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Report on the Development and Pilot of a Moodle-Based Teacher Research Training Project

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1. Introduction

While research might not traditionally fall under a language teacher's regular duties, recent years have seen a call for more teacher-led research, and teacher development programs are more often advocating training in basic research methods, particularly in the form of action research (Borg, 2010; Brown, 1998; Nunan, 1992). The primary argument for teachers engaging in classroom-based research is that it can allow them to independently investigate and find solutions to problems and issues encountered in their own classrooms. This can ultimately lead to improvements in both teaching practices and student learning (Freeman, 1998; Nunan, 1992; Richards & Lockhart, 1999). Additional benefits include stronger connections among faculty members, curriculum and program improvements, and professional empowerment (Burns, 1999). Teachers may also be interested in conducting research in order to test theories, make contributions to the field, and accumulate scholarly presentations and publications. This latter goal is particularly relevant to language teachers in Japan looking to start or maintain a career teaching at the university level (Chenoweth & Pearson, 1993; Evanoff, 1993; McCrostie, 2010). However, for many such teachers, there is a disparity in their professional lives between motivation to conduct quality classroom-based research that can serve as the basis of publishable manuscripts and a lack of training and knowledge necessary to succeed in that endeavor. Furthermore, traditional avenues for professional development or supplementary training in research skills and knowledge are often out of reach for busy full-time teachers who may have a combination of geographical, financial, and scheduling restrictions.

With the potential for significant benefits for teachers, learners, and language programs, alternate approaches to providing interested teachers with the necessary training and support to foster research skills and knowledge should be explored. In pursuit of this goal, planning began for a teacher research training project based on the goal of providing language teachers in Japan with an opportunity to enhance their understanding of quantitative research methods and gain practical experience while being guided through a small-scale study that they complete in their own classrooms. As a part of the planning and development process, a pilot of the project with a

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small group of teachers was conducted during the 2011 university fall semester. The purpose of this paper is to outline the foundations of the main project, describe the development of the project's structure and management, and provide a report on the pilot's goals, execution, and implications. The paper concludes with an assessment of the value of the pilot and a brief report on the initial stage of the main project.

2. Foundations of the Project

Over the past several years, I have been planning and providing professional development workshops across Japan with the goal of helping language teachers with limited research training to gain a better understanding of quantitative research methods. Themes of these workshops center on three core principles: building a solid foundation in the fundamental concepts underlying quantitative research methods, engaging in small-scale studies based on simple quantitative research designs, and collaborating with other teachers in these pursuits. Instead of embarking on overly ambitious projects that require sophisticated research designs and advanced analysis techniques, I recommend teachers to start small with manageable studies that can provide valuable findings but also serve as learning experiences. As each step in the study is planned and executed, teachers should also review research methods texts and background materials to ensure a thorough understanding of concepts underlying each decision they make. The teachers receive worksheets and guides that can be followed to design and execute a simple quantitative study in their own classrooms. Finally, teachers are encouraged to find partners with similar goals to collaborate with on these projects in order to support and motivate each other during the process.

In order to expand on these workshops and work more closely with teachers over an extended period of time, I started development of a teacher research training project in which a group of teachers are guided through each step of a research study that they will conduct individually in their own classrooms while interacting and collaborating with other teachers in the group. The core activity of the project will be the execution of a quantitative research study that features a basic but useful research design and can be completed in short period of time with minimal intrusion into a class curriculum. While being guided through the process of the study, teachers will explore relevant background materials related to research methods and discuss the readings and their studies with other teachers involved with project. Although they will be working from their own schools in separate locations, use of an online forum as a central gathering place and coordinating center will allow the teachers to stay connected throughout the duration of the project. By participating in this project, teachers should be able to learn about the research process with an emphasis on critical fundamental topics, gain practical experience by independently conducting their own studies, and build community and collaboration skills by working closely with a group of their peers. A schedule was set to develop the project from fall 2011 and then run the project from April of 2012 at the start of the new school year.

3. Main Project: Core Components Development

This project is built around three core components—the online coordination site, the quantitative research study, and the project facilitator and participants. The following part of this paper focuses on the initial development of the goals and functions of these components.

