Interdepartmental Collaborative Lesson Research (CLR) in a Japanese University

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Lesson study (*jugyō kenkyū*) has unique benefits for both students and teachers, and it is one means of addressing what McKinley (2022) described as the teaching-research nexus. In this article, we provide details of our ongoing lesson study project in a Japanese university to demonstrate this. First, we review the theoretical background of lesson study and explain Collaborative Lesson Research (CLR), a particular form of lesson study which guided our project. Then, we explain how and why our group was formed. For our project, the research theme has been the implementation of active learning approaches to lead EFL students to develop a clearer and more critical understanding of course material in English. Then, we explain the process of our project, discuss key teacher learning, and present preliminary evidence of student learning. In doing so, we highlight the strengths and benefits of CLR and suggest additional key elements of effective projects.

授業研究は、学生のみならず教員にとっても有意義な経験をもたらし、それはMcKinley（2022)が提唱する教育と研究の関連性を扱うひとつの方法でもある。本論では、本学で現在進行中の授業研究プロジェクトを紹介することを通じこの関連性を提示する。まず、授業研究の理論的背景を概観し、授業研究における特定の形態である共同的授業研究（CLR）を説明する。さらにこのプロジェクトを実施することになったグループ形成に至る経緯を説明する。我々のCLRプロジェクトのテーマは、アクティブ・ラーニングのアプローチを通じ、英語の課題を明確かつ批判的にEFLの学生が理解できるように促すことである。次に、我々のCLRプロジェクトの過程、それに参加した教員の学び、そして学生の学びの初期段階の証拠を提示する。この試みを通じ、CLRアプローチの強みと有益性を強調しつつ、効果あるプロジェクトの鍵となる追加的要素を提案する。

In Japan, lesson study (*jugyō kenkyū*) has long been used in compulsory education with the aim of improving teaching and learning (Takahashi & McDougal, 2016). In essence, it brings together a group of teachers to investigate and design a lesson, which is then developed to meet a shared learning goal. The lesson is normally taught by one of the group members, observed by colleagues, and followed by analytic reflection, revision, and dissemination of a reflective report (Fernandez, 2010). As an inquiry-based approach to professional development, lesson study is grounded in the principles of action research (Cohen et al., 2011). In higher education, this is one means of addressing what McKinley (2019, 2022) described as an emergent gap between teaching and researching. McKinley (2022) observed that educational policies and structures in higher education have contributed to a growing emphasis on research-informed teaching, as opposed to teaching-informed research, leading teachers to disengage from research literature which is increasingly seen as out of touch with real teaching issues. The role of lesson study in the teacher-as-researcher movement is further underscored by Calvo et al. (2018):

> [Lesson Study promotes] educational improvement from the "bottom-up" through the development and exchange of professional knowledge about teaching. It promotes professional development directed by questions or dilemmas..., led by the participants (not by external experts) promoting reciprocal relationships between teachers (non-hierarchical) and researching their own practices. (p. 125)

Thus, an important feature of lesson study is the bringing together of teachers, irrespective of position and status, for the mutually beneficial purpose of conducting professional development that is immediately relevant to their teaching context. Institutional cultures of teaching can hinder the extent to which teachers are able and willing to engage in frank and constructive dialogue about their pedagogical beliefs and practices (Karlsen & Helgevold, 2019). Nevertheless, to better understand classroom experiences and overcome shared challenges, raising awkward questions, confronting real teaching issues, and discussing the dilemmas many teachers face seem both desirable and unavoidable (Lewis & Tsuchida, 1999).

Lesson study has been the predominant form of professional development in Japan for more than a century (Takahashi & McDougal, 2016). In both pre-teacher training and continuing in-service teacher development, lesson study provides opportunities for collaboration within a professional culture and community (Isozaki & Isozaki, 2011). Over the last few decades, however, lesson study has extended beyond Japan to a variety of international contexts (e.g., Arslan, 2018, Turkey; Calvo et al., 2018, Spain; Dudley, 2012, the United Kingdom; Rock & Wilson, 2005, the United States), with many studies conducted in compulsory education. In such contexts, differing interpretations of lesson study have emerged with varying degrees of effectiveness. Based on their research in Japan and the United States, Takahashi and McDougal (2016) identified a number of institutional structures and practices that can maximize the effectiveness and impact of lesson study. They introduced a new term, Collaborative Lesson Research (CLR), which encapsulates these structures and practices in terms of six key components:

A clear purpose or research theme. This should reflect a teaching-learning problem that transcends individual classes, courses, and subjects. In this way, the outcomes of the CLR project will have broader application within the teachers' institution, potentially attracting new members in future projects. The research theme should specify a clearly desired learning outcome for the lesson and concrete goals for achieving that.

