvement are identified.

Chapter 3 describes the design process for a basic Japanese course using FPI theory, the learning outcomes, and the design elements of FPI that contribute to these learning outcomes, as drawn from the analysis of practice.

Chapter 4 details the design process of a CLIL course using FPI theory, the learning outcomes, and the design elements of FPI that contribute to these outcomes, based on the analysis of practice.

Chapter 5 presents the process and results of the design of an improved CLIL course using FPI theory, based on the practical results in Chapter 4. The design elements of FPI that contributed to the learning outcomes are identified from the analysis of these practical results.

Chapter 6 compares and summarizes the results of the three practices. The FPI elements that contribute to the learning outcomes extracted from the three practice sessions are combined, organized, and constructed into a design checklist for Japanese CLIL. The appropriateness and

usefulness of this design checklist are also evaluated.

Finally, Chapter 7 summarizes the research findings, provides implications, and discusses the limitations and future work of the research.

1.8.2. Hypotheses of this dissertation

This study aims to identify the elements of FPI that can contribute to the learning outcomes of CLIL by analyzing the practices, and thereafter organize these elements to design a checklist that can be used to ensure the quality of CLIL.

Based on prior research, the following hypotheses are proposed:

The traditional Japanese language teaching model is a teacher-centered approach that emphasizes vocabulary and grammar (Kuo, 2020). In addition to listening to the teacher's explanation of language knowledge, students practice the application of this knowledge through memorization and repetition (Liu, 2018). Japanese classrooms lack opportunities for students to apply what they have learned, and there is a need for classroom learning that allows students to practice their acquired knowledge (Kuo, 2020; Liu, 2018). The most desirable learning environment is one where students can use the language in everyday life, but when studying Japanese in China, it is difficult to meet native Japanese speakers and learners, making the classroom the primary place to practice Japanese. One of the differences between foreign and second language learning is that the former takes place primarily in the classroom, making it difficult for students to be exposed to realistic usage situations, whereas the latter offers a relatively more immersive environment where students can encounter realistic language usage and culture (Gilmore, 2007). However, FPI theory is a lesson design concept based on constructivism; the main characteristics of FPI are the introduction of real-life problems into the classroom and an emphasis on the application of what is learned (Gardner, 2011; Merrill, 2012). Therefore, it is hypothesized that Japanese language classes designed using FPI will improve student achievement in understanding and applying Japanese language knowledge (H1).

H1: Japanese language learning classes designed using FPI can improve student learning outcomes.

As Japanese exchanges in the fields of economics, culture, and education become increasingly active, Chinese universities are establishing Japanese-related departments, as more comprehensive Japanese speakers will be needed for future exchanges between China and Japan. For example, programs such as Economics + Japanese, Culture + Japanese, and Computer + Japanese are being developed. The goal is to nurture students who not only know the Japanese language but also understand Japanese culture. However, although universities offer related classes, relatively little research has been conducted on teaching methods for these classes or on ways to improve teaching effectiveness (Qi & Chen, 2017). Therefore, there is a need for research on the development of

teaching methods for Japanese language courses that align with the current educational context. As a teaching model that uses a foreign language to teach specialized knowledge (Wolff, 2012), CLIL is applied here. It contains four main elements, namely, content, communication, cognition, and culture, referred to as the 4Cs (Coyle et al., 2010). Most current CLIL classes are based on the 4Cs for course design. However, as the 4Cs are only elements that need to be included in a CLIL curriculum and not a theory or model for ID, Meyer (2010) states that further research is needed on CLIL course design. As an ID theory, FPI has played a role in previous studies in ensuring the quality of classes. Thus, it is hypothesized that the use of FPI theory in CLIL class design will ensure the quality of classes (H2).

H2: Japanese language CLIL classes designed using FPI can improve student learning outcomes.

Based on the results of previous practices, CLIL designed with FPI needs to strengthen the connection between the content of learning and the given content and related examples, as well as the connection between individual lessons. Information and communications technology (ICT), as an effective classroom support tool, can address the problems of insufficient time for the application of language and content knowledge and the lack of examples in given lesson content that have existed in previous practices. Therefore, it is hypothesized that ICT-enhanced CLIL designed with FPI will ensure students' time to apply their knowledge and improve their learning outcomes (H3).

H3: Japanese language CLIL classes using ICT designed with FPI can improve student learning outcomes.

Furthermore, it is assumed that the designed elements will affect learning effectiveness. Therefore, the following hypotheses (H4 and H5) are proposed.

H4: There is a correlation between the elements of FPI and student learning outcomes in Japanese language learning.

H4-1: There is a correlation between the elements of FPI and student learning outcomes in basic Japanese language learning classes.

H4-2: There is a correlation between the elements of FPI and student outcomes in Japanese language CLIL classes.

H5: The use of ICT has had a positive impact on students in CLIL classes based on FPI.

Based on the aforementioned hypotheses, the research questions addressed in each chapter of this dissertation are summarized in Table 1-2.

Table 1-2. The research questions (RQs) related to the hypotheses in this dissertation

Hypothesis		RQ	Data collection	Data analysis
H1. Japanese language learning classes designed using FPI can improve student learning outcomes.		RQ1-a	Performance test	Wilcoxon Signed-rank Test
H2. Japanese language CLIL classes using FPI design can improve student learning outcomes.		RQ2-a	Performance test	Wilcoxon Signed-rank Test
H3. Japanese language CLIL classes using ICT designed using FPI can improve student learning outcomes.		RQ3-a	Performance test	Wilcoxon Signed-rank Test
H4. There is a correlation between the elements of FPI and student learning outcomes in Japanese language learning.	H4-1 There is a correlation between elements of FPI and student learning outcomes in basic Japanese language learning classes.	RQ1-b	Performance test, FPI questionnaire	Spearman Rank Correlation
	H4-2 There is a correlation between elements of FPI and student outcomes in Japanese language learning CLIL	RQ2-b, RQ3-b	Performance test, FPI questionnaire, recording of the group discussion, Interviews	Spearman Rank Correlation, dialogue analysis

	classes.			
H5. The use of ICT has had a positive impact on the students in the CLIL class based on FPI.		RQ3-c	Performance test, FPI questionnaire, recording of the group discussion, Interviews	Spearman Rank Correlation, dialogue analysis

The specific research questions (RQs) in each chapter are presented as follows:

Chapter 3

Instructional Practice 1

RQ1-a: What is the learning effect of a Japanese language class designed using FPI?

RQ1-b: What are the relationships between the elements of FPI and learning outcomes?

Chapter 4

Instructional Practice 2

RQ2-a: What is the learning effect of a Japanese language CLIL class designed using FPI?

RQ2-b: What are the relationships between the elements of FPI and learning outcomes in a CLIL class?

Chapter 5

Instructional Practice 3

RQ3-a: What is the learning effect of CLIL classes using ICT based on FPI?

RQ3-b: What are the relationships between the elements of FPI and learning outcomes in CLIL classes using ICT?

RQ3-c: How should ICT (referring to digital devices such as computers and tablets, the Internet, Moodle, and other learning support tools) be used in the classroom to increase students' learning activities?

1.9. Thesis composition

This research explores a significant issue in Japanese language education: the gap between

traditional methods of teaching Japanese in China and the educational needs of the new era. With the deepening of Sino–Japanese exchange, the demand for Japanese-speaking personnel is increasing. Japanese language education now requires not only the development of students' Japanese language skills but also a deep understanding of Japanese culture and specialized knowledge.

However, conventional teaching methods place too much emphasis on vocabulary and grammar, providing learners with few opportunities to apply what they have learned. This results in a lack of comprehensive skills. To address these gaps, we propose the following solutions. First, the CLIL model, which teaches expertise in a foreign language (Wolff, 2012), is applied. Notably, CLIL is a teaching method that allows students to simultaneously learn both specialized content and language knowledge while also focusing on the relevant culture of the target language. Such a teaching method can fully meet the current demand for classroom reform in Chinese universities. Additionally, we propose the development of CLIL by applying ID theory, particularly FPI, to improve the quality and effectiveness of Japanese language education. The ultimate goal of this research is to develop a checklist for ID and a list of examples for Japanese CLIL classes.

Furthermore, one of the key differences between foreign and second language learning is that the former primarily takes place in the classroom, making it difficult for students to be exposed to realistic usage situations and cultures. Conversely, second language learning offers a more immersive environment where students can experience realistic language usage and culture. Therefore, it is necessary to implement authentic learning as a teaching methodology in the classroom.

The relationship between authentic learning and FPI, as well as between authentic learning and CLIL, is outlined as follows:

Authentic learning and FPI:

Authentic learning is an educational approach that emphasizes learning through solving real-world problems and practical engagement. However, Maina (2004) points out that simply introducing real-world problems into the classroom is insufficient. Authentic learning tasks need to be carefully designed to fulfill their pedagogical role. Ozverir et al. (2017) also note that authentic activities must be meticulously designed to match the authentic experiences students encounter outside the classroom and must be continuously updated to adapt to changes in the real world.

One solution to the challenges of authentic learning is to combine it with FPI theory, a constructivist-based lesson design concept that places real-world problem-solving at the center of instruction. Notably, FPI theory emphasizes that real-world problems should be used within the problem-centered principle, detailing how to design realistic problems in the classroom, which are more conducive to learning. This aligns with the principles of authentic learning. When designing lessons using FPI theory, creating "problem-centered" questions that relate to authentic learning will

result in lessons where both content knowledge and language skills are acquired. A comparison of FPI with other ID models will be explained in detail in the overview of Section 2.2, "Instructional Design: The Significance of the FPI."

In designing the authentic questions introduced in the classroom, the problem-centered elements of FPI were followed, along with the 11 principles of authentic activities (introduced in Section 1.5). The problem-centered component of FPI emphasizes that the problems students are asked to solve should be related to real life—problems they may encounter in their daily lives—and that these problems should be systematic, gradually increasing in difficulty, and interconnected (Merrill, 2020). The problems introduced in the classroom adhered to FPI's problem-centered principles and the principles of authentic activity, ultimately presenting problems that were systematic, progressively challenging, and relevant to the real world.

Authentic learning and CLIL:

Meanwhile, CLIL aims to simultaneously improve both target language acquisition and understanding of subject content by enabling students to learn the content of a non-language subject through instruction in the target language. It also emphasizes cooperative learning (pair work and group activities), the development of cultural understanding, and practical language use—all of which are consistent with authentic learning. For the cultural understanding component, authentic learning, particularly through the use of authentic materials, exposes students to the actual use of the target language, helping them understand and master how the language is used in real-world contexts.

Regarding cooperative learning, students explore real-world problems presented by the teacher through group discussions. The dialogues from these group discussions are also analyzed in detail in Practices 2 and 3.

In terms of cultural understanding, this is demonstrated through the use of authentic materials in the classroom. For example, students were shown Japanese news and videos relevant to their textbook knowledge. In one instance, when the practice material included a text related to Japanese Kabuki, a video of Japanese Kabuki was shown to students during the class.

Table 1-3. A view of the learning activities and real-world relevance in this thesis

Practice	Activities	Corresponding real-life situations
1		
	Self-introduction activities	Situations where you need to introduce yourself
	1. Stand up one by one and introduce yourself.	Situations where you meet new

	2. Pair up and introduce yourselves to each other. 3. Line up in two rows facing each other and introduce yourselves to the person in front of you, switching partners one by one.	people, introduce yourself at a new school or class, etc.
	Introduce your favorite foods and hobbies to foreigners.	Situations where you blog on the Internet or communicate with foreigners.
	When a foreigner visits the school, introduce the foreigner to his/her hometown and school.	Scenes of foreign guests visiting the school and interacting with international students.
Practices 2 and 3		
	Self-introduction activities 1. Stand up one by one and introduce yourself. 2. Pair up and introduce yourselves to each other. 3. Line up in two rows facing each other and introduce yourselves to the person in front of you, switching partners one by one.	Situations where you need to introduce yourself Situations where you meet new people, introduce yourself at a new school or class, etc.
	Make your own friend-making map.	A scene of making new friends.
	How would you do it? 1. when giving a birthday present to a close friend 2. walking around campus with a close friend 3. when you see a close friend for the first time in a year	A situation where you are in contact with a close friend.
	When looking for an apartment, what factors are important to you?	A scene of coming to study abroad and looking for an apartment.
	Who will be the leader?	Situations that you may encounter at work after you

	You have decided to choose a leader for your company's upcoming project team. Which person do you think is the most qualified to be the leader? Discuss as a group and decide who is the most qualified.	actually enter the workforce.
	Who pays in such a case? Today is Yamada-san's birthday. At Mr. Sato's invitation, the five of us went out for dinner, all of us belonging to the same circle. We all enjoyed a delicious Chinese meal together. Who do you think will pay for the meal and in what way?	Situations that may be encountered in daily life.
	Create a story from different perspectives. Create a skit using authentic materials.	A situation where authentic material is processed and shown to others. For example, a situation where a Vlog is created and uploaded to the Internet in order to communicate with foreigners.

The ultimate goal of this study is to develop a checklist to ensure the quality of CLIL classes. To achieve this, the following tasks will be undertaken. First, effective design elements for Japanese CLIL will be extracted based on the results of practical verification of Japanese CLIL classes designed using ID theory. These extracted elements will then be organized into a checklist that is easy to use in Japanese language education. Second, ID experts and Japanese language teachers will be asked to evaluate the checklist. Finally, the feedback obtained from these evaluations will be analyzed to create a final, comprehensive checklist.

2. Review of Research on Content and Language Integrated Learning Classes from the Perspective of the First Principles of Instruction

This chapter reviews the literature on Content and Language Integrated Learning (CLIL) from 2011 to 2020. The author analyzed 100 research articles through the lens of the First Principles of Instruction (FPI) to identify challenges within CLIL and explore potential ways to enhance class quality based on these principles. The analysis revealed that current studies on CLIL largely overlook the application of FPI. In this chapter, the author provides recommendations for improving CLIL class design.

2.1. Content and Language Integrated Learning Classes

CLIL, introduced in Europe in the early 1990s, is defined as a dual-focused educational approach that integrates the learning and teaching of both content and language (Coyle et al., 2010). CLIL is distinguished by two main features and the Conceptual Framework of the 4Cs, with effective implementation occurring across five dimensions.

There have been numerous successful applications of CLIL. In a CLIL classroom, students can enhance their sense of citizenship, increase their awareness of the value of transferable skills and knowledge, and boost their confidence and ability to use language. Additionally, CLIL can significantly enhance learners' cognitive abilities and provide young people with the opportunity to become bilingual (Sabet & Sadeh, 2012). Differences in attitudes toward the first language (L1) and second language (L2) between CLIL and non-CLIL students may also influence their learning motivation (Sylvén, 2015). Moreover, CLIL has been shown to improve foreign language learning strategies, geography-related content knowledge, reading skills, vocabulary, satisfaction, and collaboration (Dourda et al., 2014).

However, CLIL has its limitations. Most research to date has concentrated on English as a Foreign Language (EFL), and there is a need for more studies on the effects of CLIL in other linguistic environments and the effectiveness of integrating language and content in those contexts (Cenoz et al., 2014). Although CLIL has seen significant progress over the past two decades, ongoing innovation is essential to its continued success (Dooly & Masats, 2015). Consequently, new tools are necessary to enhance the quality of CLIL (Meyer, 2010).

In summary, while CLIL offers the advantage of teaching both content and language simultaneously, it faces several challenges. For instance, the target language is often restricted to English, and issues related to balancing content and language in the classroom need to be addressed. Furthermore, the design of CLIL programs has typically been based on CLIL-specific characteristics alone. To fully realize CLIL's potential, it may be beneficial to approach it from a more professional curriculum design perspective.

2.2. Instructional Design: The Significance of the FPI

Instructional Design (ID) has been defined by various researchers from different perspectives. The primary goal of ID theory is to provide guidance and support for more effective learning (Reiser, 2001). ID and Instructional Technology encompass a broad range of fields. According to the Association for Educational Communication and Technology (AECT), ID includes six key activities or practices: (a) design, (b) development, (c) utilization or implementation, (d) management, (e) evaluation, and (f) analysis, and these areas continue to expand (Reiser, 2001).

Some ID theories have been established as foundational principles required in curriculum design. In 2002, Merrill introduced the First Principles of Instruction (FPI) theory, which integrates these principles. Strongly influenced by constructivism, FPI summarizes the five essential elements needed to create an effective learning environment.

Merrill (2002) outlined these principles as follows: “FPI is elaborated as: (a) Problem-centered: Learning is enhanced when learners are engaged in solving real-world problems. (b) Activation: Learning is facilitated when existing knowledge is activated to serve as a foundation for new knowledge. (c) Demonstration: Learning is improved when new knowledge is demonstrated to the learner. (d) Application: Learning is strengthened when learners apply the new knowledge. (e) Integration: Learning is deepened when new knowledge is integrated into the learner’s world.”

FPI serves as a design heuristic intended to identify universal principles of instruction common to various ID theories (Cropper et al., 2009). As an integrated ID theory, FPI is particularly valuable for designing practical courses.

In course-level implementation, FPI appears to be a robust cognitive strategy that is used both directly and indirectly through intrinsic goal orientation (Lee & Koszalka, 2016). In another study, the experimental group using FPI showed more significant learning gains from pretest to post-test in terms of memory retention and demonstrated greater confidence in solving future problems (Gardner, 2011). Additionally, FPI can be employed as a framework for evaluating the pedagogical design of content aimed at cognitive learning (Kim et al., 2016).

The purpose of FPI is to provide foundational principles of ID that are applicable across various learning environments, with the goal of enhancing the effectiveness of learning activities. It is characterized by its emphasis on learner-centered instruction that connects to real-world applications and promotes practical and meaningful learning.

Other ID models and theories include the ARCS model, which aims to improve the learning process and outcomes by increasing learner motivation, focusing on both intrinsic and extrinsic motivation. The Dick and Carey model offers a systematic approach to ID, helping educators develop effective materials and curricula with a focus on achieving intended learning objectives. The Multiple Approaches to Understanding model advocates for using diverse instructional strategies to

address learner diversity, providing varied instructional environments to meet the needs of all students. The ADDIE model offers a structured framework for ID, guiding educators through a step-by-step process from needs analysis to evaluation, with an iterative cycle for continuous improvement. The 4C/ID model is designed for complex learning activities, integrating knowledge and skills to allow learners to engage in comprehensive learning across multiple levels.

Although these models and theories differ in their foundational theories and each has its unique approach and focus, they share the common goal of improving the effectiveness and efficiency of education through systematic ID.

Moreover, while these theories and models did not initially emphasize the use of ICT, advancements in technology have made ICT an essential tool for enhancing the efficiency of lesson design and learning. Over time, these theories have been developed and expanded to incorporate various aspects of ICT usage.

Table 2-1 provides a comparative summary of the aforementioned ID theories and models, highlighting their underlying theories, approaches, objectives/focus, and applications of ICT.

Table 2-1. Comparison of ID theories and models

ID theory and model	Grounded theory	Approach	Objective/focus	Applications regarding ICT
FPI, M. David Merrill, 2002	FPI is based on several important theories of teaching and learning, including cognitive psychology, constructivist learning theory, Social constructivism, and problem-solving	Merrill suggests five basic pedagogical principles that he believes apply to all effective ID. Problem-centered: Learning should be centered around specific tasks that enable learners to solve real-world problems. Activation: Effective instruction activates learners' existing knowledge and helps them make connections between new knowledge and	FPI aims to provide general principles of ID to guide the creation of effective learning experiences. These principles emphasize that learning should be closely linked to real-world applications, thus ensuring that learning is translated into practical competence and not just memorization of theory. The focus of	FPI focuses on pedagogical principles and is not specific to pedagogical tools or technology. However, these principles can be very naturally combined with ICT tools to enhance the effectiveness and efficiency of teaching and

	ing theory.	what they already know. Demonstration: Through examples and demonstrations, teachers show how new knowledge can be applied to real-world problems. Application: Learners need to be guided to make practical applications of new knowledge to solve problems or complete tasks. Integration: learners should be encouraged to integrate what they have learned into their daily lives and work through discussion, reflection, and teaching others.	this theory is to ensure that all educational activities provide real value to learners and promote deeper learning through strong connections to real-world issues and problems; Merrill argues that lesson designs that follow these principles are more effective in promoting learner engagement and ultimately improving learning outcomes. He argues that they are more effective in promoting learner engagement and ultimately improving learning outcomes.	learning.
ARCS model John M. Keller , 1983	The ARCS model is based on the Expectancy-Value Theory, Self-Efficacy Theory, and Attention Theory of motivation.	The ARCS model provides strategies and steps for analyzing learners' motivational needs and designing instructional activities to meet those needs. The ARCS model provides strategies and steps for analyzing learners' motivational needs and designing instructional activities to meet those needs. Specific	ARCS emphasizes that to learn effectively, individuals must not only be motivated to learn but also believe they can succeed and find personal value in the learning process and outcomes. The purpose of the ARCS model is to systematically identify and address	The original ARCS model developed by John Keller did not specifically emphasize the use of (ICT). However, with the proliferation and development of technology in education, the

		instructional strategies will be designed based on the four factors: attention, relevance, self-efficacy, and satisfaction. Attention: Use a variety of teaching methods and engaging content to capture learners' attention. Relevance: make content relevant to learners' goals, needs, and experiences. Confidence: Build learner confidence by setting a reasonable level of difficulty and providing success stories. Satisfaction: Provide learners with a sense of accomplishment and fulfillment in the learning process through effective feedback and rewards.	what influences learner motivation, and the model will help teachers design learning experiences that learners find interesting, relevant, and rewarding. The primary focus of the ARCS model is to increase learners' intrinsic motivation.	ARCS model has been extended and adapted to include the use of ICTs to enhance and motivate the learning experience.
Dick and Carey model, Walter Dick and Lou Carey , 1978	The Dick and Carey model is based on behaviorist and cognitive psychology theories.	The Dick and Carey model includes the following key steps, which form a cyclical and iterative process: Identifying instructional objectives: identifying the specific knowledge and skills that learners need to learn. Conducting an instructional analysis: a	The Dick and Carey model views the teaching and learning process as a system in which all parts must be coordinated to facilitate learning. The Dick and Carey model is intended to provide a comprehensive framework for	The original Dick and Carey model did not specifically emphasize the use of ICT. The model was originally developed in the late 1970s, before many modern forms

		detailed analysis of the task and identification of the prior skills needed. Analyzing the learner and context: evaluate the existing knowledge and skills of the target learners and the context in which learning takes place. Developing performance objectives: create detailed, measurable learning objectives that specify the level of performance the learner should achieve at the end of the course. Developing assessment tools: design tools to measure whether learners are meeting instructional objectives. Developing instructional strategies: design effective instructional activities and materials. Selecting and developing instructional materials: development or selection of instructional materials based on designed instructional strategies. Designing and implementing formative assessment: continuous testing and evaluation during the ID process to	teachers to systematically develop instructional materials and curricula to effectively support the achievement of learning objectives. The model places particular emphasis on the interrelationships among educational goals, learner characteristics, instructional materials, teaching strategies, and the learning environment, and how these elements affect the learning process.	of ICT became commonplace. However, as time has passed and technology has evolved, the model has been adapted and updated to include the use of modern teaching and learning technologies.
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		adjust instructional content and methods. Conducting summative evaluation: evaluating the effectiveness of instruction after implementation is complete.		
Multiple Approaches to Understanding, Howard Gardner, 1983	Multiple Approaches to Understanding is based on multiple intelligence theory.	Multiple Approaches to Understanding states that education should respect the diversity of learners and meet the needs of different intelligence domains through multiple teaching methods. Multiple Approaches to Teaching: The use of a variety of instructional strategies and activities to address the diverse needs of learners across multiple intelligence domains. Examples include visual arts, music, physical activities, and traditional written and oral expression. Project-based learning: Encouraging learners to explore and construct knowledge through hands-on projects that cover multiple intelligence domains and can promote	The goal of Multiple Approaches to Understanding is to create an inclusive learning environment that maximizes the potential of all learners. The emphasis is on providing a variety of learning experiences that allow each learner to find success in the areas of intelligence in which they are most proficient and to explore and understand complex concepts through multiple pathways. This approach places particular emphasis on individualization and differentiation of instruction, arguing that education should be tailored to the individual differences of learners rather	In the original concept of Multiple Approaches to Understanding, the use of ICT was not specifically emphasized. However, as technology has developed and reliance on technology in education has increased, ICT has naturally become an important tool for achieving the diversity of pedagogical approaches in Multiple Approaches to Understanding.

		interdisciplinary learning. Reflection and critical thinking: Develops learners' reflection skills and critical thinking, enabling them to understand concepts from multiple perspectives.	than forcing all learners into a single standardized model of teaching and learning.	
ADDIE, Florida State University initially, 1975	The ADDIE model is based on the theory of systematic design.	The ADDIE model facilitates a linear and cyclical process, with each phase laying the foundation for the next, while allowing for retrospective changes based on evaluation results. The ADDIE model approach provides a clear guide to ID and educational program development through five phases: analysis, design, development, implementation, and evaluation. In the ADDIE model, goals are clearly established from the beginning of the analysis phase, and the entire design and development process is centered around these learning objectives, ensuring that all teaching and learning activities	ADDIE is goal-oriented. This systematic process ensures that all aspects of ID are carefully considered and well-planned. The ADDIE model places particular emphasis on the role of evaluation in instructional and learning design, not only through summative evaluation at the end of the course, but also through formative evaluation of the course to gather feedback and make adjustments during the design and implementation process. Feedback will be collected and adjusted on an ongoing basis	First, the ADDIE model does not specifically emphasize the specific use of ICTs. However, with the rapid development of technology and advances in educational techniques, the ADDIE model has been widely extended and adapted to encompass the practical use of ICTs.

		and materials are directed toward achieving the goals.	throughout the course design and implementation process. This ongoing evaluation mechanism will help identify problems and improve teaching methods and materials.	
4C/ID, Jeroen J. G. van Merriënboer, 1992	The 4C/ID model is based on cognitive load theory and constructivist learning theory.	The 4C/ID model consists of four core components: - Learning Tasks: the core of the model, consisting of a series of progressively more complex, authentic tasks that enable learners to practice and apply knowledge in practical and meaningful contexts. ? Supporting information: provides learners with the theoretical knowledge, strategies, and heuristics they need to understand the tasks. This information is usually provided through demonstrations, examples, or theoretical explanations. Procedural information: provides the steps, rules, and instructions necessary to perform a specific task. This is "how-to"	The 4C/ID model is intended to provide a framework for facilitating the learning of complex skills through comprehensive task design. The model is particularly suited for complex learning situations involving multiple interdependent skills and knowledge domains. The primary focus of the model is to integrate the application of knowledge and skills so that learners can learn holistically at multiple levels. The 4C/ID model focuses on enhancing learning by simulating complex real-world situations that promote learners'	In the original framework of the 4C/ID model, the use of ICT was not specifically emphasized. However, given the model's emphasis on the integration of complex learning and practical tasks, ICT is naturally an important tool to support these learning objectives. In contemporary educational practice, the 4C/ID model can improve the teaching and learning experience through the

		information and is usually provided in a timely manner as the learner performs the task. Part-task practice: for skills that require a high degree of automation, proficiency is increased through repetitive practice.	integrated development at the cognitive, skill, and affective levels.	effective incorporation of ICTs.
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As presented in the previous section, authenticity is extremely important for foreign language learning, so in addition to the comparison from the theoretical basis of ID and the perspective of ICT, the item of comparison of authenticity is added here as an item of comparison. A summary of the comparisons is presented in Table 2-2.

Table 2-2. Summary of Comparison of ID Theories and Models

	Behaviorism	Cognitivism	Constructivism	Social Constructivism	ICT Utilization	Authenticity
FPI	—	—	○	○	△	○
ARCS	—	—	—	—	△	△
Dick and Carey model	○	○	—	—	△	—
Multiple Approaches to Understanding	—	—	—	—	△	—
ADDIE	—	—	—	—	△	—
4C/ID	—	○	○		△	○

2.3. Applications of ICT in Language Learning

With the advancement of technology, the landscape of language learning is also evolving. Numerous studies have explored the use of Information and Communication Technology (ICT) to enhance language learning. ICT has been a part of educational practices for over 40 years, beginning with the study of computer-assisted language learning (CALL). In its early stages, due to technological limitations, the application of technology in language learning was restricted to the use of film, television, language labs with audio and videotapes, computers, and interactive video (Cunningham, 1998). As technology has developed, the range of activities supported by CALL has also expanded, leading to a broader definition of CALL.

Initially, CALL was defined as any process in which a learner uses a computer to improve their language learning (Beatty, 2013). Over time, this definition evolved to include not only computers but also devices that can be connected to them, such as MP3 players, mobile phones, electronic whiteboards, and other digital tools (Hubbard, 2009). With the growth of network technology, the scope of CALL has further expanded to encompass social networks, mobile technology, and online games (Dudeney & Hockly, 2012). Consequently, CALL is no longer limited to the use of technology in language learning but also emphasizes its supporting role and the interactions it facilitates (Deutschmann & Vu, 2015).

Research on CALL has made significant progress. For instance, Zaini and Mazdayasna (2014) found that learners who used Microsoft Word for writing tasks performed better than those who did not, as the software's error correction feature helped them use correct tenses. This supports the idea that computer-based instruction can improve students' writing skills. Similarly, Mulyono (2016) highlighted the economic affordability of Quipper, an online platform for foreign language learning, which meets the three conditions of CALL pedagogy.

In recent years, there has been increasing research on the use of mobile phones in language learning, though a clear direction for development has not yet emerged. Sung et al. (2015) analyzed studies on mobile-assisted language learning (MALL) over a 20-year period, examining various factors such as learning stages, hardware and software use, teaching methods, and target languages. Their findings revealed several key features of mobile phone effectiveness in language learning:

1. MALL has similar positive effects for both adults and schoolchildren.
2. Handheld devices are more efficient than laptops for language learning.
3. Both learning-oriented and general-purpose software produce positive outcomes in MALL.
4. Mobile devices are more effective in multiple learning settings than in more restrictive environments like classrooms or outdoors.
5. Integrating mobiles with multiple teaching/learning strategies, such as lectures, inquiries, or cooperative learning, leads to better learning outcomes.
6. Midterm interventions (1–6 months) are more effective

than very-short-term (≤ 1 week) or long-term (> 6 months) interventions. 7. Learning vocabulary or mixed-language skills on mobile devices yields better results than focusing on a single skill. 8. L2 learning using mobile phones results in better achievement than L1 learning.

Research on digital games for language learning has also continued. Vandercruysse et al. (2012) identified key elements of games and their educational benefits: enjoyment and motivation, structured rules, goals and objectives, interaction, feedback on learning, problem-solving, competition, and context. They found that digital game-based learning can effectively enhance problem-solving skills, increase learning motivation, and improve academic performance.

The use of online chat technologies such as forums, Twitter, and Facebook in second language learning is also ongoing. Some studies suggest that chatrooms can serve as conversation simulators for second language learning, offering a helpful alternative for students who may struggle with face-to-face communication (Payne & Whitney, 2002). Kruk (2016) analyzed the use of Second Life for English learners outside of school and found that it improved students' motivation and reduced anxiety and boredom. Huang (2018) investigated the interaction between Chinese-speaking learners of English and English-speaking learners of Chinese via Microsoft Service Network and Skype, finding that text-based chats promoted more target-like language forms, while video-based chats significantly improved fluency and pronunciation.

From the above literature review, it is clear that a wide range of technologies has been applied to language learning, yielding various benefits. However, Huang (2018) also noted that to fully leverage the advantages of an ICT-integrated learning environment, participants need technical training. Additionally, further research is needed to determine how ICT can be used more effectively in language learning. As mentioned earlier, ICT is also an integral part of FPI. Therefore, investigating how to effectively use ICT in CLIL may offer opportunities to enhance the teaching outcomes of CLIL.

2.4. Methods

Researchers have employed various methods to select manuscripts for review. In this study, we used the Education Resources Information Center (ERIC) database to select articles. We began our literature search on ERIC using the keyword "CLIL," limiting the results to peer-reviewed articles only. This search yielded 305 studies published since 2011.

Since the primary focus of our analysis was the issues related to curriculum design in CLIL research, we selected 100 articles for further review. Initially, we excluded 7 articles that were books or contained the keyword "CLIL" but did not address it as a core topic. Next, we removed articles that were not relevant to practice or curriculum design, including those focused on policies and challenges (22 articles), teacher training and support (53 articles), the development of materials and teaching resources (32 articles), social and family conditions (49 articles), and the attitudes and

motivation of students (42 articles). This filtering process resulted in a final selection of 100 articles that specifically addressed practical activities and course design in CLIL.

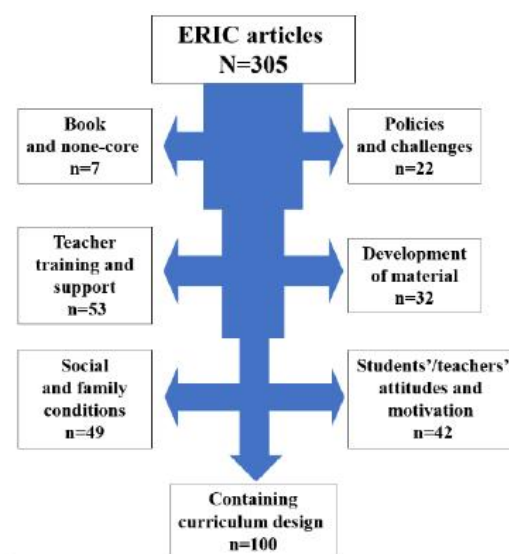


Fig.2-1 Procedure for the selection of articles

2.5. Results and Discussion

2.5.1. The distribution of CLIL studies over time

Research on CLIL has been ongoing for over 30 years. Given its suitability for European bilingual learning environments, the EU officially endorsed CLIL in its cross-curricular form in 2005 (European Commission, 2005). Since then, CLIL has garnered significant attention. However, with the rapid technological advancements of the past decade, the integration of ICT into CLIL must now be considered. Moreover, since ICT is a component of the First Principles of Instruction (FPI), exploring how to incorporate new technology into CLIL to enhance its effectiveness is worthwhile.

As shown in Figure 2-2, the publication of practice-based research papers on CLIL has fluctuated since 2011. From 2011 to 2016, there was a noticeable upward trend in the number of CLIL-related papers, possibly due to the growing interest in CLIL beyond Europe, particularly in Latin America. For instance, in Argentina, CLIL is used to teach English in primary and secondary schools, although its application is often limited to incorporating content from social and natural sciences into English language classrooms (Porto et al., 2016). Despite a decline in 2017, the number of publications quickly rebounded to previous levels. Since the data only extend to July 2020, it is likely that the number of studies in 2020 will continue to rise. This indicates that CLIL remains a highly promising teaching model.

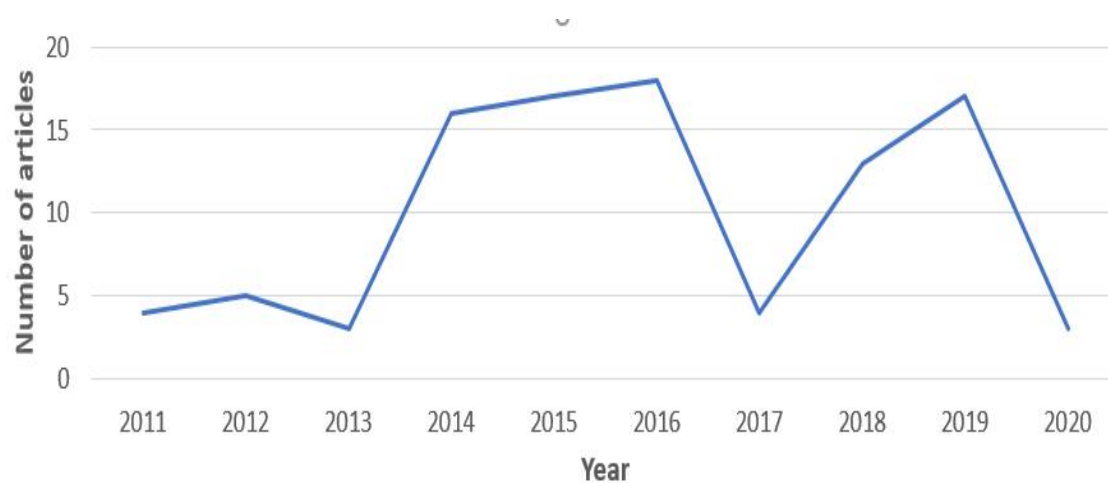


Figure 2-2. Number of articles published by CLIL per year

2.5.2. The main target language for CLIL research

As a teaching model for foreign language learning, it is important to examine the distribution of CLIL use across different languages.

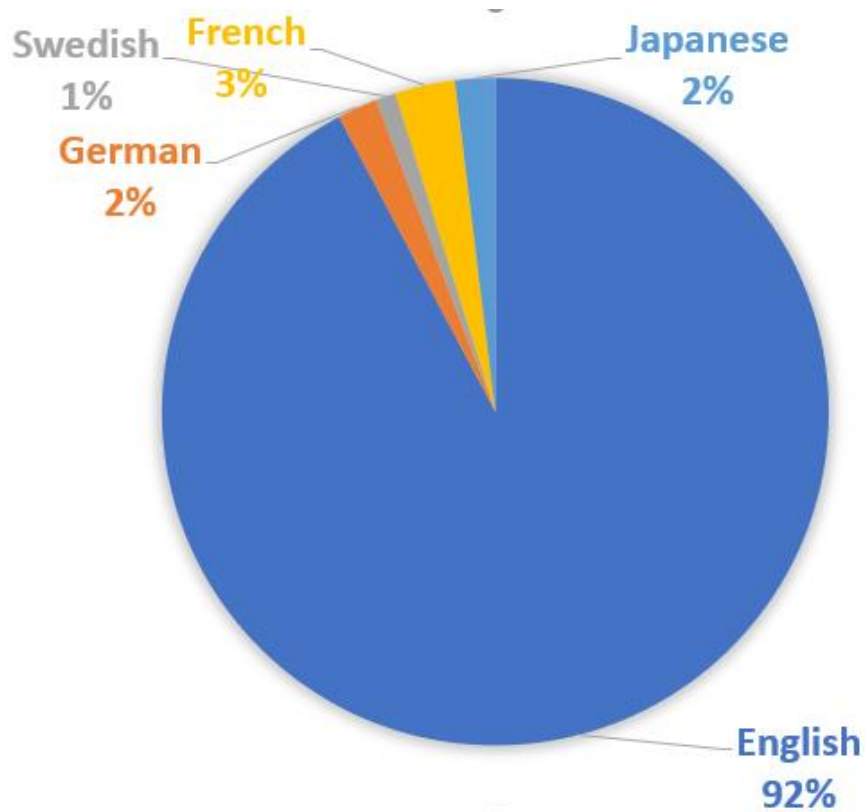


Figure 2-3. Target language

In the vast majority of the articles (95 out of 100), English was chosen as the target language (see Fig. 2-3). Among these, three studies focused on two languages simultaneously: English and German (Marenzi & Zerr, 2012), English and Swedish (Ringbom, 2012), and English and French (Evnitskaya & Berger, 2017). Only five studies did not include English as a target language, focusing instead on Japanese (Cross, 2012; Turner, 2015), French (Surmont et al., 2016; Lamb & King, 2020), and German (Mearns, 2012). In total, the distribution of target languages in these studies includes 95 for English, 2 for German, 1 for Swedish, 3 for French, and 2 for Japanese, summing up to 103 instances.

While the reviewed studies predominantly targeted English, it is important to note that CLIL, by definition, is applicable to any second or foreign language learning (Cenoz et al., 2014). Therefore, the effectiveness of CLIL in learning other languages, such as Japanese and Chinese, deserves further exploration in future research.

2.5.3. Analysis of the FPI elements contained in CLIL practices

In this section, the author aims to discuss how many of the 100 papers on CLIL practice and course design incorporate elements of professional course design. Specifically, the author examines the presence of FPI elements within these existing CLIL studies.

Out of the 100 studies reviewed, 38 included at least one element of the FPI, with some studies potentially containing multiple elements. For the purpose of this analysis, Merrill's definition of FPI was used as a benchmark to classify the course design components mentioned in these papers. Since it was not possible to determine whether other FPI elements were included in the studies' undescribed processes, the FPI elements discussed in this section are limited to those explicitly described in the studies (see Table 2-1). It is important to note that articles were not included in the count if they merely mentioned content emphasized by the instructor without introducing course design details or if they did not meet the criteria for FPI elements. For example, in one study, students were assigned a writing activity on the topic, "Do you think school uniforms should be worn in high school?" and were given 30 minutes to complete it (Lahuerta, 2020). While this activity was mentioned in the course description, the lack of detail and failure to meet the FPI criteria in the presentation of results led to its exclusion from the count.

Table 2-3. Sample of the FPI elements in the papers

FPI	Define	Sample
Problem-centered -Show task	Learning is promoted when learners are shown a task that they will be able to do or a problem they will be able to solve as a result of completing a module or course.	Dourda, et al, (2014): The final goal is to gather all the clues and the necessary information about Mr. X's identity, thus allowing us to arrest him by travelling to where he is hiding.
Activation - Previous experience	Previous experience: Learning is promoted when learners are directed to recall, relate, describe, or apply knowledge from relevant experience that can be used as a foundation for the new knowledge.	Lin and Lo, (2017): Mr. B briefly revisited what had been discussed in the previous lesson.
Demonstration - Relevant media	Learning is promoted when the media play a relevant instructional role and multiple forms of media do not compete for the attention of the learner	Waard and Demeulenaere (2017): Students produced a video collaboratively, combining all they had seen (e.g., what is a MOOC, which language activities were used).
Application - Practice consistency	Practice consistency: Learning is promoted when the application (practice) and the posttest are consistent with the	Dourda, et al, (2014): The game is entirely web-based and consists of three different sites – the Diary, the Chief's office and the Internet.

	stated or implied objectives: (a) information-about practice—recall or recognize information, (b) parts-of practice—locate and name or describe each part, (c) kinds-of practice—identify new examples of each kind, (d) how to practice—do the procedure, and (e) what-happens practice—predict a consequence of a process given conditions, or find faulty conditions given an unexpected consequence	
Integration - Watch me	Learning is promoted when learners are given an opportunity to publicly demonstrate their new knowledge	Pitura and Chmielarz (2017): Their “products” are displayed on the teams’ blogs.