3.1 Online Coordination Site

In order to provide a way for teachers based in separate locations to connect and collaborate, an online coordination site is necessary for the project. The functions that are required for the online site include offering a secure login system, hosting a discussion forum, displaying a schedule, and storing files for download. Several Internet discussion forum options were considered (e.g., Google Groups, ProBoards, vBulletin); however, Moodle, an e-learning platform, was ultimately selected because it offers all of the required functions and has several unique advantages. Moodle's popularity among language teachers means that participating teachers familiar with Moodle may be able to acclimate to the project site more easily and others will have an opportunity to gain firsthand experience with a valuable instructional tool. Also, the site structure and contents can be saved as a file that can be reused for a future generation of the same project, modified to be used with a different version of the project, or offered as a template to other teachers looking to conduct their own collaborative research projects. The School of Languages and Communication (SOLAC) at Kobe University operates a Moodle server, and I was given permission to set up a site for this project on the SOLAC server. One concern was how effectively the discussion forum could be implemented on Moodle as it will be the focus of activity for the online site. Forums are just one small feature of Moodle, not its primary function. Despite some limitations that full-fledged online discussion forums might not have, the benefits of using Moodle were significant enough to make it the best choice.

3.2 Quantitative Study

A second major element of the teacher participants' activities in the project is the quantitative research study that they will be conducting in their own classrooms. Replicating published research can be a good approach to developing research skills because the original methods can serve as a useful guide and the findings are good points for comparison and discussion. Use of a published study as a basis for this project's study will help teachers gain experience with conducting replication research and demonstrate that the project they are conducting has value in the field. The design of the study needs to be relevant to language learning research so that the teachers can focus on developing practical knowledge and useful skills. Another important consideration is that the treatment and data collection procedures are short and minimally intrusive into a course curriculum. The participants' energy should be focused on the learning process, not on extended and time-consuming data collection. Also, they will be working in varied instructional contexts and courses, so the treatment needs to fit with curriculum goals for a

range of courses.

Based on the above criteria, a recently published study on a writing fluency development activity, Bonzo (2010), was selected as an appropriate basis for the project's quantitative research study. Bonzo investigated different approaches to assigning topics for a ten-minute free writing activity with American university students studying German. For the activity, participants were told to write as much as possible on a topic with minimal regard to planning or error correction. Bonzo compared two approaches to the selection of the topic—assigned by the teacher and freely selected by the student. Participant responses under the different conditions were compared on measures of fluency and complexity. The findings indicated that writing fluency measures increased when the students were able to select the topics.

With minor adjustments, the design of the Bonzo study can be simplified to a quasi-experimental pre-post design that relies on the *t* test for the statistical analysis. This is a fundamental design in quantitative methods and a component of more sophisticated analysis techniques. For these reasons, it will be extremely useful for the teacher participants to develop a thorough understanding of this particular design. The data collection will be minimally intrusive as it can be completed over a period of a few weeks, and the activity itself only takes ten minutes and can function as a warm-up activity for a variety of courses. The analysis stage requires teachers to assess each student's written response by counting total and unique words and converting them into a fluency index using a mathematical formula. This step should provide valuable experience with the critical measurement stage in quantitative research and the direct conversion of raw language into quantitative data. Finally, the techniques used to assess the responses are also typical of other research on writing and can serve as a good introduction to this line of research.

3.3 Roles of the Facilitator and Participants

Although I will need to be active as an organizer and administrator to ensure the project activities operate smoothly, it will be critical that I establish my role as a facilitator rather than a leader or an instructor. A major goal is for the teacher participants to feel ownership of the projects that they are conducting in their own classrooms, the discussion forums that they are using to learn about research methods, and the community that they are creating with each other. In this way, I believe that they will build skills necessary to independently study research methods, conduct research in their own classrooms, and collaborate with other teacher researchers. Initially, I will create the Moodle site, provide guidance on how to participate in the project, prepare a clear study design for their classroom-based research projects, and recommend reading materials. As the project progresses, I will handle administrative duties and observe their online discussions carefully, stepping in as necessary to guide, redirect, or clarify. Ideally, the discussion forum will build momentum and become highly active as teachers share their own ideas, raise questions about the readings, describe experiences with their studies, and make comments on other teachers'

posts and questions.