Lesson research. Group members come together to brainstorm initial ideas for the lesson. After which, they independently research educational literature, teaching resources, or student tasks and activities that might contribute to the design of the lesson. It is crucial to allow sufficient time here as this is where teachers step outside their comfort zone, uncovering new ways to teach.

A lesson plan. The group members meet and devise a lesson plan. This should explain the course curriculum, what was learned from their lesson research, instructional details of the teaching-learning plan, and how the lesson will address the research theme and goals.

A research lesson and post-lesson discussion. The research lesson is taught by one of the group members and observed by the rest. Observers collect data on how the lesson impacts the students, relative to the research theme. In the subsequent discussion, project participants share data and consider its implications, especially with respect to the research theme and the design of future lessons.

A knowledgeable other. Takahashi and McDougal (2016) emphasize the importance of having a *knowledgeable other* on the project team. That is, a person who can expedite and guide the research and planning stages by identifying appropriate educational articles, resources, and student tasks. In the post-lesson discussion, they help connect the lesson and its outcomes to broader issues in pedagogy.

Dissemination of results. Collaborative Lesson Research (CLR) is not intended just for the development of the group members, but for promoting the improvement of teaching and learning more broadly in the institution. Thus, CLR should include a structure or process for disseminating what is learned from each research lesson to the wider community.

As Takahashi and McDougal's (2016) conceptualization of lesson study guided our research project, in the remainder of this article we will use the term CLR. While CLR is one means to address a trend toward the bifurcation of teaching and research (McKinley, 2022), it has certain limitations. CLR, as a form of lesson study, is closely aligned with the tradition of case-study action research. The majority of publications in the *International Journal for Lesson and Learning Studies* support this. Accordingly, there is the potential for collecting classroom data through either qualitative, quantitative, or mixed-methods research. However, CLR is not normally experimental in design nor does it prioritize the gathering of large, quantitative data sets. As such, its findings are not always replicable nor generalizable beyond the immediate context. Nevertheless, the strengths of CLR are that it is problem-solving oriented and tailored to a specific context of teaching-learning. Was an activity ineffective because it did not match the students' language level; or were the students particularly inattentive because it was the last period on Friday? Teachers often have hunches about answers to such questions. CLR helps them test if their intuition is correct. More importantly, the collaborative nature makes it easier for teachers to learn about recent developments in the field, encouraging them to diversify their methods and attempt implementations in their classrooms. In the end, CLR is not always about filling gaps in the research literature or contributing directly to theoretical debates in the discipline. We argue its value lies in a focus on the needs of specific students and teachers in a particular environment, thereby improving the teaching-learning experience, and raising self-awareness of what actually happens in their classrooms. It demonstrates how every class they teach can be an experiment.

When considering possible research themes for a CLR project in our higher education context of teaching-learning, one that was immediately relevant to us was how to implement active learning. This approach has been encouraged at every level of education in Japan. The *Keidanren* (Japan Business Federation, representing 1,494 companies, nationwide industrial associations, and regional economic organizations) has repeatedly pressed the Ministry of Education, Culture, Sports, Science and Technology-Japan (MEXT) to improve instruction in Japanese universities to enhance students' independent thinking skills, problem setting and solving capacity as well as teamwork abilities (Keidanren, 2018, 2022). Toward this goal, the Keidanren has urged institutions of higher education to overhaul the traditional one-way lecture style by introducing active learning and implementing a more transparent instructional environment. For the purposes of this article, we have defined active learning as a pedagogical methodology that transcends individual teaching techniques and lesson activities, engaging students at various levels (i.e., cognitively, emotionally, and behaviorally) and encouraging them to become proactive in the learning process (Ito, 2017).