The FPI consists of five principles, each containing three smaller elements, for a total of 15 elements. As shown in Table 2-2, the "demonstration" principle appears most frequently, with 34 instances, followed by "problem-centered" with 30 instances and "integration" with 22 instances. In contrast, "activation" (13 instances) and "application" (9 instances) appear less frequently. The study that included the most FPI elements was a case study of CLIL in a primary education geography class, which incorporated eight of the smaller FPI elements (Dourda et al., 2014). In this study, students responded positively to a related game, and posttest results showed significant improvements in both foreign language and geography knowledge compared to pretest scores. However, none of the studies examined included all FPI elements, and even those with some FPI components lacked a systematic discussion of curriculum design.

The overlap between the "content" focus in CLIL and the "problem-centered" principle in FPI might explain why the "problem-centered" factor is the most frequently reported in CLIL studies. However, the occurrence of the "activation," "application," and "integration" principle is notably low within the overall course structure. From an instructional design perspective, it appears that current CLIL practices lack systematic course design.

Table 2-4. Included elements of FPI

	Problem-cent ered			Activation			Demonstratio n			Application			Integration		
	P 1	P2 5	P 3	AC 1	AC 2	AC 3	D 1	D 2	D3	AP 1	AP 2	AP 3	I1 1	I 5	I3 2
Num bers	2	5	3	5	8	0	7	4	23	7	0	2	1	5	2
Total			3 0			13			34			9			22

*P1: Show task, P2: Task level, P3 Problem progression; AC1: Previous experience, AC2: New experience, AC3: Structure; D1: Consistency, D2: Learner guidance, D3: Relevant media; AP1: Practice consistency, AP2: Diminishing coaching, AP3: Varied problems; I1: Watch me, I2 Reflection, I3: Creation

The FPI consists of 5 major principles and 15 categories, making it challenging to incorporate all of them into a single class design. Merrill (2013) noted that the FPI is structured with 4 levels of strategy, which can be used in course design to assess the extent to which the FPI is applied. These four levels of strategy, ranked from basic to advanced, are as follows: 1. a design that includes only content; 2. a design that includes both content and demonstration; 3. a design that includes content, demonstration, and application; and 4. a design that incorporates all the elements. Some elements are easier to integrate into course design, while others are more complex and require professional expertise in course design. This could explain why some elements appear more frequently than others. Honebein (2019) also pointed out that the FPI is not all-encompassing. When designing courses, teachers should take into account the specific characteristics of their course, choose to emphasize certain elements, or incorporate other theories to enhance the design.

2.5.4. The status of ICT uses in the CLIL

As previously discussed, ICT is increasingly being integrated into language learning. In this section, the author examines the use of ICT in existing CLIL studies.

Among the 100 CLIL articles reviewed, only 23 incorporated ICT, indicating that its integration into CLIL is not yet widespread. These 23 articles featured 10 different types of ICT, including Moodle, web-based platforms, online games, open simulators, audiovisual tools, learning software, online tutorials, digital vocabulary notebooks, Wikis, and MOOCs. The specific findings from these studies are as follows:

a) In a study involving primary school students learning geography, the use of online games resulted in a positive attitude toward the game and significant improvements in both foreign

language and geography scores (Dourda et al., 2014);

b) In elementary school mathematics classes, using GeoGebra software within CLIL led to meaningful activities and improved student learning outcomes (Binterová & Šulista, 2013);

c) Digital vocabulary notebooks, accessible on both computers and mobile devices, supported language learning in CLIL (Bazo et al., 2016);

d) The use of Wikis was found to be effective in problem-solving within CLIL (Lin, 2014);

e) A multi-user virtual environment developed using Opensimulator allowed students to learn geographical terms in a virtual setting, with the experimental group outperforming the control group (Fokides & Zampouli, 2017);

f) The LearnWeb2.0 platform was developed to create a collaborative learning environment for CLIL (Marenzi & Zerr, 2012);

g) Finding appropriate video materials on YouTube for CLIL can help bridge cultural gaps, making learning more meaningful and enjoyable (Zhyrun, 2016).

These case studies demonstrate that ICT is utilized across various courses, with significant variation in the types of ICT employed. The consistent use of ICT as a resource has the potential to enhance both the quality and efficiency of teaching. Theoretical research generally views the integration of ICT into CLIL positively, suggesting that ICT can act as scaffolding for learning content (Chun et al., 2016) or as a tool for simultaneously learning both content and language (Gimeno et al., 2010). In CLIL, ICT provides a framework for creating a culturally relevant learning environment, and selecting the appropriate type of ICT can effectively integrate course content with language learning.

However, the author observes that while various types of ICT are discussed in the research, most are primarily used for delivering teaching materials. For example, a teacher might use PowerPoint to present course content (Ito, 2019). Only a few studies show a deep integration of ICT into the curriculum, such as students using a Web 2.0 platform specifically designed for CLIL (Bazo et al., 2016). As technology continues to advance, the use of different tools in CALL is still in the exploratory and developmental stages. Since multimedia also plays a role in FPI, the flexible use of ICT is necessary to provide learners with better examples for practice.

Despite this, the relatively small number of CLIL research papers that utilize ICT suggests that its use in CLIL remains limited. One possible reason, based on the frequency of CLIL research papers reviewed in this study, is that researchers have primarily focused on performance and practice within CLIL settings rather than on the integration of ICT. However, given the effectiveness of ICT in enhancing learning, future research on its use in CLIL may increase. Bueno-Alastuey et al. (2018)

noted that the effectiveness of technology also depends on teachers' abilities, even though distance collaboration technology holds great potential in CLIL classes. Therefore, as highlighted by Egbert & Shahrokini (2019), improving teachers' ICT skills is essential. As teacher training for ICT use advances, more attention will likely be given to researching ICT integration in CLIL. The design of multimedia in classes, guided by FPI principles, may offer valuable insights for the future use of ICT in CLIL.

2.6. Conclusion

Based on the analysis of existing CLIL studies, the author observes the following: 1. The number of CLIL studies is increasing; 2. CLIL target languages are currently predominantly limited to English; 3. There is a lack of research from the perspective of Instructional Design (ID) that analyzes CLIL, and in particular, there is almost no analysis or implementation of CLIL through the lens of the First Principles of Instruction (FPI); and 4. The use of ICT in CLIL is not yet widespread.

Over the past two decades, CLIL has gained widespread attention, been researched extensively, and has been popularized and implemented due to its unique ability to teach both content and language, along with its culturally adaptive approach. While some significant achievements have been made, several challenges remain, such as balancing content and language, providing students with appropriate scaffolding, and the restriction of target languages to English. Despite the rapid advancements in science and technology in the 21st century, ICT has not yet been widely integrated into CLIL. These challenges are hindering the further development of CLIL.

The author suggests that to address these challenges, researchers should step outside the traditional CLIL framework and reexamine earlier CLIL practices from an Instructional Design perspective. By leveraging the FPI, which combines the strengths of various instructional design models, it may be possible to unlock the full potential of CLIL through redesign. Additionally, it is evident from existing studies that CLIL has predominantly focused on English as the target language, indicating a need for future research to explore the application of CLIL to other languages, such as Japanese and Chinese. Future research should also explore how FPI can be utilized to enhance CLIL classes. Hao et al. (2018) suggest that FPI design can be applied in CLIL classes at the higher education level, but further research is needed to understand how each element of FPI functions within the CLIL framework.

As evidenced by previous studies and the findings of this chapter, it is crucial for researchers to explore how FPI can be employed to improve the effectiveness of CLIL. Specifically, understanding the role of each FPI element within CLIL classes will contribute significantly to the future development of CLIL research.

3. Practical research utilizing Instructional Design 1: Effects of Japanese language learning class based on ID

Traditional Japanese language courses have issues such as limited teaching methods and a lack of active learning activities, which result in students being unable to apply what they have learned. This chapter describes the design of a traditional Japanese language classroom using ID theory and examines the learning outcomes. The results are analyzed to identify the next challenges that need to be addressed.

The practical courses discussed in this paper are Practice 1, an elementary Japanese elective course for non-Japanese majors. The learning objectives and curriculum for Practice 1 are outlined below. The educational objectives, evaluation methods, and curriculum guidelines are based on the *University Japanese Language Education Guidelines 2021 Edition* (《大学日语教学指南(2021版)》). Additionally, the comparison table references the curricula of the three leading Japanese language education institutions in China. These institutions have a long history of Japanese language education and substantial research resources (<https://jwc.bfsu.edu.cn/info/1044/3896.htm>, <https://japan.bfsu.edu.cn/xyjs/xyjj.htm>, <https://moocs.unipus.cn/course/3996>, <http://www.newoaa.shisu.edu.cn/mkcc/list1.htm>, <http://www.newoaa.shisu.edu.cn/ee/00/c8926a126464/page.htm>, <https://www.nankai.edu.cn/>, the reference link is dated August 23, 2024), and they have participated in numerous foundation projects (Bao et al., 2017).

Japanese Elective Courses for Non-Japanese Majors (Elementary)

- Learning Objectives

- Acquire basic Japanese pronunciation, vocabulary, and grammar.
- Engage in simple daily conversations such as introducing oneself, shopping, asking for directions, etc.
- Understand basic Japanese culture and social customs.
- Develop an interest in and respect for Japanese culture.

- Curriculum

- Weeks 1–4: Introduction to Japanese, basic vocabulary and sentence patterns, numbers, and time.
- Weeks 5–8: Basic grammar, self-introduction, shopping and ordering, asking for directions, transportation methods.
- Weeks 9–13: Introduction to Japanese culture, review, and summary.

- Weeks 14–16: Project practice and application, test period.
- Evaluation

3.1. Practical design 1

Before designing the course, an interview was conducted with a teacher to discuss the school's course requirements and the students' learning needs. According to the interview, the teacher primarily focused on teaching basic language knowledge in class, such as vocabulary and grammar, while providing limited opportunities for students to engage in active practice. For instance, when teaching the “masu-form” and “dictionary form,” the teacher mainly explained the definitions and highlighted the differences between the two but did not guide students to consider the appropriate contexts in which each form should be used. Moreover, there were few opportunities for active learning practices in the classroom, such as group discussions and presentations. Consequently, students lacked opportunities to practice what they had learned, a problem that has been noted in previous studies (e.g., Linh & Suppasetsereus, 2016; Liu, 2018). This aligns with the findings from Chapters 1 and 2, which indicate that Japanese language teachers in China tend to rely on experience and lack ID knowledge, making it challenging to ensure the quality of the course.

The course design for this practice was therefore divided into two main stages. First, the Japanese proficiency level of the students was assessed, and the learning content was determined according to the school's curriculum requirements. The design process began by confirming the teaching content and learning objectives set by the school. The required teaching content included Lessons 20 and 21 from the textbook **New Standard Japanese Beginner**. To maintain continuity in the course, the teacher used the vocabulary and grammar introduced in Lesson 19 to explain the content of the subsequent lessons. The school's basic learning objective was for students to master the vocabulary and grammar presented in the textbook. In addition to these basic objectives, this study also established goals to enhance the students' writing skills. The course was designed using the FPI (Framework for Practice Improvement) after analyzing the students' Japanese language abilities and adhering to the school's requirement of covering basic knowledge before engaging in group discussions, presentations, and other active learning activities.

Second, as highlighted in previous studies, the use of all FPI principles in a phased manner has been shown to lead to favorable course outcomes (Gardner, 2011; Lo, 2015). Therefore, all elements of the FPI were incorporated into this practice. To address the lack of active learning opportunities in JFL classrooms, the proportion of time devoted to application elements was increased (see Table 3-1).

Table 3-1 Example of Course Design

Course elements	Previous Courses	This Course	The corresponding FPI elements in this course
Learning activities	The students read the text and make sentences with the words.	Complete the activities using the words and grammar according to the topic. The activity takes the form of a group discussion. The students then make a presentation to show works.	Problem-centered (5 Minutes) Activity 1. <Who pays for this?>Read a passage in Japanese and decide who should pay for the meal based on the conditions described in the passage. Activity 2. Situational presentation. If some Japanese students visit your school, you are required to give visitors a reception. You need to introduce yourself and the Chinese culture in Japanese. Activation (15 Minutes) Ask the students to recall experiences in the past to explain new knowledge. Application (30 Minutes) Using the words and grammar, students have learned to complete the activities. Integration (10 Minutes) At the end of the learning activity, give students the opportunity to show what students have learned.
Multimedia used in class	PowerPoint, photos	PowerPoint, photos, video	Demonstration (10 Minutes) For example, Lesson 21 is about Kabuki. Ask students to watch the video and explain what it is.
Support tool	None	Worksheet	Demonstration (10 Minutes) It helps students organize ideas for writing.
Form of learning	Personal activity	Group activity	Integration (10 Minutes) In group work, students can communicate with others and reflect on what students have learned.

As shown in Table 3-1, worksheets were utilized as a supporting tool in this course design. The primary purpose of these worksheets was to assist students in organizing their thoughts. Presented below are the worksheets that the students produced.

名前: [redacted]

1. 自己紹介

基本情報: わたしは ~~ひ~~ 龍陽学院の学生です。20歳です。体に ~~は~~ いいです。

好きなもの、興味など:

わたしは 趣味は 写真を撮ります。ジョギングが好きです。

好きな理由は:

げんき (元気)

2. 中日文化 (劇、絵、本、風景、食べ物など) の比較

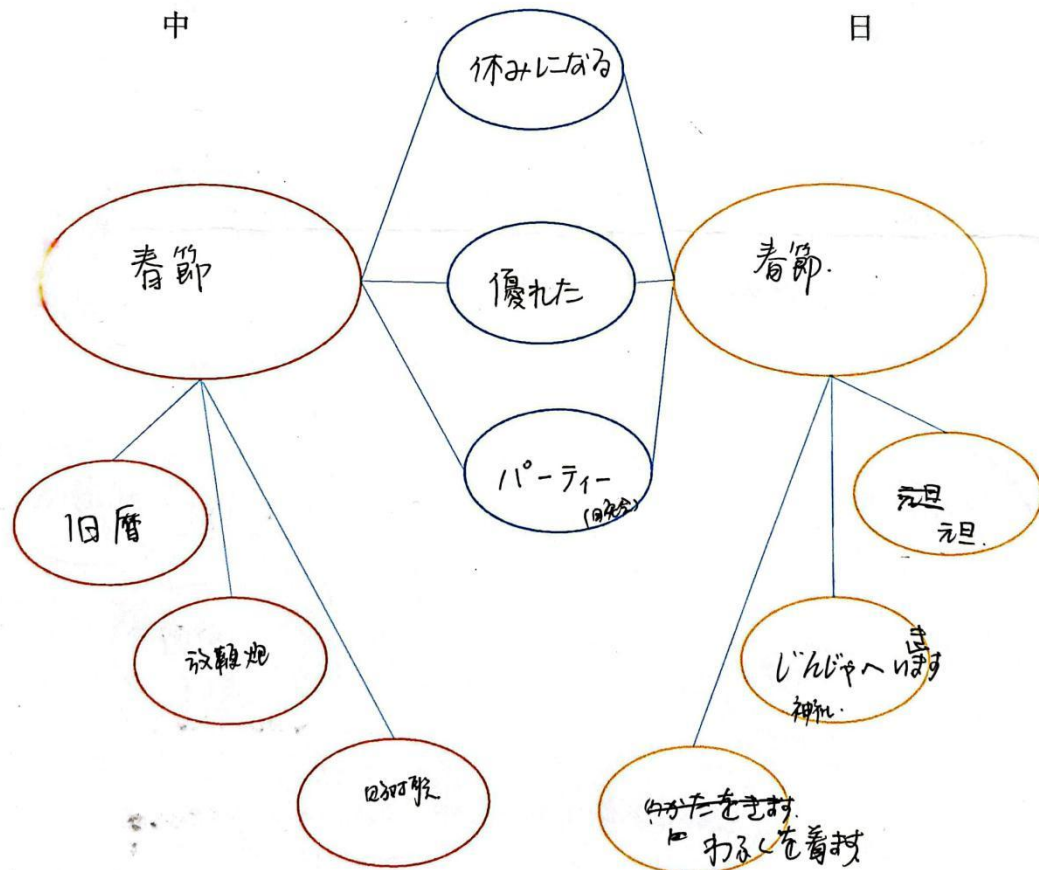


Figure 3-1. Student-made worksheet 01

名前：

1. 自己紹介
 基本情報 ^{わたしは} ^{安陽学院の学生です。} ^{わたしは} ^{英語学部の学生です。} ^{三年生です。}
^{わたしは} ^{20歳} ^{です。} ^{もしわたしは} ^{おやじ} ^{キム} ^{です。}

好きなもの、興味など：

^あ ^{わたしは} ^歌 ^が ^{好き} ^{です。}

好きな理由は：

^歌 ^を ^歌 ^う ^と ^ス ^ス ^が ^解 ^り ^ま ^{す。}

2. 中日文化（劇、絵、本、風景、食べ物など）の比較

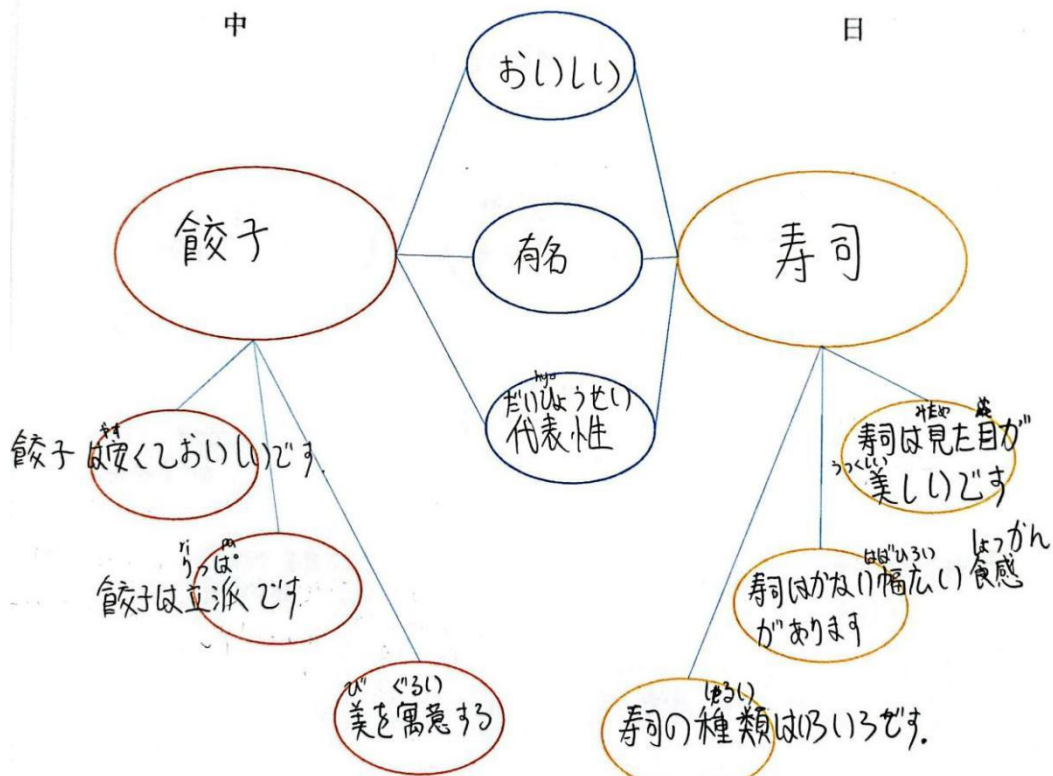


Figure 3-2. Student-made worksheet 02

着きやすい
着にくい

名前:

1. 自己紹介

基本情報: わたしは安陽学院の学生です。
わたしは日本が分かりませんが、でも、~~わたしは日本の料理が~~ ^{わたしは} ~~日本の料理が~~ ^{日本の料理が} ~~あります。~~ ^{あります。}

好きなもの、興味など: ~~日本の料理~~ ^{日本の料理} ~~が好きです。~~ ^{が好きです。} ~~日本の料理~~ ^{日本の料理} ~~が好きです。~~ ^{が好きです。}

好きな理由は: ~~日本の料理~~ ^{日本の料理} ~~が好きです。~~ ^{が好きです。} ~~日本の料理~~ ^{日本の料理} ~~が好きです。~~ ^{が好きです。}

2. 中日文化（劇、絵、本、風景、食べ物など）の比較

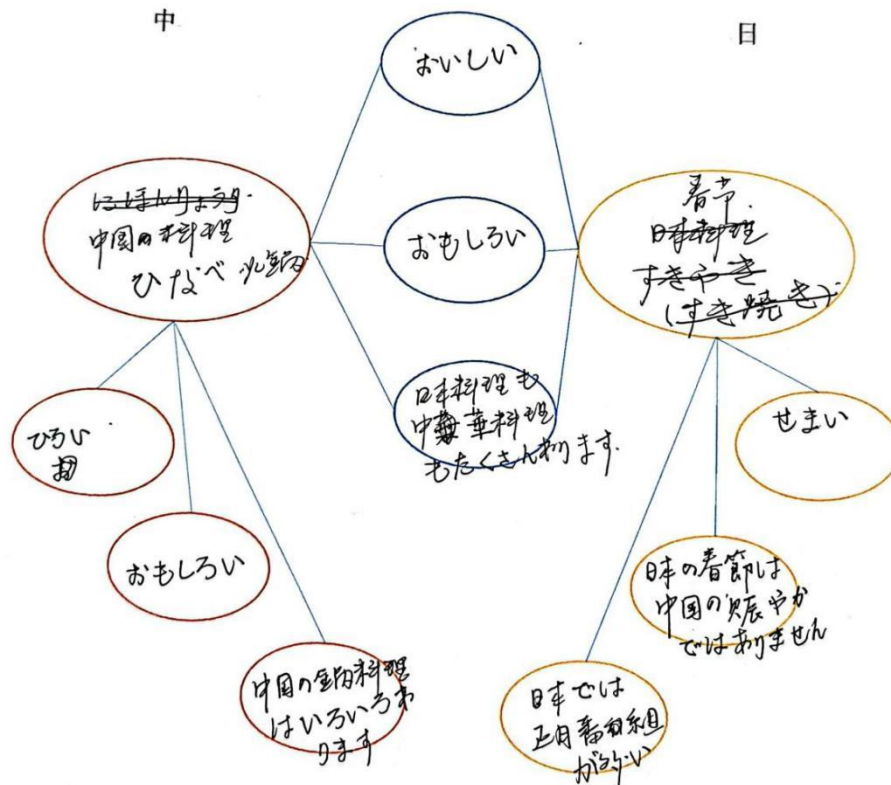


Figure 3-3. Student-made worksheet 03

3.2. Participants and Data Collection of Practical 1

The participants in this experiment were third-year English majors at a Chinese university. Out of the 52 students who initially enrolled in the course, one did not attend the first class, and two others were absent midway through, leaving 49 students who completed all the questionnaire items. These students began learning Japanese in their second year at university, and according to the Japanese proficiency handbook (Japan Foundation, 2010), their proficiency levels ranged from N5 to N4, indicating they were elementary Japanese learners. The handbook specifies that N5 learners can understand frequently occurring words in specific settings, such as classrooms and daily life, and can comprehend slow-paced speech in these contexts. N4 learners, on the other hand, can understand words and short texts from daily life and comprehend phrases spoken at a slower pace.

The course was elective and aligned with the school's curriculum and schedule, covering Lessons 20 and 21 of New Standard Japanese Beginner. The course spanned one month, with two 90-minute classes per week, totaling 12 hours. The learning objective was to master the vocabulary and grammar of Lessons 20 and 21. Each lesson was designed using the FPI (Framework for Practice Improvement), tailored to the students' needs and learning objectives. The teacher, who had 10 years of teaching experience, not only covered basic Japanese knowledge but also incorporated group activities. In these sessions, the teacher provided foundational knowledge, facilitated group discussions on specific problem themes, and guided students in presenting the outcomes of their discussions.

Pre- and post-course questionnaires regarding the FPI were administered at the beginning and end of the course, along with pre- and post-study tests to assess Japanese proficiency. The questionnaires were completed online, while the tests were conducted on paper. The FPI questionnaire was adapted from the Academic Learning Time Questionnaire (TALQ) developed by Frick, Chadha, Watson, Wang, and Green (2009). A total of 140 students from 89 undergraduate and graduate courses across multiple institutions participated in the original questionnaire study. The reliability of the questionnaire was confirmed using Cronbach's α coefficient, with all confidence factors exceeding 0.70, indicating high reliability (see Appendix A for details). TALQ is commonly used to evaluate the versatility of lesson design (e.g., Ritzmann, Hagemann, & Kluge, 2014; Xu, 2012). The FPI questionnaire utilized a 5-point Likert scale, where 1 = Strongly disagree, 2 = Disagree, 3 = Not sure, 4 = Agree, and 5 = Strongly agree. The specific questions and reliability details are provided in Appendix A.

The test consisted of two sections: one assessing Japanese language proficiency and the other evaluating writing ability. The basic knowledge section of the test covered content learned in the textbook and included three multiple-choice questions, three reading comprehension questions, and two listening comprehension questions, with each question type carrying one point. The total score for the basic knowledge section was 11. For writing ability, the JF Japanese Education Standard was

used as a reference to evaluate students' writing skills across three categories: "content," "grammar/vocabulary," and "composition." Each category had a maximum score of 4, resulting in a total writing score of 12. Students' writing scores were calculated by summing the scores of the three categories. A student would receive four points in a category if they met a certain standard. For instance, in the "content" category, a score of 4 points indicated that the reader could fully understand the writing (see Appendix).

3.3. Result of Practical 1

First, the data were checked for normal distribution. Since the data did not follow a normal distribution, the Wilcoxon signed-rank sum test and Spearman's rank correlation coefficient were employed for analysis. Given that the median was used alongside the mean in the calculations, both the mean and median results are reported. The full score for the basic knowledge test was 11, and the full score for the writing test was 12. After analysis, no ceiling or floor effects were observed.

3.3.1. Students' learning outcomes are improved through JFL designed by the FPI.

The descriptive statistics and Wilcoxon signed-rank sum test analysis of the test data revealed the distribution between pre- and post-tests. The results showed that students' basic Japanese scores improved through the JFL course designed using the FPI. The analysis of Japanese proficiency test scores indicated that the post-test basic knowledge average (mean 7.22, median 7.00, SD 1.95, $n = 49$) was higher than the pre-test basic knowledge average (mean 5.10, median 5.00, SD 1.94, $n = 49$). Additionally, a significant difference ($p < 0.05$) was observed in the distribution of basic Japanese scores (see Table 3-2).

Table 3-2 Descriptive Statistics of Japanese Proficiency Test Score

	Mean	Median	SD	z	p
Pre-basic	5.10	5.00	1.94	5.174	0.038
Post-basic	7.22	7.00	1.95		

Note. * $p < 0.05$; ** $p < 0.01$.

Students' writing scores improved through the JFL course designed using the FPI. Analysis of the writing test scores showed that the post-test average (mean 6.88, median 7.00, SD 1.64, $n = 49$) was higher than the pre-test average (mean 4.61, median 5.00, SD 1.00, $n = 49$). Furthermore, a significant difference ($p < 0.01$) was observed in the distribution of the questionnaire results (see Table 3-3). The criteria for evaluating writing ability were based on the *JF Japanese Language Education Standard*, which assesses students' proficiency levels in Japanese (see Appendix).

Table 3-3 Descriptive Statistics of Writing Test Score

	Mean	Median	SD	z	p
Pre-Writing	4.61	5.00	1.00	5.617	0.000
Post-Writing	6.88	7.00	1.64		

Note. * $p < 0.05$; ** $p < 0.01$.

3.3.2. There is a correlation between each FPI element and learning outcomes, and the strongest correlation is between the application element and learning outcomes.

This chapter examined the correlation between the principles of the FPI and students' learning outcomes using Spearman's rank correlation coefficient method. Previous studies (Gardner, 2011; Lo, 2015) have not specified the proportion of FPI principles used in courses. In this practice, the ratio of application elements was increased to address the lack of practice opportunities for students in the JFL course. The effectiveness of this design was therefore analyzed by examining the correlation between students' awareness of FPI elements and their learning outcomes. Scores for each FPI principle were aggregated, the differences between pre- and post-test scores were calculated, and correlations between Japanese proficiency test scores and writing test scores were analyzed. The correlations among these variables are presented in Table 3-4. A positive correlation was found between the test scores and the overall FPI score (.614**, $p < 0.01$), as well as with writing scores (.506**, $p < 0.01$).

For the basic test scores, there was a positive correlation with the activation principle (.618**, $p < 0.01$) and with the demonstration (.455**, $p < 0.01$) and integration principles (.456**, $p < 0.01$). However, no significant correlation was observed between test scores and the problem-centered or application principles. There was a weak positive correlation between writing scores and the overall FPI score (.387**, $p < 0.01$), with writing scores positively correlated with the activation principle (.489**, $p < 0.01$). Additionally, there was a weak positive relationship between writing scores and the application principle (.290*, $p < 0.05$), but no significant correlation with the problem-centered, demonstration, or integration principles. These results indicate that not all FPI principles correlate with learning outcomes, and the application principle is not the one with the strongest correlation to learning outcomes.

Table 3-4 Correlations between FPI, Writing Test and Basic Japanese Proficiency Test Score

	Basic	FPI	Problem-Centered	Activation	Demonstration	Application	Integration
--	-------	-----	------------------	------------	---------------	-------------	-------------

Basic		.614**	.189	.618**	.455**	.266	.456**
Writing	.506*	.387**	.218	.489**	.102	.290*	.264

Note. * $p < 0.05$; ** $p < 0.01$.

3.4. Discussion of Practical 1

3.4.1. Discussion on students' learning outcomes of Practical 1

The analysis of the FPI questionnaire data revealed that both the basic Japanese and post-writing scores significantly improved in the post-test compared to the pre-test. This indicates that students' basic language and writing skills improved in the JFL class designed using the FPI framework. The results suggest that the FPI principles incorporated into this course were effective, and there is a meaningful relationship between test scores and writing scores, indicating that the basic knowledge taught in the course was applicable to writing tasks. However, as shown by the standard deviation (SD) in Table 3-3, while the post-writing scores were notably higher, the post-test SD was also larger. This suggests that although students' writing skills were enhanced, the disparity in performance among students widened. While the writing-focused course design was effective for the class as a whole, individual differences in understanding the writing content may have led to increased variation in student performance. Allison, Cooley, Lewkowicz, and Nunan (1998) highlight that higher education students often have limited opportunities for writing practice in class and may benefit from one-on-one instruction. Therefore, when designing lessons to address this issue, it is crucial to understand each student's learning situation and provide individualized support.

3.4.2. Discussion on the correlation between the elements of the FPI and students' learning outcomes of Practical 1

Different correlations between FPI principles and students' test and writing scores were observed. The overall FPI score had a positive correlation with both writing and test scores, indicating that the FPI design is associated with student performance and has a certain impact on their outcomes. This section explores the relationship between each FPI principle and learning outcomes and offers recommendations for future JFL course design based on these findings.

The problem-centered principle did not show a significant correlation with either writing or test scores. Winch (2016) suggests that classroom activities with clear themes can positively impact learners' grades. However, according to the school's teaching requirements, the basic learning objectives needed to be completed before engaging in activities, and the time for classroom activities was limited. As a result, only problem-centered activities were conducted during the course. Honebein (2019) points out that problem-centered principle are often overlooked in classrooms focused on teaching basic knowledge rather than facilitating learning activities, which aligns with

the findings of this study. The lack of significance in the problem-centered principle may explain this result.

The activation element showed a significant positive correlation with both test and writing scores. Ennis (2015) notes that using previously learned words to explain new vocabulary in a foreign language enhances student learning. This course design also emphasized the connection between previously learned and new knowledge, with a thorough review of past knowledge before introducing new material. The effectiveness of this approach in course design was confirmed by the study.

The demonstration principle had a weak significant correlation with test scores but no significant correlation with writing scores. The use of multimedia is a key component of the demonstration principle. As Huang, Teo, and Zhou (2017) point out, making full use of multimedia resources in language teaching to demonstrate word usage can positively affect students' learning interest and progress. This study employed multimedia elements such as PowerPoint, photos, and videos (see Table 1); however, these were primarily used to present textbook content, including words and related images, with no multimedia utilized for writing-related content. This might explain the lack of correlation between the demonstration principle and writing scores.

The application principle showed only a weak correlation with writing scores. Writing activities were integrated into the application component of the course, where students used worksheets to generate ideas and engage in writing exercises. The correlation between writing scores and the application principle may be attributed to the discussions about writing during the application phase. Despite extending the application principle in this course, the expected outcomes were not fully realized, as only a weak correlation was found between the application principle and writing scores. This could be due to students communicating in their first language (L1) during group discussions. Lo (2015) suggests that excessive use of L1 can hinder targeted language learning. Furthermore, there was no significant correlation between the application principle and basic test scores, possibly because most of the application time was allocated to activities like group discussions and presentations, while basic knowledge was primarily covered through the activation and demonstration principle. Kim, Jung, Siqueira, and Huber (2016) emphasize that the effectiveness of the application principle depends on the time, quantity, and quality of classroom activities. When designing courses and determining the duration of FPI principles, the focus should be on enhancing quality. For example, the teacher could provide more guidance and support to encourage students to use the target language during discussions.

The integration principle had a significant correlation with basic test scores but no significant correlation with writing scores. At the end of the course, students reviewed and reflected on their knowledge, and they also had opportunities to demonstrate their learning achievements after each activity. Most of the words and grammar used by students in their presentations were those learned

in class that day, which may explain the significant correlation between the integration principle and basic test scores. However, students primarily memorized example sentences from the textbook, indicating a lack of creativity. For instance, the textbook included the sentence “Mr. Mori can cook Chinese food,” and in the writing test, a student wrote “I can cook Chinese food.” The integration element of the FPI comprises three components: reflection, “watch me,” and creation (Merrill, 2002). For students, writing down memorized phrases does not constitute a creative act, which may account for the lack of significant correlation between writing scores and the integration principle in this practice.

3.5. Conclusions and future works of Practical 1

In this practical application, a Japanese language learning class was conducted using the FPI framework, and its effectiveness was evaluated. The results showed significant improvements in students' basic Japanese and writing scores. Correlation analysis further confirmed a significant positive relationship between students' recognition of the FPI, their test scores, and their writing scores.

To address the lack of active learning opportunities in Japanese language education, this practical was designed using the FPI, a problem-centered approach, with an extended focus on the application element. However, the problem-centered element did not show a significant correlation with either writing or test scores, and the application element demonstrated only a weak correlation with writing scores. To address these challenges in future Japanese language class designs, the following suggestions are proposed. Borg (2006) identifies 11 characteristics that set language teachers apart from other educators, one of which is the unique challenge of teaching through a medium (language) that students have not yet mastered. Therefore, effective language teaching requires a diverse approach, emphasizing the creation of a communicative context and enhancing student participation. A classroom model that prioritizes student-centered learning activities, supported by teacher explanations, could help address the issue of learning outcomes not correlating with the problem-centered element.

Although this study found a correlation between the FPI and learning outcomes, the specific factors contributing to this relationship remain unclear. Since this experiment was conducted in a general Japanese language learning class, there may have been some inaccuracies in setting the learning topics. Author et al. (2018) suggest that the FPI framework can also be effectively applied to content and language-integrated learning class designs with more specific learning objectives.

Even though this basic Japanese class was designed based on the principles of instructional design (ID), the results indicated that it remains challenging to apply the content learned in a traditional Japanese language class when following this model.

4. Practical research utilizing Instructional Design 2: Effects of CLIL class based on ID

In Chapter 3, author used ID theory to design a traditional Japanese language learning classroom and to verify the learning outcomes. However, it is clear from the results that even with the use of ID theory in the design of the class, students are still unable to fully apply what they have learned. And, as the author mentioned in Chapter 1, Japanese language education in China nowadays needs not only to hone students' Japanese knowledge and skills, but also to help them understand Japanese culture and even some specialized knowledge. Therefore, author propose the use of CLIL as a classroom format that allows for integrated language application. This chapter will present the CLIL course designed using ID theory and the results of the course.

However, according to the author's survey of prior research and current courses offered in Chinese universities, few Chinese universities explicitly state that language classes are taught in CLIL programs. The following is a description of cultural learning-related subjects taught in foreign languages in Chinese universities, including learning objectives, curriculum, and assessment.

Intercultural Education Program

The purpose of this program is to develop intercultural understanding and adaptability, enhance intercultural communication skills, and promote a global perspective.

- Learning Objectives

- Understand and respect the values, customs, and social norms of different cultures.
- Cultivate sensitivity and receptivity to diverse cultures.
- Acquire basic theories and skills in cross-cultural communication.
- Enhance the ability to communicate effectively in a cross-cultural context.
- Develop an understanding of global thinking and the impact of globalization on individuals and society.
- Develop adaptability and competitiveness in the context of globalization.
- Develop the ability to think critically and analyze cultural differences.
- Enhance the ability to resolve cross-cultural conflicts and problems.

Curriculum

- Weeks 1-4: Introduction, Culture and Communication, Cultural Adaptation.
- Weeks 5-8: Nonverbal Communication, Cultural Conflict and Resolution.

- Weeks 9-13: Globalization and Cultural Communication, Ethics and Values in Culture.

- Weeks 14-16: Practical activities, testing period.

Assessment

1. Regular Grade (40-50%)

- Class participation (10-15%): Attendance, participation in class discussions and activities.
- Assignments and quizzes (15-20%): Including written assignments, project reports, quizzes, etc.
- Group project (10-15%): Completion of a project through group work, presentations, and reports.

2. Mid-term Examination (20-30%)

- Evaluates students' understanding and mastery of the content learned in the first half of the semester, including theoretical knowledge and practical application skills.

3. Final Examination (30-40%)

- Typically consists of a theory exam and a practical exam.

4. Project Report (10-20%)

Based on the practical and above information, a comparison of the Japanese major course, the intercultural education course, and the CLIL course is provided below, focusing on learning objectives, learning content, and evaluation criteria.

Table 4-1. Comparison of instruction in CLIL, Japanese major course and intercultural education course

	Japanese major course	intercultural education course	CLIL course
Learning Objectives	Language Acquisition, Language Application, Cultural Understanding	Basic theory and skills acquisition, critical thinking, and problem-solving skills development	4improving skills, developing language application skills, gaining in-depth understanding and expertise in specialized fields, developing critical thinking and problem-solving skills, improving students' cross-cultural communication skills,

			and adapting to an international environment
Study Contents	knowledge of language	expert knowledge	knowledge of language, expert knowledge
Valuation object	4 skills of language	Content related to expertise	Content related to the 4 skills of language, language applications and expertise

The practical presented in this chapter is an intercultural education course taught using the CLIL. The specific course design is described in the next subsection.

4.1. Practical design 2

In this practical application, the Japanese CLIL course was designed based on Merrill's (2013) framework for problem-centered instruction, incorporating the FPI elements. The CLIL process in this study is outlined in Tables 4-2 and 4-3. Previous research has demonstrated the successful application of FPI elements across various settings (Gardner & Jeon, 2009; Gardner, 2011; Lo, Lie, & Hew, 2018; Mendenhall, 2012). The Japanese CLIL course in this study was designed by following these FPI principles.

The study's design procedure consisted of two main parts. First, the students' learning content and objectives were established according to the course requirements. The learning content focused on intercultural communication, with the content objective of understanding the concepts of intercultural communication and the language objective of learning the basics of the Japanese language and using Japanese for writing.

Second, each lesson in this study was structured according to the five elements of FPI: Problem-centered, Activation, Demonstration, Application, and Integration. Table 4-2 illustrates how these principles were implemented in the course under the experimental conditions. During a week of concentrated study, each day focused on a specific theme, addressing problems posed by the teacher through group discussions. The daily learning activities included the following:

a) Students discussed self-disclosure in groups and created their own Johari window on worksheets.

b) Through group discussion, students summarized any changes (or lack thereof) in their opinions about Japanese culture on the 3S card, explained the reasons, and then presented their findings in class, thereby deepening their understanding of stereotypes.

c)Students created their own friend-making map for interacting with foreigners, applying lesson content about self-disclosure and stereotypes through group discussion.

d)Students compared and contrasted Chinese and Japanese proverbs in group discussions to gain a deeper understanding of the cultural intersections and different developmental processes of both cultures.

e)The students formed groups to create and perform skits based on different perspectives of classic stories (e.g., Snow White, Kintaro), which they then acted out in class.

Table 4-2 Example of a 90-minute lesson

FPI principle	Definition	Course Design	Time (Percentage)
Problem-centered	The quality of being problem-centered, which means basing learning experiences on real-world problems	Each lesson is designed with a problem related to intercultural communication that exists in life. Students will need to solve these problems in class. For example, if you come to Japan, how do you make friends with the foreigners you meet for the first time?	5 minutes (6%)
Activation	Include having students recall or describe their prior experience related to the content to be taught	When presenting problems to students, use what has been covered in class before, or what students have experienced in their lives to explain.	15 minutes (17%)
Demonstration	Include modeling examples of the problem to be performed	When explaining new knowledge, use photos, videos, and other multimedia tools to show students examples.	20 minutes (22%)
Application	The opportunity to practice the whole problem and receive feedback	Students work in groups to discuss how to solve the problems posed by the teacher and come up with solutions.	30 minutes (33%)
Integration	Include reflecting on, presenting, and	Students present the results of the group discussion and	20 minutes

	thinking about how to use knowledge	summarize what they have learned and are asked to think about how they could apply what they had learned in their future lives.	(22%)
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4.2. Participants and Data Collection of Practical 2

The participants in this study were 16 third-year students enrolled in a Japanese language major course at a university in China. The students, aged 20 to 21, included 12 females and 4 males. Their general Japanese proficiency was at the N2 or N3 level according to the Japanese Language Proficiency Test (JLPT). The N2 level indicates that students have "the ability to understand Japanese used in everyday situations and in a variety of circumstances to a certain degree," while the N3 level refers to students who have "the ability to understand Japanese used in everyday situations to a certain degree" (Japan Foundation & Japan Educational Exchanges and Services, 2012, p. 78).

Before the course began, the researcher explained the purpose of the study, the methods for data collection and processing, and obtained the students' consent. The course, which focused on intercultural education, was conducted entirely in Japanese, with classes held for three hours daily over five days.