4. Project Pilot: Initial Preparation

After setting down the main goals and structure of the project, I determined that conducting a pilot at the same time that I developed the Moodle site and materials would allow me to test and adjust the various components while receiving feedback from a group of teachers willing to help me in this process. Because the Moodle site and much of the materials would be in development during the pilot and frank feedback was necessary, I recruited four teachers with whom I previously had connections and knew to be interested in building knowledge and skills in research methods. All had full-time university positions and were based in separate locations around Japan. In order to have the main project ready for the 2012 spring semester, I set the pilot to start in the beginning of October for the 2011 fall semester. The following part of the paper provides descriptions of how the discussion forum and weekly schedule were developed and implemented for the pilot.

4.1 Pilot Discussion Forum

Before creating the Moodle site, the key components of the discussion forum were planned. The discussion forum was organized into five main topics relating to particular stages of the project with several different forums each (see Table 1). Each main topic section would also include a folder in which key documents were uploaded and stored such as guides on how to use Moodle, useful reference materials, and study procedure instructions.

Table 1. Discussion Forum Main Topics and Forums

Main Topics	Forums
The Writing Fluency Project	Project management, personal connections, feedback
Studying about Research Methods	How to use Moodle, writing fluency, quantitative research methods
Conducting the Study in Your Own Classroom	Participants, instruments and forms, data collection procedures, data analysis
Writing Up Your Study	Literature resources, major sections of a research paper
Formatting and Publishing Your Manuscript	References, APA formatting, submission process

4.2 Pilot Weekly Schedule

The other major component of the Moodle site, the Weekly Schedule for the Research Study,

was designed to fit all stages of the project within a single university semester. Table 2 shows the main activities, the period of time they were to be conducted, and the key tasks for that activity. Moodle has a built-in schedule on the main course page, and it would be used in this project to guide the teacher participants through each stage of the project and keep all of the participants working concurrently on the same parts of their individual studies.

Table 2. Overview of Main Activities, Time Period, and Tasks

Main Activity	Time Period	Tasks
Introduction	10/1-10/14	Become familiar with project site Review guides on Moodle and study
Study Preparation	10/15-10/28	Get permission to do study Select classes for data collection Prepare materials
Data Collection	10/29-11/25	Introduce study to students Collect data over four consecutive weeks
Data Analysis	11/26-12/16	Code raw data Conduct statistical analysis
Study Write Up	12/17-1/30	Complete standard academic article on study

5. Project Pilot: Execution and Outcomes

After a short period interacting with the teachers through email and discussing their involvement and participation requirements, the project pilot began on schedule with a distribution of Moodle IDs and passwords in the week before the start of the fall semester. The following section of the paper highlights key issues that were encountered during the use of the pilot's Moodle site, the implementation of the writing fluency study, and participation of the teachers.

5.1 Use of the Moodle Site

Before the participating teachers visited the Moodle site, the main components of the discussion forum were put into place. One critical issue with the format of the discussion forum was identified early in the process. Moodle automatically sets a specific structure that a forum can take when added to a site. The site's administrator can add a new forum and designate the theme and purpose in the title and description. After opening the forum link, the administrator and participants can start threads on more specific topics within the forum theme. Messages and replies are then posted in the various threads. However, each forum must appear on the main page of the site and cannot be grouped and hidden into separate folders or within another forum. Because there were so many different discussion topics for this project that could easily

incorporate many separate critical threads on more focused topics, I needed to create 24 different forums that all had to be placed on the main page of the site. This presented a ‘wall of text’ that appears when first logging into the project site. Teacher participants noted that this arrangement made it more difficult to learn the organization of the forum and harder to use. To address this situation as best as possible, an outline-style organization was used by adding titles for the five main sections with text in large bold fonts. Additionally, individual forums were indented and titled as simply as possible. Feedback indicated that this adjustment was in improvement but still less than ideal.

Moodle’s built-in schedule function worked well for the implementation of the Weekly Schedule for the Research Study. I was able to break the entire semester-long project into separate weeks with specific tasks and reminders to guide the teachers through the preparation and execution of the study. Each active week was highlighted automatically and previous weeks could be hidden in order to focus only on the active week. After feedback from participants, the tasks delineated for each week were reorganized to differentiate among those based on reviewing previous assignments and materials, participating in the Moodle discussion forums, and completing specific tasks necessary to conduct the study in their classrooms. No other issues were encountered with the organization or function of the Weekly Schedule.