This article presents a preliminary report on an interdepartmental CLR project at a private women's university in Yokohama, Japan. The project builds upon a previous one in which three of the current authors explored implementing active learning in a class of more than 100 students (Underwood et al., 2020). In the current project, two subject teachers (politics and Japanese art history, respectively) and two education specialists worked collaboratively to research, plan, teach, review data collected, and analyze one of each of their classes which was taught in English. Our focus was the implementation of active learning in smaller-sized university classes (fewer than 20 students), with the goal of students developing a clearer understanding of course material, leading to the successful completion of critical thinking tasks/activities. This article presents a preliminary discussion of one of the four classes, a sophomore English class in the Department of Early Childhood Education and Care (Appendix A). We then illustrate how each of Takahashi and McDougal's (2016) six components were realized to varying degrees and discuss teacher and student benefits and learning that arose from our project. In addition to the six components, we discuss other elements that we observed to be instrumental in our project. This project contributes to a small, but growing, body of CLR work in the context of higher education and could encourage other educators to initiate their own collaborative projects.

Our Current CLR Project: Benefits and Learning

This project began in May 2021, and participation has been voluntary, with no hierarchy. The purpose, direction, and process were agreed upon by all members. As busy, full-time university faculty members, with some of us having experienced burnout, we saw CLR as a way to maximize our efforts in improving our classes. Given our past dissatisfaction with previous top-down projects, we could all see the potential for it targeting our individual needs.

Since May 2021, we have met once a month for 40-90 minutes, taking turns writing up the meeting notes (which included the discussion, decisions, and action points). There has been minimal, regular preparation required outside of meetings. In addition, individual lesson research and planning completed in preparation for meetings have connected directly with our regular teaching tasks.

A Clear Purpose, or Research Theme, May-July 2021

We started by discussing aspects of our classes with which we were most dissatisfied. Common themes included plagiarism and ways in which students had inadequately completed classroom tasks and assignments. This led us to question why these behaviors were occurring and how to remedy them, suspecting they could be related to students' lack of critical thinking skills and limited knowledge base. Thus, attending to students' thinking and analytical skills more closely in our classes was a common area of interest. The research theme was to explore ways of implementing active learning. The shared desired outcome was for the students to develop a clearer understanding of course material, leading to the successful completion of critical thinking tasks/activities. Specific lesson goals varied according to each member's lesson. Having a research theme that was mutually relevant and the chance to investigate it in a context-specific manner in each of our classes increased the probability of significant, deeper insight into students' learning. This increase could, in turn, strengthen our effectiveness as teachers.

Lesson Research and a Knowledgeable Other, May-July 2021

The literature examining critical thinking skills in education is vast. Therefore, we needed a common analytical framework and vocabulary for our discussions and agreed that Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001; Krathwohl, 2002) would be useful. In particular, we used it to pinpoint gaps in students' use of these skills in our research lesson tasks/activities. We explored the relationship between the knowledge and cognitive process dimensions that was proposed by Anderson and Krathwohl (2001). For

example, we each explained ways we attend to the revised taxonomy's cognitive process dimensions of *analyzing*, *evaluating*, and *creating* in our classes. In addition, the need for students to grasp *factual knowledge* (knowledge dimension) and demonstrate they *remember* it by *recognizing and recalling,* and *understanding* (cognitive process dimensions) was discussed (see Table 1, which is explained further below). Furthermore, we examined ways that these skills can be facilitated by interaction between the teacher and students and among students themselves.

This lesson research provided opportunities to learn about others' content subjects, teaching techniques, and challenges. In this way, we had all been a *knowledgeable other*, providing information and insight drawn from each one's educational background, specialty, research interests, and teaching experience (see authors' Bio Data) to create a non-hierarchical, rich exchange of ideas and information.

A Lesson Plan, September 2021-November 2022

To maximize teacher learning, we agreed that a multiple case-study approach was appropriate. We each chose one class session from among the courses we taught as a research lesson and then planned, taught, and collected data from it (Appendix A). Originally, the project was to span one academic year. However, when faced with the demands of reverting to online teaching in the fall of 2021, we decided to extend the lesson planning through the second semester and conduct the research lessons in 2022. This extension had the added benefit of our being able to incorporate adjustments from the lesson planning into our 2022 syllabuses.