Participants completed a pretest prior to the course, and a posttest and post-questionnaire were administered after the final class. The post-questionnaire evaluated the recognition of FPI elements. The FPI questionnaire was based on the Academic Learning Time Questions (TALQ) developed by Frick, Chadha, Watson, Wang, and Green (2009). For example, a question related to the problem-centered principle was, "I solved authentic problems or completed authentic tasks during this course"; for activation, "In this course, I was able to recall, describe, or apply my past experiences to help me connect to what I was expected to learn"; for demonstration, "The teacher demonstrated the skills I was expected to learn during this course"; for application, "I had opportunities to practice or try out what I learned during this course"; and for integration, "I see how I can apply what I have learned in this course to real-life situations." The FPI questionnaire used a 5-point Likert scale, where 1 = Strongly disagree, 2 = Disagree, 3 = Not sure, 4 = Agree, and 5 = Strongly agree. The questionnaire included 4 questions under the problem-centered principle, 5 under activation, 4 under demonstration, 4 under application, and 5 under integration. Details of the questions and their reliability are provided in Appendix 2.

The test consisted of three parts. The first part was the JLPT, which included N1- and N2-level questions: six reading comprehension questions and two listening comprehension questions. N1 questions were worth 2 points each, and N2 questions were worth 1 point each, with a total possible score of 12 points. The second part was an essay question asking students to define and explain the

differences between stereotypes, prejudice, and discrimination. This question had a correct answer, which was taught in class: Stereotypes are categorized images one has of a group of people; prejudice is a stereotype accompanied by negative feelings (though some argue it is not necessarily negative); and discrimination is prejudice associated with behavior. Each concept was worth 2 points—1 point for defining the concept and 1 point for explaining the difference between concepts—resulting in a total of 6 points.

The third part of the test required students to write approximately 300 words on the theme, "Write your own thoughts on how to use the aforementioned theories when communicating cross-culturally." The evaluation criteria were based on the *JF Japanese Education Standard* (JF standard for Japanese-language education, 2010) and adjusted to match the students' Japanese proficiency level. The evaluation focused on three areas: "content," "grammar/vocabulary," and "composition," with each area scored from 1 to 4 points, for a maximum total score of 12 points. For example, in grading content, a score of 4 was given if the main content was explained in detail, allowing the reader to fully grasp the central idea. A score of 3 was given for insufficient explanation, making it difficult to fully understand the content. A score of 2 was given if the reader could vaguely understand the subject matter, and a score of 1 was given for explanations that were unclear and hard to understand. Grammar/vocabulary was scored with 4 points awarded for accurate use of grammar and topic-related vocabulary. A score of 3 was given for minor grammatical errors that did not hinder understanding, 2 points for errors that affected comprehension, and 1 point for sentences that were incoherent and failed to convey the intended message. Composition was scored with 4 points for well-connected paragraphs and sentences with a clear structure, 3 points for some sentences that were difficult to understand in relation to each other, 2 points for a simple list of ideas with no connection, and 1 point for fragmented sentences with no clear structure. Specific evaluation criteria are detailed in Appendix 1.

To increase students' opportunities to apply what they learned in class, the teacher assigned tasks based on class content, which students were expected to solve through group discussions. Activity 1 focused on self-disclosure, and Activity 2 centered on stereotypes, prejudice, and discrimination. Details of these two activities are provided in Table 2. To explore the relationship between the 4Cs of CLIL (Content, Communication, Cognition, Culture) and the 5 principles of FPI in relation to learning outcomes, students' group discussions were recorded and coded for analysis.

Table 4-3 Explanation of learning activities

	Content of knowledge	Task
Activity	Self-disclosure: A process of passing on information about yourself to someone else,	Use the worksheet and discuss with group members to create

1	whether people intend to or not. For example, confiding in others about various aspects of oneself, such as one's attitudes, opinions, interests, work, and personality. Johari Window: proposed by Joseph Luft and Harrington Ingham in 1955, this is a technique designed to help people understand their relationship with themselves and others. It can divide the size of one's self-disclosure.	students' own Johari window.
Activity 2	Stereotype: a set idea about what a particular type of people. Prejudice: a stereotype accompanied by negative feelings, which means the opinion is not based on reason or actual experience. Discrimination: a prejudice further combined with behavior, which means treating a person or particular group of people differently in a worse way.	Using the worksheet and discussion with the group members, explore students' own inherent impressions of the Japanese people and the reasons for such impressions.

The worksheets that the students created during the class are shown in Figures 4-1 to 4-10.

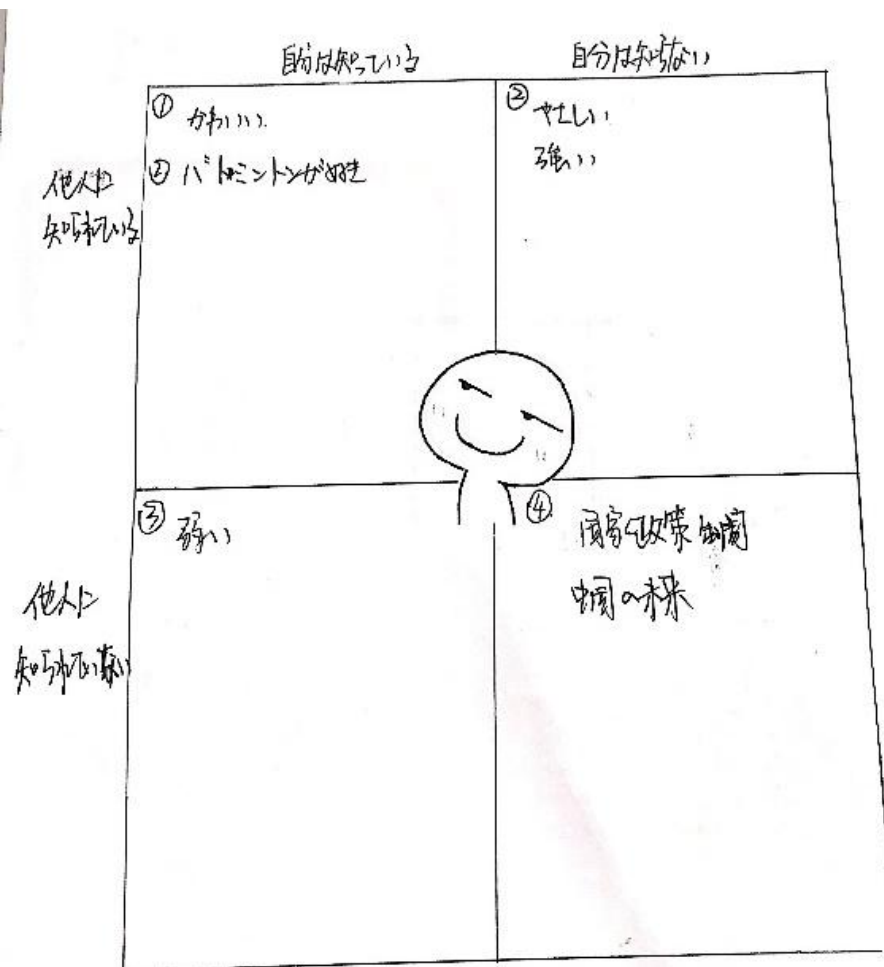


Fig 4-1. An example of the worksheet used in Learning Activity 1

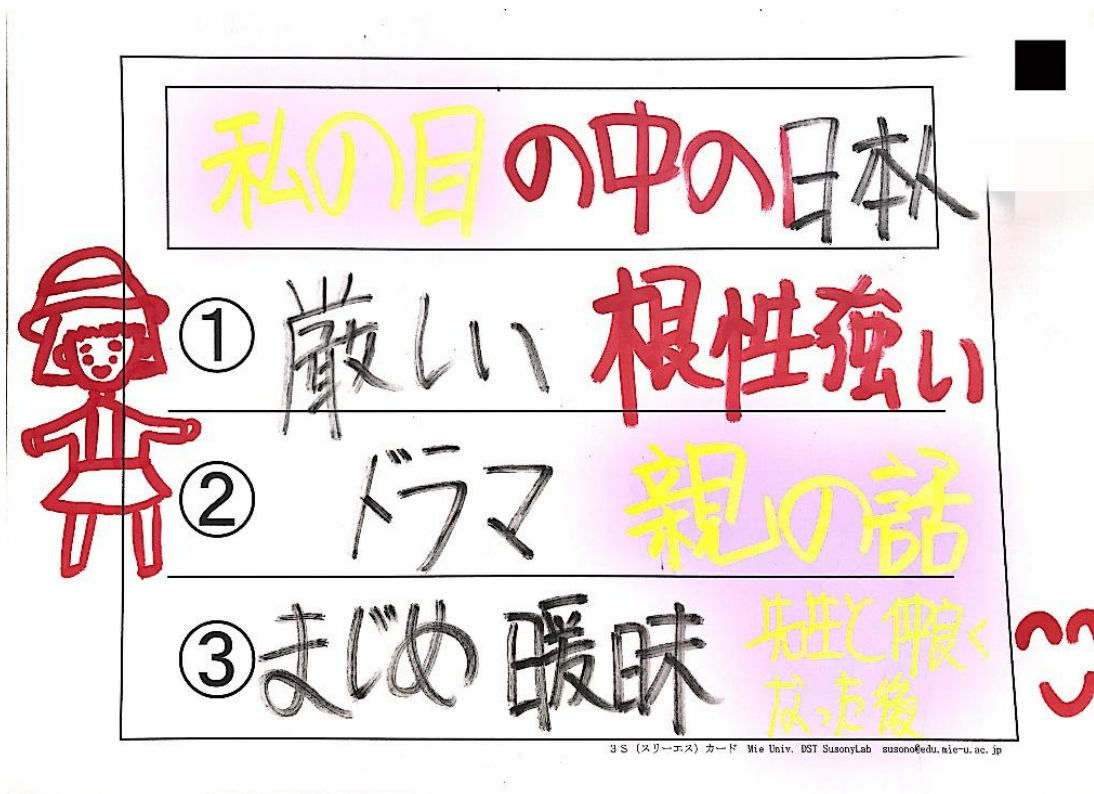


Fig 4-2. An example of the worksheet used in Learning Activity 2

私と Noam さんの友達作りマップ

ステップ1 きっかけを つくる	ブダペストに学会を参加して ↓ Noam さん と 出会った。
ステップ2 試す	学会の現地ツアーを通じて、 いろいろな話をしました。
ステップ3 強化する	一緒にお酒を飲んだり、 話をしました。
ステップ4 統合する	Noam さんの友達、Ann という女性も 友達になりました。 Noam さんは母国に帰って、私の 話を彼の学生に紹介しました。

Fig 4-3. An example of the worksheet used in Learning Activity 3

名前: ヤン・ハム
日付:

「AさんとBさんは友達か？」	はい、友達だと思う	いいえ、友達ではない(どんな関係を記入してください)	理由
自分の意見 2人は同じ会社で仕事は同じなみを持っています。	○		2人ともゴルフをなみ、同じ仕事を担当しました。
各グループメンバーの意見を記入してください。 (張)さん:		○ 同僚	仕事以外の関係はあまりありません。
(王)さん:		○	よくは職場で同じ仕事 中国語は、職場上必要な友達、只有餅的利。という張があります。 彼たちは似ているでも、生活ほうは違うと思います。 職場ではは人交流するだけにはあはあ
(孫)さん:		○	二人は仕事については、ほかに付き合いがないので、また人違う2種類の人です。
自分の意見と違い、他のグループの意見を記入してください。	○	○	価値観違う 出身は違います。 人脈は違います。

→同じとは限りない。

Fig 4-4. An example of the worksheet used in Learning Activity 4

日本と中国両方とも共通することわざ
 ①人間性志向、②人間と自然志向、③時間志向、④人間関係志向、⑤活動志向

日本のことわざ	意味	似ている中国のことわざ	価値観（重視しているもの）
石の上にも三年	つらくて辛抱して続けられ、いつかは成し遂げられること。	水滴石穿	②
急（いそ）がば回（まわ）れ	危険な近道より、安全な本道を走って、早く目的地につくこと。	欲速則不达	⑤
親の光は七光り	才能や実力が世に伝わり、子孫に受け継がれること。	高二代	④
ローマは一日にして成（な）らず	決して短期間で完成するものはないこと。	罗马并非一日建成	③⑤
百聞（ひやくぶん）は一見（いっけん）に如（し）かず	何事も自分の目で確かめるべきこと。	百闻不如一见	⑤
河童（かっぱ）の川流（かわなが）れ	名人や達人であっても、判断に簡単な失敗をすることはあること。	千里马失足	④⑤
早起きは三文（さんもん）の徳（とく）	勤勉な人は利益がある。	早起的人儿有饭吃	③
人のふり見て我がふり直せ	他人の行動を見て、良いところは見習い、悪いところは改めようこと。	以人为镜，可以明得失	④

Fig 4-5. An example of the worksheet used in Learning Activity 5

参加者の名前：

場面	登場人物	台詞	備考(道具など)
① 金太郎が 元かい侍 にならば	金太郎 家来	かかみよー かかみよー この世界で一番強いたれた？ 金太郎は この世界で一番強い人でござ います。 ハッ、ハッ、ハッ	かかみ
② 金太郎と 同郷の 友達	熊大 ジョンター 熊二 ジョナル ~~光頭強~~ ~~ケンタウ~~ 熊大 熊二 熊大熊二 ~~光頭強~~ ケンタウ 熊大熊二 ~~光頭強~~ 熊大熊二 ~~光頭強~~ 三人で	ジョナルおひさしなり！ あっジョンターちゃんおひさしだい！ さいまんどうす？ うーん おんまはくはない人だよ。 おんのうちの子が通う学校がみつから ねーんだよ。そちはどうすかね それは大変だな... うち今年の畑の 出来が悪くてな... うーん... よ！ ジョンターとジョナルじゃないか。 どうしたのひな 困った顔して。 実はね... ~~~ なるほど。実は私も困ったとあるは、 なに？ この年になっても女房がみつかりな うーん...	名札

Fig 4-6. An example of the worksheet used in Learning Activity 6-1

参加者の名前: 3 佐田 6 佐田 6 佐田 6 佐田 6 佐田 6

場面	登場人物	道具など
都で	二、	あ! あの金太郎がさ! いま都でえらい侍になったと聞いたぞ
	一、	お? まじか。じゃん金太郎さんにおれらの問題も解決してもらおうよ!
	三人で	いっね! 行こう行こう!
	金太郎	
	三人で	金太郎さん。おかしがりです。私たちのことを覚えてますか
	金太郎	。。。。。
	大	金太郎さん。おれだよ。熊大だよ。
	金太郎	あ〜 昔 すもうで おれさまに ボロボロされたあ、熊大 か
	大	。。。 とうだけと
	金太郎	で? おまえら なにか用 かね。
	二、	実は困ったことあって 金太郎さんに助けてもらおうときましたか
	光	そうです。お願いに来たんです。
	金太郎	ほうー 今は忙しいから 帰ってくれ
	大・光	えー それはないで(う) 金太郎さん
	金太郎	でていけ〜〜

Fig 4-7. An example of the worksheet used in Learning Activity 6-2

ハ・ジ・3

参加者の名前 XXXXXXXXXX

場面	登場人物	台詞	備考 (道具など)
④ 金太郎の 住居のとて	ニ 大 光	あの僅しかた 金太郎上人はいな どうだよ あゝ態度 はないだろ そうだ 音に 来てから又狩になりやがて こらしめてやろう ちんごう	
	ニ 大	いや! 村人も集めよう、	
井 戸にもとて	村人たち	おい 金太郎 出来てこい!	
	金	は? なんだ お前らは	
	大	金太郎上人、昔 村で みんな何を やたやないか、	
	ニ	どうだ、 金さんお小さいときよか 世話したこと覚えてるか	
	金	は? お覚えてみーな	
	光	もう あんたは 私たちの知ってる金太郎さん じゃない、 みんなかかれ	
	村人	なぐれ〜 こて〜	
	金	もうやめてくれ おれがまちがえた なやまる! みんなすみません	
	村人	よし、まちがえを認めるなら、ゆるしてやろう	

Fig 4-8. An example of the worksheet used in Learning Activity 6-3

よりよい授業へのアプローチ。あなたも、わたしも、参加者です。

20 年度 (前期 後期 集中)

大 福 帳

A

講師:	授業: 異文化間教育	曜 限	A B C D E F G H
専攻:	学籍 163011005	氏名	[Redacted]
月/日	言いたいこと。聞きたいこと。あなたからの伝言板。		あなたへの伝言板
No. 1 2/25 T... S...	1. ショウコの食とは何だろう。自分と歴加の人は知ると知らないと入江の質問 2. ちょっと大まかい 3. 他人のコミュニケーションをねと、友達と ~~やり取り~~ する		楽しみなから、勉強もできていて、よかったですね。 これからの授業も一緒に頑張りますよ。
No. 2 2/25 T... S...	私は緊張しない、とばかり、初めの人には緊張します。すくなく言葉交わします。 4. 自分の感想、ケースの友達を知ります。以前、誰かの人を知ります。今の授業はとて楽しい。私は知識を学びます。		
No. 3 2/26 T... S...	2. ストレオタイプ: 教員団に対して持っている、ステレオタイプ 偏見: ストレオタイプに否定的な内容を述べたもの、15分もかかっても伝わるものではないという主張をする 差別: 偏見がさらに行動に結び付いたもの		
No. 4 2/26 T... S...	1. ストレオタイプ: 小テストより和がなかに生み出す過程は、必要知識を教員団に分けていくことのポイントで教 2. 和は互いに勉強し、友達に理解しあう 次は、異文化間の交流を、調査したと思う、しかし聞くことが大切だ。特に尊重します。		互いに理解しあうというところは、交流にとって、とても重要な点です。
No. 5 2/27 T... S...	1. チップより生命のステップは以下の様に分けていく ① 主がけする、② 試す、③ 強化する、④ 統合する 2. 趣味、同じものは限られる、人は友達になつたら同じ趣味、同じ習慣が欲しいです		→ これ、違う価値観を
No. 6 2/27 T... S...	2. 留意点は、互いに尊重し、理解しあいます。ほかの点 は外国人の生活習慣、外国人の自分の文化程度、当地の風俗。留意点は、彼らの秘密問題はためです		持つ人の接触も同じです。
No. 7 2/27 T... S...	1. ティックホーとストロッドは文化間、文化内での他 他文化のハイコレーションを見ること文化特有のパターン の事、を説明しようとしている ① 人間性を知り、② 人間と自然を知り、③ 時間を知り、 ④ 人間関係を知り、⑤ 活動を知り		

Shuttle Card "Daifuku-cho" designed by Prof. Kijun ODA, Faculty of Education, Mie Univ., Japan, 2001.4

Fig 4-9. An example of the Daifuku01

甘すぎず、柔らかすぎず授業のおいしい関係をめざす

20 年度 (前期 後期 集中)

大 福 帳

B

講師:	授業: 異文化間教育	曜 限	ABCDEF G H
所属:	学籍 1630110005	氏名	王 明 坤
月/日	こんなこと...でもOKです。 あなたからの伝言板		
No. 8 27	う、私は、ダメです。価値観の違いの下、話題がな い。コミュニケーションは困難です。だから、やむを得ず ない。 母からはわがまま、だが、英語を身につけ出し、要領点 は決して多くはない。 私のメル友は、私を、源に近した、新しい源 を作ってくれました。新しい視点から、毎日のメル友の 関係は、変わります。とても楽しみです。		
T... S...	この価値観を持つ人との 交流は、難しいと思います。 でも、ときには、せざるを得ない と思います。このときは、共 同点を探るのは大変だと思 います。		
No. 9 31	2. 共通点を探すの大切だと思います。各文化間には、互いに 理解し合おうと努力します。各文化の生みの親、姿勢を身 に受けたいと思います。		
T... S...	正しい姿勢で、どんな 姿勢?		
No. 10 /			
T... S...			
No. 11 /			
T... S...			
No. 12 /			
T... S...			
No. 13 /			
T... S...			
No. 14 /			
T... S...			

Shuttle Card "Daifuku-cho" designed by Prof. Kijun ODA, Faculty of Education, Mie Univ., Japan, 2001.4

Fig 4-10. An example of the Daifuku02



Fig 4-11. The look of the group discussion



Fig 4-12. Presentation in the classroom

4.3. Result of Practical 2

4.3.1. Data analysis methods

First, the data were checked for normal distribution using the Statistical Package for Social Science (SPSS) version 26 software. Since the data did not follow a normal distribution, the Wilcoxon signed-rank sum test was applied to analyze the pretest and posttest results, while Spearman's rank correlation coefficient was used to assess students' learning outcomes. Both the mean and median are reported in the results. The total possible scores were 12 for the basic test, 6 for the content test, and 12 for the writing test. The mean and standard deviation of students' awareness of the designed FPI elements were also analyzed. Additionally, the qualitative data collected from group discussions were analyzed using MAXQDA 2020.

4.3.2. Students' learning outcomes are improved through CLIL designed by the FPI

The Wilcoxon signed-rank test was utilized to measure the significance of changes in pre- and post-learning outcomes. The results, presented in Tables 4-4, 4-5, and 4-6, demonstrate that the students' learning outcomes were effectively improved through this CLIL course.

Table 4-4 shows that the mean score of students' basic Japanese proficiency test increased from 6.13 (out of a full score of 12, $SD = 2.09$) to 10.00 ($SD = 1.73$). Additionally, a significant difference ($p = 0.001$) was observed in the distribution of basic Japanese scores. These results suggest that the students' basic Japanese knowledge improved during this CLIL course.

Table 4-4 Wilcoxon signed-rank test results of pre-post Basic Japanese Proficiency Test Score (N = 16)

Test	Mean	Median	<i>SD</i>	<i>Z</i>	<i>p</i> -value
Pre-basic	6.13	6.00	2.09	3.305	0.001
Post-basic	10.00	10.00	1.73		

Note. * $p < 0.05$; ** $p < 0.01$.

Table 4-5 shows that the mean score of students' content knowledge test increased from 2.00 (out of a full score of 6, $SD = 1.51$) to 4.62 ($SD = 1.50$). A significant difference ($p = 0.001$) was also observed in the distribution of content knowledge scores. The content question required students to explain the three concepts of stereotype, prejudice, and discrimination. These concepts have definitive answers that were presented to the students in class. The scoring criteria, based on the JF

Standard, were established after discussions with Japanese teachers. Each concept was worth 2 points, for a total possible score of 6 points, with a minimum score of 0. An example of a student's pre- and post-test answers in the content knowledge section is illustrated in Table 4-6. These results indicate that the students' content knowledge improved during this CLIL class.

Table 4-5 Wilcoxon signed-rank test results of pre-post Content Knowledge Test Score (N = 16)

Test	Mean	Median	<i>SD</i>	<i>Z</i>	<i>p</i> -value
Pre-content	2.00	2.00	1.51	3.424	0.001
Post-content	4.62	5.00	1.50		

Note. * $p < 0.05$; ** $p < 0.01$.

Table 4-6 Example of pre-post responses on the learning content

	Original text and translation	Score and comment
Pre-test	Original text: 差別は差を持って人を扱うこと。「Secret Superstar」(神秘巨星)という映画は、男女差別のことをあらわした。インドでは、女の地位がすごく低い。男のアクセサリといっても過言ではない。 Translation in English: Discrimination is treating people differently. The movie “Secret Superstar” (Secret Superstar) shows the discrimination between men and women. In India, the status of women is very low. It is no exaggeration to say that they are accessories to men.	Score: 1 Comment: Only discrimination is explained. There is no mention of the other two concepts. Nor does it state the difference between them.
Post-test	Original text: ステレオタイプというのは、ある集団に対する固定的な態度である。たとえば「山西省の人はみんな全部金持ちだ」。このように、個人的な特徴を不当的に一般化して、集団の全部人の特徴にする。	Score: 6 Comment: The 3 concepts are explained, and examples are given to illustrate the

	偏見とは、片面である人や集団、地域を考える。たとえば「女はリーダーになれない」。人を欠点ばかりに見られる。 差別とは、偏見を行動につける。たとえば、就職する時、ある会社は男だけほしいが女はいらない。 Translation in English: A stereotype is a fixed attitude toward a group of people, for example, “All the people in Shanxi Province are rich.” In this way, personal characteristics are unfairly generalized to characterize all the people in a group. Prejudice is considered a view of a person, group, or region that is one-sided. For example, “Women cannot be leaders.” People are seen only in terms of their shortcomings. Discrimination is putting prejudice into action. For example, when getting a job, one company wants only men but not women.	differences between them.
--	--	----------------------------------

Table 4-7 shows that the mean score of students' writing test increased from 4.19 (out of a full score of 12, $SD = 1.00$) to 9.38 ($SD = 1.64$). A significant difference ($p < .001$) was also observed in the distribution of writing scores. The students' writing was evaluated across three dimensions: Content, Vocabulary/Grammar, and Composition, based on the Japan Foundation Standard for Japanese-Language Education 2010. Each dimension was scored on a scale of 1 to 4, with a maximum possible score of 12 and a minimum of 3. An example of a student's pre- and post-test answers in the writing section is illustrated in Table 4-7. These results suggest that the students' writing skills improved during this CLIL class.

Table 4-7 Wilcoxon signed-rank test results of pre-post Writing Test Score (N = 16)

Test	Mean	Median	<i>SD</i>	<i>Z</i>	<i>p</i> -value
Pre-writing	4.19	4.50	1.00	3.535	0.000

Post-writing	9.38	9.50	1.64		
--------------	------	------	------	--	--

Note. * $p < 0.05$; ** $p < 0.01$.

Table 4-8 Examples of students' pre-post of Writing Test

	Original text and translation	Score and comment
Pre-test	Original text: ステレオタイプ、偏見や差別、以上三つの行為はすべて個別の行動から全体化し、否定的な感情を持ちます。私たちは公正の態度を持ちべきで、正しい判断をします。 Translation in English: Stereotyping, prejudice, and discrimination are all three behaviors that can be generalized from individual actions and carry negative feelings. We should have an attitude of fairness and make the right decisions.	Score: 3 Comment: Just a brief explanation of the meanings of the three words. There is no clear paragraph. All of the text are simple sentences, and there is no connection between them. It is impossible to understand what the writer is trying to say.
Post-test	Original text: 今回の集中講義の授業で、異文化について勉強しました。その中で、三つのことをこれから大切にしたいです。 まず、価値観の事です。この前は異文化の影響で各国の人の価値観が異なるところがあるという点が知っています。昔中国の諺には「酒逢知己千杯醉,话不投机半句多」	Score: 10 Comment: There are clear paragraphs, and the paragraphs are connected by successive words. Although there are

という話があります。その意味は知己ができたなら、切っても切れない話がたくさんあり、逆に話が合わないと言半句さえも多いです。つまり、価値観のことが指します。そのことわざによると、価値観や志向と合わない人と友達になる必要がないと思いましたが、今は考えを変えました。それは日本人の思いやりのおかげで、包容すべきだという点が了解しました。 次は偏見や差別です。偏見ということはステレオタイプに否定的な感情を伴ったもので、ただし、必ずしも否定的なものではないという主張もあります。差別は偏見がさらに行動に結びついたものです。すなわち、偏見は人々の意識で、差別は偏見による行動するということです。ステレオタイプを通してではなく、自分自身の目で固まりの人たちや物事をちゃんと見ていく姿勢を養うように、正しい判断を下します。 最後はイメージです。国も人も社会も、イメージが大切です。 Translation in English: In this intensive class, I learned about different cultures. I would like to emphasize three things from now on. First, values. Before this, I know that people from different countries have different values due to the influence of different cultures. There is an old Chinese proverb that says, “When I meet a crony, I’d like to drink tons of wine with him, but if there is a nuisance, I’ll be reluctant to say just a few words.” The meaning of this saying is that if you get to know each other, there are many things you can talk about inseparably, but if you don’t talk to each other, there will be many half-words. In other	some grammatical errors, this student makes the point clearly. Also, the use of examples makes the content informative.
---	--

	words, it refers to values. According to that proverb, I used to think that there was no need to be friends with someone whose values and orientation did not match mine, but I have now changed my mind. I now understand that it is because of the compassion of the Japanese people that we should be inclusive. Next comes prejudice and discrimination. Some argue that prejudice is a stereotype accompanied by negative feelings, but not necessarily negative. Discrimination is prejudice further coupled with behavior. In other words, prejudice is people's awareness and discrimination is their behavior due to prejudice. We make the right decisions so that we develop a proper attitude to see people and things in solidarity through our own eyes and not through stereotypes. Finally, there is image. The image of a country, a person, or a society is important.	
--	---	--

4.3.3. The aware of students about the designed FPI elements.

Throughout this class, students developed a stronger awareness of the FPI principles integrated into its design. Table 4-9 presents the students' awareness of the designed FPI elements. The questionnaire results indicated that all FPI elements received high ratings, with scores above 4 points, demonstrating that the course effectively allowed students to engage with the FPI principles. The highest rating was given to the integration element (mean = 4.53, SD = 0.27), followed by the activation element (mean = 4.38, SD = 0.32), the demonstration element (mean = 4.33, SD = 0.58), and the application element (mean = 4.33, SD = 0.27). The problem-centered element received the lowest score (mean = 4.09, SD = 0.55).

Table 4-9 Descriptive statistics of students' awareness of the FPI elements (N = 16)

	Min	Max	Mean	<i>SD</i>
Problem-Centered	3.25	5.00	4.09	0.55
Activation	3.80	4.80	4.38	0.32
Demonstration	3.00	5.00	4.33	0.58
Application	3.75	4.75	4.33	0.27

Integration	3.80	4.80	4.53	0.27
-------------	------	------	------	------

4.3.4. The correlation among FPI elements and learning outcomes

To identify factors that might influence the development of learning outcomes through CLIL, Spearman's Rank Correlation Coefficient was employed to analyze the correlations among learning outcomes (pre-post basic test scores, pre-post content test scores, pre-post writing test scores) and the 5 principles of FPI (post FPI Questionnaire). The process of calculation is outlined below. First, the differences between pre- and post-test scores for basic Japanese proficiency, content knowledge, and writing skills were calculated. Next, the total score for each of the 5 FPI principles based on the questionnaire responses was determined. Given the small sample size, Spearman's Rank correlation was used to assess the relationship between the changes in basic, content, and writing scores and the total scores for each of the 5 principles.

The results, presented in Table 4-10, indicate a significant correlation between the problem-centered principle and the integration principle with all learning outcomes. There is also a significant correlation between the activation principle and the demonstration principle with the learning outcomes related to basic knowledge. Additionally, a significant correlation was found between the application principle and the learning outcomes for content knowledge and writing.

Table 4-10 Spearman's rank correlation coefficient between FPI, Writing Test, and Basic Japanese Proficiency Test Scores

	Problem-Ce ntered	Activation	Demonstration	Application	Integration
Basic	.554*	.605*	.520*	.387	.641**
Content	.602*	.278	.303	.761**	.581*
Writing	.813**	.131	.193	.675**	.624**

Note. * $p < 0.05$; ** $p < 0.01$.

4.4. Discussion of Practical 2

4.4.1. Discussion on students' learning outcomes of Practical 2

The results of the students' learning outcomes indicate that the CLIL course designed with FPI principles positively impacted language knowledge, writing skills, and content knowledge. This

finding aligns with previous studies, which have also shown that courses designed using FPI can enhance students' learning outcomes. For example, Lo et al. (2018) found that using FPI in a flipped classroom setting helped students improve their academic abilities and Chinese language skills, as well as their ability to generate and organize ideas.

CLIL, which integrates foreign language instruction with the teaching of specialized knowledge, aims to enhance both language proficiency and content understanding—a goal that, as Coyle et al. (2010) notes, is not easily achieved. Ennis (2015) also highlights the challenges of CLIL courses, noting that they involve explaining complex concepts in a language that students may not fully understand. Furthermore, Agustín-Llach (2016) observed that there were no significant differences in student achievement between CLIL and non-CLIL courses, suggesting that combining language and content can sometimes hinder the achievement of learning objectives. However, this CLIL course, designed with FPI, successfully ensured positive outcomes in both content and language learning.

Additionally, the improvement in writing test results demonstrates the effectiveness of using worksheets to help students organize their thoughts in this course. For instance, the worksheet used in Activity 2 guided students in presenting a problem in three stages, which helped them better understand the three-paragraph writing method. This was reflected in their essays, which commonly followed the introduction-body-conclusion structure, even though the teacher did not explicitly emphasize this format during lessons. It appears that students effectively internalized this composition style on their own through the course.

However, it is worth noting that the standard deviation (SD) for the post-test (1.64) was higher than the pre-test SD (1.00). While students' writing skills improved, the disparity between individual students also increased. Although the writing design was effective overall, individual differences in understanding the writing content may have contributed to this increased variance. Allison, Cooley, Lewkowicz, and Nunan (1998) note that higher education students often engage in limited writing practice in the classroom and may require one-on-one instruction. In this course, while the teacher provided a worksheet to help students organize their ideas before writing, specific examples of writing were not shown. This may have led to some students not fully understanding how to use the worksheet, resulting in increased differences in individual performance due to varying levels of comprehension. This issue was also reflected in the students' discussions.

Example 1. Use the worksheet to make the respective Johari window.

Group 1

Scene 1

G1-S2: Have you all finished writing? I have finished writing all of them.

G1-S3: Do I need to continue writing? Or is it enough to write only one part of it?

G1-S1: You need to write all of them.

G1-S2: I think I should have drawn this part a little bigger.

(4 seconds)

G1-S3: Well, then my first part should be bigger too.

Scene 2

G1-S3: Eh? Which position should this be written in?

G1-S2: On love, something

G1-S3: I do not know.

G1-S1: (laughs) Love men and women or both.

G1-S3: Eh? This is not it? It is the second one, right?

G1-S2: Position 2, the second one is empty.

In Group 1, one of the four students was unclear about how to use the worksheet. This student asked for clarification twice during the discussion. Eventually, the student completed the worksheet after repeatedly consulting with other group members. This aligns with the findings in Table 4-9, indicating that students had varying levels of understanding when using the worksheet.

Group 2

G2-S2: I want to write myself やさしい (kind).

G2-S4: That I am かわいい (lovely).

G2-S2: *This should be written in the part that you know that others do not know, right? Is it written in position 3?*

G2-S1: Yes, here, you know, but others do not know.

In Group 2, one student also had a question about how to use the worksheet. The other group members provided clear explanations. This group's discussion further reflects the findings in Table 4-4, highlighting the individual differences among students.

Group 3

G3-S4: Been on a diet.

(laughing)

G3-S3: But you are not really doing the exercise to lose weight either.

G3-S1: Yeah, I did not.

G3-S3: Been studying English.

G3-S1: Already written.

(3 seconds)

G3-S3: *Well, we are at an impasse.*

(...)

G3-S2: *So what should be written in the third position?*

G3-S4: It does not have to be a bad aspect. It can be a good one too, right?

G3-S2: But the good aspects are already known to others.

(8 seconds)

G3-S3: *OK. Once again, there is an impasse.*

The conversation reveals that a student in Group 3 also inquired about how to use the worksheet. However, this issue was ultimately not resolved. The discussion within Group 3 was consistent with the findings in Table 4-10. Notably, unanswered questions can amplify individual differences among students.

Group 4

G4-S1: *The second position is to write what others know and what I do not know, right?*

(5 seconds)

G4-S3: Yeah, the second position is what others know and what you do not know yourself.

G4-S1: This is the Johari window in ... others know that I do not know. OK, then a little more specific is...

G4-S4: It is your interest and what you like to do, and so on.

G4-S1: Like habits! It is one of those little habits that you know but others do not. And then there

is the kind of mantra you have, you do not realize it, but others do.

G4-S4: Yeah, verbal words must be known to others because you always say them.

G4-S2: *Oh, I see, some little gestures and habits!*

G4-S1: Yeah, Bad habits are something that others know about you, but you do not know about yourself.

G4-S4: Okay, so write about some bad habits in this position.

In Group 4, a student also had a question about the worksheet. The group members responded positively, and the student was able to resolve the issue. The conversations in Group 4 further highlight the personal differences among students, consistent with the findings in Table 4-9.

From the discussions, it is clear that all four groups encountered challenges in understanding how to use the worksheet or determining what content should be recorded in specific sections. Each group approached these challenges differently. Groups 1, 2, and 4 successfully addressed the issues through discussion, while Group 3 was unable to resolve their difficulties. This aligns with the results in Table 4-9, indicating that students had varying levels of understanding when using the worksheet. The unresolved issues in Group 3 illustrate how such challenges can exacerbate individual differences among students. Those who already understand how to use the worksheet can better organize their writing ideas, while those who are confused and unable to find answers within the group may become more frustrated.

To address this issue in course design, it is essential to assess each student's learning situation and provide individualized support. Additionally, the teacher should evaluate the worksheet's usability before the formal course begins to enhance its effectiveness.

4.4.2. Discussion the students' awareness of the designed FPI elements

Notably, students did not exhibit much variation in their awareness of the elements in Table 4-9. However, as outlined in the course design section, the duration of the application element was extended to provide students with more opportunities for active learning. The application element accounted for 33% of the course time, while the integration element made up 22%. Despite the integration element receiving the highest score, the application element scored relatively lower.

Borg (2006) emphasizes that effective language teaching requires a diverse classroom environment that fosters increased student participation and enhances the quality of their involvement. This course was designed with the intention of ensuring active student participation, and the dialogue content from group discussions was analyzed to assess the quality of learning

during these participation periods. The conversations related to the course content and Japanese language learning were coded for analysis. Of the 983 dialogues recorded, 59 were related to lesson content and 155 were connected to Japanese language learning.

The students' conversations were categorized according to CLIL's 4Cs framework. The coding criteria were developed by the first author based on CLIL's 4Cs principles and were later refined through discussions with experts in Japanese language education and instructional design (co-authors). After reaching consensus on the coding criteria, the students' conversations were coded. In addition to statements related to content and Japanese language learning, there were also statements related to cognition and culture. Content was defined as explanations and discussions about the subject matter being learned. For example, in Activity 2, students used a worksheet to summarize their evolving impressions of Japanese people, so any words related to these impressions were categorized as learning content in this activity. Communication was defined as the use of the target language or discussions about the words and grammar of the target language. Cognition referred to the ability to summarize what has been learned in one's own words or to express personal opinions based on the learned material. Statements expressing personal ideas were therefore considered related to cognition. Culture was defined as collaborative work within groups or reflections on internationalization. Statements that promoted group collaboration or involved cultural exchange were classified under culture in this study.

Across the two group activities, there were 983 conversations, of which 565 were related to the 4Cs framework. Specifically, 155 were related to communication, 40 to cognition, 311 to culture, and 59 to content (See Fig 4-13).

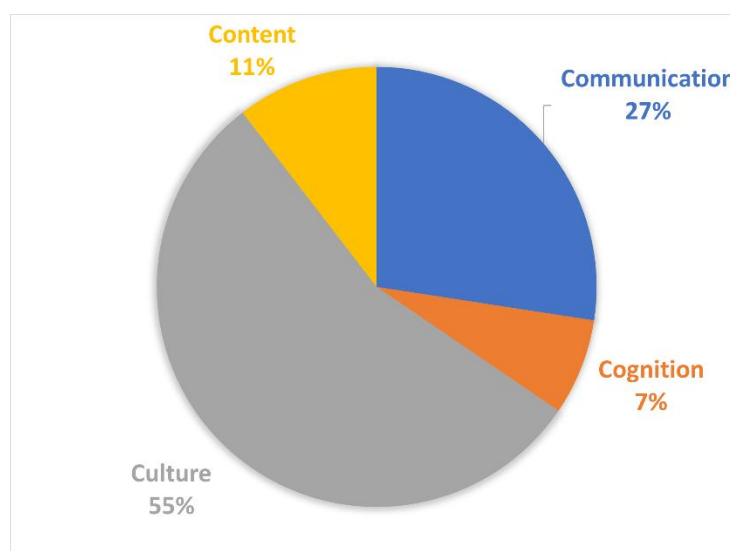


Fig 4-13. Proportion of statements related to the 4Cs in group conversations

Example 2. Group discussion about contents and Japanese.

Group 1

G1-S1: I wrote “同じ”(same). I think it’s all the same.

G1-S4: The teacher is asking you when.

G1-S3: You see, what the teacher’s saying is originally you thought the Japanese were like this, and then it changed.

G1-S4: Yeah, that means when.

G1-S2: どんときですか (When is it?)

G1-S1: No change. It’s the same as I thought it would be.

G1-S3: No, the teacher asked when you had changed.

G1-S1: That is, the teacher was asking when it had changed, but I don’t think it has.

G1-S4: That is when it has or has not changed.

G1-S1: It hasn’t changed.

G1-S4: You just write about one thing that inspired you.

G1-S1: I am now writing about “同じ”(same).

(Writing and painting)

Group 1 engaged in 443 conversations during the two learning activities, including 19 discussions related to content knowledge and 30 conversations about the Japanese language. As observed in this dialogue, most of the Japanese used consisted of single words, and even when full sentences were used, they tended to repeat the topics of the questions presented. These conversations align with the results in Table 2, indicating that students in Group 1 primarily used Japanese to confirm basic vocabulary, which may explain the improvement in their scores on the basic Japanese test.

Group 2

Scene 1

G2-S2: What about this one?

G2-S3: Let's write another one

G2-S1: The third is to ask, at first you think so, and then after contact with them, what has changed, right?

G2-S2: Yeah. Just think of them for “真面目” (Seriously).

G2-S1: どんときで (At what time). At what time was it? OK, then next.

G2-S2: Can this space be written down?

(5 seconds)

G2-S2: Just write keywords?

G2-S1: Yeah.

G2-S3: Right.

Scene 2

G2-S4: Eh, “見た”, is there a small “つ”?

G2-S3: No, there is no “つ.”

Group 2 engaged in a total of 582 conversations during the two learning activities. Of these, 26 were related to content knowledge, and 77 were related to the Japanese language. Similar to Group 1, most of the Japanese conversations in Group 2 involved sentences that reiterated the question topic, with many other conversations consisting of single words. However, Group 2 had frequent instances of confirming and discussing Japanese vocabulary. These conversations align with the results in Tables 2 and 5, indicating that while the majority of discussions during the application time were not focused on content knowledge or Japanese, the confirmation and reinforcement of learned vocabulary during group discussions were still valuable.

Group 3

G3-S4: In fact, I would have liked to write about “曖昧”(ambiguous).

G3-S3: My theme is tenderness. 雲のような日本人 (Cloudy Japanese). “雲” means cloud.