Although Moodle offers a variety of useful features, only Profiles and Recent Activities were utilized for the pilot. Teachers were directed to set up profiles and upload pictures in order to build more personal connections among the participants and share about their instructional settings. The Recent Activities box on the Moodle site shows the location of changes to the Moodle contents or posts made by participants in the forums. This allowed teachers to quickly jump to new information upon logging into the site, which turned out to be very helpful with such a large number of forums in place. Other features such as the Calendar, Latest News, and News Forum were not activated during the pilot, as their functions seemed redundant.

5.2 Effectiveness of the Writing Fluency Study

The Bonzo study was selected for replication primarily because it featured a basic but important study design and the data collection would be minimally intrusive on the teachers’ course curricula. The teachers who completed the pilot were able to implement the study with minimal difficulty and mostly encountered issues that might be typical of any quantitative study and could be seen as educational in nature. Ideally, the data collection process would take only a little more than 10 minutes of a class period; however, the teachers reported that the instructions and set up as well as the collection of the responses all added up to approximately 20 minutes, particularly for the first few data collection sessions. Careful preparation prior to the data collection and increased student familiarity with the activity reduced that time closer to 15 minutes.

One unique issue arose as one of the teachers was collecting data in a class held in a computer lab and inquired if it were possible to have students complete the exercise by typing their

responses with a word processor rather than writing them by hand. Although I had intended to have all the teachers conduct exactly the same study, this seemed an acceptable variation to explore during the pilot, as it could be an issue later with participants in the main project. One advantage of having the students type their responses was that the word counts could be done quickly using the computer and a concordance creator application. Other teachers had to do the counts by hand, which was time-consuming but had the added value of experience working closely with the raw data. While the use of a computer would contribute some additional confounding factors, the prevalence of computer labs in language classrooms suggests that this could be a valuable variation of the original study.

5.3 Teacher Participation

Four teachers initially agreed to participate in the pilot and two promptly signed into the Moodle and created passwords on schedule and the third followed a week later. The fourth teacher failed to sign in on time and after several follow-up emails, admitted that she would end up being too busy to participate. Although finding a replacement was considered, it seemed too late to bring a new teacher on board when the project had already begun. Early discussion in the forum was focused on the steps necessary to get the study started: selecting participants, creating consent forms, and introducing the study. However, almost no discussion took place related to their efforts to learn about research methods. The teachers indicated that they were concerned with how to do the study but were not able to devote sufficient additional time to reviewing background material. Email also was used along side the discussion forum with participants occasionally sharing information and asking questions by email that would have been appropriate for the forums on the Moodle site. These topics included the use of Excel to create a database, organization of the database, and the formula used for the fluency index. Although I occasionally made suggestions and redirected their posts, I mostly did not pressure them to stay active in the forums as they were volunteering to assist me in this development stage. That they gravitated towards email indicated that the forum was not as accessible as I had hoped it would be. However, with such a small number of teachers involved, there may have been a limited attraction to the forums. In the end, the remaining teachers completed all the steps necessary to conduct the study in their classrooms but only minimally participated in the forums.

6. Implications for the Main Project

Although there were clear drawbacks with the format of the forums on the site, the overall functioning of the site along with other benefits provided enough rationale to keep Moodle as the platform for the main project. Additionally, the time needed for data collection was longer than expected; however, the benefits of using the writing fluency study were confirmed and no significant adjustments were determined to be necessary. There were several critical issues encountered during the pilot, and the decisions and changes that were made related to the

organization and activities of the main project based on these issues are described in the remaining part of this section.

6.1 Emphasizing the Learning Stage

One major change suggested by the pilot was due to the lack of activity in the discussion forum related to studying about research methods. This is a critical aspect of this project, as teachers should not just follow the procedures to complete the research study but should also work to understand each step in the process. It seems likely that without stronger guidance, teachers might not manage to independently stay on task and read the recommended material. While it is not feasible to incorporate an online course on research methods into this project, providing a detailed curriculum based on a textbook or online materials with weekly reading assignments could be valuable in helping teachers to include studying in their schedules. In order to build time into the main project schedule that could be devoted exclusively to learning about research methods, the starting date was changed from the beginning of the 2012 spring semester in April to the end of January 2012. This would allow time for teachers to make use of the break at the end of the school year to explore the Moodle site, study the materials, discuss topics in the forums, and build a better understanding of the methods prior to executing the study.