The planning was done in two phases. First, each member had one session to explain their lesson in detail and for the other members to make clarifications and suggest improvements. Later, each had time to describe their revisions and consult with the others about their proposed methods of data collection. We also reviewed research ethics, including informing our institution of our research plans and gaining students' informed consent via a written project explanation and consent form in Japanese.

During these sessions, we focused on deeply understanding each lesson plan and offering suggestions for improvement. In other words, it was as if we each had our own dedicated support group, containing people with different areas of valuable expertise. Everyone had ample chances to speak and be taken seriously. In such an environment, suggestions arose to improve each lesson in multiple ways. More importantly, each person had the freedom to creatively modify a suggestion to fit their specific context. At times, a suggestion was even the catalyst for a major overhaul of the plan. This atmosphere, with its creative challenge and clear focus on improvement, was refreshing because of the freedom we had in suggesting adjustments enabled by the bottom-up format. Furthermore, we each could hone our problem-solving skills through the process.

The benefits of this process can be seen in the revisions to the Department of Early Childhood Education and Care research lesson (Appendix A). The students' task was to select a chart or graph from the University of Oxford's Our World in Data website (https://ourworldindata.org) and then prepare to orally present key information from it to small groups of listeners. These listeners took notes and then wrote summaries of the presentations for homework. This task was quite challenging, as the EFL students needed to deal with unfamiliar terminology and concepts, select key information from the graph to present, understand and explain relationships between various pieces of data, make inferences based on the data, etc. By doing this in English, these tasks engaged them in using multiple skills in both the knowledge and cognitive process dimensions of Bloom's Revised Taxonomy (see Table 1). The specific research questions were: "What do students have the most difficulty with in understanding the content of the graphs and in expressing this in English" and "How can the teacher better support their use of English in this task?".

Table 1

Areas of Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001) Addressed in One of the Lesson Plans

	Cognitive Processes					
Knowledge Dimensions	1. Remember	2. Understand	3. Apply	4. Analyze	5. Evaluate	6. Create
A. Factual	X	X	X	X		
B. Conceptual	X	X	X	X	X	
C. Procedural				X		
D. Metacognitive	X	X				X

The previous lesson plan contained an outline for students to use when preparing their presentations (Appendix B). Suggestions for improvement included introducing key vocabulary in the presentation and enhanced teacher guidance for students in helping them explain more precisely the data selected from the graph. To increase students' level of engagement, the presentation format was changed to an interactive one, where audience members asked set questions that the speaker answered in the course of the presentation, for which a worksheet was prepared (Appendix B). The listeners also had a similar note sheet, where they were asked to record the presenter's answers for later use in their summary writing. Thus, the task was modified in several ways, which increased the probability of students being able to smoothly complete it as desired.

A Research Lesson and Post-Lesson Discussion, June 2022-Present

The next step was to teach our revised research lessons and collect data, which was completed in November 2022, though post-lesson discussions have not been finished yet. As mentioned before, every class session can be seen as an experiment. However, because teachers must attend to many tasks simultaneously in the classroom, they are not always able to collect data easily and analyze each class deeply. A benefit of CLR is the chance to systematically examine targeted aspects of teaching and student learning in depth, from which the insights gained may also be used to improve future classes.

One benefit of focused classroom data collection is that information about student learning can be immediately spotted and further adjustments are quickly undertaken. For example, in the class described above, 7 of the 13 class members misunderstood Question 3 on the worksheet, *What does this graph show?* (Appendix B). This was then addressed and corrected before their presentations, further ensuring successful completion of the task. Taking such action can increase teachers' confidence in their ability to solve problems quickly and effectively. The results of questionnaires can also give instant insight into students' perceived learning, as with the post-class questionnaire Item 4, *I learned new, interesting information from explaining my graph and listening to and writing summaries of my classmates' explanations of their graph,* to which all students (N = 13) reported they either *Strongly agree* (n = 2), *Agree* (n = 4), or *Agree a little* (n = 7) with the statement. This suggests that students found this activity intellectually stimulating and that they believe they have increased their knowledge. Such responses are an indication of their increased self-knowledge, included in the *metacognitive knowledge* category in Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001).