G3-S1: This is OK.

G3-S2: What about the specific things? Like they do something that makes you think they are like

clouds.

G3-S3: That is, the characteristic is 優しい (gentle). Then they are polite. Specifically, the first impression was obtained from the Japanese drama. Then actual contact with the Japanese, the impression has not changed. なし(none).

G3-S2: OK.

Group 3 engaged in a total of 347 conversations during the two learning activities. Of these, 8 were related to content knowledge and 34 to the Japanese language. Similar to Groups 1 and 2, most of the Japanese used in these conversations consisted of single words rather than complete sentences. This aligns with the results in Table 2, showing a significant improvement in students' scores on the basic Japanese test.

Group 4

Scene 1

G4-S1: 最近読んだ本は何ですか? (What books have you read recently?)

G4-S2: あのう、これです。 <仓央嘉措诗传全集> (Um, here it is. The Complete Poetic Biography of Kurama Gyatso.)

G4-S1: この本はどうだと思えますか? (What do you think of this book?)

G4-S2: いいです。でも、ちょっと難しい。 (It's good. But a little difficult.)

Scene 2

G4-S2: What is your title?

G4-S1: My title is Japanese people.

(Writing and painting)

G4-S3: What are the characteristics of Japanese people?

(Writing and painting)

G4-S2: What's your title?

G4-S3: I wrote "Japan in Green."

G4-S2: Oh, OK. Pretty good.

Group 4 had a total of 195 conversations across the two learning activities. Of these, 6 were related to content knowledge, and 14 involved the Japanese language. Although Group 4 had fewer conversations about content and Japanese compared to the other three groups, its members made an effort to communicate in Japanese. In this CLIL class, considering the students' Japanese language proficiency, they were not required to use Japanese for group discussions. However, the students in Group 4 still independently chose to communicate in Japanese. This may explain the meaningful improvement in Japanese language scores reflected in Table 2.

The conversations across all four groups indicate that students did not spend all of their application time discussing content knowledge and language learning. Some discussions were focused on completing and verifying information on the worksheet. While Tables 2 and 3 show significant improvements in Japanese language scores and content knowledge, it is also evident from the group discussions that students dedicated limited time to discussing course content and using Japanese. Most of the Japanese used during group discussions was centered around confirming problem topics and vocabulary. Only the members of Group 4 attempted to conduct their discussions entirely in Japanese. Therefore, future CLIL course designs should consider strategies to better support and enhance group discussions, encouraging more active and interactive participation, and allowing students to engage more deeply with the course content.

4.4.3. Discussion on the correlation between the elements of the FPI and students' learning outcomes of Practical 2

According to the correlation results in Table 4-10, certain principles of FPI awareness demonstrated significant correlations with learning outcomes. The problem-centered principle showed a moderate positive correlation with basic Japanese proficiency test scores (.554**, $p < 0.01$), a strong positive correlation with content test scores (.602*, $p < 0.05$), and a strong positive correlation with writing test scores (.813**, $p < 0.01$). As outlined during the course design phase, each class involved a life-related problem that students worked on to learn and apply the course content. The significant positive correlations between the problem-centered principle and learning outcomes in this course are consistent with findings from Gardner (2011).

The activation principle displayed a strong positive correlation with basic Japanese proficiency test scores (.605*, $p < 0.05$) but showed no significant correlation with content or writing test scores. This result may be due to a lack of a clear storyline throughout the course. For example, the first lesson posed the question, "How do you and your friends explain yourselves to each other?" while the second lesson asked, "What is your impression of Japanese people in real life, and how can you make better friends with foreigners?" Such questions may have led to a weak sense of connection

between lessons, making it difficult for students to fully grasp the relationship between previous and current lessons. Merrill (2020) emphasizes that courses should be designed so that students solve real-life problems with strong connections between them, which helps students recall and apply what they have previously learned. For example, the second lesson's question could be rephrased as, "Reflecting on how you explained yourself, what can you do to build better friendships with Japanese students?" This approach might better mobilize students' prior learning.

The demonstration principle showed a moderate positive correlation with basic Japanese proficiency test scores (.520*, $p < 0.05$) but no significant correlation with content or writing test scores. While Merrill (2002) demonstrates that using examples like media, worksheets, and guidance can make lessons more effective by leveraging familiar elements, the challenge of integrating multimedia with content and activities remains. Lo and Hew (2018) note that while students can learn relatively simple concepts from multimedia videos, they still need teacher guidance when learning more complex material. Although multimedia use in classrooms is now common, optimizing its effectiveness remains an important issue to address.

The application principle had a strong positive correlation with content test scores (.761**, $p < 0.01$) and writing test scores (.675**, $p < 0.01$), but no significant correlation with basic Japanese proficiency test scores. The expectation was that there would be a strong relationship between the FPI application element and learning outcomes. Although there were robust correlations of the application element with content knowledge and writing skills, there was no significant correlation with basic Japanese proficiency. Despite the teacher and students using Japanese during content presentations, the analysis of student group discussions revealed that they mostly used their native language. Out of 983 total conversations during group discussion activities, only 155 (15.77%) were in Japanese.

In Group 1, there were 443 total conversations across two learning activities, with 30 (6.77%) involving Japanese. For example, in the second learning activity, out of 124 conversations, only 5 included Japanese, and these were limited to single words. This explains the results in Table 4-7, where the application elements showed significant correlations with the Japanese writing test scores but not with the basic Japanese test scores. Students spent most of their group discussion time conceptualizing their writing rather than focusing on practicing Japanese.

Example 3. Group discussion about the Japanese language.

Group 1

G1-S3: The formation of impressions ...

G1-S4: Formative from ドラマ (Drama).

G1-S1: I'm better at writing that way.

(Writing and painting)

Group 1 engaged in a total of 443 conversations during the two learning activities, with 30 (6.77%) of those conversations including Japanese. For instance, in the second learning activity, out of 124 conversations during the group discussion, only 5 involved Japanese, and all were limited to single words. This helps explain the results in Table 6, where the application elements showed significant correlations with the Japanese writing test scores but not with the basic Japanese test scores. This is likely because students spent most of their group discussion time conceptualizing their writing rather than practicing Japanese language skills.

Group 2

G2-S2: Eh, how should 厳しい(strict) be written?

G2-S3: seriousness, 厳粛(solemnly)

G2-S1: You can't write 厳粛(solemnly), 厳粛(solemnly) means the atmosphere is serious.

G2-S2: OK, then write 厳しい(strict)

20 seconds later

G2-S3: I'll write another one, はじめに(firstly), ... this one can be written in third.

G2-S2: 厳しい(strict)

5 seconds later

G2-S3: OK, what else?

G2-S4: 根性 (guts)

G2-S3: 根性強い (Strong guts). It's okay, right?

G2-S4: Yeah.

Group 2 engaged in 583 conversations during the two learning activities, with 77 of those (13.21%) conducted in Japanese. Similar to Group 1, most of these conversations involved only individual Japanese words. However, a distinctive feature of Group 2, as illustrated in the example, was that students delved into the deeper meanings of words and discussed the appropriateness of

their word choices. This explains the results in Table 6: While there was no significant correlation between the application element and basic Japanese test scores, there was a strong positive correlation between the application element and the writing scores. When discussing their assignments, Group 2 students focused not on basic vocabulary, but on selecting words that would more effectively express their ideas in writing.

Group 3

G3-S2: Hey, Japanese people who love to give gifts, in Japanese it should be that “プレゼントを上げるのがすきな日本人”

G3-S3: Japanese people who like to give gifts, right? プレゼントを贈ることがすき. Like to send gifts, right?

G3-S2: Right, right.

(Writing and painting)

G3-S4: What is this theme of yours?

G3-S2: My theme is Japanese people who like to give gifts.

G3-S3: What about specific? Specific.

G3-S2: Do I say it in Chinese?

G3-S3: OK.

G3-S2: It was that at first, I just thought that Japanese people were giving to Japanese people, but then I found out that they invited people from other countries too, and then my impression of them changed, and I thought they were warm. Then every time we met, they always sent me a gift.

Group 3 engaged in 347 conversations during the two learning activities, with 34 (9.80%) of these conversations involving Japanese. As with the other groups, most of the dialogues consisted of single Japanese words. However, it's important to note that, as illustrated in the example, members of Group 3 actively corrected each other's grammar mistakes, even addressing grammar points that were not covered in the course. This helps explain the significantly stronger correlation in Table 6 between the integration elements and the basic Japanese scores. Such grammar correction is not only beneficial for immediate learning but also encourages students to reflect on the corrections and apply correct grammar usage in future Japanese communication.

Group 4

G4-S2: This write the 環境を守る(Protecting the environment) or write the 方法 (method).

G4-S3: En, 方法 (method).

(10 seconds)

G4-S2: 保護 (Protection)

G4-S3: Yes, the pronunciation is ほご (Protection).

(Writing and painting)

Group 4 had 195 conversations during the two learning activities, with 14 (7.18%) of those involving Japanese. Similar to the other groups, most of the Japanese used in Group 4's conversations were individual words. This aligns with the results shown in Table 9. While the usage and pronunciation of words were discussed during the activities, overall, Group 4 used Japanese the least frequently.

As the group discussions revealed, students predominantly used their first language, with almost all Japanese appearing as single words rather than complete sentences. Consequently, students engaged with Japanese less frequently than with other FPI principles during class time under the application principle. Macaro et al. (2020) suggest that using a foreign language to discuss complex knowledge can impose a heavy cognitive burden. Therefore, this course was designed to allow students to use their native language during discussions. However, Lo (2015) also notes that excessive use of the native language can hinder target language learning. Thus, future course designs should strive to balance the use of native and foreign languages. Additionally, when implementing FPI in CLIL design, it is important not only to allocate sufficient time for learning activities but also to enhance the quality of those activities.

The integration principle showed a strong positive correlation with basic Japanese proficiency test scores (.641**, $p < 0.01$), a moderate positive correlation with content test scores (.581*, $p < 0.05$), and a strong positive correlation with writing test scores (.624**, $p < 0.01$). These correlation results are consistent with the questionnaire findings on FPI awareness. Students exhibited a high awareness of the integration principle in the course, which positively influenced their basic Japanese knowledge, writing skills, and content knowledge. Merrill (2013) emphasizes that the integration principle encompasses reflection, discussion, and creation. As outlined in the course design, this course provided opportunities for students to reflect through group discussions, present what they had learned, and consider how they could creatively apply their learning in future contexts. The results indicate that these design elements positively impacted students' learning outcomes.

4.5. Conclusions and future works of Practical 2

This practical study applied FPI elements to design a CLIL course aimed at improving the Japanese language proficiency, intercultural communication content knowledge, and writing skills of 16 university students.

First, tests assessing basic Japanese proficiency, intercultural communication content, and writing skills were administered before and after the course to evaluate students' learning outcomes. The results showed significant improvements across all three areas, although some individual differences in writing were observed. Analysis of the group conversations revealed that students experienced some confusion in using the worksheets, and discussions did not address how to enhance writing skills. This suggests that clear instructions on worksheet use and guidance for peer learning during group discussions are crucial.

Second, to identify the FPI elements that influence learning outcomes, an FPI questionnaire was administered to assess students' awareness of FPI elements, followed by an analysis of the relationships between this awareness and learning outcomes. The results indicated that all FPI elements positively impacted basic Japanese proficiency, except for the application element. The problem-centered, application, and integration elements positively affected intercultural communication content and writing skills. The use of FPI as a problem-centered theory in the CLIL course design proved effective, particularly with the significant positive correlation between the problem-centered elements and both content and language outcomes. This confirms the hypothesis that a problem-centered course design is effective for CLIL. However, the results also showed that the application elements of FPI did not significantly correlate with the basic language test scores in CLIL. Therefore, when designing future CLIL courses using problem-centered theory, it is important to provide students with more guidance on applying basic language knowledge during activities.

However, this study has some limitations. One limitation is the relatively small number of participants and the short duration of the course, which limits the generalizability of the results. Another limitation concerns the data type for qualitative analysis. While this study analyzed students' group discussions, the conversations did not fully reveal the students' learning behaviors. A deeper understanding of students' learning behaviors in CLIL courses is needed to improve CLIL course design more effectively. Finally, due to the practical nature of the course and the students' tight schedule, no delayed test was administered in this study. Future course designs and experiments could consider implementing delayed tests for content that may be influenced by short-term memory to better verify the course's effectiveness.

Despite these limitations, the findings of this study offer valuable insights for CLIL course design when teaching Japanese learners at a similar level. The study's findings would have been more representative and convincing with a larger number of participants, more time, and a broader range of course topics. Additionally, this CLIL course was not conducted in an exclusively target

language learning environment, as it allowed students to use their native language during group discussions. In future CLIL courses, worksheets could be designed based on FPI principles to support CLIL in a fully target-language environment. Such future investigations will contribute to CLIL course design. The methodology used in this design can be applied to other topics in future CLIL courses, providing more data for a more extensive validation of the course design's feasibility. Furthermore, future research should also focus on the variability of students' individual responses to enhance the quality of the design.

5. Practical research utilizing Instructional Design 3: Effects of CLIL class using ICT based on ID

5.1. Practical design 3

This practical, like the second practical, was designed using FPI theory for the CLIL course. However, in order to solve the problems that appeared in the practical 2, this practical incorporated the application of ICT when conducting the course design. In this study, it is used the open-source solutions, Modular Object-Oriented Dynamic Learning Environment (Moodle), which is widely considered to be user-friendly in higher education (Paulsen, 2003).

The course content and learning objectives of Practical 3 are the same as those of Practical 2. In a week of concentrated study, each day will focus on a theme and solve the problems raised by teacher through group discussion. The daily learning activities are shown below.

The Activities include: 1. Students use the relevant learning content about self-disclosure by discussion in groups and making their own Johari window on worksheets; 2. Through group discussion, summarize the changes (or no changes) in student's opinion of Japanese on the 3S card, and explain the reasons, and then take a presentation in class. Through this learning activity, they can deepen their understanding of the learning content about stereotypes; 3. Through group discussion, Students will make their own friend-making map when making friends with foreigners, so as to apply the lesson contents about self-disclosure and stereotypes; 4. Through group discussion, the similarities and differences of Chinese and Japanese proverbs are summarized, so as to have a deeper understanding of the deep intersection of Chinese and Japanese cultures and different development processes; 5. The students formed groups and then made skits based on different perspectives of classic stories (Snow White, Kintaro, etc.). Then act it out in class.

Table 5-1 demonstrates how the principles were implemented in the course for the experimental condition.

Table 5-1 Example of a 90-minute lesson

FPI principle	Course Design	Time (Percentage)	FPI Design Strategy Level
Activation, Demonstration	Use ICT to make connections and provide examples of learning content.	Out of class	3

	Prepare and review materials uploaded to Moodle.		
Activation	The teacher explains to the students the questions they have written on Moodle. Relate the questions to what students have learned.	5 minutes (6%)	3
Problem-centered	Each lesson is designed with a problem related to intercultural communication that exists in life. Students will need to solve these problems in class. For example, if you come to Japan, how do you make friends with the foreigners you meet for the first time? The problems given are relevant to the students' lives and are aligned with their Japanese language skills.	5 minutes (6%)	3
Activation, Demonstration	When teach new knowledge to students, use what has been covered in class before, or what students have experienced in their lives to explain. When teaching new knowledge, give examples related to the new knowledge so that the students can better understand the course content.	30 minutes (33%)	3
Problem-centered	Give the students the problems they need to solve in groups.	5 minutes (6%)	3
Application	Students' learning activities that use what they have learned to solve problems need to be diverse and relevant. Provide students with tools such as worksheets to help them better accomplish their learning tasks.	25 minutes (28%)	2
Integration	Give students the opportunity to demonstrate what they have learned. For example, students present the results of the group discussion and summarize what they have	20 minutes (22%)	3

	learned and are asked to think about how they could apply what they had learned in their future lives.		
Integration	Students summarize what they have learned and enter it in Moodle.	Out of class	3

5.2. Participants and Data Collection of Practical 3

The course lasted for 15 hours over five days. Course name is Intercultural education. Teaching material was <Multicultural communication-from the field of Japanese language education>. Author conducted the pre- and pre-tests and FPI-based pre- and post-questionnaire. The post-questionnaire comprised questions about FPI and Moodle. The test included N1 and N2 of the JLPT, including six reading and two listening questions. Each N1 question was scored at two points, while N2 was scored at one point, totaling twelve points. The FPI-based questionnaire included 21 questions. Target students were 3rd year university students of Japanese language specialty, 16 students, Japanese proficiency is N2. After all of the lesson, 9 students were taken a semi-structured interview.

In Practical 3, the worksheets used in class are the same as those used in Practical 2. The difference is that for the post-class review, Practical 2 uses Daifuku and Practical 3 uses Moodle, where students enter their own summary of what they have learned and their own ideas.

	A	B	C	D
3	songzitian	20180311	森脇先生の集中講義が終わったばかり、また須曾野先生の集中講義があるのは、最初はすごく嫌でしたが、須曾野先生の授業出たら、すごく楽しく面白かったです。そして、とても優秀な九州大学のドクター、留学生の大先輩を紹介してくださいました。楽しい時間を過ごさせていただきました。	
4	bainengxuan	20180311	今日の授業でジョハリの窓のことは何だろう、自分の自己開示の大きさはどれくらいか、そして、異文化間コミュニケーションをとるとき、気を付けることは何と何かなどをかく先生と須曾野先生に教わりました。私は異文化間コミュニケーションをとるとき、気を付けることについてとても大変な勉強になりました。相手にその人であることをできるだけ話し、仲良くなるように頑張ります。そして、人と人のコミュニケーションは、言い方をさええれば、怒れるか、案外に知らない情報が出てくると思うかもしれません。例えば、相手においづつか聞くことはあっても失礼だとも思います。もし量産は何ですか、好きなアニメとかを話すと、相手の返事を考えて、年齢だけではなく、他の情報が出てくるかもしれません。言い方をさええれば、なんにでも通じますと初めて思いました。一日の授業はこれで終わりました。コミュニケーション力は少しアップしたと思います。これらの人との付き合い、合い、合いは就航活動に役立つと思います。明日の集中講義も楽しみにしています。須曾野先生とかく先生、よろしくお願ひします。	
6	hanneilu	20180311	今日は新しい言葉の「自己開示」と「ジョハリの窓」を勉強になりました。しかもその内に、一番印象的なのはやはり「自分は知らないが他人に知られている」とです。高松時代にベストフレンドと一度喧嘩しているときに「嫌いより人」と叱られました。しかし、それと正反対のことは、私はずっと自分が悪いやりの人間だと思ってきました。よく相手の立場に立って、相手の気持ちを気にかけて私が、全く自分が嫌いより人とは思えませんが、知らず知らずのうちに仲良しにそんな印象を与えました。本当にショックを受けました。	
7	chenlu	20180311	ぼぼその時に、「自分は知らないが他人に知られている」ということと存じました。友達とのコミュニケーションさえ言い違いが有り、異文化間交流には、寛容精神とさらに広い視野を持つべきだと思っています。もし相違な意見があったら、ちゃんと腹を割る姿勢で打ち明けましょう。その誠意一杯の姿勢も異文化間交流に非常に大事なことでと思います。	
8	heyuan	20180311	まずは自己紹介の時、初対面の人に対して、相手の基本的な情報を知っていた上で、後振り業振り聞かない方がいい。特に、プライベートな話に触れると、相手を困らせる場合が多いと思う。少しずつ会話を進めるのはベストだ。そして、自分とはジョハリの窓が全然違う人と交流しても、相手を理解したいという寛容な気持ちを持つことが大事だ。我々は今月、そろそろ日本に行つて、日本人といえるところで交流ができるだろう。違う国だから、物事の認識にブレがあるのも当然である。そういう時は自分の意見をとかく強く主張したり、真正面につかつたりするより、相手の立場をよく理解して、尊重した上で、意見を交換した方がいい。そういう意識を持って、相手今日の授業は須曾野先生の言葉から異文化間教育という集中講義が始まりました。授業の引用として、今日の集中講義の内容がだいぶん分かりました。次はクラスメートと自己紹介をして、みんな知り合えるのはいいけど会ったばかりで緊張するけど、ジョハリの窓を通して自分のことが他人に打ち明ける方法を教わりました。異文化間でコミュニケーションをする時、ジョハリの窓による誤解が生じ、高が合わないかも知りませんので、寛容や友好の姿で受け上げるはず。最後は、「異文化間コミュニケーションをする時、何を話せばいいのか」という課題が行いました。日本人とコミュニケーションする時、年齢など聞くマナーがないと思われるかも知れませんので、異文化の習慣を了解してからコミュニケーションをした。	
9	lipei	20180311	今回、授業のテーマは異文化間の教育でした。文化の違いに対して、国情に合わせる教育の形もそれぞれ違っています。いまでは、私は異文化教育の構造にあまり詳しい認識がありませんでした。集中講義を通じて、異文化間教育の真実点などを学んで知識を身につけることをあざめています。	
10	liyan	20180311	今日の集中講義にまず自己紹介をしました。以前は気を付けたのは紹介する時に、みんなが大抵何をアピールしたということ。職業と場合によって、紹介すべきことも変わっていました。たとえ先生が自分を紹介するところ、態度を紹介させるのが慣例になっています。友達同士の場合、趣味や得意なものを紹介すれば悪くないです。	
11	liyan	20180311	そして、「自己開示」について勉強しました。自分とは何だかを明らかにしたいために、ジョハリの窓を活用しました。「窓」の中に、「他人に展示した自分」「他人が知らない自分」「他人も自分も知らない自分」「自分が知っていても他人に展示していない」という、主に四つの部分があります。四つの部分の大きさによって、自己開示の大きさも変わってきます。その理論を加えて考えると、友達になる人が似ている部分が多ければ多いほど良いと思います。しかし、差人は相補すればよいですから、少々違う性格がいいと思います。	
12	liyan	20180311	自己紹介は人によって異なる。ある人はいろいろな情報を提供した。物に対する考え方もどんな人か。しゃべりすぎたと思った。ある人は無口な感じがした。名前と出身地だけを話した。もっと彼女に関する情報がほしかった。なぜか？授業の進みにつれて、だんだんわかった。人々のジョハリの窓の大きさは真なるからだ。「自分は知っていることと他人に知られていること」という窓が大きいほど、自己開示が大きいことになる。だから、明るく人はよく自分のことを他人に話してみたい。でも人それぞれだ。①窓が小さい人はそれは思わないかもしれない。だから、初対面の人と自己紹介をする時には、必ず他人の気持ちを考えて、他人の立場に立ってプライベートな情報を聞かないほうがいいと思う。人間関係が壊れて、人と馴染んでから、もっと主観的なものをしゃべらそう。今日の授業から、異文化コミュニケーションについていろいろな内容を学んだ。一番印象深い部分は、クラスメートたちと対面して自己紹介である。クラスの人と熟知の仲だけだ、たくさん新しい話題を出してきて、本当に楽しかったと思う。	
13	liyan	20180311	そして、自分とはジョハリの窓が全然違う人と交流しても、相手を理解したいという寛容な気持ちを持つことが大事だ。我々は今月、そろそろ日本に行つて、日本人といえるところで交流ができるだろう。違う国だから、物事の認識にブレがあるのも当然である。そういう時は自分の意見をとかく強く主張したり、真正面につかつたりするより、相手の立場をよく理解して、尊重した上で、意見を交換した方がいい。そういう意識を持って、相手今日の授業は須曾野先生の言葉から異文化間教育という集中講義が始まりました。授業の引用として、今日の集中講義の内容がだいぶん分かりました。次はクラスメートと自己紹介をして、みんな知り合えるのはいいけど会ったばかりで緊張するけど、ジョハリの窓を通して自分のことが他人に打ち明ける方法を教わりました。異文化間でコミュニケーションをする時、ジョハリの窓による誤解が生じ、高が合わないかも知れませんので、寛容や友好の姿で受け上げるはず。最後は、「異文化間コミュニケーションをする時、何を話せばいいのか」という課題が行いました。日本人とコミュニケーションする時、年齢など聞くマナーがないと思われるかも知れませんので、異文化の習慣を了解してからコミュニケーションをした。	
14	liyan	20180311	そして、自分とはジョハリの窓が全然違う人と交流しても、相手を理解したいという寛容な気持ちを持つことが大事だ。我々は今月、そろそろ日本に行つて、日本人といえるところで交流ができるだろう。違う国だから、物事の認識にブレがあるのも当然である。そういう時は自分の意見をとかく強く主張したり、真正面につかつたりするより、相手の立場をよく理解して、尊重した上で、意見を交換した方がいい。そういう意識を持って、相手今日の授業は須曾野先生の言葉から異文化間教育という集中講義が始まりました。授業の引用として、今日の集中講義の内容がだいぶん分かりました。次はクラスメートと自己紹介をして、みんな知り合えるのはいいけど会ったばかりで緊張するけど、ジョハリの窓を通して自分のことが他人に打ち明ける方法を教わりました。異文化間でコミュニケーションをする時、ジョハリの窓による誤解が生じ、高が合わないかも知れませんので、寛容や友好の姿で受け上げるはず。最後は、「異文化間コミュニケーションをする時、何を話せばいいのか」という課題が行いました。日本人とコミュニケーションする時、年齢など聞くマナーがないと思われるかも知れませんので、異文化の習慣を了解してからコミュニケーションをした。	

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Figure 5-1. Summary table of daily student Moodle entries



Figure 5-2. The look of group discussion in class

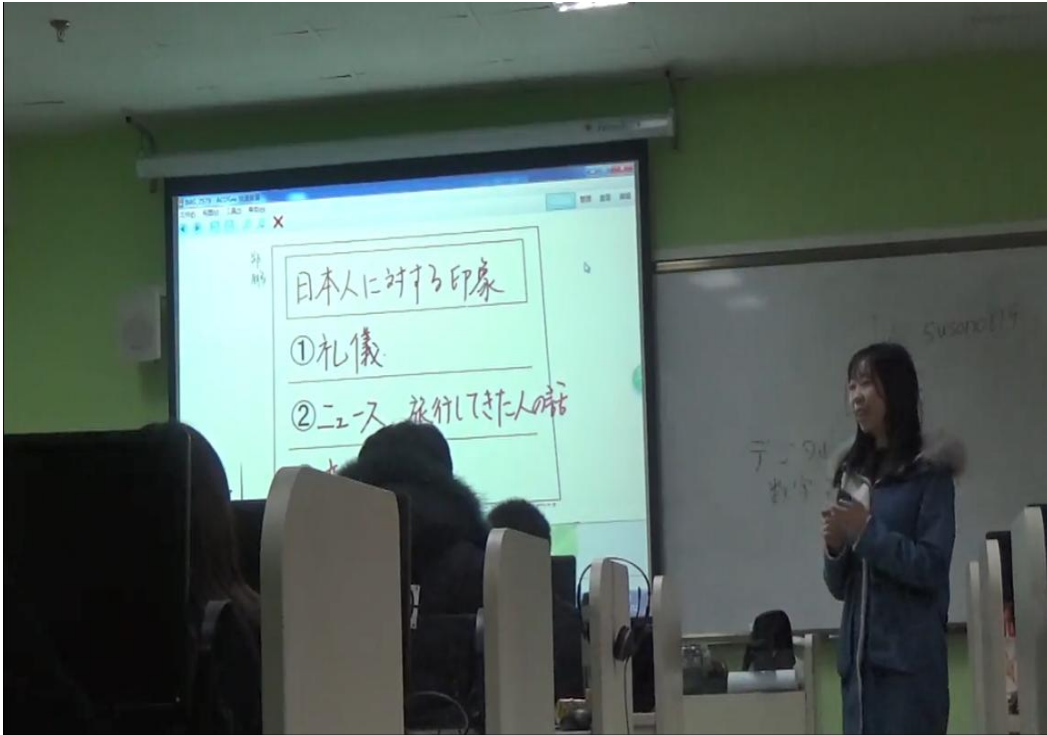


Figure 5-3 Presentation in the classroom



Figure 5-4 Presentation in the classroom

5.3. Result of Practical 3

5.3.1. Data analysis methods

First, the data were verified as having a normal distribution using the Statistical Package for Social Science (SPSS) version 26 software program. Since the data were not normally distributed, the Wilcoxon signed-rank sum test was used to analyze the pretest and posttest, and Spearman's rank correlation coefficient method was used to analyze students' learning outcomes. In addition to the mean, the median is also stated in the result. The total score of the basic test was 12, the content test was 6, and 12 for writing. The test questions and scoring criteria were as same as practical 2. The mean and standard deviation of students' awareness of the designed FPI elements and Moodle were analyzed. On the other hand, the qualitative data which were collected through group discussion were analyzed through MAXQDA 2020.

5.3.2. Students' learning outcomes are improved through CLIL designed by the FPI.

Wilcoxon signed-rank test was used to measure the significance of changes in the pre-post learning outcomes. The results are shown in Table 5-2, Table 5-3 and Table 5-4. As the results shown, the students' learning outcomes have been effectively improved through this CLIL course.

Table 5-2 Wilcoxon signed-rank test results of pre-post Basic Japanese Proficiency Test Score (N = 16)

Test	Mean	Median	SD	<i>z</i>	<i>p</i> -value
Pre-basic	5.94	6.00	1.48	2.310	0.021
Post-basic	6.50	6.50	1.37		

Note. * $p < 0.05$; ** $p < 0.01$.

Table 5-3 Wilcoxon signed-rank test results of pre-post Content Knowledge Test Score (N = 16)

Test	Mean	Median	SD	<i>z</i>	<i>p</i> -value
Pre-content	2.50	3.00	1.26	3.272	0.001
Post-content	4.82	5.00	0.75		

Note. * $p < 0.05$; ** $p < 0.01$.

Table 5-4 Wilcoxon signed-rank test results of pre-post Writing Test Score (N = 16)

Test	Mean	Median	<i>SD</i>	<i>z</i>	<i>p</i> -value
Pre-writing	5.56	6.50	1.00	3.433	0.001
Post-writing	8.63	9.00	1.64		

Note. * $p < 0.05$; ** $p < 0.01$.

5.3.3. The aware of students about the designed FPI elements and Moodle

Through this class, the students have a stronger awareness of the FPI principles followed in the design of the course. Table 5-5 indicates the students' awareness of the designed FPI elements and Moodle. In the results for the questionnaire items for the awareness of FPI elements, problem-centered, demonstration, application, integration elements received high ratings of more than 4 points, activation element was 3.93, and the Moodle was 3.81. It is shown that the course was designed to allow students to experience the FPI elements and Moodle. The highest score is demonstration element (mean = 4.72, $SD = 0.36$), followed by problem-centered element (mean = 4.36, $SD = 0.44$), application element (mean = 4.23, $SD = 0.46$), and integration element (mean = 4.04, $SD = 0.61$), and the lowest score is for activation element (mean = 3.93, $SD = 0.61$). The mean score of students on the item of whether they found Moodle helpful for learning was 3.81 ($SD = 0.98$).

Table 5-5 Descriptive statistics of students' awareness of the FPI elements and Moodle (N = 16)

	Min	Max	Mean	<i>SD</i>
Problem-Centered	3.50	5.00	4.36	0.44
Activation	3.00	5.00	3.93	0.61
Demonstration	4.00	5.00	4.72	0.36
Application	3.40	5.00	4.23	0.46
Integration	3.00	5.00	4.04	0.61
Moodle	2.00	5.00	3.81	0.98

5.3.4. The correlation among FPI elements, Moodle and learning outcomes

In order to determine factors that might affect the cultivation of learning outcomes through this course design, Spearman's Rank Correlation Coefficient was used to analyze the correlations among learning outcomes (pre-post basic test score, pre-post content test score, pre-post writing test score), awareness of 5 principles of FPI (post FPI Questionnaire) and Moodle. The calculation is reproduced below. First, the pre-post difference in basic Japanese proficiency test score, content knowledge test score, writing skills test score, were calculated. Then, the average values of the score of the questionnaires under the each of the 5 principles in the FPI questionnaire and Moodle was calculated. Finally, because of the small sample size, the Spearman's Rank correlation was used to calculate the correlation between the difference between the score of basic, content, and writing and the total score for each of the 5 principles and Moodle.

As table 5-6 shows, a strong correlation was noticed between basic test scores and activation, $\rho=.71^{**}$, $p < .01$; basic test scores and demonstration, $\rho=.60^{*}$, $p < .05$; and basic test scores and integration, $\rho=.66^{**}$, $p < .01$. A correlation also existed between the basic test scores and problem-centered, $\rho=.59^{**}$, $p < .05$; and content test scores and activation, $\rho=.64^{**}$, $p < .01$; and content test scores and Moodle, $\rho=.54^{*}$, $p < .05$; and writing test scores and Moodle, $\rho=.53^{*}$, $p < .05$.

Table 5-6. Correlations among FPI elements and learning outcomes

	Problem-C entered	Activation	Demonst ration	Applicati on	Integration	Moodle
Basic	.59*	.71**	.60*	.45	.66**	.15
Content	.57*	.64**	.41	.56*	.69**	.54*
Writing	.12	.23	.24	.36*	.34	.53*

* $p < .05$. ** $p < .01$.

5.4. Discussion of Practical 3

5.4.1. Discussion on students' learning outcomes of Practical 3

The pre-and-post comparison of the students' learning performances show that the students' basic Japanese performance, content performance, and their writing performance all improved significantly through this course. The students were also positive about using Moodle to help them

learn. Thus, in addition to CLIL for Japanese language education, FPI and Moodle can be used as tools for improving courses. As mentioned in previous chapter, the learning goal of CLIL is to improve both foreign language skills and content knowledge, but to accomplish this goal is not easily (Coyle et al., 2010). Some researches show that just use CLIL's 4Cs to design class can not achieve the learning goal (Ennis, 2015; Agustín-Llach, 2016). However, this study guarantees both content and language learning outcomes. These results indicate that the FPI and Moodle provides a way to re-examine the teaching models of CLIL. This is consistent with previous research that using FPI has positive impacts on students' learning outcomes (Hoffman, 2014).

However, as show in Table 5-3, the SD of post-writing score is higher than pre-writing score. It is mean that writing skill of students was strengthened through this course, but the disparity between students also widened. In this course, worksheets and Moodle were designed to help students organize their thoughts, to prove their writing skill. For example, the 3S-card can help students to understand three-paragraph deeply than before. In addition, after class, students need write essays in Moodle, which give them a chance to apply the writing skill.

From the perspective of exercising language skills, all 9 students interviewed reported that all 4 skills of listening, reading, and writing were exercised. Especially the 2 skills of output (speaking, writing).

Example of Students' perceptions of language skills practice

S01: I think listening, reading, and writing were practiced in this class. I think the most practice is the ability to speak. It is to think about how to express my ideas and use correct grammar to express them. So I think in listening, reading, and writing, I mainly practiced speaking skills.

S02: Every day when I write Moodle after class I look at my notes and then write. This way I can organize the contents of the course and also exercise my writing skills.

S03: Among the 4 skills, I think the most practiced skill is speaking. I think it is good to have more opportunities to speak in class because in the past, the teacher was always talking unilaterally and rarely gave students the opportunity to speak. I write my thoughts on Moodle, which is actually a good exercise for writing skills. It's about the ability to think in writing and the ability to express oneself in writing in Japanese.

S04: I think the most practice among the 4 skills of listening, reading, writing and speaking is listening. Because the teacher teaches in Japanese, I need to understand what the teacher is saying first. Then I practiced my speaking skills, because there was a group discussion every time, and then I had to give a speech at the end of each lesson. Then it was reading and writing, and I felt that the last two were similar.

S05: I think I got a lot of practice in 4 skills. In order, it's listening, writing, reading and speaking.

I think the shortcomings of this aspect of speaking are mainly due to the fact that the ideas I put forward are somewhat naive, and sometimes the words I say do not express what I want to express. But the skill of speaking has been practiced.

S06: I think I have practiced listening, reading and writing. In order, the first one is speaking, then writing, listening and reading.

S07: I think listening, reading and writing have been practiced a lot. I think the most practice thing of 4 skills is speaking, and then listening. The next are reading and writing. The most practice is speaking.

S08: I think I got a lot of practice in listening, reading, and writing. Especially the speaking skill has been practiced a lot. In the past class, there were very few opportunities for such exercises in the classroom.

S09: The 4 skills of speaking, listening, reading, and writing were all practiced during the class. In order, it's speaking, listening, writing and reading.

Table 5-7 Ranking of students' awareness about exercise of the 4 skills of listening, speaking, reading and writing

	listening	Speaking	reading	Writing
S01	2	1	4	3
S02	1	2	3	4
S03	2	1	4	3
S04	1	2	3	4
S05	1	4	3	2
S06	3	1	4	2
S07	2	1	3	4
S08	2	1	4	3
S09	2	1	4	3

The ranking shows that although the design of this course focuses on strengthening the proportion of output (speaking, writing), listening is still ranked very high. This is consistent with the findings of prior research that language courses designed using FPI result in better exercise of output language skills (Lo et al., 2018). The author speculates that the reason for this is that all of the students interviewed mentioned that the entire course was taught in Japanese, so listening was given a lot of exercise. This result is also in line with the characteristics of CLIL instruction, which is to teach the course in a foreign language and allow students to make the most of their class time to achieve input. It is also evident from the responses that the students interviewed rated the design of the output part of the course design (the group discussion and presentation of results) very highly. It proves that this design uses the theory of FPI to design the course based on CLIL, can take advantage of the original strengths of the CLIL, and on top of that, can improve the students' ability to apply what they have learned. Although there is variability among students, overall, this course is effective in improving students' knowledge about content and improving their language skills.

During the interview, S05 ranked speaking last when ranking the level of exercise of the 4 skills of listening, reading, and writing. When asked why he ranked speaking last, S05 stated that it was because she felt that she did not express her thoughts correctly in what she said, but that the skill of speaking was still practiced. This result also reflects the individual differences among students. Some students will meta cognize their own performance, and those who are more demanding of themselves will have high expectations of their learning outcomes. This is the reason why in Tables 5-7, S05 ranked speaking in the 4th place.

Regarding the achievement of the learning objectives of the course, all nine students interviewed indicated that the learning objectives of the course were clear. 7 students felt that they had achieved the learning objectives, and two students felt that they had not fully achieved the learning objectives.

Example of Students' perceptions of the achievement of learning objectives and the understanding of learning content

S01: I think the learning objectives are quite clear because they are first shown on the PowerPoint each lesson. Then the title of each lesson is also related to the learning objectives. There is also a summary of the content at the end of each lesson. I think the learning objectives are achieved because there are many activities in the classroom and then we can practice by presenting. Because there were not many opportunities to speak up in class before, but now there are group discussions and presentations, so we can speak up our own ideas and make a deeper impression of what we have learned.

S02: The title and learning objectives are clearly written on the PowerPoint every lesson, so I think the learning objectives are clear. Regarding the achievement of learning objectives, the time on the last day seemed to be a bit insufficient, that is, the presentation was finished, but there was no

time for final summary and discussion. Then, I didn't understand a little bit about the content of the course and the creation of Johari Window. It was too much freedom in the worksheet, and it was not clear how it should be drawn. It is how much the size of the self-explanation should take up or something like that.

S03: The learning objectives are clear, the teacher will give a topic in each class and then there will be a summary at the end of each class, I think this format is quite good. But I think it is very difficult to achieve all the learning goals. The part that I didn't accomplish was the activity on the last day, and the summary at the end was a little bit insufficient. I think that after the activity, there is still need a time for reflection and discussion. And I understood the learning content.

S04: The learning objectives are clear because they are written on the PowerPoint each lesson. I think the learning objectives were all achieved, especially the Moodle at the end, and it was good to have such a process of summarizing by myself. The content of the course was understandable, but there were some cultural and customary differences that I could not understand. I just don't understand their way of thinking.

S05: I think the learning objectives were very clear and very good. Then, through the class, I think the learning objectives were achieved. I didn't understand the content at first, but through the teacher's explanations and group discussions, I understood it all later.

S06: I think the learning objectives are clear. Then the learning goals were achieved. The learning objectives are clearly written on the PowerPoint before each lesson, and then there is a summary on Moodle at the end of each lesson. There is a sense of beginning and end. I basically understand the content of the course, but there are some things I still don't understand. Sometimes I couldn't understand what was said in the class, maybe because my Japanese was not very good, but I could understand about 80%.

S07: I think the learning objectives of each lesson were clear and I was able to achieve them. Before the class, the teacher would tell us what we were going to learn today, and then I would have a learning goal in my mind, and then through the teacher's explanation and learning activities, I could understand the concepts. Then, through practical activities, I could understand the concepts more deeply. At the beginning, I might not understand the concepts even after listening to the teacher's explanation, but through practice and then summarizing with Moodle after class, I gradually understood them completely.

S08: I think the learning goal of the course is clear, and the learning goal of this course is also achieved. However, for the real application of knowledge, although there were some activities in the class that simulated real-life scenarios, I think I had to actually interact with Japanese people before I could apply it. I understand all the contents of the course.

S09: I think the learning objectives are clear and I have achieved them myself. I think I have

thought more about how to communicate with foreigners than before. The content of the course was very clear, and the concepts and the PowerPoint presentation were very clear. I think the content is very suitable for our current level. There was also a lot of interaction between the teacher and the students, and between the students and the students in the class.

However, it is also clear from the results of the interviews that there are still relatively obvious differences among students. For example, in terms of achieving the learning objectives, although all students said that the objectives of each lesson and the whole course were clear, there were differences in the degree of achievement. S03 thought he achieved about 70%. What he did not achieve was the activity in the last lesson. Due to time constraints, the course ended after the students presented their works, and he thought there should have been a reflection session after the presentation. S02 similarly said that the time for the last activity was rather tight. S06 also said that he could only understand about 80% of the course content because his Japanese was not very good.

5.4.2. Discussion the students' awareness of the designed FPI elements and Moodle

As Table 5-7 shows, through this course, the students have a stronger awareness of the FPI principles and Moodle followed in the design of the course. Notably, students did not show much variation in their awareness of the elements in Table 5-7. As described in the course design section, the length of the FPI element as following. The problem-centered, activation, demonstration, application, and integration elements accounted for 12%, 22%, 16%, 28%, and 22% of the course time, respectively. Whereas the integration element received the highest score, the application element scored relatively low. As both the length and quality of learning activities in the classroom have an impact on learning outcomes (Borg, 2006), the author analyzes the conversations during group activities, as in Practice 2, using CLIL's definition of the 4Cs as the evaluation criteria. The analysis method and evaluation criteria are the same as in Practice 2.