6.2 Addressing Teacher Motivation and Commitment

Although the number of participants in the pilot was small, losing one of the teachers and the limited participation in the forums indicated that attrition could be a significant issue with the teachers in the main project. The motivation for teachers to develop research knowledge and skills is strong; however, the time and energy commitment for this project may be underestimated or other work or personal demands could take priority. A significant number of teachers leaving the project could have a strong negative effect on the motivation of the other members and undermine project activities. In order to better prepare prospective teacher participants, a clear description of the teachers' roles with detailed lists of activities and approximate time commitments necessary over the course of the project was determined to be necessary. This may deter those who can recognize that they will not be able to fully participate and better prepare interested teachers and help them to plan their schedules carefully ahead of time. Also, with a larger group of teachers involved, it may be easier for some teachers to fall out of touch with the project and potentially 'disappear in the crowd'. Establishing small teams of four or five teachers within the larger group may also help address this issue. The teams can be instructed to have regular online meetings to discuss progress and issues they are encountering with the project activities and occasionally provide updates to the discussion forum about their members' progress. Involvement in the teams may help to keep a closer personal connection with the project and create some friendly pressure to stay involved.

7. Conclusion

The use of the pilot was extremely valuable for testing several major components of the project and identifying critical issues that could be addressed during the planning for the next stage. The Moodle site and the writing fluency study mostly proved to be effective and only minor changes were applied to improve the overall functionality. The addition of a separate period of time to focus on studying as well as a recommended curriculum should help to encourage teachers to attend to the learning process, and the use of teams should facilitate community building and increase motivation to stay active. One main concern that was not completely addressed was the functionality of the discussion forum. Certain restrictions in terms of appearance and organization could already have a negative impact on participation, but a lack of a large number of teachers trying to use forum was an unavoidable limitation of the pilot, and a real stress test of the forums will not occur until the main project is underway. In the end, the pilot proved to be extremely valuable in demonstrating how the project could unfold over the course of a semester and for identifying useful directions for change.

During the latter half of the pilot, I began to recruit language teachers to participate in the main project during three workshops that I gave at a large conference for language teachers in Tokyo and three other presentations at smaller professional development events in Kumamoto and Osaka. Additionally, several teachers with whom I have worked on other projects were approached about the opportunity. Although I had estimated that about 20 teachers would be an ideal number for the main project, I welcomed all teachers that wanted to join with the knowledge that some might not commit or withdraw at the last minute. Over a period of three months, well over 60 teachers expressed an initial interest in the project. After providing multiple documents describing goals and methods of the project, required activities for the teachers, and estimated time commitments, 44 teachers formally joined the main project. While the administrative duties with such a large number will be significant, it is extremely encouraging to have so many sign up. Although the success of this project has not yet been determined, the strong response can at least be seen as a positive indication that there is sincere interest among language teachers in Japan to also become competent researchers and that projects like this one should continue to be explored.

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There can be a range of benefits for language teachers who develop the knowledge and skills necessary to effectively design and conduct quality research in their own classrooms. To facilitate this process, a teacher research training project was designed with the goal of providing language teachers in Japan with an opportunity to enhance their understanding of quantitative research methods and gain practical experience while being guided through a small-scale study that they complete in their own classrooms.

This main purpose of this paper is to describe the project's development stage and provide a report on the implementation of an initial pilot. The project centers on the execution of a basic quantitative research study that investigates a writing fluency activity. While being guided through the procedures of the study, teachers will explore relevant background materials related to research methods and engage in discussion with each other through a project Moodle site. By participating in this project, teachers should be able to learn about the research process with an emphasis on critical fundamental topics, gain practical experience by independently conducting their own studies, and build community and collaboration skills by working closely with a group of their peers.

A pilot of the project with a small group of teachers was conducted during the 2011 fall semester. The Moodle site and the writing fluency study proved to be functional, but issues with teacher participation indicated that a longer project schedule, a detailed learning curriculum, and the use of small teams should be implemented in order increase teachers' investment in the project and motivation to stay active.