Heightened, yet informal observation of students and their behaviors in the research lesson can also be useful. For example, the students' ingenious use of online language tools in various ways to complete the task was observed, which triggered new questions. Also, student engagement could be clearly assessed by seeing students' surprised faces when the bell rang while still engrossed in the task, as this was a Friday afternoon class, and they are usually tired and have quit working long before then. We look forward to completing the post-lesson discussions and gaining more such insights.

Dissemination of Results, October 2022-Present

Though we have not fully completed this CLR project cycle and much data analysis and post-lesson discussion remain to be done, this article is the third chance we have had to disseminate information about our project. The first was in a group presentation for a Faculty Development (FD) session in our university in October 2022 and the second in a poster presentation at JALT2022 in Fukuoka. Preparing for these has forced us to recall and review what we have accomplished and reminded us of what is left to be done.

We also have received feedback and comments from others about these presentations to further stimulate us. For example, many of the written comments after our FD presentation revealed that other teachers in our university wanted to know more details about the actual classes, data collection, and research results. This was motivating in that it has made us become eager to finish the final steps of post-lesson discussion and further dissemination of our respective results. Furthermore, many people who viewed our poster presentation commented that our project was actually focused on developing faculty and was not merely an FD presentation given by an external company done to satisfy MEXT requirements, as can be the case in Japan at the university level. This suggested that CLR projects could be less common in tertiary education, thus encouraging us to share our experience further.

Other Elements for Success of a CLR Project

In addition to Takahashi and McDougal's (2016) six components for successful CLR, several other elements arose from this project that we thought were essential for its success and could apply in other contexts. One was the voluntary nature of membership in the group. This ensured that we all were invested, focused, and committed. We had freely chosen to participate; we were not forced or required to do so. We each had equal input and control of the project's direction. We chose to participate and continue our

involvement because we could clearly see the potential value it could have for us as teachers, for our students, and for our personal development.

The second was a flexible schedule. We were able to carry out the project satisfactorily in part because the time commitment was not a burden, and we could adjust the schedule as various circumstances arose. In our case, we did not have a research budget that had to be accounted for during a specific time period, either, so it was easy to adjust the schedule to our needs. In fact, enough free time, not money, may be more essential for carrying out such a project.

The third and final element was the atmosphere of respect for other members and the attentiveness and support given to each other in our meetings. We are diverse in cultural background, age, gender, languages spoken, education, teaching experience, and research interests, yet everyone had a chance to speak, and what they said was taken seriously. Anything that was not clear was freely questioned, and all were open to new suggestions and perspectives. The focus was on troubleshooting, not competing with each other or convincing others to teach using any one specific method. This created a rich exchange of knowledge and ideas, and the experience has been energizing.

Conclusion

The CLR process has given us a structured and collaborative environment with inbuilt feedback opportunities to further our development as teachers. While our project is now in the final stages of analyzing and interpreting lesson data, thus far, we can say it has helped broaden our pedagogical knowledge and reflect more deeply on what kind of learning experience we create for our students in the context of specific courses. It has helped us experiment with, assess, and, most importantly, improve that experience. In addition, it has encouraged us to experiment more effectively with how we teach other courses.

The largest benefit for us as teachers, especially those of us who have little formal pedagogical training, was the intellectual exchange with others. We were able to learn about each other's diverse pedagogical philosophies, distinct teaching styles, and methods of assessing student learning. In this way, we became more self-aware as teachers and more willing to experiment and address the problems we faced with confidence.

Being in such an environment was refreshing and also could have lessened the likelihood of burnout. In fact, even informal chances for a frank discussion of problems among professionals who often must make crucial decisions quickly and alone can do this (see Bleed & Humikowski, 2022, for a discussion in the field of healthcare). However, to create such an atmosphere, a level of mutual trust, genuine interest, and kindness between participating teachers is most likely necessary. From our experience, the potential benefits of CLR for teachers' well-being are an area for further exploration. Thus, CLR holds a valuable place in the teaching-research nexus.