The data analyzed showed that the students in Practice 3, during two group activities, produced 862 conversations. Of these conversations, 607 were related to the 4Cs of CLIL. Content-, language-, cognitive-, and culture-related conversations accounted for 16%, 35%, 8%, and 41%, respectively.

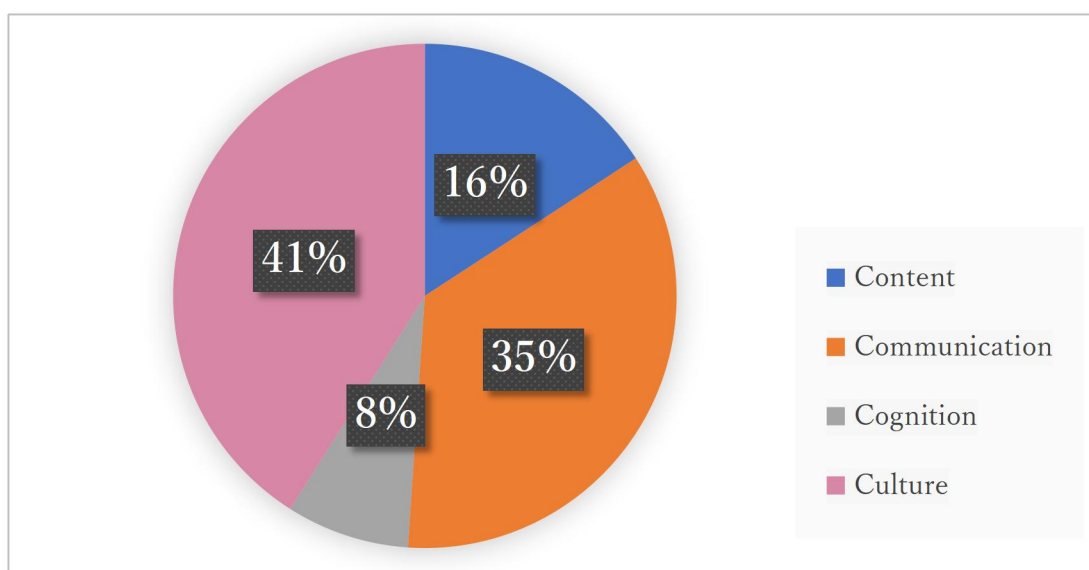


Fig 5-5. Proportion of statements related to the 4Cs in group conversations

From the conversations in the four groups, it could be seen that the students did not spend all their time discussing the knowledge content and language learning during the application time. It was clear from some of the conversations that students would discuss things like what color pen to use when writing headings. However, there were no more problems such as not knowing where the content should be written on the worksheet, which occurred in Practice 2. This proves that the improvements made in this course based on the problems in Practice 2 are effective. Put differently, the teacher gave more detailed instructions on the examples and provided examples of how to actually write the worksheets. These improvements were effective. However, as in Practice 2, the content of the conversations in Japanese was mostly just a discussion of words, although there were whole sentences in Japanese.

Example of group discussion about contents and Japanese in activity 1.

Group 1

G1-03: Firstly, you can write on the first part, *you know yourself that others know*.

G1-04: You either think of one first, Like, you can say, I don't drink milk. This is what you know, but we all do not know the habit.

G1-01: OK, I'll write the first part. You guys tell me what I have, What I like? I like to play games.

G1-03: Come on let's help her think of one. She likes to watch short videos.

G1-04: Eh, how do you spell スマート?

G1-02: *It's a foreign word, katakana. It's written like this.*

G1-04: Is it written like that?

G1-02: Yes. And then 毎日毎日... Wait a minute, I'll look it up

Group 2

G2-02: I like to travel. *How do write travel?*

G2-03: Travel written up is tourism in 旅行.

G2-04: Let's write the last one. 自分は知らない、他人もしらない.

G2-01: Is there anything you guys know that I don't know.

G2-03: Nothing.

G2-04: If you don't know, how can we know.

G2-01: Just like, I didn't notice it, I didn't realize it.

G2-04: I think it would take a deep conversation for us to know that.

(laughs)

G2-03: Ah, I have one of Ranran. It just likes to touch her hair, and she doesn't realize it.

G2-02: Huh? Do I have that?

G2-03: You do.

G2-04: Yes, you do.

G2-02: I don't even notice it. *Then it seems to be something that you guys know and I don't know.*

Group 3

G3-02: 本当に知らない. I don't even know how much I've recharged, and you don't know how much I've recharged.

G3-04: Oh, right.

G3-02: How do you write recharge in Japanese?

G3-01: It's the 「課」 as same as class in Chinese, not the subject of the examination (科)

G3-02: You guys think I'm rich, 「課金の消費」. That's how it's written, right?

G3-04: Yes.

G3-02: Oh, got it.

Group 4

G4-01: I know it myself, I am...

G4-02: Love the gym very much.

G4-01: I don't love to gym.

G4-02: *Then that would be something we know you don't know.*

G4-04: Right.

G4-01: 自分もしらない. No, but I really don't like gym.

G4-03: But we all think you love gym, so you write it on the second one.

G4-02: OK. Then I'll think about mine, and we all know things.

(laughs)

G4-04: That's just what you know about yourself.

G4-02: 綺麗. Do you know how to write kindness?

G4-03: やさしい.

Example of group discussion about contents and Japanese in activity 2.

Group 1

G1-04: Keep the rules.

G1-02: OK, Keep the rules. ルールを守る. Right ?

G1-03: Right.

G1-02: ルールを守る.

G1-04: You have misspelled this word again.

G1-02: What was that one? *That's the one that changed your impression of Japanese people, right? It's the contact with Japanese people, and you actually come into contact with Japanese people who are different from your original impressions.* Is that right? And then when did this happen?

(Silence, think)

G1-02: Yes. And what was this thing?

(Writing and drawing)

G1-04: *But, what should you do if these impressions you wrote above about Japanese people do not change after actual contact?*

Group 2

G2-03: Then I'll write 同じ. I don't think it makes any difference.

G2-04: It was asking you when.

G2-01: *You see what he is saying is that originally he thought Japanese people were like that, but did that impression change after you came in contact with Japanese people.*

G2-04: So there just needs to be a when. It's the time when this happened.

G2-02: どんなとき.

G2-03: I just haven't changed this one. It's just the same as I used to think.

G2-01: No, no. It asked you when you've changed.

G2-02: どんなとき変わったのか？

G2-03: *It hasn't changed, it's just the same as I thought.*

G2-04: It's that it was asking when you...

G2-01: *When did it change, or didn't change.*

G2-03: OK. It hasn't changed.

Group 3

G3-02: This is my topic.

G3-04: I would like to ask how to say in Japanese “Japanese person who will bring you a local product”. お土産を持ってくる日本人？

G3-02: Japanese people who like to give you local products? You mean give you, right? Give you in Japanese is 上げる.

(Writing and drawing)

G3-01: Give me that blue pen, please.

G3-04: お土産...

G3-01: What are you writing about?

G3-04: What I wrote is that I thought Japanese people were cold, but later I found out that they were quite warm. The time when this change happened was when I actually met Japanese people.

G3-02: I wrote about 曖昧の日本人. It is what words do not finish talking, you have to guess.

G3-03: Mine is やさしい日本人. It's what I found by watching Japanese dramas and getting in touch with Japanese people. It is no change. So I write 同じ.

Group 4

G4-01: This activity is for everyone to write a worksheet of our own. *Then write this title to be related to the following three questions, that is, to answer these three questions, and then just summarize.*

G4-03: *Mainly around this title to answer the three questions below.*

G4-04: Not everyone writes a worksheet together, we need everyone to write a worksheet oneself,

right?

G4-01: You don't have to think together, you write your own. Then just publish it when you're done.

slightly

G4-01: The news is written in "ニュース", right? Then I wrote it wrong.

G4-03: Yes, "ニュース",

G4-02: You should have included a picture to make it better.

G4-04: Then draw a picture on it.

(Writing and drawing)

G4-03: 環境を守る. How to write about 環境.

G4-02: 環境...

G4-03: *Left word is* 玉, right?

G4-02: Yes, the left word of environment is 玉.

5.4.3. Discussion on the correlation between the elements of the FPI and students' learning outcomes, and between Moodle and learning outcomes of Practical 3

According to the correlation results in Table 5-7, some elements of FPI awareness reached a significant level of correlation with learning outcomes.

The problem-centered principle has a moderate positive correlation with the basic Japanese proficiency test score (.59**, $p < 0.01$), a strong moderate correlation with the content test score (.57*, $p < 0.05$), and no correlation with the writing test score. As described in the course design phase, this course prepared a life-related problem for each class and had student peers learn the course content to solve the problem. This result is consistent with the findings noted by Gardner (2011), that emerged between the problem-centered principle and the learning outcomes in this course is consistent with the findings noted by Gardner (2011). However, no significant correlation emerged between problem-center and writing test score. The reason for this result can be seen in the interviews. The students interviewed, when asked which parts of the course practiced their writing skills, indicated that writing reflections on Moodle after class practiced their writing skills. Thus, the problem-centered elements of the FPI did not show a significant correlation with the writing scores.

The activation principle has a strong positive correlation between basic Japanese proficiency test scores (.64**, $p < 0.01$), has a strong positive correlation between content test scores (.71**, $p <$

0.01), and no significant correlation between writing test scores. In this course design, the course design of Practical 2 was supplemented with a pre-learning using Moodle and a step to use 5 minutes during the class to solve the problems mentioned by students in Moodle. These designs provide students with the opportunity to connect what they have learned with their new knowledge.

The demonstration principle has a moderate positive correlation with the basic Japanese proficiency test scores (.60*, $p < 0.05$) but no significant correlation with the content or writing test scores. From the interviews with the students, all 9 students said that the examples given in this course were relevant to the course content. However, two students made suggestions about the examples given, S05 wanted more realistic examples and S09 thought the examples given were a little low and wanted more examples.

The interview about the students' awareness about the examples

Positive view

S01: I think the examples given in class are relevant to the topic and the content.

S02: In terms of the examples given, I think they are relevant to the content of the course. The examples gave me a better understanding of Japanese culture.

S03: I think the examples given are relevant to the content.

S04: I think the examples given are relevant to the content of the course.

S05: The examples given in class are closely related to the topic. For example, the teacher introduces life experiences, cultural differences, and then there are other examples related to food, clothing, housing and transportation. Then we are allowed to make our own comparisons so that we can see a different perspective from our own. So there is a correlation.

S06: I think the examples given are relevant to the topic. I myself can feel the relevance when I see the examples.

S07: I feel that those examples of Japanese culture presented in class are consistent with the topic.

S08: The Japanese culture presented in class and the examples from the Japanese campus are relevant to the topic.

S09: The Japanese culture introduced were all related to the topic and deepened my understanding of Japanese culture through these examples, that is, they made me change my mind.

Suggestions

S02: There are more abstract examples given in class than concrete examples. I think more

concrete examples could be given. For example, examples from life. It's the kind of thing that happens around us, more visual and concrete examples. For example, if it is related to Japanese culture, you can add a little more video. This will deepen our understanding of the topic.

S04: Personally, I would like to know some examples related to daily life in Japan. I think the amount of examples given is still a bit small.

S05: I wish there were more specific examples about Japan, about for example life or what we can't get to in China or something like that.

As Merrill (2020) demonstrates that examples of FPI (use of media, worksheets, guidance, etc.) can make more effective use of the lesson by rationally utilizing these elements that students are used to using in other scenarios, the task of effectively integrating multimedia with content and activities is still challenging.

The application principle has a positive correlation with the content test scores (.56*, $p < 0.05$) and a weak positive correlation with the writing test scores (.36*, $p < 0.05$), but no significant correlation with the basic Japanese proficiency test scores. When designing the course, there was expected to be a strong relationship between the FPI application element and the learning outcomes. Although the teacher used Japanese when teaching the content, when the students presented their results, they also used Japanese. However, it was also clear from the students' group conversations that the students mainly used their native language during the group discussions and did not use much Japanese. When they were in a group discussion, they only used Japanese to confirm the topic problems and write the speeches. During the group discussion activities, a total of 862 conversations took place, but of these, only 135 (15.66%) were in Japanese.

Integration principle correlated with basic test scores (.66**, $p < 0.01$), and writing test scores (.69**, $p < 0.01$). The correlation results are consistent with the questionnaire results about FPI awareness. Students had a high awareness of the integration elements in the course, and this awareness had a positive impact on students' basic Japanese language knowledge, and content knowledge. Merrill (2013) points out that the integration element includes reflection, discussion, and creation. As described in the course design, this course gave students the opportunity to reflect on themselves through group discussions, present what they had learned, and think about how they could creatively apply what they had learned in their future lives. The results show that all these designs have had a positive impact on students' learning outcomes. However, integration is at a high strategic level, and it is challenging and relatively difficult to integrate these elements into the course (Merrill, 2013).

A correlation emerged between Moodle and both content performance and writing test score. This demonstrates the effectiveness of this course design of having students use Moodle to access learning materials before and after class, as well as having students write their learning reflections on

Moodle after class. In the post-interview about the use of Moodle, students also mentioned that they could access class materials on Moodle afterwards and that writing in their learning reflections would be useful to help them organize what they had learned that day.

Examples of student statements on the usefulness of Moodle

S01: I think it gives me a chance to do reflection every day. I think it's good to summarize what I learned and write my thoughts. But I think it would be better if there was more interaction with the teacher on Moodle. And since everyone is using Moodle, we can increase the interaction between students. I think it is possible that our course is relatively simple, so everyone just wrote their own summaries on the forum, and there was not much discussion.

S02: Because I look at my notes every day when I write Moodle after class and then summarize, I organize what I learn every day. And personally, if I don't have homework after class, I won't review it. So the learning activity of writing summaries and reflections on Moodle after class helped me to connect what I had learned, and because I was required to write Moodle after class, it also motivated me to take good notes in class.

S03: I think writing summaries and ideas on Moodle is actually quite an exercise in thinking and expressing Japanese writing skills. But I don't think it's necessary to do it in every lesson, there may be times when there is more content or particularly important content then more, and then I may feel a bit burdened if I do it every day.

S04: Moodle has helped me with my learning, especially the learning activity of writing a summary on Moodle at the end. In fact, I usually rarely do this task when I am in other classes. Then writing Moodle gives me a chance to organize what I have learned that day.

S05: Writing Moodle at the end of the lesson will give me a push to revisit. It is a reflection and consolidation of today's lesson, so that I can think of some questions that I thought of during the lesson, or that I didn't think of. Then I can summarize, that is, I can organize my thoughts of the whole lesson.

S06: It helps, at least every time I write to Moodle after class, I reflect on what I learned in class today. If I didn't have to write Moodle in the evening, I probably wouldn't actively think about what I learned in class today.

S07: Moodle is useful. I probably wouldn't have thought about the things I had learned if I hadn't had homework when I got back. Then because I need to write summaries and reflections on Moodle, I will reflect and think about what I have learned today and then do the organizing or whatever, which is quite helpful.

S08: It was helpful. I found it useful to reflect and re-watch the lesson materials every day, then reflect on what I learned in class, then express my thoughts in Japanese, and have discussions with my classmates. However, I think the discussion was not active enough. Although we had the opportunity to express our ideas, we didn't seem to be so active. We should add some incentive mechanisms. It might be better to encourage students to express their ideas more through this incentive mechanism.

S09: I think Moodle is useful. Yes, it is Moodle that will serve as a monitor for my learning. And, it will give me a motivation to re-look at the material and do reflection.

5.5. Conclusions and future works of Practical 3

The results of the practical reveal that although all FPI elements were considered in the lesson design of this study, it was a challenge to better integrate the Level 3 elements into the course, as noted by Merrill (2020). In the next chapter, author compares the three practical. Then, a qualitative analysis of group discussions and interviews will be used to derive the necessary elements for designing CLIL classes in Japanese.

6. Extracting elements for designing CLIL lessons based on ID

In order to extract the FPI elements that are effective for CLIL course design, the results of the 3 practical are compared in this chapter. Also, in order to clarify how each element influenced the learning outcomes, the results of the group discussions of Practical 2 and Practical 3 and the qualitative analysis of the interviews of Practical 3 are summarized. Then, the FPI elements that were effective in designing CLIL courses for Japanese language education were extracted from the summaries, and these elements were summarized in a checklist. Then, ID experts and Japanese language teachers were asked to evaluate the feasibility of the checklist, and based on these evaluations, the checklist was revised and finally derived for use in the design of CLIL courses for Japanese language education.

6.1. Comparison of learning effects of three practical

6.1.1. Comparison of the effect quantity amount of three practical

This section compares the effect sizes of the learning outcomes for the 3 practical. The comparison includes the effect sizes amount of 3 aspects, basic test, writing test and content test. Since the course of Practical 1 is a basic Japanese course, not a CLIL course, the comparison of the effect sizes amount of Practical 1 only includes two parts, basic test and writing test. The specific effect sizes are shown in Tables 6-1, 6-2 and 6-3.

Table 6-1 Comparison of effect sizes of basic tests

Effect size (r) for practical 1	Effect size (r) for practical 2	Effect size (r) for practical 3
0.74	0.83	0.88

Table 6-2 Comparison of effect sizes of writing tests

Effect size (r) for practical 1	Effect size (r) for practical 2	Effect size (r) for practical 3
0.80	0.88	0.86

Table 6-3 Comparison of effect sizes of content tests

Effect size (r) for practical 2	Effect size (r) for practical 3
0.86	0.81

From the results, it can be seen that all 3 practical have a large effect size with effect sizes greater than 0.5. In the comparison of the 3 practical, it can be seen that both Practical 2 and Practical 3 have larger effect sizes than Practical 1. Practical 3 has a larger effect size than Practical 2 on the basic test, while Practical 2 has a slightly larger effect size than Practical 3 on the writing test and content test. The effect sizes of Practical 2 and Practical 3 show stability overall.

In addition to comparing effect sizes for learning outcomes, effect sizes for correlations between designed FPI elements (overall) and learning outcomes were also compared. Again, since Practical 1 was not a CLIL course, effect sizes for correlations between content and FPI elements were not calculated. The specific results are shown in Table 6-4.

Table 6-4 Comparison of effect sizes (r) for correlations between FPI elements and learning outcomes.

	Basic test	Writing test	Content test
Practical 1	0.61	0.39	--
Practical 2	0.75	0.60	0.59
Practical 3	0.74	0.74	0.55

From the results, it can be seen that for the three practical, all the effect sizes were greater than 0.5, showing a large effect, except for Practice 1, which had an effect size less than 0.5 ($r=0.39$) in writing and showed a moderate effect. The effect sizes for each of Practical 2 and Practical 3 were greater than those for Practice 1. The effect sizes for the writing tests and correlations between the elements of the FPI were significantly greater for Practical 3 than for Practical 2, while the effect sizes for the basic tests and content test aspects were slightly greater for Practical 2 than for Practical 3. The results shown by the comparison of effect sizes between the correlations between the elements of the FPI and the learning outcomes were consistent with the results shown by the comparison of the effect sizes for the learning outcomes. That is, the effect sizes for Practical 2 and Practical 3 were greater than those for Practical 1 in all areas, while Practical 2 and Practical 3 showed a more stable trend in effect sizes.

6.1.2. Comparison of dialogue analysis in three practical group discussions

In this section, the results of the group discussions of Practical 2 and Practical 3 are compared in order to better explain the reasons for the difference in the amount of effect.

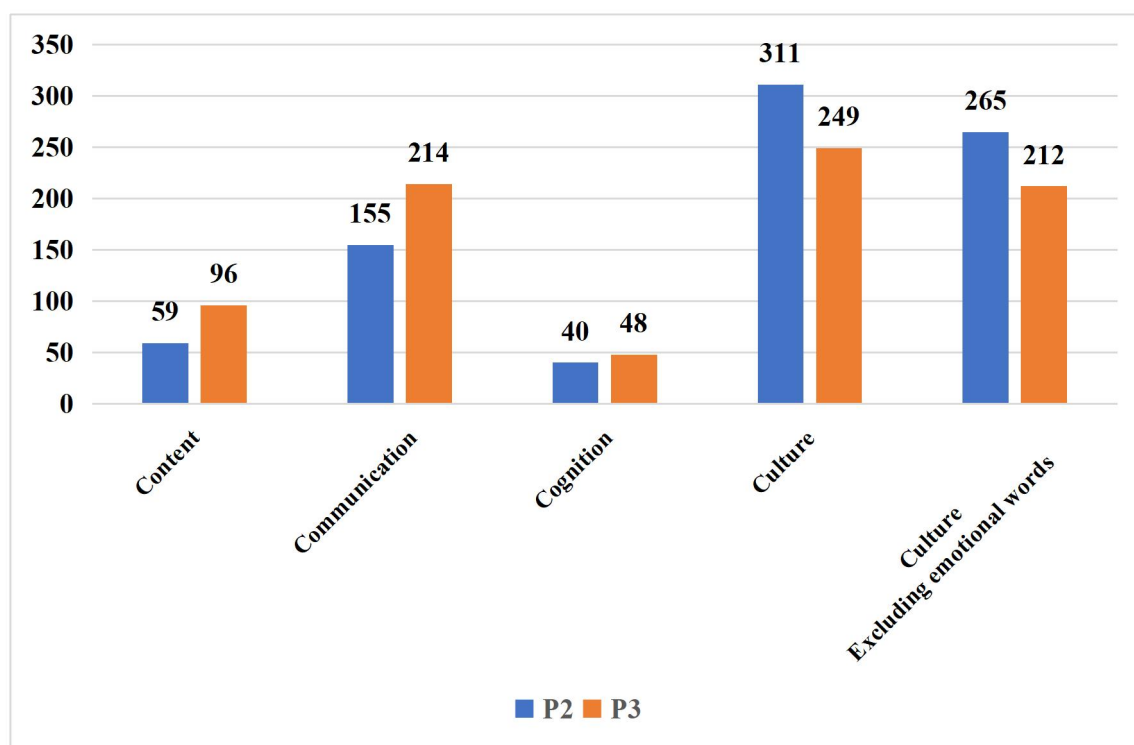


Figure 6-1 The ratio of the number of conversations about CLIL for Practice 2 and Practice 3

The comparison of the number of conversations shows that Practical 3 had a higher number of conversations than Practical 2 in terms of content, communication and cognition. This may be related to the teacher's instructions during the group activities. Unlike Practical 2, in Practical 3, before the group activity, the teacher emphasized the use of Japanese for communication as much as possible during the group activity. Although it was clear from the group conversations in Practical 3 that the use of Japanese was still focused on discussing words rather than using Japanese sentences to express their thoughts, there was a more significant improvement compared to Practical 2. There were more conversations about culture in Practical 2 than in Practical 3. The classification of group conversations in this study was based on the CLIL definition. The benchmarks for the classification of communication are, dialogue to facilitate group discussion; dialogue that contributes to cross-cultural understanding. Therefore, emotive words that contribute to the atmosphere of communication, as well as laughter, are classified in communication. After removing the emotive words, it can be seen that students used more emotive words in Practical 2 groups than in Practical 3.

Also, overall, Practical 2 produced a total of 983 conversations, while 565 were related to CLIL. Practical 3 produced a total of 862 conversations and 607 conversations related to CLIL. As explained in the analysis of the group conversations in Practical 2 in Chapter 4, the group conversations in Practical 2 included many discussions about how to fill out the worksheets, etc., and discussions that were not related to the learning content. In the course design of Practical 3, the requirement of the demonstration element in the FPI was followed, and examples of the worksheets provided to students were given to avoid students spending their time discussing how to use the worksheets during the discussion. Also, requirements such as using Japanese as much as possible and trying to avoid content-irrelevant discussions were emphasized to students before the activity. From the results of the dialogue analysis, it was clear that these course designs that emphasized the demonstration element improved the efficiency of the students' group discussions.

6.2. Confirmation checklist for CLIL course design based on FPI

In this section, in order to better explain how the FPI elements in the course design are effective, the access data of Practical 3 are organized in more detail. And on top of the results of the analysis based on three Practical, the results of the qualitative analysis are referred to derive the confirmation checklist applicable to the CLIL course design.

6.2.1. Confirm the development of the checklist

The FPI principle corresponding to each lesson content and the 4Cs of CLIL are summarized in Table 6-5. and examples of useful student statements for these designs are extracted from the interviews.

Table 6-5 Summary of relevance and usefulness between course content and FPI, CLIL

Lesson content	FPI	CLIL	Statement on the usefulness of course design. (excerpts)
Present class goals and assignments	Problem-Centered	Language	S01: I thought the learning objectives were clear, PPT stated each time, and summarized at the end of the lesson. S02: Some of the learning problems were difficult and did not allow enough time for discussion
Teach new knowledge in relation to knowledge	Activation	Content, communication (input)	S02: By using Moodle to view course materials after class, students can link their previous knowledge and build their own

learned			learning system.
Provide examples when presenting new knowledge	Demonstration	Content, communication (input)	S01: The examples given are relevant to the content of the class, but I think they are a little low in quantity. S02: I wish there were more examples that are more relevant to life
Solving learning problems through group discussion	Application	Culture, cognition, content, communication (output)	S01: I have had very few opportunities to communicate in class, so this was a good opportunity to practice my speaking skills. S06: I enjoyed the final activity, where I was able to create my own skit using what I had learned.
Make a presentation. Reflect on what students have learned. Think about how to apply what students have learned.	Integration	Cognition, content, communication (output)	S01: I can view the class PPT on Moodle after class, so I have a clearer idea of my learning goals. S04: I am the type of person who usually does not review. This time, I had to write my thoughts on Moodle after class, so it gave me a chance to review.

Based on the analysis results of 3 Practical sessions, the following checklist form for designing Japanese CLIL courses was finally derived.

Table 6-6 Checklist for Japanese CLIL course design

Element	Component	Check	Examples
problem-Cen	Are the problems presented to students relevant to the real world, with an emphasis on those that are related to the course content?		P1

tered	Do the problems presented to students have a clear explanation and arouse their curiosity?		P2
	Are the topics of the issues presented to students set up in such a way that they can express different opinions?		P3
	Are the questions given in each lesson interrelated and can they form a coherent story line?		P4
	Does the difficulty level of the problems given in each lesson range from easy to complex, giving a variety of levels of thinking?		P5
	Memo		
Activa tion	Does it explain new words using words already learned?		AC1
	Do you use ICT to provide opportunities for students to recall what they have learned?		AC2
	Do you use tools (ICT, worksheets, etc.) to find connections to the content of study and provide opportunities for knowledge building?		AC3
	Memo		
Demo nstrati on	Are the examples given consistent with what is being studied?		D1
	Does it make flexible use of ICT resources and provide examples of practical application scenarios?		D2
	Does it provide specific examples of learning activities?		D3
	Does the given example include both "content" and "language"?		D4
	Memo		
Applic ation	Classroom group activities in line with learning objectives.		AP1
	Do group learning activities provide opportunities for students to apply what they have learned and output?		AP2

	Are specific instructions given in group activities to help students communicate better?		AP3
	Does it provide the necessary representation, structure, and other support to aid in the understanding and production of language?		AP4
	Memo		
Integration	Do you provide opportunities to present learning outcomes?		I1
	After class, is there an opportunity for students to build knowledge and does the teacher provide feedback to students accordingly?		I2
	Do you ask students to think about how they can use what they learn in the real world?		I3
	Does the integration phase focus on meaningful output (speaking and writing)?		I4
	Memo		

Table 6-7 Examples for Japanese CLIL course design checklist

P1	Provide realistic background depending on what is being studied. Example 1: When learning about intercultural communication, provide a context for what would happen if a student were to go to Japan as an exchange student. The questions in each lesson should be questions that the student might encounter as an exchange student. Example 2: Use questions that are more relevant to daily life. For example, when teaching an introductory sentence, a question that introduces the student's own place of residence can be used to encourage proactive communication.
P2	When explaining a problem, accompany it with illustrations, audio, or video clips to support a deeper understanding of the problem. Example 1. In intercultural education classes, when students need to understand the different distances between people (between themselves and their relatives, between

	themselves and their friends, between themselves and strangers), several video clips can be shown to help them better visualize the differences. Example 2. when the students need to understand the cultural differences between countries, they can be given videos of the same scene in different countries. For example, a video clip of a drinking party in Japan and a drinking party in China, or a video clip of the Japanese bill and the Chinese bill at the end of a drinking party can be shown to the students.
P3	Raise questions that require thinking such as "Why do you think so?" Example 1: After having students introduce themselves, ask them "Why did you introduce yourself this way? or "Is it so that you can get to know that aspect of yourself better?" Example 2: Ask students to think about what kind of language to use in what situations. For example, ask students to think about situations in which they would use "polite form" and situations in which they would use "normal form. This can be done by giving several scenarios in the form of a quiz and having students answer what they should use.
P4	More effort needs to be put into the design of the questions to make each lesson relevant. Example 1. If the lesson is about cross-cultural exchange, the context of a study trip to Japan can be set. The first lesson question could be, "When you first arrive in Japan, how do you introduce yourself?" In the second lesson, the question should be, "How do you make friends in Japan?" and connect it to points related to the content, such as a map for making friends. The questions in Lesson 2 will build on the questions in Lesson 1 in a step-by-step manner. Example 2: In Lesson 1, students write a letter to a Japanese friend about their hometown, in Lesson 2 they read the reply from the Japanese friend, and in Lesson 3 they discuss the issues in the letter and reply. The content of each lesson should be related to each other.
P5	Set questions of a level of difficulty appropriate to the student's language level. Example 1: Beginners do not have enough vocabulary to describe abstract concepts, so set questions that allow them to describe objective objects. For example, describe a friend's appearance, introduce a favorite cartoon or TV show, etc.

	Example 2: Intermediate level students already have some reading and writing skills, so in the case of a presentation, it is better to have them present in their own words rather than reading a draft of the text. Example 3: Advanced learners are already able to describe more abstract concepts and explain their ideas, so we should ask them to explain the abstract concepts they have learned, for example, the difference between "difference" and "discrimination," and why they think so, etc.
AC1	New words should be explained with the student's target language level in mind, and pictures and images should be used to help the student learn new words. Example 1. For beginners, first use materials in their native language to provide information. Next, use materials written in both native language and Japanese. Finally, use materials written entirely in Japanese. In this way, the students will gradually become accustomed to the material. Example 2: Before teaching content knowledge, students need to become familiar with terminology. Use activities such as card games and quizzes to familiarize students with various terms before class.
AC2	Use available ICT tools appropriately. Example 1: Use Moodle to upload teaching materials (videos, photos, texts) before and after class so that students can prepare and review what they have learned. Example 2: Use ICT during class to explain teaching materials and make connections between what was learned in class and new content.
AC3	Provide opportunities for reflection after class. Example 1: Students ask questions on Moodle and the teacher answers them in the next day's class. Relate the content of the previous day's class to the content of the new class. Example 2: If ICT support tools such as Moodle are not available, use a Daifuku-cho (a sheet in which students write what they learned and felt in each class and the teacher answers) to give students ample opportunity for reflection.
D1	The examples given should be directly related to the content as much as possible, so that students can visualize the relationship between the examples and the content. Exemplification 1. Using a study tour in Japan as an example, the self-introduction

	example should include a video of students introducing themselves in school. Exemplification 2. If the example is an introduction of terms used when making a phone call, the video given is a video of a phone call being made. Example 3: If the purpose is to introduce Japanese culture, the video should be a picture or a video of the correspondence.
D2	Present a variety of examples by utilizing ICT tools. Exemplification 1. Inserting open source videos, audios, etc. into Moodle will provide students with more appropriate examples. Example 2: Taking "Introducing Your Hometown" as an example, the teacher can use his/her hometown as an example when explaining the activity. Introduce it using a map and pictures of your hometown. Have the students look at them as they do the activity.
D3	When conducting learning activities, provide oral explanations or explanatory text and images, as learning can be hindered by a lack of explanation of the tools used. Example 1: When using 3S cards (worksheets for summarizing a topic in three sentences), students may ask questions about how to use the 3S cards, such as how to decide on a topic, how long the three sentences should be, and whether they need to be based on a theme. In such cases, it is important for the teacher to prepare examples of use (either examples of the teacher's own use of the 3S cards or examples presented by past students), preferably both good and bad examples. This way, students will better understand how to use the support tools. Example 2. If the lesson requires the use of computers or apps for learning activities, these machines or apps should be explained first. It is better for the teacher to explain them while operating them.
D4	The given examples include both "content" and "language". Exemplification 1. The given language-related examples include not only explanations of word grammar, but also examples of actual application situations. Example 2. For content-related examples, if the content is objective, as in the case of a CLIL class on ICT, pictures and videos should be used to show how various devices (computers, tablets, cables, and development programs) are used. In the case of a CLIL class on Japanese history, try to show students pictures of Japan at that time. For a CLIL class on intercultural education, try to show videos of the same background in both

	countries.
AP1	Classroom activities such as group discussions, presentations, role-plays, skits, and debates are designed with due consideration of the students' target language level and the specialized content of the class. Example 1. the debate format can be used when learning grammar to express one's own ideas, such as “I think so” or “from xx data.” Example 2: A role-play format can be used to learn grammar to introduce one's interests, such as “I like xx” or “I saw xx yesterday.”
AP2	Group discussion and presentation time should be shown as 50-55% of the overall class time.
AP3	Provide guidance for discussion. Example 1. instruct the group to use the target language as much as possible, etc. Since it is possible for students to speak their native language frequently, the teacher should provide desk-to-desk guidance, take back the native language that is heard and speak to the students in Japanese, and encourage them to return the discussion back to Japanese. Example 2: If the number of students is too large for the teacher alone to guide all groups, a chairperson should be selected from within the group to govern the group discussion process and encourage group members to use Japanese in their discussions. The chairperson changes with each activity, and group members take turns being the chairperson.
AP4	Students need to focus on completing the questions using content knowledge and communicating in the target language. In doing so, proper language-related support should be provided. Example 1: Regarding support for the target language, a collection of Japanese expressions that can be used in discussions should be distributed to students for oral practice among students. When asking students to introduce themselves, provide relevant examples, such as “I am XXX,” “I think Japan is xxx country”. and “I think Japan is xxx country”. Example 2, hand out materials explaining technical terms to support content knowledge, and if necessary, provide charts and graphs instead of text-only explanations.
II	Give them a chance to give presentations, perform skits they have created, etc.

I2	After class, students should be given the opportunity to apply and reflect on what they have learned. Example 1. allow students to discuss online using Moodle after class. Both students and teachers can comment on Moodle, which will encourage more student-student and student-teacher interaction. Example 2. If ICT support tools such as Moodle are not available, students can use paper and pen after class to write diagrams, tables, and documents that connect the learning content with their own ideas. Then, in class the next day, have groups of students discuss among themselves what they have created.
I3	Provide practical scenarios for students to use what they have learned. Example 1. use multimedia resources to search for videos and learning examples that are close to students' lives, and adapt these resources to get students to think about and solve problems that could occur in the real world. Example 2: Teachers can ask about problems or interesting events in students' lives and use them as material to introduce learning content.
I4	In terms of language learning, it is important to note that the integration phase focuses on output (speaking and writing). Meaningful output is output that is understandable to others and promotes language acquisition. Example 1: Have students give a presentation during the integration phase and have other students evaluate and ask questions after they perform the skit. The presentation is not the end; feedback should be given. This feedback should include not only feedback from the students but also from the teacher.

*Abbreviations: problem-centered -P; activation-AC; demonstration-D; application-AP; integration-I

The checklist is all findings from practices 1, 2, and 3(See Table 6-8 and Table 6-9).

In the example list, the explanation part is the findings obtained from Practice 1, 2, and 3. The specific examples, except from the practices, refer to the contents of the books "CLIL : Content Language Integrated Learning : New Challenges for Sophia University Foreign Language Education Volume 2" 2012 and "First Principles of Instruction" 2020.

Table 6-8. Elements extracted from the practices

Elements extracted from Practice 1

Making connections between existing and new knowledge about a word (activation)	P1-1
Relate the examples you give to the content of the study (demonstration)	P1-2
To apply what has been learned (application)	P1-3
Students must exhibit their own learning outcomes (integration)	P1-4
Elements extracted from Practice 2	
Making connections between prior knowledge and new knowledge in language learning (activation)	P2-1
Various topics are given according to the learner's ability and each question has a relationship (problem-centered)	P2-2
Apply what you have learned in group activities (application)	P2-3
Creative activities and presentation of results based on what has been learned (integration)	P2-4
Elements extracted from Practice 3	
A variety of topics appropriate to the learner's ability, with questions that are creative and arouse the learner's curiosity (problem-centered).	P3-1
Use of Moodle to increase the relevance of old and new knowledge in language and content learning (activation)	P3-2
Examples of daily life related to class content (demonstration)	P3-3
Flexible use of ICT resources and provide examples of practical application scenarios.	P3-4
Group activities to apply what you have learned (application)	P3-5
Participate in creative activities and exhibit learning outcomes (integration)	P3-6
Encourage them to think about and solve life-related problems (integration)	P3-7

*Abbreviations: practice-P

Table 6-9. Attentions from practice

The issues raised by the student need to match the student's language level.	A1-1
If students are asked to use a worksheet or other tool to present their work in a group discussion, they need to be given instructions on how to use the worksheet. Otherwise, during the group discussion, students may be confused about how to use the worksheet and may not be able to focus on the issues.	A2-1
Ask students to use the target language as much as possible when conducting group discussions.	A2-2
When introducing proper nouns, it is necessary to consider the students' Japanese level and give examples that they can understand.	A3-1
If you ask them to use what they have learned to solve a problem, you need to give them many problems that they will encounter in their daily lives.	A3-2

*Abbreviations: attentions-A

A balance was struck between brevity and complexity (**Table 6-10**).

The acknowledgement form has been modified for ease of use. The entire acknowledgement form has been divided into two parts: check and examples. The body of the checklist was modified to be written in one sentence as much as possible. An example column is provided after each item. Each item has a code in the example column, and each code corresponds to the same code in the example list. The example list contains specific examples so that teachers can refer to the examples in the example list if they are unsure of how to evaluate an item in the checklist.

Table 6-10. Revised checklist Ver2

Item	Ver1	Ver2
Problems-center	Emphasis should be placed on problems presented to students that are relevant to the real world and related to the course content. The given problem should have a clear explanation, arouse curiosity, and be set up in such a way that students	Are the problems presented to students relevant to the real world, with an emphasis on those that are related to the course content?

	can express different opinions on the subject matter of the problem.	
	It gives questions at different levels of thinking. For example, it raises questions that require thinking, such as "Why do you think that?"	Do the problems presented to students have a clear explanation and arouse their curiosity?
		Are the topics of the issues presented to students set up in such a way that they can express different opinions?
	The problems given in each lesson are interrelated and can form a coherent story line.	Are the questions given in each lesson interrelated and form a coherent story line?
	The difficulty level of the problems given in each lesson ranges from easy to complex.	Does the difficulty level of the problems given in each lesson range from easy to complex, giving a variety of levels of thinking?
Activation	New words are explained using words already learned. New words need to be explained with the student's target language level in mind and are supported by pictures and images to help the student learn the new words.	Does it explain new words using words already learned?
	ICT is used to provide students with opportunities to recall what they have learned. For example, using Moodle, students can upload teaching materials (videos, photos, texts) before class so that they can review what they have learned. ICT is used during class to explain the material and make connections between what was learned in class and the new content.	Do you use ICT to provide opportunities for students to recall what they have learned?

	Tools (ICT, worksheets, etc.) are used to give students the opportunity to find connections to the content they are learning and to build knowledge. For example, students ask questions on Moodle and teachers answer them in class the next day. Make connections between the previous day's class content and the new class content.	Do you use tools (ICT, worksheets, etc.) to find connections to the content of study and provide opportunities for knowledge building?
Demonstration	The examples given are consistent with the content of the study.	Are the examples given consistent with what is being studied?
	Flexible use of ICT resources to provide examples of practical application scenarios. For example, open source videos and audios can be inserted into Moodle to provide students with more relevant examples.	Are ICT resources used flexibly and do they provide examples of practical application scenarios?
	Provide specific examples of activities. For example, if a teacher asks students to use a worksheet for a problem-solving group discussion, examples of how to use the worksheet should be provided.	Does it provide specific examples of learning activities?
	The given examples include both "content" and "language". The language-related examples given include not only explanations of the grammar of the words, but also examples of real-life application situations.	Does the given example include both "content" and "language"?
Application	Classroom group activities in line with learning objectives.	Are classroom group activities aligned with learning objectives?

	Group learning activities give students the opportunity to apply what they have learned and to output. Group discussion and presentation time is shown as 50-55% of the overall class time. Classroom activities such as group discussions, presentations, role plays, skits, and debates are designed with due consideration of the students' target language level and the specialized content of the class.	Do group learning activities provide opportunities for students to apply what they have learned and output?
	During group activities, specific instructions are given to help students communicate better. For example, everyone is instructed to speak up, to use the target language as much as possible in the group, etc.	Are specific instructions given in group activities to help students communicate better?
	The program supports students by giving them the necessary expressions and structures to help them understand and produce the language. Emphasis is placed on students using their content knowledge to communicate and complete problems in the target language.	Does it provide the necessary representation, structure, and other support to aid in the understanding and production of language?
Integration	Provide opportunities to present learning outcomes (e.g., presentations, skits, etc.).	Do you provide opportunities to present learning outcomes?
	After class, the ICT is used flexibly to provide students with opportunities to summarize what they have learned and build their	After class, is there an opportunity for students to build knowledge and does the teacher provide feedback to

	knowledge, and teachers provide feedback to students accordingly. For example, students can use Moodle for online discussions after class. Both students and teachers can comment on Moodle, which will encourage more student-student and student-teacher interaction.	students accordingly?
	It asks students to think about how they can use what they have learned in the real world. Or provide practical scenarios for students to use what they have learned. For example, use multimedia resources to search for videos or learning examples that are similar to students' lives and adapt these resources to get students to think about and solve problems that could occur in the real world.	Do you ask students to think about how they can use what they learn in the real world?
	In language learning, the integration phase focuses on output (speaking and writing). The output of the learning content focuses on integration with the real world.	Does the integration phase focus on meaningful output (speaking and writing)?

6.2.2. Evaluation of the checklist by ID expert and Japanese teacher

The checklist to be developed for this study is geared toward CLIL classes in Japanese language education. As such, it is intended to be used to monitor the implementation of the classes. In order to evaluate the validity of the checklist, after developing the checklist, author asks experts in ID and Japanese language education to evaluate the validity of the checklist. Specifically, 8 experts will be asked to complete the questionnaire: 4 expert in Japanese education and 4 expert in ID. The evaluation items are evaluated based on the 4Cs of CLIL and the design elements of FPI, and the ease of reading of the confirmation table. Interviews also are taken. The specific items are listed

below.

Questionnaire evaluation: A 5-point scale was used. The questionnaire evaluation items were designed for three purposes. 1. the first half of the questionnaire items (items 7-22 for IDers, items 11-26 for JTs) were designed to confirm that the checklist statements accurately represented the elements derived from practices 1-3 2. the second half of the questionnaire items (items 23-34 for IDer and 27-39 for JT) were designed to assess the usefulness of the example list 3. an open-ended section was included in the questionnaire to explore basic information about the evaluator and the strengths and areas for improvement of the checklist/example list. Interviews Semi-structured interviews were conducted to better understand the validity, usefulness, and areas for improvement of the checklist and example list. The assessment items and interview questions are referenced in the Appendix.

6.2.3. Evaluation results

IDer's portion

The evaluator's education experience with instructional design is as follows.

IDer1: 12 years of teaching university courses on instructional design.

IDer2: 7 years in learning support.

IDer3: I have assisted with training locally, helped design public lectures for universities, and am usually a vocational training teacher. I have been teaching instructional design for 5 years.

IDer4: I taught a class on the use of ID and ICT in a Japanese language teacher training program every other year from 2016 to 2021. He has also taught several other ID courses on a one-off basis.

As is clear from the responses, all of the respondents involved in this evaluation have more than five years of teaching experience, have extensive teaching experience, and are familiar with the FPI of ID theory used in this paper. With the exception of Respondent 3, all respondents have experience in designing lessons using FPI. The respondents in this study have theoretical knowledge and the ability to evaluate checklists and example lists based on their classroom experience.

Table 6-11. IDer's evaluation results

Item	Min	Max	Mean	SD	Median
7	5.000	5.000	5.000	0.000	5.000
8	4.000	5.000	4.750	0.500	5.000

9	3.000	5.000	4.000	0.816	4.000
10	4.000	5.000	4.500	0.577	4.500
11	2.000	5.000	3.500	1.732	3.500
12	2.000	4.000	3.000	0.816	3.000
13	4.000	5.000	4.750	0.500	5.000
14	4.000	5.000	4.500	0.577	4.500
15	3.000	5.000	4.000	0.816	4.000
16	4.000	5.000	4.750	0.500	5.000
17	2.000	5.000	3.250	1.258	3.000
18	4.000	5.000	4.500	0.577	4.500
19	3.000	5.000	4.000	1.155	4.000
20	4.000	5.000	4.500	0.577	4.500
21	4.000	5.000	4.250	0.500	4.000
22	2.000	5.000	3.750	1.258	4.000
23	1.000	4.000	3.000	1.414	3.500
24	2.000	5.000	4.250	1.500	5.000
25	2.000	5.000	3.250	1.500	3.000
26	2.000	4.000	3.000	0.816	3.000
27	4.000	5.000	4.250	0.500	4.000
28	2.000	4.000	3.500	1.000	4.000
29	4.000	4.000	4.000	0.000	4.000
30	2.000	5.000	3.250	1.258	3.000

31	2.000	5.000	3.500	1.291	3.500
32	2.000	4.000	3.250	0.957	3.500
33	1.000	5.000	3.000	1.826	3.000
34	2.000	4.000	3.250	0.957	3.500

The mean scores for items 7-22 were all above 3, suggesting that the checklist more appropriately reflects the elements derived from practices 1-3. In addition, the mean scores for items 23-34 were all above 3, suggesting that the items in the example list are helpful in designing lessons from the IDer's perspective.



Fig.6-2 IDer's items scores

As can be seen in Figure 6-2, there is a smaller difference between IDer3's evaluation and that of the other three IDers.

In order to elucidate why this difference occurred, we conducted the following qualitative analysis.

The analytical method used in this paper is framework analysis. First, a framework was set up based on the purpose of the evaluation. The rows of the framework work set up are evaluators 1, 2, 3, and 4, and the columns are the themes to be analyzed. Based on the purpose of the analysis, the themes to be analyzed this time were decided to be usefulness and improvement opinions.

Then, based on previous research, statements related to the themes were coded.

Before coding, we first determined the words and phrases to focus on. Based on the following prior studies, we determined words and phrases that contained both positive and ameliorative comments.

In his study, Makihara (2008) states that the expression "request for improvement" to get the other party to make an improvement is "...maybe," "more...," "a little...," "a little...," etc. There are several The expression is stated. When questioning the reason for the other party's action and giving room for excuse, he says, "Do it..." is used. In a study by Hoshino (2005), the following expressions are used when giving advice to the other party. For example, expressions such as "more...," "a little more...," and "after all..." are used. In addition, Nishigaki's (2013) study supports Hoshino's (2005) finding that positive expressions of respect can also express one's different opinions and make suggestions to others.

In Ohno's (2007) study, expressions of agreement and positive evaluations include "...right," "neatly...," "I like... compared to...," "I think it was good," "... Tanaka (2014) also noted that there are several expressions such as "I'm glad...," "...you've done well," "...you've done well," "...you're great," and "...you're great," among others. Tanaka's (2014) research findings also support Ohno's (2007) findings. Tanaka's (2014) study points out that Japanese words of praise include endorsement or affirmation of the other person's behavior.

In Yamaoka's (2018) study, moderating expressions for presenting an opinion include "rather," "it can't be said," "...maybe," "...towards," "...in terms of," "...or," "...a little," The expressions of approval are "I see," "Indeed," "Not at all," "Things," "Things," "Things," "Things," "Things," and "Things. The "agreeing" expressions include "I see," "Indeed," "Totally," "Mono," and "Gottomomo," among others. Some researchers, such as Yamaoka, have also conducted conversation analysis using a classification of Japanese consideration expressions and a vocabulary list. In a study by Iwata (2015), a discourse analysis was conducted on the use of Japanese honorific expressions and their interaction in online news comments. Based on the classification of expressions of consideration and lexical lists, the frequency and context of the use of honorific expressions in comments were analyzed and discussed from a sociolinguistic perspective. In the study by Kawahara (2018), we conducted a discourse analysis of the use of Japanese honorific expressions in social media comments. Using a classification of expressions of consideration and a vocabulary list, we analyzed the patterns and contexts of honorific use in comments and discussed the characteristics and changes in these patterns and contexts.

The following is a summary of words and phrases related to positive and remedial comments.

Approving and affirmative expressions (abbreviated: affirmative)

I see

Indeed.

Totally

thing (abbreviation: a thing)

quite right

Very good

Very...good

That's great.

You did a great job.

Good job.

Indicates

Expression regarding request for improvement (abbreviation: improvement)

can't say either

Can't say either

...may be...

A little...

A little...

...more

I think... it's good.

I don't know...

In terms of...

or ...

Expression to ask why (abbreviation: confirm)

Why do you think...

...must be...

...seems to be...

Then we did the coding. Then we compiled similar codes. We clarified the pattern. The pattern is affirm, improve, confirm-affirm, confirm-improve. Finally, we categorized them. Examples of categories are shown in Table 6-12. The results of the categories are in Tables 6-13 and 6-14.

Table 6-12 Examples of IDer Interview Coding

category	Definition	Examples of dialogues	Identified areas for improvement
affirmation	A statement regarding agreement with the content of the checklist and example list. A statement acknowledging the learning outcomes of the example lesson designs listed in the checklist and example list.	<i>Yes, that's right.</i> So, I think it would be very useful to have a Moodle or something like that at the university, where you could write things down later and...everyone could see what you felt. <i>I think it would be very useful,</i> and if I write something like that, I'm not sure if it is conveyed to everyone or not. (IDer1)	
improvement	Remarks on suggestions for improvement of the checklist and example list.	You are more detailed in the language of the checklist. The checklist even says whether the problems to be presented to students are related to the real world and focused on those related to the class content, but the examples just give a realistic background according to the content to be learned, and it is somehow simpler. <i>I think it would be more helpful to include an explanation of what this checklist</i>	The practitioners will be able to introduce the system with a sense of conviction if they write what kind of effects can be expected from it.

		<i>means and how it works. (IDer4)</i>	
confirmation	Statements that the checklist and example list are questionable or not clear on how to use them.	Example of affirmation: here, just now in #24, this, PB, was it all about this? (IDer4) Example of improvement: this is, so, AC's 2 is why, why is it necessary, <i>why is it necessary to use the available ICT tools appropriately?</i> (IDer4)	
Confirmation-Affirmation		I see. (IDer4)	
Confirmation-Improvement		Here, <i>I hope there is an explanation there that you just mentioned.</i> (IDer4)	The content should include a definition of the ICT tool and an explanation of its goodness.

The number of statements per evaluator per category is shown in Table 6-13

Table 6-13 Number of utterances in each category

Category	IDer1	IDer2	IDer3	IDer4	Total
Affirmation	13	13	4	44	74
Improvement	8	19	20	54	101
Confirmation	0	11	2	41	54
Confirmation-Affirmation	0	8	0	24	32
Confirmation-Improvement	0	3	2	16	21

Total	21	54	28	179	282
Time	30m	67m	32m	87m	
Number of 30m spacing	21	27	28	60	

Table 6-14 Average number of utterances per 30m in each category

Category	IDer1	IDer2	IDer3	IDer4	Total
Affirmation	13	7	4	15	39
Improvement	8	10	20	18	56
Confirmation	0	6	2	14	22
Confirmation- Affirmation	0	4	0	8	12
Confirmation- Improvement	0	2	2	5	9
Total	21	27	28	60	136

The evaluator's classroom experience in instructional design is as follows

IDer1: 12 years of university coursework in instructional design.

IDer2: 7 years of teaching learning support.

IDer3: I help with training locally, help design public lectures for universities, and am usually a vocational training teacher. I have taught instructional design for 5 years.

IDer4: I taught a class on the use of ID and ICT in a Japanese language teacher training program every other year from 2016 to 2021. I have also taught several other ID courses on a one-off basis.

In terms of the evaluator's classroom experience with instructional design, IDer4 evaluated the

checklist and example list not only from the perspective of an IDer, but also from the perspective of a Japanese language teacher, since he has experience in designing classes using ID and also as a Japanese language teacher. For example . *"It's hard to explain to Japanese language teachers the benefits of ICT and whatnot one by one*, but it's better to explain a little bit about it...efficiency, time saving...and if they want to know more about it, for example, there are books about this and that. It's better to explain that there are books about this or that. The interview time was significantly longer, and the expression "confirmation as a category" appeared more frequently than in the other responses.

Table 6-13 summarizes the total number of times each category of utterance appeared during the four raters' interviews. In terms of interview length, IDer4 had the longest interview (87 m), followed by IDer2 (67 m), while IDer1 (30 m) and IDer3 (32 m) were about the same length; since IDer4 was interviewed for the longest time, he had more utterances in all categories than the other three. The reason for this is that, as indicated above, IDer4 has experience in designing classes using IDs and also has experience as a Japanese language teacher, so he evaluated the checklist and example list not only from an IDer's perspective but also from a Japanese language teacher's perspective. 67m of interview time was spent with IDer2. This is because IDer2 spent a lot of time during the interview explaining the relevant research he had done, in addition to evaluating the checklist and example list. For example, he said, *"I've been doing ID all my life*, so...for example, if I go to this class...for example, if it was a law school class...for example, I could go through the material and present it.... *...my ID that I'm working on is*". Other raters also mentioned their own relevant research, but all by way of example or short description, in the context of making recommendations.

Table 6-14 shows the average number of utterances per 30 minutes for the four raters; of the four raters, IDer4 had the highest average frequency of utterances (60), IDer1 had the lowest (21), and IDer2 (27) and IDer3 (28) had about the same frequency. IDer4 had the highest frequency of positive expressions (affirmation, confirmation-affirmation) with a total of 23 times, followed by IDer1 with 13 times, IDer2 with 11 times, and finally IDer3 with 4 times. IDer3 had the highest frequency of statements in the improvement category among the four interviewers and the lowest in the positive category. Based on the specific interview dialogue, the most striking difference between IDer3 and the other three was that IDer3 used not only FPI as an ID theory, but also other theories (e.g., *"When I do it first, I do it with Meagher's three questions and then...Kirkpatrick's evaluation and..., ...or Gagnier. ...from there, I'll generate an FPI. I dare say that I'll focus on Meagher's and Gagnier's goal indicators, or outcome indicators, or something in that area."*), and several others. No other evaluator mentioned any other ID theories in the interview.

Also, as can be seen in Figure 1, there are several items that IDer3 rated lower than the other three raters. These are the following items.

- 11 checklists indicate that the difficulty of the questions should be from easy to difficult.
- 12 checklists show how to relate known language knowledge to new language knowledge.
- 17 checklists show how to facilitate group activities.
- 22 checklists indicate exhibiting (in the form of presentations, acting out, etc.) the language and content knowledge learned to students.
- 24 example lists provide examples of designing class problems related to real life.
- 28 Example list presents learning activities that allow students to apply the knowledge they have learned.
- 30 If teachers design and improve their lessons according to the checklist and example list, students will achieve their language learning goals.
- 31 If teachers design and improve their lessons according to the checklist and example list, students will achieve their content learning goals.
- 32 When teachers design and refine their lessons according to checklists and example lists, students are encouraged to engage in lower-order thinking (memorization, comprehension, and application).
- 34 If teachers design and improve their lessons according to the checklist and example list, they can promote students' cooperative learning skills.

IDer3's statements regarding the elements appearing in these items were summarized and analyzed. We found that the relatively poorly rated items included elements related to the difficulty of the questions and their relevance to reality, their relevance to existing or new knowledge, the application of that knowledge, group activities, the exhibition of learning outcomes, and issues related to the usefulness of checklists and example lists.

And here is what IDer3 had to say about these elements

Statements regarding the difficulty of the questions and their relevance to reality: "As much as possible, after all, when I teach computers and stuff, it's really hard to understand Excel and stuff like that. I think it would be a good idea to make a case study that takes you to a convenience store or something like that. *...It depends on the target image, but be careful about the level of difficulty there.*"

Improvements identified: when designing authentic questions, we need to start with the needs of the learners and their actual level of experience.

Statement regarding the relationship between existing knowledge and new knowledge and the

application of that knowledge: *"I feel like the word existing knowledge and the word already learned are not a pair. here it says already learned words, so I wonder if here it just indicates, for example, that the new word is explained using only words that are known only in the target language, new Japanese words for that language, and so on."*

Identified areas for improvement: possible ambiguity wording in the checklist and example list needs to be corrected.

Comment on group activities: *"I don't like the term 'deep learning' because it's so vague, but...for example, in Moodle, one post could be a sentence that says, 'That's great, Suzuki-san, you think a lot. I think it's like a post. If the evaluation criteria included group work and group discussion, then it would be the same evaluation."*

Areas for improvement identified: Mentioning group activities is not enough; more detailed guidance is needed. Also, the checklist and example list tables should provide specific examples of guidance.

Comment on the display of learning outcomes: *"Some people may take output and production to mean different things, so I thought it might be a good idea to get the words right as a common understanding."*

Point of improvement identified: We pointed out possible ambiguities in the checklist and the list of examples.

A remark on the usefulness of checklists and example lists:

As I mentioned earlier, *if you know your ID, you can understand the difference between problem presentation and example presentation, but...if you don't have that kind of prerequisite knowledge, it's hard to understand if you're talking about examples, or if this falls under the problem-centered category, I think it's difficult to understand if it's an example or not.*

Identified areas for improvement: IDer3 needs to explain ID theory in a way that is easy for teachers with no knowledge of ID to use.

Japanese language teacher (abbreviated as JT) portion

As can be seen from the responses, the Japanese language teachers who participated in this evaluation had teaching experience ranging from 4 to 15 years, and ranged from young teachers with limited teaching experience to those with long teaching experience. With the exception of JT2, none of the respondents had any experience in learning ID theory. Therefore, we were able to gather evaluations regarding the usefulness of the checklist and example list from Japanese language

teachers with a variety of teaching experiences from the respondents in this survey.

Table 6-15. TJ's evaluation results

Item	Min	Max	Mean	SD	Median
11	5.000	5.000	5.000	0.000	5.000
12	4.000	5.000	4.500	0.577	4.500
13	4.000	5.000	4.750	0.500	5.000
14	5.000	5.000	5.000	0.000	5.000
15	4.000	5.000	4.500	0.577	4.500
16	4.000	5.000	4.500	0.577	4.500
17	5.000	5.000	5.000	0.000	5.000
18	5.000	5.000	5.000	0.000	5.000
19	5.000	5.000	5.000	0.000	5.000
20	5.000	5.000	5.000	0.000	5.000
21	4.000	5.000	4.750	0.500	5.000
22	4.000	5.000	4.750	0.500	5.000
23	4.000	5.000	4.750	0.500	5.000
24	5.000	5.000	5.000	0.000	5.000
25	4.000	5.000	4.750	0.500	5.000
26	5.000	5.000	5.000	0.000	5.000
27	5.000	5.000	5.000	0.000	5.000
28	5.000	5.000	5.000	0.000	5.000
29	4.000	5.000	4.500	0.577	4.500
30	4.000	5.000	4.500	0.577	4.500

31	4.000	5.000	4.750	0.500	5.000
32	5.000	5.000	5.000	0.000	5.000
33	4.000	5.000	4.500	0.577	4.500
34	4.000	5.000	4.500	0.577	4.500
35	4.000	5.000	4.500	0.577	4.500
36	4.000	5.000	4.500	0.577	4.500
37	3.000	5.000	4.250	0.957	4.500
38	4.000	5.000	4.750	0.500	5.000
39	3.000	5.000	4.500	1.000	5.000

The mean scores for items 11-26 were all 4.5 or higher, indicating that the checklist more appropriately reflects the elements derived from practices 1-3. The mean scores for items 27-39 were all 4.25 or higher, suggesting that the items in the example list are helpful in designing lessons from the perspective of Japanese language teachers.

Summary of the interview

About usefulness

- Simple and easy to use (IDer1,2,3,4)
- The combination of the checklist and example list allows even teachers with no knowledge of ID to use the system immediately (IDer3,4).
- Simple and easy to use (JT1,2,3,4)
- The respondents indicated that they would like to use this checklist and example list to design lessons in the future when using the CLIL lesson format (JT1,2,3,4).

Respondents answered that they would like to use this checklist/example list to design their classes in the future when they conduct classes using CLIL class formats (JT1,2,3,4).

- The example list has specific instructions for ICT use, which is considered to be helpful for teachers who do not usually have much experience with ICT (JT2,3).

Based on the interviews, we then revised the contents of the checklist and the example list. The specifics are shown in the table below.

Overall revisions by the evaluator.

1.The examples in the example list were divided into three levels, 1, 2, and 3, according to the difficulty level of implementation. Under each item, examples of instruction corresponding to these three levels are shown (IDer4, JT2).

2.The language representation of the example lists has been improved. Expressions that are more expected to be effective in the class were shown. For example, "If you do _____, you can expect effects like _____." and so on. (IDer3,4)

3.Added explanatory text about CLIL and FPI before the checklist and example list. This will allow Japanese language teachers to have more concrete expectations about the effectiveness of their classes. It also provides an opportunity for Japanese teachers who are not familiar with FPI to learn the theory (IDer 2, IDer 4).

4.Added explanation of technical terms (JT2,3,4).

5.Add a link to the checklist and example list when you create them. Clicking on a link in the checklist section jumps directly to the corresponding example list (JT1). (This part of the functionality will be implemented after the contents of the checklist and example list are finalized.)

CLIL and FPI Description

Content and Language Integrated Learning (CLIL) revolutionizes language teaching by integrating language acquisition and subject matter instruction. This approach fosters linguistic immersion and allows students to organically develop language skills while deepening their understanding of subject knowledge concepts. CLIL prioritizes the integration of all language skills - listening, speaking, reading, and writing - within a domain of meaningful content. In addition, CLIL cultivates intercultural competence by exposing students to diverse cultural perspectives and fostering empathy and respect.

Description of FPI

The First Principles of Instruction (abbreviated FPI), proposed by educational psychologist Merrill, outline a framework for designing and implementing effective instruction. Rooted in cognitive science and learning theory, these principles provide educators with a systematic approach to fostering meaningful learning experiences. Understanding and applying these principles can significantly enhance instructional effectiveness and promote student learning and achievement. By

activating existing knowledge to solve real-world problems, providing desirable examples, promoting application and integration, and assessing learning outcomes, educators can expect to create engaging, meaningful, and impactful lessons that promote deep understanding and long-term knowledge retention. As educators strive to meet the diverse needs of learners in today's dynamic educational landscape, the FPI provides valuable guidance to promote student learning success and facilitate lifelong learning.

Explanation of terminology *1. ICT tools encompass a wide range of hardware, software, and digital platforms designed to facilitate communication, collaboration, and productivity in a variety of contexts. Some ICT tools are well suited to provide learning support and enhance the educational experience. For example, learning management systems (LMS): LMS platforms such as Moodle, Canvas, and Blackboard provide a centralized hub for organizing course materials, distributing content, facilitating communication, and tracking student learning progress. LMSs can be used for online supports a variety of instructional strategies, including discussions, assignments, quizzes, and multimedia content delivery. Multimedia tools, including audio and video editing software, enable educators and students to create and edit multimedia content for educational purposes.

Table 6-16.Revised checklist Ver3

Item	Ver2	Ver3	Revision point
Problem Center	Are the problems presented to students relevant to the real world, with an emphasis on those that relate to the course content?	Same as Ver2	None
	Are the questions presented to the students clearly explained and do they arouse their curiosity?	Same as Ver2	None
	Are the topics of the problems presented to students set up in such a way that they can express different	Same as Ver2	None

	opinions?		
	Are the questions in each lesson interrelated and form a coherent story line?	Same as Ver2	None
	Are the problems given in each lesson of varying difficulty, from easy to complex, and at different levels of thinking?	Are the problems given in each lesson of varying levels of difficulty, from easy to complex, and of varying levels of thinking?	Corrected wording.
Activation	Does it explain new words using words already learned?	Is new learning content explained using previously learned knowledge?	If you are going to state in Ex. 1 that "For beginners, use materials in their native language first to provide information," then you may need to consider the description of the component. The terms "prior knowledge" and "prerequisite knowledge" seem more appropriate instead of "words already learned" (IDer 3).
	Are opportunities provided for students to recall what they have learned through the use of ICT?	Same as Ver2	None
	Do you use tools (ICT, worksheets, etc.) to provide students with opportunities to find	Same as Ver2	None

	connections to what they are learning and to build knowledge?		
Demonstration	Are the examples given consistent with what is being studied?	Same as Ver2	
	Do you make flexible use of ICT resources and provide examples of practical application scenarios?	Same as Ver2	None
	Does it provide specific examples of learning activities?	Same as Ver2	None
	Does the given example include both "content" and "language"?	Same as Ver2	None
Application	Are classroom group activities aligned with learning objectives?	Same as Ver2	None
	Do group learning activities provide opportunities for students to apply what they have learned and output?	Same as Ver2	None
	Are group activities provided with specific instructions to help students communicate better?	Same as Ver2	None
	Does it provide the	Does it provide the	None

	necessary representation, structure, and other support to aid in the understanding and production of language?	necessary expressive structure or other support to aid in language understanding, expression, and output?	
Integration	Do you provide opportunities to present learning outcomes?	Same as Ver2	None
	After class, do students have an opportunity to build knowledge and does the instructor provide feedback to students accordingly?	Same as Ver2	None
	Do you ask students to think about how they can use what they learn in the real world?	Same as Ver2	None
	Does the integration phase focus on meaningful output (speaking and writing)?	Same as Ver2	None

Table 6-17.Revised list of examples Ver3

Item	Original text	After revision	Revision point
PB1	Provide realistic background depending on what is being studied. When learning about intercultural	Give problems that have a realistic background according to what is being studied. L1. use problems that are more relevant to	I thought it would be difficult to distinguish between "problem-centered" and "example" (IDer3). Especially when reading the "list of

	communication, provide a context for what would happen if the student were to go to Japan as an exchange student. The questions asked in each lesson should be questions that the student might encounter as an exchange student. Example 2: Use questions that are more relevant to daily life. For example, when teaching an introductory essay, a question that introduces the student's own place of residence can be used to encourage proactive communication.	daily life. For example, when teaching introductions, questions that introduce the student's own place of residence can be used to encourage independent communication. L2. give them problems that they are very likely to encounter in their current life and studies. For example, when teaching the use of directional verbs such as "go forward" and "turn left," a question like "When you meet a foreign student from Japan at school and he/she asks you for directions, what do you do?" is expected to encourage proactive communication. L3. Give students problems they may encounter in their future life and study. When learning about intercultural communication, give a background of what would happen if the student were to go to Japan as an exchange student. The questions asked in each lesson are questions that	examples", I thought it would be difficult to understand the difference (IDer3).
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		students may encounter as exchange students. This is expected to promote the students' ability to solve problems on their own.	
PB2	When explaining a problem, accompany it with illustrations, audio or video clips to help students better understand the problem. Exemplification 1. In intercultural education classes, when students need to understand the different distances between people (between themselves and their relatives, between themselves and their friends, between themselves and strangers), showing several video clips can help them visualize the differences better. EXAMPLE 2. If the students need to understand the cultural differences between countries, they can be provided with videos of the same scene in different countries. For	When explaining a problem, select news, illustrations, audio and visual materials to support a deeper understanding of the problem, taking into account the image of the learner. L1. Teach simple words by providing corresponding pictures. For example, the word "computer" can be taught with a picture of a computer, the word "multimedia" with a collection of pictures, and so on. In this way, students can visualize what they know and relate it to their daily lives. L2: In intercultural education classes, when students are asked about the differences in distance between people (distance between themselves and their relatives, between	Overall Revisions^{1,2} • Whereas the description of the component "has a clear explanation", the solution is only illustrations, audio, and video. It may be more appropriate to provide a detailed written explanation with specific examples (IDer3).

	example, a video of a drinking party in Japan and a drinking party in China, or a video of the Japanese bill and the Chinese bill at the end of a drinking party can be shown to students.	themselves and their friends, and between themselves and others), showing several video clips can help them to make the differences more interesting by making connections between them and themselves. L3. If the question is about an abstract concept such as cultural differences between countries, you can provide video clips of the same scene in different countries. For example, showing students a video of a drinking party in Japan and a drinking party in China, or a video of the Japanese bill at the end of a drinking party and the Chinese bill at the end of a drinking party, can be expected to generate interest among students.	
PB3	Questions that require students to think about such questions as "Why do you think so? After having students introduce themselves, ask questions such as "Why did you introduce yourself this way? or "Is it so that	Questions that require students to think about such questions as "Why do you think that?" L1. ask students to think about what kind of words they should use in what	· Overall Revisions^{1,2} · This could be done by giving some scenarios in the form of quizzes and having students answer what to use." I can't imagine what exactly the activity is (IDer3).

	you can learn more about that aspect of yourself? Example 2: Ask students to think about what kind of language they should use in what kind of situations. For example, ask students to think about situations in which they would use "polite form" and situations in which they would use "normal form. This can be done by giving several scenarios in the form of a quiz and having students answer what should be used.	kind of situations. For example, ask students to think about situations in which they should use "polite form" and situations in which they should use "normal form. Ask questions like this. Give them several situations in which they introduce their childhood friends to their peers whom they know well, or to seniors or elders. The students themselves can apply what words to use in what situations. In this way, when students are asked to think for themselves, it is expected that they will tend to begin thinking independently. L2. In general, introducing oneself using the foreign language learned is a problem that all students have to solve in language learning. However, learning should not end at this step. After having students introduce themselves, ask, "Why did you introduce yourself this way?" or "What do you want to appeal to the other person?"	
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		L3. In addition to the acquisition of language skills, language is deeply related to culture, society, and identity. Students need to be exposed to the culture of the target language country. Questions such as "Compare cultural practices, traditional events, and social norms between the target culture and the student's own culture" are expected to help students reflect on their own cultural assumptions, realize that language and culture are interrelated, challenge their preconceptions, and expand their cultural knowledge.	
PB4	Design questions in a way that enhances the relevance of each lesson. EXAMPLE 1. If the lesson is about cross-cultural exchange, the context of a study trip to Japan can be set. The first lesson question could be, "When you first	Design questions in such a way as to make each lesson relevant. L1. In classes that focus on teaching the basics of the language at the beginner level, provide students with relatively simple topics that	· Overall Revisions 1,2 · It is difficult to understand what is meant by "the issue in the letter and the reply". Is it a question of the relationship between "the letter" and "the reply?" Is it a question of both "letter" and "reply" (IDer3)?

	arrive in Japan, how do you introduce yourself?" The second lesson asks, "How do you make friends in Japan? and connect it to points related to the content, such as a map for making friends. The questions in Lesson 2 will build on the questions in Lesson 1 in a step-by-step fashion. Example 2: In Lesson 1, students write a letter to a Japanese friend about their hometown; in Lesson 2, they read the reply from the Japanese friend; and in Lesson 3, they discuss the issues in the letter and reply. The content of each lesson should be related to each other.	also relate to each lesson. For example, in Lesson 1, students are asked to "write a letter to a Japanese friend introducing their hometown. In Lesson 2, students will be asked to "Your Japanese friend read your letter and replied. Read the letter and understand its contents. In Lesson 3, there will be a group discussion to resolve the questions raised in Lessons 1 and 2. In this way, the content of each lesson should be related to each other in order to maintain students' motivation to learn. L2. More complex learning situations and learning questions can be set when students have reached a level of language proficiency that allows them to engage in basic daily conversation. For example, a lesson on cross-cultural exchange could be set in the context of a study trip to Japan. The first lesson question could be, "When you are new to Japan, how do you	
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		introduce yourself?" In the second lesson, the question should be "How do you make friends in Japan? and connect it to points related to the content, such as a map for making friends. The questions in Lesson 2 would be built on top of the questions in Lesson 1 in a step-by-step fashion. In this way, students can feel the relevance of each lesson, which is expected to have the effect of maintaining their interest in learning. L3. When teaching academic content, the following learning problems can be given. For example, the learning task for the entire class is to complete an academic paper in your field in four lessons. The learning task for the first class could be, "What is the difference between an academic paper and a general paper?" This can be done as follows. In the second, the question could be, "With these differences in mind, what is the framework for writing an academic paper?" The question could be, "What	
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		are the differences between an academic paper and a general paper? In the third session, the question could be, "How would you add content (figures, tables, and citations) to the framework you considered in the previous session to make the paper look more academic?" The question could be "How would you add content (figures, tables, quotations) to the framework you developed in the previous session? The question for the fourth session could be, "Looking back over the previous three lessons, how many steps did you consider when writing your academic paper? And what academic phrases did you use?" . By having students ask relevant questions in this way, it is expected to enhance students' independent learning.	
PB5	Set questions of a level of difficulty appropriate to the student's language	Set questions of a difficulty level appropriate to the student's language level. L1. For beginners, set	Overall Revisions ^{1,2} .The statement "objective object" does not seem appropriate, since

	level. Examples 1. Beginners do not have enough vocabulary to describe abstract concepts, so set questions that allow them to describe objective objects. This could be describing a friend's appearance, introducing a favorite cartoon or TV show, etc. Example 2: Intermediate level students can already read and write to a certain extent, so in the case of presentations, it is better to have them present in their own words rather than reading a draft of the text. Example 3: Advanced learners are already able to describe more abstract concepts and explain their thoughts, so we ask them to explain the abstract concepts they have learned, for example, the difference between "difference" and "discrimination" and why they think so.	questions that allow them to describe concrete objects, since they do not have enough vocabulary to describe abstract concepts. For example, describe the appearance of a friend, or introduce a favorite cartoon or TV show. In this way, beginners can gain a sense of accomplishment, which is expected to have the effect of keeping them interested in learning. L2. For intermediate students, since they are able to read and write to a certain extent, we can present more complex questions. For example, "Record a vologue to introduce your favorite comic book. How would you describe it to make it more appealing?" The students will then be given the task "How can I make it more appealing? This way, students can be expected to better grasp the nuances between words. L 3. Advanced learners are able to describe concrete content and more abstract	the vocabulary is not sufficient to describe an abstract concept. I believe the opposite of "abstract" would be "concrete" (IDer3).
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		concepts and explain their thinking. For example, they can further develop their language skills if they are asked to explain the abstract concepts they have learned, such as the difference between "difference" and "discrimination" and why they think so.	
AC1	New words should be explained with the student's target language level in mind, and pictures and images should be used to help the student learn new words. EXAMPLE 1. For beginners, first use materials in their native language to provide information. Next, use materials written in both native language and Japanese. Finally, use materials written entirely in Japanese. In this way, the students will gradually become accustomed to the material. Example 2: Before teaching content knowledge, students need to become familiar with	New vocabulary and content knowledge should be explained with the student's target language level in mind. L 1. for beginners, it would be easier for students to learn how to get started and reduce learning anxiety if the vocabulary is written in the target language but the materials used for explanations are in their native language materials. L2. as learners' language level increases, more complex information can be provided. For example, use materials written in both the native language and the target language. Finally, use materials	Overall revisions^{1,2} - Not sure what the heck kind of card game is (TJ4)

	the terminology. Use activities such as card games and quizzes to familiarize students with various terms before class.	written entirely in Japanese. By doing so, students will gradually become accustomed to the difficulty level of the material, which is expected to have the effect of reducing learning anxiety. L3. Before teaching content knowledge, it is necessary to familiarize students with the terminology. For example, use activities such as card games or quizzes to familiarize students with various terms before class. Prepare some vocabulary cards. Each student, in turn, takes a card from the box of cards and, without looking at the word on the card, explains the word on the card to another student, who then guesses the correct word based on the explanation. Remind students that they can use definitions, synonyms, antonyms, and examples when explaining, but they cannot directly say the word itself or the spelling of the word. This way, proactive communication is expected.	
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AC2	Use available ICT tools appropriately. Use Moodle to upload teaching materials (videos, photos, texts) before and after class so that students can prepare and review what they have learned. Explain the course materials using ICT during class, and relate the new content to what students have learned in class.	Use ICT tools (*1) appropriately. L1. upload teaching materials (videos, photos, texts) to the school's online platform before class to create an environment where students can prepare for the class. This is expected to increase the amount of time students spend in the classroom doing independent learning activities. L2: Use videos, photos, and multi-content during class to explain the material and relate the new content to what students have already learned. This is expected to increase the amount of time students spend in the classroom engaged in independent learning activities. L3. Educational software can be used according to students' needs. For example, students may use word study software to memorize vocabulary or study dubbing software to	• Overall revisions^{1,2} • I would like to see additional explanation of technical terms such as ICT, Moodle, etc. (JT2,3,4). In China, some schools do not use Moodle as a platform. Therefore, we do not know what Moodle is and how it should be used here. (JT4) • I think it would be easier to convey the meaning of "activation" if you clearly specify that it is the content of past studies, such as "previously studied content" rather than the general expression "content learned in class. (IDer3).
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		practice speaking. By using existing learning software in this way, students can expect to improve their learning efficiency.	
AC3	Provide opportunities for reflection after class. Students ask questions on Moodle, and the teacher responds in the next day's class. Relate the content of the previous day's class to the content of the new class. If ICT support tools such as Moodle are not available, use a "Daifuku-cho" (a sheet in which students write what they learned and felt in each class, and the teacher responds) to give students ample opportunity to reflect on the class.	Provide opportunities for reflection. L1. if there is no ICT (1*) support tool such as the online platform, make sure to give students ample opportunities for reflection by using a sheet on which students write what they learned and felt in each class and the teacher responds. L2. Provide students with opportunities to summarize after the in-class learning activities are completed as well. L2. Ask questions on the online platform and the teacher will answer them in the next day's class. Make connections between the previous day's lesson and the new lesson content.	-Overall Revisions 1,2 - Think or make them think about the relevance to what they knew before (IDer2).

D1	The examples given should be directly related to the content as much as possible, so that students can visualize the relationship between the examples and the content. Exemplification 1. Using a study tour in Japan as an example, a self-introduction example could be a video of students introducing themselves in school. Exemplification 2. If the example is an introduction of terms used when making a phone call, the video given is a video of a phone call being made. Exemplification 3. If the example is to introduce Japanese culture, the corresponding pictures and videos should be presented.	The examples given should be directly related to the content as much as possible so that students can visualize the connection between the examples and the content. L 1. If the video given is an introduction to the terminology used to make a phone call, the video given is a video of a phone call being made. In this way, students' sense of participation is increased and active learning is expected. L2. If the purpose is to introduce Japanese culture, present pictures and videos that introduce Japanese culture. In this way, students' sense of participation will increase and active learning can be expected. L3. Using a study tour in Japan as an example, in the self-introduction example, a video of students introducing themselves in the school should be	Overall Revisions ^{1,2}
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		presented. In this way, students' sense of participation will increase and active learning can be expected.	
D2	Present a variety of examples by utilizing ICT tools. Exemplification 1. Inserting open source videos, audios, etc. into Moodle will provide students with more relevant examples. Example 2: Taking "Introduce your hometown" as an example, the teacher could use his/her hometown as an example when explaining the activity. Introduce it using a map and pictures of your hometown. Have the students look at them as they do the activity.	Present a variety of examples by utilizing ICT tools (*1). L1. incorporate authentic cultural materials created by native speakers, such as newspapers, magazines, podcasts, and social media, into everyday language learning. Pay attention to cultural references, idioms, and colloquial expressions used in these materials, which can be expected to have a learning effect to deepen understanding of cultural backgrounds. L2. Taking "Introducing one's hometown" as an example, teachers can also give their own hometown as an example when explaining the activity. Introduce it using a map and pictures of your hometown. The students can then be asked to do the activity while looking at	Overall Revisions ^{1,2} - Different students have different learning requirements, so the applicable materials are also different. We would like to introduce materials and tools that can be used for diverse learning (JT2).

		the map. In this way, students can be expected to communicate proactively. L3. open source videos and audios can be inserted into the online platform to provide more relevant examples to students. This is expected to have the effect of making students more interested in learning.	
D3	When conducting learning activities, provide verbal explanations or explanatory text and images, as learning can be hindered by a lack of explanation of the tools used. Example 1: When using 3S cards (worksheets for summarizing a topic in three sentences), students may ask questions about how to use the 3S cards, such as how to determine the topic, the length of the three sentences, and whether it needs to be based on a theme. In such cases, it is important for the teacher to prepare examples of use (either	When conducting learning activities, provide verbal explanations or explanatory text and images, as learning can be hindered by a lack of explanation of the tools used. L1. When using 3S cards (worksheets for summarizing a topic in three sentences), students may ask questions about how to use the 3S cards, such as how to determine the topic, the length of the three sentences, and whether it needs to be based on a theme. In such cases, it is important for the teacher to prepare examples of use (either	Overall Revisions ^{1,2}

	examples of the teacher's own use of the 3S cards or examples presented by past students), preferably both good and bad examples. This will help students better understand how to use the support tools. Example 2. If the lesson requires the use of computers or apps for learning activities, these machines or apps should be explained first. It is better for the teacher to explain them while operating them.	own use of the 3S cards or examples presented by past students), preferably both good and bad examples. This will help students better understand how to use the support tools. L2. If the lesson requires the use of computers or apps for learning activities, these machines or apps should be explained first. It is better for the teacher to explain them while operating them. L3.Finally, students should be given the opportunity to practice using the tools in order to familiarize themselves with them and to consolidate them. Simple practice topics or assignments can be provided so that students can use the tools to solve problems or demonstrate their learning. Encourage students to work in groups to explore and learn about new tools. Group work allows students to discuss and share their experiences using the tools, help each other solve problems, and	
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		is expected to encourage proactive communication.	
D4	The given examples include both "content" and "language". Exemplification 1. The language-related examples given include not only explanations of word grammar, but also examples of actual application situations. Exemplification 2. For content-related examples, if the content is objective, as in the case of a CLIL class on ICT, pictures and videos of various devices (computers, tablets, cables, and development programs) being used should be included to show how they are used. In the case of a CLIL class on Japanese history, show students pictures of Japan in those days. For a CLIL class on intercultural education, try to show students videos of the same background in both countries.	The given examples include both "content" and "language". Exemplification 1. The language-related examples given include not only explanations of word grammar, but also examples of real-life application situations. Exemplification 2. For content-related examples, if the content is objective, as in the case of a CLIL class on ICT, pictures and videos of various devices (computers, tablets, cables, and development programs) being used should be included to show how they are used. In the case of a CLIL class on Japanese history, show students pictures of Japan in those days. For a CLIL class on intercultural education, try to show students videos of the same background in both countries.	• Overall revisions^{1,2} • What is "word grammar"? I don't think there is grammar in words. Is it "explanation of vocabulary and grammar"? Is the word "objective" in "objective as in CLIL lessons on ICT" necessary? Since it is used only in this example and not in other examples (e.g., Japanese history), it seems necessary to consider its necessity and necessity (IDer3).

AP1	Classroom activities such as group discussions, presentations, role-plays, skits, debates, etc. are designed with careful consideration of the students' target language level and the specialized content of the class. Example 1: A debate format can be used when students learn grammar for expressing their ideas, such as "I think so" or "from xx data. Example 2: A role-play format can be used to learn grammar to introduce one's interests, such as "I like xx" [I saw xx yesterday].	Learning activities such as group discussions, presentations, role-plays, skits, and debates will be designed with careful consideration of the students' target language level and the specialized content of the class. L1. students will be more likely to actively apply their knowledge if debate-style learning activities are used to teach grammar for expressing their ideas, for example, "I think so" or "from xx data"; L2. students will be more likely to actively apply their knowledge if debate-style activities are used to teach grammar for expressing their ideas, for example, "I like xx" or "from xx data. L2. Students can be expected to actively apply their knowledge if role-plays are used to teach grammar to introduce their interests, e.g., "I like xx" [I saw xx yesterday].	I wonder if the term "classroom activities" is a technical term. I felt that the term "classroom activities" is not a familiar Japanese term. I think "learning activities" is a more familiar term. (IDer3). Some of the students I teach are voluntarily learning about Japanese culture because they like it, and they will be going to Japan for work in the future, so I would like to see learning activities here where they can learn more about culture-related knowledge (JT2).
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		L3. engage students in activities that promote cultural awareness and sensitivity, such as role-playing scenarios, cultural simulations, and discussions about cultural diversity. For example, simulations of traditional celebrations and special events can expose students to other cultures. In this way, the program is expected to be effective in fostering empathy, respect, and open-mindedness toward different cultural perspectives.	
AP2	Group discussion and presentation time should be 50-55% of the total class time.	Group discussion and presentation time should be 50-55% of the total class time.	
AP3	Provide guidance for discussion. Examples: 1. Instruct students to use the target language as much as possible in the group, etc. 2. Since it is possible for students to speak their native language frequently, the teacher should provide desk-to-desk guidance, take back the native language that is heard	Guidance for discussion. L1. instruct the group to use the target language as much as possible, etc. Since it is possible for students to speak their native language frequently, the teacher should provide desk-to-desk instruction, taking back the native language that is heard and speaking in the target language, and encouraging the discussion to return to	Overall revisions ^{1,2} •Example 1 says "target language" and Example 2 says "Japanese". I think what these refer to is the same. I think it would be better to unify the terms or set a rule for their use. If you dare to use them differently, that's fine (IDer3). I think it might be good to have some examples of how to delve into the discussion or something like that, it might be necessary to make use of them for

	and speak to the students in Japanese, and encourage them to return the discussion back to Japanese. Example 2: If the number of students is too large for the teacher to guide all groups alone, a chairperson should be selected from within the group to govern the group discussion process and encourage group members to use Japanese in their discussions. The chairperson changes with each activity, and group members take turns being the chairperson.	the target language. L2. If the number of students is too large for the teacher to guide all groups alone, a chairperson should be selected from within the group to moderate the group discussion process and encourage group members to use Japanese in their discussions. The chairperson should be changed for each activity, and group members should take turns being the chairperson. In this way, not only is the teacher's workload reduced, but also the students' ability to learn independently is expected to improve. L3. The teacher can create a worksheet that allows students to understand the flow of the discussion and have them record their notes and discussion results on it. By visualizing ideas in this way, in addition to facilitating group discussions, it is expected to improve students' thinking skills.	higher-order thinking (IDer4).
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AP4	Students need to focus on completing the questions using content knowledge and communicating in the target language. In doing so, proper language-related support should be provided. Example 1: Regarding support for the target language, a collection of Japanese expressions that can be used in discussions should be distributed to students and oral practice should be conducted among students. When asking students to introduce themselves, provide relevant examples, such as "I am XXX," "I think Japan is xxx country. Example 2: Support for content knowledge For support for content knowledge, hand out materials explaining technical terms and, if necessary, provide charts and other materials instead of text-only explanations.	Students need to focus on completing the questions using content knowledge and communicating in the target language. In doing so, proper language-related support should be provided. L1.Regarding support for the target language, a collection of target language expressions that can be used in discussions should be distributed to students for oral practice among students. When asking students to introduce themselves, give relevant examples, e.g., "I am XXX," "I think Japan is country xxx. and "I think Japan is xxx country. By providing appropriate information and guidance in this manner, students are better prepared for target language presentations and are expected to improve their language expression and confidence. L2.In addition to providing target language templates,	• Overall revisions^{1,2} • Issue of unification of the terms "target language" and "Japanese" (in common with AP3) "Target language" and "Japanese" (in common with AP3 and AP4) (IDer3)

		timely feedback should be given to students as they practice to help them improve their pronunciation, grammar, and fluency. With this kind of support, it is expected to increase students' ability and confidence in language expression. L3.Regarding support for content knowledge, hand out materials explaining technical terms and, if necessary, provide charts and other materials instead of text-only explanations. By doing so, it is expected to improve students' learning activities and increase their confidence in learning.	
I1	Presentations, opportunities to perform skits, etc. that you have created.	Presentations, opportunities to perform skits, etc., that you have created.	
I2	Students need to be given the opportunity to apply and reflect on what they have learned after class. Example 1: Allow students to use Moodle for online discussion after class. Both students and	After class, students should be given the opportunity to apply and reflect on what they have learned. If ICT support tools such as the L1.online platform are not available, students can	Overall Revisions1,2

	teachers can comment on Moodle and this will enhance student-student and student-teacher interactions. If ICT support tools such as Moodle are not available, students can use pen and paper after class to write diagrams, tables, and documents that connect the contents of the study by themselves. Then, in class the next day, have groups of students discuss among themselves what they have created.	use paper and pen after class to write diagrams, tables, and documents that connect what they have learned with their own ideas. Then, in class the next day, have groups of students discuss among themselves what they have created. L2. Allow students to review what they have learned in class by watching relevant review videos and review materials. Videos can include instructor explanations, lab demonstrations, case studies, etc. to help students review and understand what they have learned. L3. allow students to discuss online after class using the online platform. Both students and teachers can comment on the online platform, which will enhance student-student and student-teacher interaction.	
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I3	Provide practical scenarios for students to use what they have learned. Exemplification 1. Use multimedia resources to search for videos and learning examples that are close to students' lives, and have students apply these resources to think about and solve problems that could occur in the real world. Example 2: The teacher can ask students about problems or interesting events and use them as material to introduce the learning content.	Provide practical scenarios for students to use what they have learned. L1. use multimedia resources to search for videos and learning examples that are close to students' lives, and have students apply these resources to think about and solve problems that could occur in the real world. L2. teachers can ask about problems or interesting events in students' lives and use them as material to introduce the learning content.	Overall Revisions ^{1,2}
I4	In language learning, it is important to note that the integration phase focuses on output (speaking and writing). Meaningful output is output that is understandable to others and facilitates language acquisition. Example 1: Have students give a presentation during the integration phase and	In terms of language learning, it is important to note that the integration phase focuses on output (speaking and writing). Meaningful output is output that can be understood by others, which facilitates language acquisition. L1. have students give presentations during the	Overall Revisions ^{1,2}

	have other students evaluate and ask questions after they have performed the skit. The presentation should not be the end of the process, but feedback should be given. This feedback should include not only feedback from the students but also from the teacher.	integration phase and have other students evaluate and ask questions after they have performed the skit. The presentation is not the end of the process, but feedback should be given. This feedback should include not only feedback from the students but also from the teacher. Through these activities, students can expect to improve their critical thinking skills. L2.Participate in a language exchange program or speak with a native speaker of the target language online. Authentic interactions with native speakers are expected to provide insight into cultural norms, communication styles, and social values. L3. Take advantage of opportunities to explore cultural landmarks, historic sites, museums, and neighborhoods related to the target language. These experiences can deepen students' understanding of their cultural backgrounds	
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		through direct exposure to cultural traditions and lifestyles.	
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The 4Cs of CLIL (Content, Cognition, Communication, Culture) were proposed by German educationalist Do Coyle (2007). the 4C framework is based on sociocultural and language learning theories and emphasizes that language learning is a socialization process closely related to cognitive development and cultural understanding. It emphasizes that language learning is a socialization process closely related to cognitive development and cultural understanding.

The 4C framework is built on the following principles

(1) Subject matter is more than the acquisition of knowledge and skills. It is about learners constructing their own knowledge and acquiring appropriate skills (Lantolf, 2000; Vygotsky, 1978).

(2) Acquisition of subject matter knowledge, skills, and understanding requires learning and thinking (cognition). In order for learners to be able to construct an understanding of a subject, they must be able to analyze and use the linguistic demands of the subject content (Met, 1998).

(3) Thinking processes (cognition) must be analyzed in terms of their linguistic demands in order to facilitate development (Bloom, 1984; McGuinness, 1999).

(4) Language needs to be learned in context (i.e., learning through language), which requires the reconstruction of learning tasks and associated cognitive processes through a foreign or second language (e.g., language input/output) (Krashen, 1985; Swain, 2000).

(5) Interaction in the learning situation is fundamental to learning. If teachers can increase opportunities for exploratory speaking and writing, students have a chance to think through the material and make it their own (Mohan, 1986: 13). This also has implications when the learning context takes place through a foreign language (Pica, 1991; van Lier, 1996).

(6) The interrelationship between culture and language is complex (Byram, 2001), and the 4C framework places culture at its core and discusses a variety of issues, including cross-cultural understanding, global citizenship, and student opinion (Cummins, 2004).

The 4C framework is not a theory but a conceptualization of CLIL; Coyle believes that these four elements are at the core of the CLIL instructional approach and provide the foundation for students to learn content and language in an integrated manner.

Based on the above research, Coyle et al. (2010) identified the following sub-components

included in the 4Cs.

Contents: Subject Matter and Topic

Subjects: Subject subjects refer to subject matter such as social studies and science, while topics refer to things such as global warming.

Language: language knowledge, language skills

Language knowledge refers to grammar, vocabulary, and pronunciation, while language skills refer to reading, listening, writing, and speaking.

Thinking: lower-order thinking skills, higher-order thinking skills

Lower order thinking skills refer to memorization, understanding, and application, while higher order thinking skills refer to analysis, evaluation, and creation.

Culture: Cooperative learning, cross-cultural awareness

Cooperative learning refers to cooperative learning in pairs or groups in which students discuss, learn, teach, help, and develop with others, and cross-cultural awareness refers to the promotion of international understanding.

This proposal has been widely accepted in CLIL educational programs and research, and many educators and researchers have adopted approaches based on these elements (Hüttner et al., 2013, Cenoz et al. 2014, Bruton, 2013;Lasagabaster, 2011).

Ikeda (2011) then proposed 10 principles to make CLIL findings and teaching techniques more systematic.

Izumi et al. (2012) subdivided the correspondence between the 10 principles and the 4Cs based on these practical studies by Cunningham & Fukao (2011), Izumi (2010), Pinner (2012), Howell (2012), and Endo (2012).

Table 6-18. Correspondence between the 10 principles and the 4C's

4 C	10 principles
Content	①The ratio of content study to language study is 1:1. ⑧Provide not only written but also audio, numerical, and visual information (illustrations and images). ⑨Provide scaffolding (learning aids) in terms of both content and language.

	⑩Provide instruction in study skills.
Communication	①The ratio of content study to language study is 1:1. ②Balanced and integrated use of the four skills (reading, listening, writing, and speaking). ③ Provide many tasks. ⑨Provide scaffolding (learning aids) for both content and language. ⑩Provide instruction in study skills.
Cognition	③ Provide more tasks. ④ Utilize various levels of thinking skills (memorization, comprehension, application, analysis, evaluation, creation). ⑩Give instruction in study skills.
Culture	⑤Emphasize cooperative learning (pair work and group activities). ⑥Include elements of cross-cultural understanding and international issues. ⑦ Encourage the use of authentic materials (newspapers, magazines, websites, etc.). ⑩Teach study skills.

Arnold's (2009) study focused on the use of authentic materials in CLIL, noting that authentic materials such as newspaper articles, website articles, video, audio, real-world models, etc., are used in a realistic context for students, are more effective for learning, and promote integration of content and language. He noted that authentic materials such as newspaper articles, website articles, videos, audios, real-world models, etc., are used in a realistic context for students, which makes them more effective in learning and promotes content and language integration.

Authentic materials are often defined as materials that were not originally created to teach a language (Pietilä, 2009; Ahmed, 2017). This means that, unlike dictionaries and textbooks for educational purposes, authentic materials can be obtained from a variety of sources, including video clips, recordings of actual interactions, TV programs, radio, newspapers, signs, maps, charts, photographs, timetables, schedules, etc. Authentic materials are characterized by their naturalness,

unedited authenticity, and authentic use in real-world communication (Pietil, 2009; Sari, 2016; Oura, 2001; Gilmore, 2007; Rao, 2019; Adam et al.).

The purpose of using authentic materials in the language classroom is to expose learners to the actual use of the target language so that they can understand and learn how the language is used in the real world (Pietil, 2009). The most prominent feature of authentic materials is that they provide learners with opportunities to experience the culture of the target language so that they can better understand and adapt to the cultural context of the target language (Pietil, 2009; Ahmed, 2017).

Therefore, the following checklist items were added to the checklist to increase learners' exposure to the target language and to help them better understand the culture of the target language country.

"In addition to the textbook, authentic materials (newspapers, magazines, radio, videos, web sites, etc.) were provided for use in class."

This item indicates what tools can be used in the lesson design.

And to assure the quality of the use of these tools, it should be seen in conjunction with the other checklists presented in this study. For example, the checklist includes "Does the content of the examples match what is being studied?" and the list of examples includes "When explaining a problem, news, illustrations, audio and video material, etc., should be selected to support a deeper understanding of the problem, taking into account the image of the learner. ...L2: In intercultural education classes, when presenting a question about different distances between people (distance between oneself and one's relatives, oneself and one's friends, oneself and others), showing several video clips can have the effect of increasing interest by making the differences and relating them to oneself. " The checklist is as follows. This makes the students feel that the authentic materials used are relevant to what they are learning and to their own lives.

6.3. Confirm the final export of the checklist

In the end, through the analysis of the results of the three practices and the evaluation of professional ID scholars and Japanese language teachers, the following validation form for designing a CLIL curriculum with the goal of helping CLIL Japanese language teachers to improve the effectiveness of their classroom was summarized.

Table 6-19 Course Design Acknowledgement Form applicable to CLIL class

Item	Ver2	Check
Problem Center	Are the problems presented to students relevant to the real world, with an emphasis on those that relate to the course content?	

	Are the questions presented to the students clearly explained and do they arouse their curiosity?	
	Are the topics of the problems presented to students set up in such a way that they can express different opinions?	
	Are the questions in each lesson interrelated and form a coherent story line?	
	Are the problems given in each lesson of varying levels of difficulty, from easy to complex, and of varying levels of thinking?	
Activation	Is new learning content explained using previously learned knowledge?	
	Are opportunities provided for students to recall what they have learned through the use of ICT?	
	Do you use tools (ICT, worksheets, etc.) to provide students with opportunities to find connections to what they are learning and to build knowledge?	
Demonstration	Are the examples given consistent with what is being studied?	
	Do you make flexible use of ICT resources and provide examples of practical application scenarios?	
	Does it provide specific examples of learning activities?	
	Does the given example include both "content" and "language"?	
Application	Are classroom group activities aligned with learning objectives?	
	Do group learning activities provide opportunities for students to apply what they have learned and output?	
	Are group activities provided with specific instructions to help students communicate better?	
	Does it provide the necessary expressive structure or other support to aid in language understanding, expression, and output?	
Integration	Do you provide opportunities to present learning outcomes?	
	After class, do students have an opportunity to build knowledge and	

	does the instructor provide feedback to students accordingly?	
	Do you ask students to think about how they can use what they learn in the real world?	
	Does the integration phase focus on meaningful output (speaking and writing)?	

Table 6-20 Example of classroom activity design developed based on FPI for CLIL course design

Item	Examples
PB1	Give problems that have a realistic background according to what is being studied. L1. use problems that are more relevant to daily life. For example, when teaching introductions, questions that introduce the student's own place of residence can be used to encourage independent communication. L2. give them problems that they are very likely to encounter in their current life and studies. For example, when teaching the use of directional verbs such as "go forward" and "turn left," a question like "When you meet a foreign student from Japan at school and he/she asks you for directions, what do you do? is expected to encourage proactive communication. L3. Give students problems they may encounter in their future life and study. When learning about intercultural communication, give a background of what would happen if the student were to go to Japan as an exchange student. The questions asked in each lesson are questions that students may encounter as exchange students. This is expected to promote the students' ability to solve problems on their own.
PB2	When explaining a problem, select news, illustrations, audio and visual materials to support a deeper understanding of the problem, taking into account the image of the learner. L1. Teach simple words by providing corresponding pictures. For example, the word "computer" can be taught with a picture of a computer, the word "multimedia" with a collection of pictures, and so on. In this way, students can visualize what they know and relate it to their daily lives. L2: In intercultural education classes, when students are asked about the differences in distance between people (distance between themselves and their relatives, between

	themselves and their friends, and between themselves and others), showing several video clips can help them to make the differences more interesting by making connections between them and themselves. L3. If the question is about an abstract concept such as cultural differences between countries, you can provide video clips of the same scene in different countries. For example, showing students a video of a drinking party in Japan and a drinking party in China, or a video of the Japanese bill at the end of a drinking party and the Chinese bill at the end of a drinking party, can be expected to generate interest among students.
PB3	Questions that require students to think about such questions as "Why do you think that?" L1. ask students to think about what kind of words they should use in what kind of situations. For example, ask students to think about situations in which they should use "polite form" and situations in which they should use "normal form. Ask questions like this. Give them several situations in which they introduce their childhood friends to their peers whom they know well, or to seniors or elders. The students themselves can apply what words to use in what situations. In this way, when students are asked to think for themselves, it is expected that they will tend to begin thinking independently. L2. In general, introducing oneself using the foreign language learned is a problem that all students have to solve in language learning. However, learning should not end at this step. After having students introduce themselves, ask, "Why did you introduce yourself this way?" or "What do you want to appeal to the other person?" L3. In addition to the acquisition of language skills, language is deeply related to culture, society, and identity. Students need to be exposed to the culture of the target language country. Questions such as "Compare cultural practices, traditional events, and social norms between the target culture and the student's own culture" are expected to help students reflect on their own cultural assumptions, realize that language and culture are interrelated, challenge their preconceptions, and expand their cultural knowledge.
PB4	Design questions in such a way as to make each lesson relevant. L1. In classes that focus on teaching the basics of the language at the beginner level, provide students with relatively simple topics that also relate to each lesson. For example, in Lesson 1, students are asked to "write a letter to a Japanese friend introducing their hometown. In Lesson 2, students will be asked to "Your Japanese friend read your letter and replied. Read the letter and understand its contents. In

	Lesson 3, there will be a group discussion to resolve the questions raised in Lessons 1 and 2. In this way, the content of each lesson should be related to each other in order to maintain students' motivation to learn. L2. More complex learning situations and learning questions can be set when students have reached a level of language proficiency that allows them to engage in basic daily conversation. For example, a lesson on cross-cultural exchange could be set in the context of a study trip to Japan. The first lesson question could be, "When you are new to Japan, how do you introduce yourself?" In the second lesson, the question should be "How do you make friends in Japan? and connect it to points related to the content, such as a map for making friends. The questions in Lesson 2 would be built on top of the questions in Lesson 1 in a step-by-step fashion. In this way, students can feel the relevance of each lesson, which is expected to have the effect of maintaining their interest in learning. L3. When teaching academic content, the following learning problems can be given. For example, the learning task for the entire class is to complete an academic paper in your field in four lessons. The learning task for the first class could be, "What is the difference between an academic paper and a general paper?" This can be done as follows. In the second, the question could be, "With these differences in mind, what is the framework for writing an academic paper?" The question could be, "What are the differences between an academic paper and a general paper? In the third session, the question could be, "How would you add content (figures, tables, and citations) to the framework you considered in the previous session to make the paper look more academic?" The question could be "How would you add content (figures, tables, quotations) to the framework you developed in the previous session? The question for the fourth session could be, "Looking back over the previous three lessons, how many steps did you consider when writing your academic paper? And what academic phrases did you use?" . By having students ask relevant questions in this way, it is expected to enhance students' independent learning.
PB5	Set questions of a difficulty level appropriate to the student's language level. L1. For beginners, set questions that allow them to describe concrete objects, since they do not have enough vocabulary to describe abstract concepts. For example, describe the appearance of a friend, or introduce a favorite cartoon or TV show. In this way, beginners can gain a sense of accomplishment, which is expected to have the effect of keeping them interested in learning. L2. For intermediate students, since they are able to read and write to a certain extent,

	we can present more complex questions. For example, "Record a vologue to introduce your favorite comic book. How would you describe it to make it more appealing?" The students will then be given the task "How can I make it more appealing? This way, students can be expected to better grasp the nuances between words. L 3. Advanced learners are able to describe concrete content and more abstract concepts and explain their thinking. For example, they can further develop their language skills if they are asked to explain the abstract concepts they have learned, such as the difference between "difference" and "discrimination" and why they think so.
AC1	New vocabulary and content knowledge should be explained with the student's target language level in mind. L 1. for beginners, it would be easier for students to learn how to get started and reduce learning anxiety if the vocabulary is written in the target language but the materials used for explanations are in their native language materials. L2. as learners' language level increases, more complex information can be provided. For example, use materials written in both the native language and the target language. Finally, use materials written entirely in Japanese. By doing so, students will gradually become accustomed to the difficulty level of the material, which is expected to have the effect of reducing learning anxiety. L3. Before teaching content knowledge, it is necessary to familiarize students with the terminology. For example, use activities such as card games or quizzes to familiarize students with various terms before class. Prepare some vocabulary cards. Each student, in turn, takes a card from the box of cards and, without looking at the word on the card, explains the word on the card to another student, who then guesses the correct word based on the explanation. Remind students that they can use definitions, synonyms, antonyms, and examples when explaining, but they cannot directly say the word itself or the spelling of the word. This way, proactive communication is expected.
AC2	Use ICT tools (*1) appropriately. L1. upload teaching materials (videos, photos, texts) to the school's online platform before class to create an environment where students can prepare for the class. This is expected to increase the amount of time students spend in the classroom doing independent learning activities. L2: Use videos, photos, and multi-content during class to explain the material and relate the new content to what students have already learned. This is expected to

	increase the amount of time students spend in the classroom engaged in independent learning activities. L3. Educational software can be used according to students' needs. For example, students may use word study software to memorize vocabulary or study dubbing software to practice speaking. By using existing learning software in this way, students can expect to improve their learning efficiency.
AC3	Provide opportunities for reflection. L1. if there is no ICT (1*) support tool such as the online platform, make sure to give students ample opportunities for reflection by using a sheet on which students write what they learned and felt in each class and the teacher responds. L2. Provide students with opportunities to summarize after the in-class learning activities are completed as well. L2. Ask questions on the online platform and the teacher will answer them in the next day's class. Make connections between the previous day's lesson and the new lesson content.
D1	The examples given should be directly related to the content as much as possible so that students can visualize the connection between the examples and the content. L 1. If the video given is an introduction to the terminology used to make a phone call, the video given is a video of a phone call being made. In this way, students' sense of participation is increased and active learning is expected. L2. If the purpose is to introduce Japanese culture, present pictures and videos that introduce Japanese culture. In this way, students' sense of participation will increase and active learning can be expected. L3. Using a study tour in Japan as an example, in the self-introduction example, a video of students introducing themselves in the school should be presented. In this way, students' sense of participation will increase and active learning can be expected.
D2	Present a variety of examples by utilizing ICT tools (*1). L1. incorporate authentic cultural materials created by native speakers, such as newspapers, magazines, podcasts, and social media, into everyday language learning. Pay attention to cultural references, idioms, and colloquial expressions used in these materials, which can be expected to have a learning effect to deepen understanding of

	cultural backgrounds. L2. Taking "Introducing one's hometown" as an example, teachers can also give their own hometown as an example when explaining the activity. Introduce it using a map and pictures of your hometown. The students can then be asked to do the activity while looking at the map. In this way, students can be expected to communicate proactively. L3. open source videos and audios can be inserted into the online platform to provide more relevant examples to students. This is expected to have the effect of making students more interested in learning.
D3	When conducting learning activities, provide verbal explanations or explanatory text and images, as learning can be hindered by a lack of explanation of the tools used. L1. When using 3S cards (worksheets for summarizing a topic in three sentences), students may ask questions about how to use the 3S cards, such as how to determine the topic, the length of the three sentences, and whether it needs to be based on a theme. In such cases, it is important for the teacher to prepare examples of use (either examples of the teacher's own use of the 3S cards or examples presented by past students), preferably both good and bad examples. This will help students better understand how to use the support tools. L2. If the lesson requires the use of computers or apps for learning activities, these machines or apps should be explained first. It is better for the teacher to explain them while operating them. L3. Finally, students should be given the opportunity to practice using the tools in order to familiarize themselves with them and to consolidate them. Simple practice topics or assignments can be provided so that students can use the tools to solve problems or demonstrate their learning. Encourage students to work in groups to explore and learn about new tools. Group work allows students to discuss and share their experiences using the tools, help each other solve problems, and is expected to encourage proactive communication.
D4	The given examples include both "content" and "language". Exemplification 1. The language-related examples given include not only explanations of word grammar, but also examples of real-life application situations. Exemplification 2. For content-related examples, if the content is objective, as in the case of a CLIL class on ICT, pictures and videos of various devices (computers, tablets, cables, and development programs) being used should be included to show how they

	are used. In the case of a CLIL class on Japanese history, show students pictures of Japan in those days. For a CLIL class on intercultural education, try to show students videos of the same background in both countries.
AP1	Learning activities such as group discussions, presentations, role-plays, skits, and debates will be designed with careful consideration of the students' target language level and the specialized content of the class. L1. students will be more likely to actively apply their knowledge if debate-style learning activities are used to teach grammar for expressing their ideas, for example, "I think so" or "from xx data"; L2. students will be more likely to actively apply their knowledge if debate-style activities are used to teach grammar for expressing their ideas, for example, "I like xx" or "from xx data". L2. Students can be expected to actively apply their knowledge if role-plays are used to teach grammar to introduce their interests, e.g., "I like xx" [I saw xx yesterday]. L3. engage students in activities that promote cultural awareness and sensitivity, such as role-playing scenarios, cultural simulations, and discussions about cultural diversity. For example, simulations of traditional celebrations and special events can expose students to other cultures. In this way, the program is expected to be effective in fostering empathy, respect, and open-mindedness toward different cultural perspectives.
AP2	Group discussion and presentation time should be 50-55% of the total class time.
AP3	Guidance for discussion. L1. instruct the group to use the target language as much as possible, etc. Since it is possible for students to speak their native language frequently, the teacher should provide desk-to-desk instruction, taking back the native language that is heard and speaking in the target language, and encouraging the discussion to return to the target language. L2. If the number of students is too large for the teacher to guide all groups alone, a chairperson should be selected from within the group to moderate the group discussion process and encourage group members to use Japanese in their discussions. The chairperson should be changed for each activity, and group members should take turns being the chairperson. In this way, not only is the teacher's workload reduced, but also the students' ability to learn independently is expected to improve. L3. The teacher can create a worksheet that allows students to understand the flow of the discussion and have them record their notes and discussion results on it. By visualizing ideas in this way, in addition to facilitating group discussions, it is expected

	to improve students' thinking skills.
AP4	Students need to focus on completing the questions using content knowledge and communicating in the target language. In doing so, proper language-related support should be provided. L1.Regarding support for the target language, a collection of target language expressions that can be used in discussions should be distributed to students for oral practice among students. When asking students to introduce themselves, give relevant examples, e.g., "I am XXX," "I think Japan is country xxx. and "I think Japan is xxx country. By providing appropriate information and guidance in this manner, students are better prepared for target language presentations and are expected to improve their language expression and confidence. L2.In addition to providing target language templates, timely feedback should be given to students as they practice to help them improve their pronunciation, grammar, and fluency. With this kind of support, it is expected to increase students' ability and confidence in language expression. L3.Regarding support for content knowledge, hand out materials explaining technical terms and, if necessary, provide charts and other materials instead of text-only explanations. By doing so, it is expected to improve students' learning activities and increase their confidence in learning.
I1	Presentations, opportunities to perform skits, etc., that you have created.
I2	After class, students should be given the opportunity to apply and reflect on what they have learned. If ICT support tools such as the L1.online platform are not available, students can use paper and pen after class to write diagrams, tables, and documents that connect what they have learned with their own ideas. Then, in class the next day, have groups of students discuss among themselves what they have created. L2. Allow students to review what they have learned in class by watching relevant review videos and review materials. Videos can include instructor explanations, lab demonstrations, case studies, etc. to help students review and understand what they have learned. L3. allow students to discuss online after class using the online platform. Both students and teachers can comment on the online platform, which will enhance student-student

	and student-teacher interaction.
I3	Provide practical scenarios for students to use what they have learned. L1. use multimedia resources to search for videos and learning examples that are close to students' lives, and have students apply these resources to think about and solve problems that could occur in the real world. L2. teachers can ask about problems or interesting events in students' lives and use them as material to introduce the learning content.
I4	In terms of language learning, it is important to note that the integration phase focuses on output (speaking and writing). Meaningful output is output that can be understood by others, which facilitates language acquisition. L1. have students give presentations during the integration phase and have other students evaluate and ask questions after they have performed the skit. The presentation is not the end of the process, but feedback should be given. This feedback should include not only feedback from the students but also from the teacher. Through these activities, students can expect to improve their critical thinking skills. L2. Participate in a language exchange program or speak with a native speaker of the target language online. Authentic interactions with native speakers are expected to provide insight into cultural norms, communication styles, and social values. L3. Take advantage of opportunities to explore cultural landmarks, historic sites, museums, and neighborhoods related to the target language. These experiences can deepen students' understanding of their cultural backgrounds through direct exposure to cultural traditions and lifestyles.

*Abbreviations: problem-centered-PB; activation-AC; demonstration-D; application-AP; integration-I

7. Conclusion

This dissertation aims to delve into the principles of ID in CLIL, with a particular focus on how to incorporate FPI into the CLIL framework to enhance teaching effectiveness and improve student learning outcomes. CLIL is a teaching approach that combines subject content with language learning, aiming to enhance learning outcomes through dual focus—promoting both content comprehension and language mastery simultaneously. However, while CLIL holds great potential in theory, fully realizing its educational objectives in practice often requires a systematic and rigorous ID framework to support it.

This chapter primarily summarizes the content of the entire text and discusses how to effectively integrate FPI theory with CLIL's teaching methods. Notably, FPI is a problem-based ID model that centers on promoting learning through the solving of real-world problems, and it emphasizes five key instructional principles: problem-centered, activation, demonstration, application, and integration. These five principles provide learners with a complete learning pathway, from activating prior knowledge to integrating new knowledge. In a CLIL teaching environment, the application of FPI can help educators focus not only on duly cultivating language skills but also on closely integrating these skills with subject content mastery, thereby achieving dual teaching objectives.

First, under the problem-centered principle, teachers need to design real-life problems that students may encounter, allowing them to naturally learn language and content knowledge in the process of solving these problems. This process enables students to apply the knowledge they have learned in real-world situations, improving their overall competence.

Second, the activation principle requires teachers to lay the foundation for new knowledge learning by guiding students to review their existing knowledge or experiences at the beginning of the lesson. This principle helps students better understand new knowledge and makes them aware of the connections between different pieces of knowledge.

In the demonstration phase, teachers provide examples or demonstrate how new knowledge can be applied to real problems, allowing students to intuitively understand its application. This step is particularly important in a CLIL classroom, as it helps students grasp the specific application of subject content while learning the language.

The application principle encourages students to actually apply the new knowledge in the classroom environment. Teachers design exercises or tasks that allow students to test and consolidate the content and language skills they have learned through practice.

Finally, the integration principle focuses on how to internalize the newly acquired knowledge and skills and continue using them in students' real lives. The goal of this phase is to ensure that students can apply what they have learned in the classroom to a broader range of real-world

situations, thereby solidifying their learning outcomes.

By incorporating these FPI principles into CLIL ID, educators can more systematically and comprehensively plan classroom activities, ensuring that students not only acquire language skills but also deepen their understanding of subject content through language learning. This article explores the theoretical foundations of these principles, while presenting practical teaching cases that demonstrate how FPI can be specifically applied in a CLIL classroom, thereby providing an integrated and highly operational ID framework.

The ultimate goal of this article is to provide teachers with clear guidelines to effectively apply FPI principles in CLIL classrooms, optimize ID, and enhance student learning outcomes. This combination of FPI and CLIL ID not only improves the systematic nature and effectiveness of teaching but also offers new ideas and directions for future CLIL course design.

7.1. Integration of CLIL 4Cs based on FPI

7.1.1. Learning activities in each CLIL 4Cs based on FPI

This section delves into how to design specific learning activities in alignment with the 4Cs framework of CLIL and based on the FPI model. As a systematic ID model, FPI guides educators in creating effective teaching activities through its five core principles. Applying the FPI model within the CLIL 4Cs framework helps provide students with a comprehensive and in-depth learning experience, thereby achieving the dual goals of language and content learning.

Design of learning activities for the content component

In the "content" component, the design of learning activities first revolves around how to activate students' prior knowledge. This process aims to help students connect new knowledge with existing knowledge by designing problem-solving tasks related to real-life situations. The FPI model emphasizes that learning should be centered on solving real-world problems. Therefore, in the CLIL classroom, teachers can stimulate students' interest in new content by presenting specific subject-related problems. For example, when teaching a history lesson, students might be asked to analyze the background of a historical event and explore its impact on contemporary society. This type of task requires students to understand the subject content and also encourages them to use their existing knowledge framework to solve new problems, thereby deepening their understanding of the material.

Design of learning activities for the communication component

In the "communication" component, the demonstration and application principles of FPI play a key role. The demonstration phase involves teachers providing examples or demonstrations to help students understand and internalize language knowledge while integrating it with subject content.

Communication activities in the CLIL classroom transcend mere language transmission, emphasizing the role of language as a tool for understanding subject content. Teachers can design activities based on dialogues or group discussions, allowing students to use the target language in authentic contexts. For instance, in a class on intercultural education, students might engage in role-playing, simulating dialogues, and activities in real-life scenarios. These activities, which combine demonstration, application, and communication, not only enhance students' language skills but also improve their comprehension and expression of subject content.

Design of learning activities for the cognition component

In the "cognition" component, the application principle of FPI is particularly important. Notably, FPI advocates consolidating newly acquired knowledge through hands-on practice and application. Therefore, teachers need to design tasks that allow students to apply what they have learned in real-life situations. In the CLIL classroom, such application tasks often involve complex, open-ended problems or projects that require students to integrate language skills with subject knowledge. For example, in a class on intercultural education, teachers might present students with a current social issue in a country where the target language is spoken. Students would then discuss the issue using the target language, propose solutions, and present their proposals. These tasks not only require students to apply their content knowledge and language skills but also encourage the use of critical thinking and problem-solving abilities, thereby promoting the development of cognitive skills.

Design of learning activities for the cultural component

In the "culture" component, the problem-centered and integration principles of FPI play significant roles. The problem-centered principle aims to introduce real-world issues into classroom learning, allowing students to apply both content and language knowledge in authentic contexts. The integration principle focuses on helping students connect new knowledge with real life so that they can apply it across different cultural backgrounds. In CLIL courses, cultural learning activities are not just about understanding cultural facts; they emphasize how students can combine this cultural knowledge with language skills for use in intercultural communication. Teachers can design comparative analysis tasks that explore similarities and differences across cultures, with students expressing their findings using the target language. For example, in a Japanese language course, students might compare festival customs in China and Japan, write about their findings in Japanese, and present them accordingly. Such activities foster a deep understanding of culture and help students use the language more confidently in intercultural contexts.

By combining the five core principles of FPI with the 4Cs framework of CLIL, teachers can design a series of integrated learning activities that support development across all core areas. Whether in content learning, language communication, cognitive skill development, or cultural understanding, these FPI-based activities provide effective support and guidance, enabling students to achieve greater learning outcomes in the CLIL classroom.

7.1.2. Elements used in CLIL education designs

This section provides a detailed discussion of the specific elements and tools used in CLIL ID based on the FPI. The selection and application of these elements and tools are crucial for creating an interactive and engaging learning environment, ultimately helping students better master both subject content and language skills. By incorporating authentic teaching materials, interactive tasks, and multimedia resources, teachers can offer students a richer learning experience, thereby enhancing their learning outcomes in the CLIL classroom.

Application of authentic teaching materials

The use of authentic teaching materials is one of the key elements in the CLIL classroom. These materials include articles, videos, news reports, academic papers, field study reports, and more. They not only provide students with rich language input but also allow them to engage with actual subject content during language learning. Unlike traditional textbooks, authentic materials better reflect real-life language usage contexts, enabling students to apply what they learn while acquiring language skills. For example, in a CLIL course on environmental protection, teachers could use news videos or scientific reports about climate change to help students understand relevant concepts and engage in discussions and analyses using the target language. The introduction of such authentic materials not only enhances the realism of learning but also stimulates students' interest and motivation.

Design and implementation of problem-centered tasks

The problem-centered principle of FPI is another core element in CLIL ID. These tasks include group discussions, role-playing, simulations, collaborative projects, and more. Through these activities, students can use language and subject knowledge to communicate and collaborate in real or simulated situations. The design of problem-centered tasks emphasizes active participation and collaborative learning, allowing students to deepen their understanding of the content and improve their language skills by solving real-world problems. For instance, in a business Japanese course, a teacher might design a task simulating a business meeting where students play different roles (e.g., manager, client, supplier, etc.) and communicate and make decisions using the target language. These interactive tasks not only help students apply language in practice but also cultivate their critical thinking and problem-solving abilities.

Integration and application of multimedia sources

Multimedia elements play a significant role in the demonstration principle of FPI and are indispensable in modern CLIL teaching. Multimedia includes videos, audio recordings, animations, interactive e-books, and online learning platforms. By stimulating multiple senses, students can more comprehensively experience and understand the learning content. The advantage of multimedia lies in its ability to present information through visual, auditory, and other sensory means, helping

students grasp complex concepts more intuitively. The use of multimedia technology also allows students to participate in remote learning through online platforms, where teachers can design online quizzes, discussion forums, and virtual labs to further enhance the interactivity and flexibility of learning.

Integrated use of elements

It is important to note that the authentic teaching materials, problem-centered tasks, and multimedia mentioned above are not used in isolation but are complementary and work together. By organically combining these elements, teachers can design more enriched and diverse instructional activities, enabling students to apply their knowledge in various learning contexts. For example, a teacher might introduce a topic through an authentic news video, followed by interactive group discussions, and finally use multimedia resources for simulation exercises or online tests. This integrated ID not only enhances the complexity and depth of learning but also meets the diverse needs and learning styles of different students.

By effectively integrating and utilizing authentic teaching materials, problem-centered tasks, and multimedia in CLIL ID, teachers can create an interactive and engaging learning environment. The application of these elements not only enhances the authenticity of language learning but also promotes a deeper understanding of subject content, allowing students to develop comprehensively in a dynamic, multi-sensory learning environment.

7.2. Design of checklist forms for CLIL

As shown in the final validation tables presented in Table 6-19 and Table 6-20 in Chapter 6.3, the validation checklist, on the one hand, can help teachers to validate the process and usefulness of learning activities in the classroom when designing CLIL lessons. The example checklist, on the other hand, can give teachers some inspiration to better design classroom activities for CLIL. The FPI-based CLIL classroom designed by the validation checklist and the example checklist proposed in this paper can provide students with a rich learning experience, help them better master content knowledge and language skills, and ultimately achieve the dual goals of CLIL teaching and learning.

7.3. Limitations and future works

This section delves into the limitations of the current research and proposes potential directions for future studies. These discussions provide important references and guidance for further refining CLIL ID.

7.3.1. Limitations of the research

First, a relatively small sample size is one of the primary limitations of the current research. Owing to the limited number of participants in this study, the representativeness of the data is

somewhat restricted. This means that the research findings may have limitations when applied to broader educational contexts, and they may not fully reflect the applicability of CLIL instruction across different cultural backgrounds or educational systems. Therefore, future research needs to expand the sample size to ensure the diversity and representativeness of the data, thereby yielding more generalizable conclusions.

Second, the short duration of the courses is also considered a significant limiting factor. Because of time constraints, students had relatively few opportunities to engage with and internalize new knowledge within the CLIL environment, which may have affected their long-term learning outcomes. Longer course designs could provide more opportunities to observe students' learning processes and outcomes in a CLIL environment. Hence, future studies should consider extending the duration of the courses to more comprehensively assess the long-term impact of CLIL instruction.

Moreover, the current research lacks cross-disciplinary experiments, which limits our understanding of the effectiveness of CLIL across different subject areas. It is noteworthy that CLIL instruction applies to not only language courses but also various subjects such as science, mathematics, and history. However, as this study focuses primarily on a specific subject, the lack of cross-disciplinary comparison may limit the generalizability of the findings to other subjects. Future research should include cross-disciplinary CLIL experiments to explore the adaptability and effectiveness of this teaching approach in different subject areas.

7.3.2. Future research directions

Based on the aforementioned limitations, future research could expand in several directions. First, the range of participants can be further broadened to include students from diverse cultural backgrounds and language proficiency levels. This would not only help validate the generalizability of the current research findings but also reveal differences in student performance in CLIL environments across different backgrounds, thus providing more data to support adjustments and optimizations in CLIL ID.

Second, research on individual differences is an important direction for future CLIL studies. The present research primarily focuses on evaluating overall instructional effectiveness but overlooks individual differences in student learning responses and performance. Understanding these differences is crucial for designing more personalized CLIL instructional plans. Future research could use detailed case studies or longitudinal studies to explore individual differences in CLIL instruction, particularly the impacts of language proficiency, learning motivation, and cultural background. This would help teachers consider students' individual needs when designing CLIL courses, thereby enhancing the effectiveness of instruction.

Lastly, future research could explore the application of CLIL instruction across different educational stages, such as primary, secondary, and higher education. Significant differences exist in

language ability and cognitive development among students of different age groups, indicating that CLIL instruction may require appropriate adjustments at different educational stages. By studying the application of CLIL at various educational levels, future research could provide more detailed guidance to help educators implement CLIL instruction more effectively.

By discussing the limitations of the current research and proposing directions for future research, this article offers valuable insights for further optimizing and developing CLIL instruction. Although the current research has some limitations, such shortcomings also provide a rich space for exploration in future studies. By expanding sample sizes, extending course durations, conducting cross-disciplinary tests, and investigating individual differences more comprehensively, future research can more comprehensively reveal the potential and challenges of CLIL instruction, consequently providing more scientific and practical teaching strategies for educators worldwide.

Glossary

1.Subcategories included in the 5 elements of FPI

Problem-center

P1: Show task, P2: Task level, P3 Problem progression.

Activation

AC1: Previous experience, AC2: New experience, AC3: Structure

Demonstration

D1: Consistency, D2: Learner guidance, D3: Relevant media

Application

AP1: Practice consistency, AP2: Diminishing coaching, AP3: Varied problems.

Integration

I1: Watch me, I2 Reflection, I3: Creation

list of terms

According to CLIL's definition of cognition in the 4Cs, the words used in this paper are unified in terms of cognition and thinking.

The definitions of each term are as follows

Remember: retrieving relevant knowledge from memory. Refers to memorization and reproduction.

Understand: to determine the meaning of an instructional message. It refers to interpretation, explanation, summary, example, classification, comparison, and analogy.

Apply: use knowledge in a given situation. Refers to applying, utilizing, and practicing.

Analyze: Break down the material into its components and determine how they work together. Refers to analysis, positioning, and characterization.

Evaluate: To make judgments based on criteria and standards. It refers to judgment, criticism, and evaluation.

Create: To create a new or original work of art. It refers to planning and creation.

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Acknowledgments

I would like to express my deepest gratitude to my supervisor, Professor Masanori Yamada, for his unwavering support and invaluable guidance throughout my academic journey. His expertise, encouragement, and constructive feedback have been instrumental in shaping my research and personal development. Professor Yamada has consistently provided me with opportunities to explore new ideas and challenge myself, fostering an environment where I could grow both as a scholar and as an individual. I am deeply grateful for his supports and the chance to be part of his lab.

I also wish to extend my heartfelt thanks to my co-supervisors, Professor Hiroshi Kume and Professor Satoru Tanoue, whose insightful advice and detailed guidance have greatly enriched my research. Their support in refining my dissertation and their critical perspectives have been invaluable in broadening my understanding of the subject matter. I am sincerely thankful for their time, effort, and commitment to my academic progress.

I would like to express my special thanks to Prof. Hitoshi Susono and Prof. Yoshiko Goda. Prof. Hitoshi Susono gave me a lot of support and help when I was conducting my experimental practice, and Prof. Yoshiko Goda based a lot of very constructive comments and help when I was writing my doctoral dissertation.

Furthermore, I am indebted to the members of the Yamada Lab, whose camaraderie and intellectual contributions have made my time in the lab truly rewarding. Special thanks to, Assistant Professor XueWang Geng, Ms. Satomi Hamada, Ms. Saki Hirata, Ms. Tang Li and Assistant Professor Li Chen, for their continuous support, valuable suggestions, and the lively discussions that have greatly enhanced my research experience. Their friendship and assistance, both in the lab and in life, have been a source of strength and inspiration. I would also like to express my gratitude to Ms. Rie Akutagawa, the technical staff member at Yamada Lab, for her invaluable assistance not only with my Japanese studies and research but also for providing essential life advice, including recommendations for excellent local restaurants.

I would like to thank the principal, teachers, and students who generously took the time to participate in my experimental practice and make this research possible. I would like to express my gratitude to teachers and the students in Tianjin Normal University, teachers and the students in Anyang University of Science and Technology.

I would also like to thank the teachers who gave me valuable comments on the course design checklist form, Prof. Hitoshi Suzuno, Mr. Hiroyuki Watanabe, Ms. Maho Suzuki, Ms. Akiko Kai, Ms. Jingyi Liu, Ms. Yewen Wang, Ms. Ling Yang, and Ms. Liuxing Yang.

My deepest appreciation goes to my friends and family, whose love and encouragement have been my anchor throughout this journey. I am very grateful to my good friend Yanjie Zhong, for her constant companionship and support, and it was her great care that helped me get through the

toughest time during my PhD studies. To my parents Zhengyong Hao and Baoxia Qu, your belief in me has been a constant source of motivation. Your understanding and sacrifices have made it possible for me to pursue my dreams, and for that, I am eternally grateful.

Finally, I would like to thank my husband, Haoran Zhang. Even though he is seriously ill, he is still very supportive of me both materially and spiritually. It was he who supported me to complete this academic trip. I treasure him and the happy and sad times we had together, which will be a valuable asset in our lives later on. I hope we can continue to walk the next part of our life journey together.

Appendix 1 FPI Questionnaires

1. Authentic Problems Scale (Merrill, Principle 1): Cronbach α = 0.81

- I performed a series of increasingly complex authentic tasks in this course.
- I solved authentic problems or completed authentic tasks in this course.
- I solved a variety of authentic problems that were organized from simple to complex in this course.
- The assignments, tasks, or problems I did in this course are clearly relevant to my professional goals or field of work.

2. Activation Scale (Merrill, Principle 2): Cronbach α = 0.91

- I engaged in experiences that subsequently helped me learn ideas or skills that were new and unfamiliar to me.
- In this course, I was able to recall, describe, or apply my past experiences to help me connect to what I was expected to learn.
- My instructor provided a learning structure that helped me mentally organize new knowledge and skills.
- I was able to connect my past experience with the new ideas and skills that I was learning in this course.
- I was not able to draw upon my past experience, nor able to relate to the new things I was learning in this course. (-)

3. Demonstration Scale (Merrill, Principle 3): Cronbach α = 0.88

- My instructor demonstrated the skills I was expected to learn in this course.
- My instructor gave examples and counter-examples of concepts that I was expected to learn.
- My instructor did not demonstrate the skills I was expected to learn. (-)
- My instructor provided alternative ways to understand the same ideas or skills.

4. Application Scale (Merrill, Principle 4): Cronbach α = 0.74

- My instructor detected and corrected the errors I was making while solving problems, doing learning tasks, or completing assignments.

- My instructor gradually reduced coaching or feedback as my learning or performance improved over the duration of this course.
- I had opportunities to practice or try out what I learned in this course.
- My course instructor gave me personal feedback or appropriate coaching on what I was trying to learn.

5. Integration Scale (Merrill, Principle 5): Cronbach $\alpha = 0.81$

- I had opportunities in this course to explore how I could personally use what I have learned.
- I see how I can apply what I have learned in this course to real-life situations.
- I was able to publicly demonstrate to others what I learned in this course.
- I was able to reflect, discuss with others, and defend what I learned in this course.
- I do not expect to apply what I learned in this course to my chosen profession or field of work. (-)

Items with (-) are negatively worded; the rating scores are reversed for the analysis of these items. Each item requires Likert scale ratings (strongly disagree, disagree, undecided, agree, strongly agree).

Appendix 2 Writing Evaluation Criteria

	Content	Score	Comment
4	The information necessary for the theme is explained to some extent so that the reader can understand the content.		
3	I can understand the subject. There is a lack of explanation, or there are points that you cannot understand without checking.		
2	I can vaguely understand the subject. However, it is difficult to understand what I want to convey overall.		
1	It is difficult to understand what you want to convey because the information necessary for the theme is not accurate or has nothing to do with the topic.		
	Vocabulary/grammar		
4	Exactly uses words, expressions, and syntax related to the topic. In addition, it has the appropriateness as the written word in style and notation.		
3	There are some vocabulary inadequacies and grammatical errors, but not enough to affect the understanding of the sentence.		
2	There are some parts where the message you want to convey cannot be conveyed because the information and explanations necessary for a reader to understand are insufficient.		
1	Since the information is written in pieces, it is difficult to understand what you are trying to convey.		
	Constitution		
4	I wrote several sentences in succession. You can connect words and phrases using basic, parallel contact expressions (e.g., and, then, but, etc.).		
3	There are some parts where the relationship between sentences is difficult to understand; however, it is possible to grasp the big flow.		
2	Only the points that I want to convey are written side by side.		
1	Writing sentences and words in pieces, no composition as a sentence.		

Appendix 3 Examination Questions

Practical 1

事前テスト

第一部分 基礎知識

問題：（ ）に ^{なに}何を ^い入れますか。A・B・C・D から いちばん いいものを ^{ひと}一つ えらんでください。

1. わたしは （ ） ^{まえ}前に はを みがきます。

A ねて B ねた C ねる D ねない

2. 9時（ ） ^じじゅぎょうがはじまります。

A まで B しか C から D ぐらい

3. 甲「いっしょに こうえんに いきませんか。」

乙「いいですね。 （ ）」

A 行きました B 行きましょう C 行きませんか D 行くでしょう

問題： ^{にほんご}日本語を ^{べんきょう}べんきょうして いる チンさんが 「わたしの かぞく」のぶんしょうを書きました。4 と 5に ^か何を ^い入れますか。A・B・C・Dから いちばん いい ものを 一つえらんで ください。

「わたしは ^{しちにん}七人かぞくです。三年まえは ^{ちち}父と ^{はは}母と あにと わたしの 四人でした。あには きょねん けっこんしました。けっこん（ 4 ） とどもが ^{ふたり}二人 ^う生まれました。（ 5 ）いまは ^{しちにん}七人かぞくです。 」

4. A するから B してから C するので D しての

5. A だから B しかし C では D でも

6.

問題：つぎの ぶんしょうを よんで、A・B・C・Dから いちばん いい ものを 一

つえらんで ください。

今日、母と デパートへ 行きました。わたしは、 りんさんに あげる プレゼントを買いました。明日、りんさんの たんじょうびの パーティーが あるからです。買い物あと、うちに 帰って、コーヒーを 飲んで、少し 休みました。

6. 「わたし」は 今日、何を しましたか。

A 母と 買い物に 行きました。 B りんさんに プレゼントを あげました。

C 母と パーティーに 行きました。 D りんさんと コーヒーを 飲みました。

第二部分 聴解

もんだいと はなしをきいて、A・B・C・D から いちばん いい ものを 一つえらんで ください。

7.

A 10 じ はん B 11 じ はん C 12 じ はん D 1 じ はん

8.

A バスを 乗る B レストランで ごはんを 食べる

C 買い物を する D お手洗いに 行く

第三部分 書く

1. 日本語で 自己紹介を 書いてください。また 自分の一つの趣味 あるいは、好きなもの について、簡単に 紹介してください。

事後テスト

第一部分 基礎知識

問題：（ ）に ^{なに}何を ^い入れますか。A・B・C・D から いちばん いいものを ^{ひと}一つ えらんでください。

1. ごはんの あと、^{くすり}薬を （ ）ください。

A たべて B よんで C のんで D きいて

2. わたしは ^{じゅぎょう}授業を （ ）あと、^{えいが}映画を ^み見に行きます。

A 始めた B 終わった C 始まる D する

3. 甲「ホテルを ^{よやく}予約した ほうが いいですか。」

乙「^{れんきゅう}連休ですから、 （ ）」

A その ほうが いいです Bそれはできます C わかりません Dそれはできません

問題：^{にほんご}日本語を ^{べんきょう}べんきょうして いる オウさんが 「わたしの かぞく」のぶんしょうを書きました。4 と 5に ^か何を ^い入れますか。A・B・C・Dから いちばん いいものを 一つえらんで ください。

「わたしの かぞくは ^{りやうしん}両親と わたしと ^に二ひきの ねこです。わたしは ねこ(4) いぬが すきですが、^{りやうしん}両親が ねこが(5) ねこを かいました。いっしょに いると、ねこも かわいいです。」

4. A が B に C へ D より

5. A すきなので B すきじゃないので C すきだったら D すきじゃなかったら

問題：つぎの ぶんしょうを よんで、A・B・C・Dから いちばん いい ものを 一つえらんで ください。

^{あさ}朝、バスに のって、^{かいしや}会社に ^い行きました。わたしは バスの ^{なか}中で ^{ちい}小さい ^{ほん}本を ^よ読んで いました。

^{かいしや}会社に ついて、かばんを 見ました。かばんの 中に 本は ありませんでした。

わたしは バスの 会社に 電話を して、「すみません、バスの 中に 本は ありま
せんでしたか。」と 聞きました。バス会社の 人は、「わかりません。バスが 帰^{かえ}っ
てから、見ます。」と 言いました。

お昼になって、食堂^{しょくどう}に 行く とき、コートを見ました。ポケットの 中に、小さい 本
は、 ここでした。

6. 本は どこに ありましたか

A バスの 中 B バス会社 C わたしの会社 D ポケットの 中

第二部分聴解

もんだいと はなしをきいて、A・B・C・D から いちばん いい ものを 一つえらん
で ください。

7.

A 15 ページ半分 B 15 ページ全部 C 16 ページ半分 D 16 ページ全部

8.

A バスに のります B でんしゃに のります

C でんわを します D のみものを かいます

第三部分 書く

1. 日本語^{にほんご}で 自己紹介^{じこしょうかい}を 書^かいてください。また 自分^{じぶん}の一つの趣味^{ひとつしゅみ} あるいは、好き^す
なもの について、簡単^{かんたん}に 紹介^{しょうかい}してください。

Practical 2 and 3

事前テスト

一、読解

問題一 つぎの文章を読んで、文章全体の内容を考えて、後の問いに対する答えとして最もよいものを、A・B・C・D から一つえらびなさい。

「日本の消費者は世界一、＊（注1）目が肥えている。」という言葉には2つの意味がある。第1は機能や味などへの要求水準が高いこと。第2には、わずかな傷も許さないなど見た目へのこだわりだ。

消費者は後者のこだわりを捨てつつある。それでは消費者は嫌々「傷物」に目を向け、我慢して買っているのか。必ずしもそうではない。

衣料品や家具などでは中古品市場や消費者同士の交換が盛んだ。再利用でごみが減り、環境にもいい。商品の傷も前の使用者の＊（注2）ぬくもりとプラスにとらえる＊（注3）感性が若い人を中心に広がっている。

＊（注4）規格外の農産品も似ている。ごみになるはずのものを安く使い、エコロジーと節約を両立させることに、前向きの価値を見出しているのではないか。不ぞろいな野菜は、むしろ手作り品を思わせる長所。消費やの新たな価値観に、企業がようやく追いついてきた。

市場が広がれば、＊（注5）粗悪品や不良品が出回る可能性も高まる。なぜ安いのか。本来の価値は損なわれていないか。企業の責任は重い。消費者にも「厳しい目」をきちんと持つことが求められる。

（日本経済新聞 2009 年 8 月 27 日付朝刊による）

注1 目が肥えている:よい物を見慣れていて、物の価値がわかる

注2 ぬくもり:あたたかい感じ

注3 感性:感じ方

注2 規格:基準

注2 粗悪品:粗末で質が悪い物

1 以前と比べ、消費者はどのように変わったか。

A 商品の機能や味を重視しなくなった。

B 商品の機能や味を重視するようになった。

C 商品の傷などの見え目を気にしなくなった。

D 商品の傷などの見た目を気にするようになった。

2 筆者は、消費者の意識の変化をどのようにとらえているか。

A 少しぐらい質が下がっても、安い方がいいと考えるようになった。

B ものに対する要求水準が下がって、どの商品にも価値を認めるようになった。

C 多少問題があっても、環境のために我慢するほうがいいと思うようになった。

D 今まで問題があると思われたものにも、違った価値があると思うようになった。

3 追いついてきたとあるが、企業がどうなってきたのか。

A 見た目にこだわらなくなった。

B 環境への責任の重さを感じ始めた。

C 消費者の厳しい目を意識するようになった。

D 消費者の意識の変化をくみ取るようになった。

問題二 つぎの文章を読んで、文章全体の内容を考えて、後の問いに対する答えとして最もよいものを、A・B・C・D から一つえらびなさい。

以前、花見をしている時に「桜の花は本当にきれいな＊（注1）正五角形だね」と言ったら、風情のない人だと笑われたことがあった。確かに、桜の花びらには微妙な色合いや形、

そして香りに加えて、散りゆく美しさがある。花を愛でる和歌や俳句は数限りないが、そのなかに「正五角形」という言葉が使われたことはおそらく一度もないであろう。科学者特有の美意識は、風流とはかなり異質なもののだと悟った。

科学において本質以外を切り捨てるためには、大胆な抽象化と理想化が必要である。桜の花びらのたくさんの特徴の中から「正五角形」という形だけを取り出すこと。これが抽象化である。実際に数学的な意味で完全な正五角形を示す花びらは少ないだろうが、そこにはあまりこだわらない。これが理想化である。

自然界で正五角形のような対称性を示すためには、必ず規則的な法則があるはずである。花の場合、品種によって花卉の回転対称性が遺伝子で決定されていることは間違いのないから、うまくこの遺伝子を突き止められれば、花の形を決める普遍的な法則が見つかるに違いない。このように、抽象化と理想化によって自然現象は単純に整理でき、普遍的な法則を見つける助けになる。

(酒井邦嘉 『科学者という仕事』 中央公論新社による)

4 筆者は、自分が笑われた原因はどこにあると考えているか。

- A 科学者らしくない趣のある表現で桜の花を褒めた点
- B 自分が桜の美しさを理解できていなかった点
- C 桜の花は自分が述べた形をしていなかった点
- D 桜の美しさを科学的な視点から表現した点

5 ここで理想化とは何か。

- A 桜の花はどれも正五角形であるとみなすこと
- B 桜の花には共通する特徴があるとみなすこと
- C 桜の花には数学的な美しさがあると考えること
- D 桜の花は他のどの花よりも正五角形に近いと考えること

6 筆者の考えによると、花の場合、抽象化と理想化によって何が期待されるか。

- A 花には品種を超えた共通点があることが明らかになること
- B 自然界に咲いている花の美しさに普遍性が見いだされること
- C 花の形がどのように決まるのがその仕組みが解明されること
- D 花の形の対称性が遺伝子によるものであることが証明されること

二、聴解

まず質問を聞いてください。それから話を聞いて、A から D の中から、最もよいものを 1 つ選んでください。

1 番

- A. しりょうをじゅんびする
- B. パンフレットを用意する
- C. めいしを注文する
- D. 電子じしょを買う

2 番

- A. 研究の背景をまとめる
- B. 研究目的を明確にする
- C. 調査結果を視覚的に示す
- D. 文法の間違いを直す

三、書く

1 番

あなたは以下の知識を勉強することがありますか？ある場合は「ある」に○を付けて、学んだものを記入してください。ない場合は「ない」に○を付けてください。

1. ジョハリの窓。

ある・ない

2. ステレオタイプ・偏見・差別の定義と違い

ある・ない

3. 価値観の定義は何ですか？普遍的な価値志向は何ですか？具体的に説明してください。

ある・ない

2 番

あなたは、異文化コミュニケーションをするとき、注意すべき点は何だと思いますか？より良いコミュニケーションをとるため、あなた自身はどのような準備、またはどのような心掛けをしたいと思いますか？300 字程度で記述してください。

事後テスト

1. 読解

問題一 つぎの文章を読んで、文章全体の内容を考えて、後の問いに対する答えとして最もよいものを、A・B・C・D から一つえらびなさい。

たとえば、「走る」ことは、一見単純で誰にでもできる運動ではあるが、「速く走る技術」となると、なかなか①身につけることが難しい。教えられたように走るフォームを改善することが簡単ではないからだ。

誰でもできる運動なのに、なぜその改善が難しいのだろう。

実は、普段慣れている動作ほど、その動作に対する神経支配がしっかりとできあがっているからだ。運動の技術やフォームを改善することは、その運動を支配する神経回路（注1）を組みかえることになるので、そう簡単にはいかない。

コーチは、腕の振り、膝の運び方、上体の前傾の取り方など、フォームを矯正（注2）しようと指導し、指導を受けるランナー（注3）も指摘された体の動きの修正に意識を向けてトレーニングするのが普通である。しかし、動作の修正には多くの時間と繰り返しが必要である、またその効果が上がらないことも多い。そして、トレーニングの効果が上がらない人は、「運動神経」が良くないということになる。

②この場合、運動技術の修正は、「運動の神経回路を修正する」ことであると考えることによって、解決の糸口（注4）がみつかる。

スポーツ技術や「身のこなし」（注5）の習得には、神経回路に直接的に刺激を与えるようなトレーニング上の工夫が必要である。

工夫をいろいろと重ねるうちに、「動作をイメージし、それを体感する」ことが、運動の神経回路を改善するのにきわめて有効であることがわかってきた。

（小林寛道 『運動神経の科学—誰でも足は速くなる』 講談社による）

（注1）神経回路（しんけいかいろ）:ここでは、神経をつなぐ仕組み

（注2）矯正（きょうせい）する:正しくなるように直す

（注3）ランナー:走る人

（注4）糸口:きっかけ

（注5）身のこなし:体の動かし方

1. 「速く走る技術」はなぜ①みにつけることが難しいのか。
 - A. 走るフォームは一度固定されると変えられないから
 - B. 走るフォームを指導する方法があまり改善されていないから
 - C. 走るための神経の仕組みはすでにできていて変えにくいから
 - D. 走るための神経の仕組みは他の動作とは違う特殊なものだから

2. ②この場合とはどんな場合か。

- A. 練習に十分な時間が取れない場合
- B. 練習の効果がうまく現れない場合
- C. 走り方の改善に集中できない場合
- D. コーチの指導が理解できない場合

3. 筆者によると、「速く走る技術」を身につけるにはどうすればよいか。

- A. 速く走る動きを頭に描いてその感覚を体で感じるようにする。
- B. 神経の仕組みに直接刺激を与えるためにいろいろな走り方を試す。
- C. 頭で考えるよりも、何度も練習を重ねて体で覚えるようにする。
- D. コーチの指導を受けながら走り方の修正に全神経を集中させて走る。

問題二

人間は、所詮、時代の子であり、環境の子である。わたしたちの認識は、自分の生きてきた時代や環境に大きく左右される。ある意味、閉じ込められているといってもいい。認識できる「世界」はきわめて限定的なのであり、時代や環境の制約によって、認識の鋳型（注1）ができてしまうから、場合によって、大きく歪められた「世界」像しか見えなくなることもある。わたしたちは、①そういう宿命を背負っているのである。

だから、「世界を知る」といいつつ、実は、偏狭な認識の鋳型で「世界」をくり貫いて（注2）いるだけということが生じたりする。鋳型が同じであるかぎり、断片的な情報をいくら集めたところで、「世界」の認識は何も変わらない。固まった世界認識をもつことは、「世界」が大きく変化する状況では非常に危険なことである。

一方、これほど情報環境が発達したにも関わらず、②「世界を知る」ことがますます困難になったと感じている人も増加している。果てしなく茫漠（注3）と広がり、しかも絶えず激動する「世界」が、手持ちの世界認識ではさっぱり見えなくなっているからだ。

たしかに、ただ漫然とメディアの情報を眺めているだけでは激流に呑み込まれてしまう。

いまこそ、時代や環境の制約から完全に自由になることはない。しかし、凝り固まった認識の鋳型をほぐし、世界認識をできるだけ柔軟かく広げ、自分たちが背負っているものの見方や考え方の限界がどこにあるのか、しっかりとらえな直すことはできるはずだ。

(寺島実郎『世界を知る力』 PHP 研究所による)

(注1) 鋳型 (いがた) :ここでは、画一化した型

(注2) くり貫いて:ここでは、切り取って

(注3) 茫漠 (ぼうばく) :広がりがあり過ぎて、はっきりしない様子

4. ①そういう宿命とはどういう意味か。

- A. 現代の人々は考えが時代や環境に歪められ、「世界」の見方が定まらない。
- B. 現代の人々は時代や環境の制約を受けており、「世界」が正しく見えないこともある。
- C. 人間はものの見方が時代や環境に縛られ、「世界」が正しく見えないこともある。
- D. 人間は生き方が時代や環境に大きく影響を受け、「世界」の見方が定まらない。

5. ②「世界を知る」ことがますます困難になったのはなぜか。

- A. 個人の世界認識が狭まり、実世界の時代の変化をつかみにくいから
- B. 個人の世界認識が固まらず、実世界の情報に惑わされてしまうから
- C. 個人の世界認識が、実世界の目まぐるしい変化や情報量に対応できないから
- D. 個人の世界認識が、高度に発達している実世界の情報環境に追いつけないから

6. 筆者は、「世界を知る力」を高めるためにできることは何だと考えているか。

- A. 今までの世界認識を改め、できるだけ多くの情報を得ること
- B. 時代や環境の制約を克服して、自分の世界認識の限界を越えること

- C. 情報の激流に呑み込まれず、自分の世界認識の枠から自由になること
- D. 自分の世界認識にできるだけ柔軟性を持たせ、その範囲を自覚すること

聴解

まず質問を聞いてください。それから話を聞いて、A から D の中から、最もよいものを 1 つ選んでください。

1 番

- A. 先生の都合を聞く
- B. ろんぶんをコピーする
- C. 勉強会の日を決める
- D. 教室を予約する

2 番

- A. 植物の土を変える
 - B. 牛のミルクの出方を調べる
 - C. 牛に名前をつける
 - D. 植物に名前をつける
-

四、書く

1 番

以下の概念を説明してください。

1. ジョハリの窓。
2. ステレオタイプ・偏見・差別の定義と違い
3. 価値観の定義は何ですか？普遍的な価値志向は何ですか？具体的に説明してください。

2 番

あなたは、異文化コミュニケーションをするとき、注意すべき点は何だと思いますか？より良いコミュニケーションをとるため、あなた自身はどのような準備、またはどのような心掛けをしたいですか？300 字程度で記述してください。

Appendix 4 The Review of CLIL studies (“√” means that this FPI element is included)

	Content	FPI														
		Problem-centered			Activation			Demonstration			Application			Integration		
		P1	P2	P3	A1	A2	A3	D1	D2	D3	AP1	AP2	AP3	I1	I2	I3
Escobar Urmeneta and Evnitskaya, 2014	The application of CLIL in cell curriculum		√						√					√		
Ennis, 2015	Learn English academic terms in CLIL course		√	√		√		√	√		√		√	√	√	√
Gené-Gil and Juan-Garau et al., 2015	Exercise of English writing ability in CLIL course															
Tavares, 2014	The Application of CLIL in middle school Mathematics curriculum															
Muñoz-Luna, 2014	Discussion on CLIL in higher education															

de Zarobe and Zenotz, 2015	Exercise of reading strategies in CLIL course					
Martin De Lama, 2015	College students' attitude towards CLIL course					
Roquet and Pérez-Vidal, 2015	Exercise of English writing ability in CLIL course					
González Gándara, 2015	Comparison of CLIL and non-CLIL courses in primary education					
Guillamón-Suesta, and Renau, 2015	Comparison of CLIL and non-CLIL, the effect of differences in gender on learning.	√				
Agustín-Llach, 2016	Effects of English vocabulary learning, gender discrimination on learning.					

Parera and Delgado, 2015	Practice of CLILs at university level.					
Arribas, 2016	Learning about vocabulary, attitude to CLIL.					
Leal, 2016	CLIL in science class in primary education.					
Rodenhouse r and Preisfeld, 2015	CLIL in biology class in secondary education.	√				
Sylvén, 2015	Comparison of CLIL and non-CLIL in higher education EFL.					
Gándara, 2015	Comparison of CLIL and non-CLIL in primary education.					
Dourda et al., 2014	CLIL in geography class in primary education.	√	√ √		√	√

Gimeno et al., 2010	CLIL for university industrial engineering			√		
Milla and Mayo, 2014	Comparison of EFL and CLIL in higher education.					
Zhyrun, 2016	Concerning listening materials of university					
Basterrechea and Mayo, 2014	Comparison of CLIL and EFL learning outcomes on listening and writing abilities.	√				
Beltrán, 2011	CLIL at university.	√	√	√		
Lázaro, 2012	Learning about linguistics theory in English class, comparing CLIL and non-CLIL.					
Binterová and Šulista, 2013	CLIL mathematics class in primary	√		√		

	education.					
Fitriani, 2016	College students' attitudes towards CLIL.					
Hernandez-Nanclares and Jimenez-Munoz, 2016	In secondary education, ICT is utilized in CLILs.			√		
Chansri and Wasanasom sithi, 2016	CLIL in university agriculture class in Thailand.	√				
Loranc-Paszylk, 2016	Distance CLIL at the university.					
Manzano, 2014	Comparison of CLIL and non-CLIL for lexical transfer in secondary education.					
de Lama, 2015	Graduate students' opinions on class design for CLIL.					
Tejkalova, 2013	On mathematics classes and					

	teacher training of universities.					
Lockley, 2015	CLIL in university in international history class in Japan.	√				
Núñez Asomoza, 2015	CLIL in EFL of high education in Mexico.					
Gimeno-Sanz et al., 2014	Supporting CLIL through ICT in secondary education.	√	√	√		
Surmont et al., 2016	CLIL in mathematics class in secondary education.					
Ouazizi, 2016	CLIL mathematics class in secondary education.					
De Diezmas, 2016	Effects on 4 EFL skills in primary education.					
Xanthou, 2011	CLIL in science class in primary	√	√			

	education.					
Pfenninger, 2014	The influence of age on second language learning.					
Gierlinger and Wagner, 2016	The effect of CLIL on vocabulary increase in secondary education.					
Binterová and Komínková, 2013	CLIL mathematics class in primary education.	√				
Donevska-Todorova, 2015	CLIL mathematics class in primary education.	√				
Lin, 2014	Using WIKI on CLIL in Taiwan.			√		
Fokides and Zampouli, 2017	Developed and practiced CLILiOP for primary education.	√ √		√	√	√
Marenzi and Zerr, 2012	After developing Learn Web 2.0, using it	√		√	√	

	in university.					
O'Dwyer and de Boer, 2015	On self-efficacy and cooperative learning in university.	√	√	√ √		√ √
Azkarai and Imaz Agirre, 2016	Study of second language learning for children.	√	√			
Cross, 2012	Practice of geography class, Japanese as target language in secondary education.					
Heras and Lasagabaster, 2015	Study of motivations for learning and gender differences in secondary education.					
Doiz et al., 2014	Research on motivation for learning in secondary education.					
Gablasova, 2014	The difference between using L1 and					

	L2 in secondary education.					
Llinares and Lyster, 2014	Difference between CLIL, FI, and JI in primary education.					
Pitura and Chmielarz, 2017	The gamification is applied to CLIL			√		√
Pérez Cañado and Lancaster, 2017	CLIL group has better ability to speak than non-CLIL					
Yang, 2017	Through CLIL, students' mobility ability have improved.					
Evnikskaya and Berger, 2017	CLIL students have a higher willingness to participate.					
Lin, and Lo, 2017	Build knowledge system through dialogue between teachers and		√	√		

	students.					
Agustín Llach, 2017	CLIL is more effective in vocabulary learning than non-CLIL.					
Otwinowska and Foryś, 2017	The effect of CLIL is related to cognition.					
Lin, and He, 2017	Translanguaging plays a positive role in CLIL.	√		√		
De Waard and Demeulenaere, 2017	In MOOCs and CLIL integrated classrooms, students are emboldened to communicate with others and more effective in social learning.			√		√
Griffith, 2017	From the perspective of teacher training, content and language experts work together.					

Titova, 2017	Through the integration of MOOCs and CLIL, it is proved that MOOCs can also be used in traditional face-to-face education.			√		
Gallagher and Colohan, 2017	L1 can be used as an auxiliary tool in CLIL.					
Kewara, 2017	The learning manual is helpful for teachers to complete CLIL.	√	√	√		
Yufrizal and Huzairin et al., 2017	CLIL math-English class has a good impact on English accuracy and fluency.	√				
Walenta, 2018	In CLIL students' learning of English parts of speech and sentence patterns					
Kääntä and	The					

Kasper, 2018	application of CLIL in physics class					
Ito, 2018	The application of CLIL in history class			√	√	√
Akbarov and Gönen et al., 2018	The application of CLIL in math class					
Kusumoto, 2018	Use mother tongue to assist learners	√			√	√
Crossman, 2018	In CLIL course of urban development, students' mastery of academic terms is emphatically	√		√	√	√
De la Barra and Veloso et al., 2018	College English class, the practice of oral English.					
Martyn, 2018	CLIL's application of Introduction to Contemporary Business in university	√		√		

Hüttner and Smit, 2018	The application of CLIL in the negotiation course of high school	√		√	√		√
Jakonen, 2018	The application of CLIL of Physics and British history		√				
Bellés-Calvera, 2018	The application of CLIL in music class in secondary education				√		
Salamanca and Montoya, 2018	The application of CLIL in nursing curriculum in higher education						
Ruiz De Zarobe and Zenotz, 2018	Application of CLIL in science in primary		√	√	√	√	√
Liu, 2019	Application of TBL in CLIL course	√				√	√
Cabezuelo Vivo and	The application of CLIL in high						

Pavón, 2019	school Math class					
Vega and Moscoso, 2019	Application of CLIL in tourism curriculum in higher Education			√		√
Nightingale and Safont, 2019	The Effect of CLIL class on Academic English learning in primary					
Billy and Garriguez, 2019	A discussion of bilingual education					
Valverde Caravaca, 2019	The application of CLIL in social nature					
Meyerhöffer and Dreesmann, 2019	The application of CLIL in biology class of junior high school					
Karimi and Lotfi et al., 2019	Application of CLIL in pilot training course					
Mede and Çinar, 2019	The influence of CLIL on students'					

	Motivation					
Guzmán-Alcón, 2019	Application of CLIL in mathematics is Spanish					
Basterrechea and Leeser, 2019	The Application of CLIL in Mathematics					
Ito, 2019	The application of CLIL in physical of junior high school	√		√	√	√
Meyerhöffer and Dreesmann, 2019	Application of CLIL in biology curriculum of Junior high School					
Borràs and Moore, 2019	The Application of CLIL in chemistry course					√
Estrada and Otto, 2019	The application of CLIL in primary Education					√
Wu and Lin, 2019	The application of CLIL in			√	√	

	biology class in junior high school					
Aldrup, 2019	CLIL's Application in high school Geography					
Lahuerta, 2020	CLIL's Application in high school Geography					
Lamb and King, 2020	The application of CLIL in PE courses whose target language is French		√	√		√ √
Huang, 2020	Application of CLIL in science curriculum of Junior High School					
Numbers		2 5 3 2	5 8 0	7 4 2 3	7 0 2	15 5 2
Total		3 0	13	3 4	9	2 2

*P1: Show task, P2: Task level, P3 Problem progression; AC1: Previous experience, AC2: New experience, AC3: Structure; D1: 1Consistency, D2: Learner guidance, D3: Relevant media; AP1: Practice consistency, AP2: Diminishing coaching, AP3: Varied problems; I1: Watch me, I2 Reflection, I3: Creation

Appendix 5. Evaluation issues

1. how many years have you been teaching Japanese? How much experience do you have teaching Japanese? 2.

2. what are the main subjects you teach or have taught in the past?

3. do you think it is important to emphasize the application of the language when teaching Japanese?

Very much

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Very much I don't think so

How much time do you give to applying Japanese (group discussions, presentations, role-plays, etc.) in class? (90-minute class)

5. do you have any experience studying instructional design?

Yes/No

5-1. if you answered "Yes" in 5.

How did you study instructional design?

1. academic book

2. online course such as MOOC

3. graduate school (master's program) 4. graduate school (doctoral program)

Graduate school (doctoral program) 5.

5. research student/degree student in graduate school 6. other ()

6. other ()

6. in what form is Japanese taught?

Face-to-face (multiple students) Online (multiple students) Face-to-face (1 student) Online (1 student)

Evaluation items (5 levels)

1. items on the checklist include instructions regarding the design of class content.
2. if the teacher designs the class to include all items on the checklist, students will be able to achieve the learning objectives of the class content.
3. the checklist contains instructions regarding the design of learning and application of the target language
4. if the teacher designs the lesson to include all items on the checklist, students will achieve the language learning objectives.
5. the checklist provides instructions on how to conduct group activities
6. the items in the checklist can be used to design group activities that allow students to actively engage in discussion
7. the checklist items include instructions that encourage students to think (i.e., to think about how to apply what they have learned to solve a problem)
8. lessons designed through this checklist can make full use of the content knowledge and language skills acquired by the learners.
9. The checklist emphasizes the importance of real-world problems.
10. The checklist emphasizes the relevance of each lesson and emphasizes that each lesson problem has a single story line throughout the entire lesson.
11. The checklist emphasizes that the difficulty of the problems should be from easy to difficult.
12. The checklist explains how to reinforce the connection between what has been learned and new knowledge.
13. The checklist considers both language and content when describing the connection between old

and new knowledge.

14. The checklist emphasizes that the examples given are relevant to the real world.
15. The checklist emphasizes that appropriate examples are given, taking into account both language and content.
16. The use of support tools (worksheets, ICT, etc.) is explained in the checklist.
17. The checklist includes a description of the application of what has been learned (including both language and content).
18. The checklist emphasizes the importance of group activities and describes support for group activities.
19. Meaningful output (speaking and writing) in the target language is emphasized in the checklist.
20. The need for feedback on students' questions is emphasized in the checklist.
21. The checklist suggests applying the language and content knowledge learned in the real world.
22. The statements in the checklist are simple and easy to understand, and lessons can be designed based on the statements.

Interview Questions

Questions for Japanese language teachers

What do you think is important to emphasize when designing a CLIL class? Do you think you can use this checklist to design what you want to emphasize?

Ask supplementary questions, contrasting with the results of the questionnaire.

Questions for ID experts

What do you think are the most important points to pay attention to when using FPI theory in class design? Why do you think we need to pay attention to these (these) points? Do you think these points are addressed in this checklist?

Ask supplemental questions, contrasting the results with the results of the questionnaire.

Appendix 6. Basic Japanese in China, Curriculum and Assessment for Intercultural Exchange Programs

Basic Japanese Language Course

Course Objectives

To solidify the learner's basic knowledge, form a comprehensive and systematic knowledge base, and lay the groundwork for top and bottom roles and subsequent intermediate and advanced learning phases.

Evaluation Criteria

The full score is 100 points.

- 1) Assignments will be worth 50% of the total grade. The grade will be the average of all assignments, with zero points given for failure.
- 2) Mid-term/final examinations are 20% of the total grade
- 3) Class participation accounts for 30% of the total grade

The grade for this course is 60 points.

Final Examination

The final exam for this course consists of four major questions: single choice, multiple choice, decision, and fill-in-the-blank questions. There will be 20 single-choice questions with 2 points each, 10 multiple-choice questions with 3 points each, 15 judgment questions with 1 point each, and 15 fill-in-the-blank questions with 1 point each. The question paper is worth 100 points.

Sample questions are as follows 単一選択問題

1. おなかがすいていたので、料理を 2 人分食べて 。
A.しまった B.おいた C.いた D.あった
2. 国に生まれ育ちましたから、愛しているに決まっています。
A.この B.その C.あの D.どの

多肢選択問題

1. 日語的词汇主要由以下哪几类词组成？
A.和语词 B.汉语词 C.外来语 D.混种语

訳：1.日本語の語彙は主に次のどれから構成されていますか？

A. 和単語 B. 漢字 C. 外来語 D. 混合語

判断問題

1. 現代日本語中の形容词和形容动词没有命令形。

正确 错误

訳：現代日本語の形容词・形容動詞には命令形がない。

正解 誤解

穴埋め問題

1. あの子はお父さんによく似て(1)。

Intercultural Communication - Focus on Speaking (English)

Course Objectives

To improve students' practical English language expression in intercultural communication situations and enhance their speaking skills.

To help students understand the tensions arising from cultural diversity, cultivate discursive cultural self-awareness, and enhance intercultural communication skills.

Help students challenge their self-concept, re-examine cultural differences, and become more confident, inclusive, and competitive global citizens.

Assessment Criteria.

The full score is 100 points.

1) Assignments account for 40% of the total grade. The grade will be the average of all assignments, with zero points given for failure to complete an assignment;

2) Mid-term and final examinations will account for 20% of the total grade;

(3) Class participation will account for 30% of the total grade;

(4) Class discussion accounts for 10% of the total score; (5) Participation in class discussion and answering 8 times will earn full points;

A grade of 60 is required to pass this course.

Final test

Based on your reading, engage in a discussion with fellow learners by sharing your thoughts and insights on the following questions:

- 1.How do you understand Mike Lazaridis's role in the case of Blackberry's rise and fall?
- 2.Adam Grant thinks and interprets Blackberry's rise and fall in a unique way. What does he need to do to keep having these interesting new ideas?
- 3.Back to the quick questions in 5.1.2, what is your answer now to the question "What is most important for a technology company to do to keep up with fast changes in technology? " Did your answers change now? Why or why not?

Get involved in the comments section and exchange ideas with your peers.

Instructor guidance

For question 1:

The purpose of incorporating Adam Grant's analytical perspective in the lecture is to guide you in exploring the interplay between technological advancements, changing communication patterns, evolving lifestyle needs, and even personal attitudes. This discussion question is designed to prompt you to consider how technology is influenced by human requirements, communication preferences, personal choices, and ultimately its impact on society as a whole. By examining these factors, we can gain insights into a more complex relationship between technology development and human behavior.

For question 2:

It is important to note that Adam Grant shifts his perspective away from the market and business aspects and focuses on Mike Lazaridis' role and mindset. From a cognitive standpoint, Grant explores Lazaridis' attitudes toward alternative hypotheses in decision-making. From a cultural perspective, he examines Lazaridis' overconfidence in BlackBerry as an identification with a business elite culture. While using these reasons to explain BlackBerry's failure may be somewhat biased, our emphasis here is on the innovative aspect of Grant's perspective. Such diverse perspectives and innovative thinking abilities are part of our goals in foreign language learning. This includes actively seeking out diverse perspectives, questioning assumptions, challenging existing paradigms, and actively seeking opportunities for creative and unconventional thinking. These skills are essential for developing critical awareness in intercultural communication. To answer question 2, consider how we can cultivate this awareness in our daily English learning experiences.

For question 3, it is perfectly fine whether your response changes or not. The goal of this discussion is to foster an open attitude that is tolerant of multiple perspectives.

CLIL Course

Course description

This course aims to give students the opportunity to read, learn about and discuss literature written in English. During the course students will be expected to use English in the classroom and there will be a final written assignment. Unlike most EFL or ESL courses, the content teaching of the course will be as important as the English. This means that the content of the discussions on the work or works of literature will be as important as the actual English that is used to discuss the work.

During the course students will be expected to research the history, geography and culture of various countries in order to better understand the work. We will build on your knowledge of different approaches to literature and use a combination of these to approach the works we are reading. There will also be practice and development of the language and skills you have learned which are

necessary for communicating meaningfully in discussions in the classroom and in writing essays and reports at home. Therefore instruction will include work on conversational/seminar strategies as and when needed. In any one lesson the skills you practise will be integrated. This means you will listen or read and then use what you have learned to discuss or write or do both.

Class preparation will therefore include reading, journal writing and vocabulary building as well as research on historical, geographical and cultural elements related to the works we are reading.

Evaluation

Attendance 20%

Class participation 20%

Report 30%

Exam 10%

Others (in detail): 20%

The grading policy at Sophia University is as follows: A (100-90), B (89-80), C (79-70), D (69-60), F (below 60).

- Mini-Presentation 1
- Mini-Presentation 2

- Final Essay

- Exam

Mini-Presentation 1

Based on the Generations and Genres we looked at in class, you will prepare a short, informal, 5 minute speech about one particular genre, or talk about a single book which fits into one of those genres.

Mini-Presentation 2

This presentation will be connected to your final essay. You will explain which work you have chosen, why you have chosen it and outline what you intend to research for your essay.

Final Essay

For the final essay you will write 1,000 words about one of the books, poems, stories, authors or genres that we have looked at in the class. This essay will explain the piece descriptively and then offer some analysis about what you feel is a central issue to the work.