Bio Data

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Appendix A

Research Lesson Plan Summaries of Group Members

Department of Early Childhood Education and Care, English Lesson

Course:

Sophomore English AII (Speaking and Listening), Intermediate level, 14 students

Content-based themes: Children's human rights and issues involving them

Main task:

Using the Our World in Data (https://ourworldindata.org) website to select, summarize, and explain key information from a chart or graph in English

Areas of Bloom's Revised Taxonomy targeted:

Knowledge of Terminology; Knowledge of Specific Details and Elements; Knowledge of Classifications and Categories; Recognizing; Recalling; Interpreting; Summarizing; Comparing; Explaining; Differentiating

Specific research goal/question:

What do students have the most difficulty with in understanding the content of the graphs, and in expressing this in English? How can I better support their use of English in this task?

Methods of data collection:

Pre-class and post-class questionnaires, pre-class written preparation assignment, in-class audio recordings of group discussions, post-class written summary of discussion assignment

Department of Social Sciences, English Lesson

Course:

Freshman English (CLIL with a focus on Speaking/Listening), High level, 7 students

Content-based theme: Concepts of nationalism

Main tasks:

Using their understanding of nationalism concepts to classify country/regional case studies, and presenting/explaining that classification to peers

Areas of Bloom's Revised Taxonomy targeted:

Knowledge Dimensions: Factual, Conceptual, and Metacognitive. Cognitive Processes: Remember (Recognizing and Recalling), Understand (Classifying, Interpreting, Summarising and Explaining), Analyze (Organizing), Evaluate (Checking and Critiquing)

Specific research goal/question:

Subsequent to the study of nationalism concepts through reading passages, to what extent do case studies facilitate and deepen students' understanding of those concepts?

Methods of data collection:

Pre- and post-class tests on concepts of nationalism; in-class tests on case-study facts; and pre- and post-class self-evaluation questionnaires on student understanding of nationalism concepts

Department of International Communication, Content Subject Lesson

Course:

Kiso Seminar Women & Art (sophomore), 12 students, Week 7

Content-based theme:

Kim Hyeshin "Images of Women in National Art Exhibitions during the Korean Colonial Period" (Japan's Orientalism Towards Colonial Korea)

Main task:

Discussion of the text & looking at artworks

Areas of Bloom's Revised Taxonomy targeted:

knowledge, comprehension, application, analysis, evaluation, creation

Specific research goal/question:

How are the students able to apply the ideas from the reading to discuss the artwork? What support/scaffolding do they need to do this more successfully in English?

Methods of data collection:

Pre-class written assignment, in-class audio recordings of group discussion and the whole class, post-class written assignment, interviews with selected students

Department of Social Sciences, Content Subject Lesson

Course:

English for World Affairs A&B - Textbook *50 Things That Made the Modern Economy* by Tim Harford (2017)

Content-based theme:

Gain social science understanding of knowledge

Main task:

To understand the social and economic functions of 50 "things", and to familiarize students with basic economic and social concepts

Areas of Bloom's Revised Taxonomy targeted:

Lower: accumulating and comprehending knowledge and information. Higher: applying, analyzing, evaluating and creating knowledge

Specific research goal/question:

How understanding moves from lower to higher knowledge

Methods of data collection:

Pre-class written assignment (a 200-word summary in English); and a post-class written assignment (a 400-character opinion essay in Japanese)

Appendix B

Revision of Department of Early Childhood Education and Care Research Lesson Plan

Previous Outline for Student Presentation of Graph

I was interested in the topic of _____ so I have chosen to explain the (map, chart, graph, table) called _____ (add title) _____. This (map, chart, graph, table) shows the relationship between _____ and _____. From this information it can be seen that _____. Also, it shows that _____ (Summarize at least 2 pieces of key information from the chart or graph you have chosen here)

This information is interesting for me because… One thing that surprised me was… I also have some new questions after seeing the data. One is…

New Worksheet for Student Presentation/Discussion of Graph

1.

Q: What topic were you interested in and what is the title of the graph you chose to explain?

A:

2.

Q: What are some important words I need to know to understand this graph?

A:

1)

2)

3)

3.

Q: What does this graph show?

A: This graph compares:

1)

2)

and

3)

4.

Q: Which countries did you focus on?

A:

5.

Q: What interesting facts did you find? (Say 3 points)

A: From this information it can be seen that:

1)

2)

3)

6.

Q: What is your most interesting point on this graph?

A:

7.

Q: Why is this information interesting for you?

A:

8.

Q: Do you have any new questions?

A: