

Sharing Experiences with Quantitative Research

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While many language teachers recognize the benefits of getting involved with classroom-based research, numerous challenges can limit the potential for successful execution of quality research, particularly if quantitative methods are employed. Research collaboration can be an effective means for overcoming many of those challenges, and one basic form of collaboration, engaging in discussion with peers, can yield significant benefits by allowing teachers to receive valuable feedback about their own research and gain insight from the experiences of others. The JALT2011 workshop, *Sharing Experiences with Quantitative Research*, was designed to offer language teachers a collaborative space to discuss their experiences conducting quantitative classroom-based research. Three examples of teachers sharing their experience with quantitative research, discussing issues they encountered, and providing advice for their peers are included in this article. This workshop can serve as a model for similar events and activities that allow research collaboration to continue and expand.

多くの語学教師が教育現場に基づく研究に関与することの利点を認識しながらも、様々な困難な状況のために質の高い研究を行うことが難しいような場合がある。これは、量的な調査手法を用いる場合には特にそうである。研究における協同は、そのような難題の多くを克服する有効な一手段となり得る。また、協同の基本形態である他の教師との意見交換は、自らの研究についての貴重なフィードバックや他の人達の経験からの知見の獲得につながるため、かなりの利点をもたらす得る。JALT 2011の『量的研究の経験の共有』をテーマとした今回のワークショップは、言語教師に、教育現場に基づく量的研究を行った自らの経験について話し合う協同のスペースを提供する。この論文には、自らが行った量的研究の経験を共有し、直面した問題点を検討し、同じ立場の教師らに助言を与える3人の教師の例が収められている。今回のワークショップは、協同研究の継続と発展につながる同様のイベントや活動のモデルとなると考えられる。

Language Teachers Doing Research

While language teachers typically have a multitude of professional demands, including curriculum planning, lesson preparation, classroom teaching, administrative duties, student meetings, and grading, many recognize the benefits of budgeting time and energy for classroom-based research. Research is primarily promoted as a worthwhile activity for language teachers because it can lead to improvements in teaching practices and student learning (Freeman, 1998; Nunan, 1992; Richards & Lockhart, 1999). By investigating specific issues or difficulties, teachers can make evidence-based changes in their classrooms, become more cognizant of their practices and students' behaviors, and explore new teaching approaches. A strong external motivation for doing research, particularly for many language teachers working in Japan,



is knowledge that compiling a resume of quality academic publications can be necessary for starting and maintaining a career in university teaching (Chenoweth & Pearson, 1993; Evanoff, 1993; McCrostie, 2010).

Action research methods offer an excellent route to successful completion of small-scale studies; however, conducting research that serves as the focus of a manuscript appropriate for publication in major peer-reviewed journals usually means the need for sophisticated research designs and advanced analysis techniques. This is particularly true when employing quantitative methods (Pedhazur & Pedhazur Schmelkin, 1991). Language teachers doing quantitative research need to be able to select appropriate research designs, accurately interpret statistical results, and draw reasonable conclusions based on their findings. Additionally, they need to identify threats to validity during each stage of the research process. However, when working independently or in isolation, language teachers with limited training in research methods may struggle greatly to successfully design, execute, and interpret even basic quantitative studies.

In an article looking at language teachers' research engagement, Borg (2010) identifies and discusses conditions that facilitate teacher research and argues "collaborations among teachers, and among academics and teachers create productive mutually-beneficial social spaces for knowledge creation" (p. 418). Collaboration can take a variety of forms that range from joint efforts in the preparation, execution and reporting of a study to simply obtaining feedback on a research idea. Burns (1999) emphasizes that collaborative research provides an excellent opportunity for language teachers to get more involved with other faculty members and to make contributions to their programs. Working together with another teacher through all stages of a project may offer the fullest benefits, as teachers can hear alternative perspectives, take advantage of different strengths, and share the workload. Unfortunately, limited

contact with peers who share the same interests and the value of single-authored publications often make classroom-based research a solo activity. While only a short-term form of collaboration, engaging in open discussion with peers on research ideas and activities, as well as sharing past experiences, can provide a multitude of benefits such as allowing teachers to get valuable feedback to guide their research and benefit from others' experiences. Additionally, they can connect with peers engaged in a shared pursuit and contribute to the success of others' work.

Sharing Experiences with Quantitative Research at JALT2011

In order to explore this approach of research collaboration through open discussion, a workshop, *Sharing Experiences with Quantitative Research*, was offered at JALT2011. By providing an opportunity for free discussion, workshop organizers sought to help teachers learn from each others' experiences with quantitative research, build community and make connections among a group of peers, and attenuate the isolation typical of the research pursuit. The sections that follow present three typical experiences of teachers engaged with quantitative research, the issues they encountered, and the value of collaboration in each situation. Beth Konomoto shares how she took an interest in learning about quantitative methods and the route she took to pursue this goal. Michio Mineshima and Chris Stillwell then describe their efforts to conduct small-scale quantitative projects and the unexpected difficulties they encountered. These descriptions can serve as models for other teachers sharing about their own experiences and provide support for collaboration among teachers starting with quantitative research.

Learning about Quantitative Research

Beth Konomoto

Background

My first encounter with quantitative research for language teaching was when I started reading more to improve my skills as a teacher. I knew that I needed to develop knowledge to interpret results in articles correctly and wanted to bring a more critical approach to my work. Brindley (1991) points out that one obstacle for teachers reading and doing research may be the interpretation of results, which can be difficult if there is not a firm understanding of the calculations and statistical procedures involved. Harmer (2007) notes that the reading of professional literature has the potential to “open our eyes to new possibilities” (p. 413) and through this literature teachers can keep current with new ideas and developments. At the same time, I also wanted to contribute to the community by offering findings from my context, as I saw a significant need for more research to be done at conversation schools. Teachers from a variety of contexts publishing research will not only help to expand the literature but will also increase the amount of important primary research. This is possible if teachers gain command of the tools of research. The next step was deciding where to start.

Issues Encountered

There were not many professional development opportunities at my small conversation school and I eventually started an online master’s degree in TEFL/ TESL. The first unit of the course-work covered research methods, but I struggled to get through the readings on my own and felt that I had only scratched the surface of a very large topic. When I started reaching out for more information, I looked online for resources, conferences, and other training sessions that related to research and statis-

tics. Although SLA is still a relatively new field (Ellis, 1993), valuable books and articles are plentiful now that research in English language teaching is more established. However, with this abundant availability of online articles, journals, as well as websites discussing research methods, it is easy to get overwhelmed. Eventually, I settled on taking a quantitative research online course in 2010, which provided me with a group of like-minded teachers who worked through small projects and discussed the methods they used. The benefits of collaboration were evident in the forums section of the group’s website as we all started to discuss the weekly readings and assignments. The weekly Skype and web-conferencing sessions then allowed for further questions and discussion to solidify the theories and procedures. This was wonderful for me, but there are many ways to get involved: talking with members of your faculty, collaborating with teachers at other schools, using mailing lists, and joining online discussion forums.

Solutions and Recommendations

If you are new to research, particularly quantitative research, try to be well-prepared for issues and problems, but do not be intimidated. Dörnyei (2007) defends beginning researchers and states that good research not only comes from the work of well-established researchers but also from university seminar papers and other similar sources. Therefore, make sure you have a good understanding of the fundamental concepts underlying procedures and formulas, and take your time working through textbooks. If you do not feel confident on your own, most likely another teacher who feels the same way will be willing to work with you; so reach out and collaborate. If you work slowly and carefully, then you will better understand your research and results. As a first step, try a small-scale design so you can play with the calculations and see how the numbers work. If you are satisfied with the initial results, then the process can be

expanded. Collaboration can help expand the ideas, double-check procedures, and possibly expand the participant pool by allowing you to team up with other classes and teachers. From my experience with the quantitative research class and collaboration, I took away sound study techniques and the confidence to take those first steps into quantitative research.

Planning and Managing a Research Project

Michio Mineshima

Background

I work at a small technical college, and unfortunately, most of my students are not highly motivated to learn English. Also, they seem very reluctant or even afraid to express their opinions about almost anything. I started to wonder whether this had to do with the traditional Japanese teaching style, which puts more emphasis on increasing learners' knowledge than on developing their critical thinking skills. In order to investigate this issue, I decided to look into Japanese high school English textbooks, or more specifically, their comprehension questions. By examining these questions, I reasoned, it would become clear what language skills high school students are expected to acquire and develop, and if critical thinking (CT) is one of them, it should be so reflected. I posed this research question: are high school English textbooks designed to promote learners' CT skills?

As data, I chose 18 out of the 28 most popular reading textbooks, which account for 92% overall use in the 180 Tokyo Metropolitan high schools and secondary education schools (Department of Guidance of the Tokyo Metropolitan Government Board of Education, 2010). All the reading comprehension questions in these textbooks were counted and classified into seven different question types, based on the six categories suggested by Nuttall (1996, pp. 187-189) plus one more for pre-reading schema-activating questions and post-reading follow-up

tasks. The percentage of each question type was calculated and compared. The total number of the questions came to 5,634, and the questions that could be regarded as CT-related amounted to only 13%, whereas the rest were for checking literal comprehension. It thus seems that Japanese high school English reading textbooks do not prioritize developing learners' CT skills.

Issues Encountered

I encountered several problems during the research, one of which centered on manageability. With limited planning, I jumped right into the data collection under the assumption that two months and my enthusiasm would be more than enough to accomplish my goal. In reality, however, it took twice as long. I needed about two weeks just to make copies of the coursebooks, two and a half months to number, answer, and sort all the questions, and another month to check and correct the initial classifications. The process moved along extremely slowly because the entire workload was much more than I had anticipated.

Moreover, when I was trying to number and categorize the questions, I realized there were other problems. Note the following example:

Fill in the blanks: If you (a) a new word ten or twenty times, you can (b) it by heart.

Although this phrase is technically instructive, not interrogative, should this be classified as a question? Here for the first time I realized I needed a clear definition of what to count as questions. Another problem was how to count the questions: how many questions are there in this sample exercise? Is it one because there is only one sentence, or is it two because there are two blanks, (a) and (b), to be filled? Finally, it was not always easy to classify questions into appropriate question types. Although Nuttall's six question types appeared straightforward,

the real questions were not, and several questions seemed to fit into more than one category. For reasons like this, I decided to repeat the whole sorting process.

Solutions and Recommendations

Here are some lessons I learned from this experience.

- Set achievable goals; do not be too ambitious. Although a 92% coverage rate sounds wonderful, had I known that the 18 textbooks would take four months to finish, I would have thought twice and settled for 80%, or 14 textbooks, instead. I should have been more realistic in my estimate of time needed. Consulting an experienced researcher for advice on sampling techniques may have allowed me to select an even smaller sample for review.
- Do a pilot study. Had I done a preliminary study, that is, selected just one textbook and gone through all the steps necessary first (instead of rushing to the copying machine and duplicating all 18 textbooks), I could have foreseen how long the whole process would take and settled on a more realistic plan.
- Collaborate with another teacher if possible. I assumed counting questions was an easy and straightforward job to do, but it was not. I realized in the middle of the research that I had yet to define exactly what constitutes a question. Had I been able to discuss this process with another teacher or researcher, however, he or she might have pointed this out earlier and helped me better clarify the whole classification process. Moreover, a second rater would have not only made me reconsider the initial sample size but also helped increase the reliability of my classification judgments.
- Keep records of questionable or problematic cases for later reference to maintain consistency and increase reliability. Most of the questions were not so difficult to sort but there

were occasionally some that defied a clear-cut distinction. It was useful to keep records of such borderline cases along with the reasons why I sorted the way I did.

Making Use of Available Data

Chris Stillwell

Background

For the sake of developing my skills with quantitative research and statistical analysis, I chose to undertake a project using readily available data that would permit me an opportunity to get some experience playing with numbers and internalizing some basics of quantitative research. This experience gave me a better appreciation for many of the essentials of quantitative research, and it simultaneously pointed out some directions worthy of further research.

As I looked for a source of available data, I considered two large data sets readily obtainable from my language program. The first set consisted of students' placement test scores on a multiple choice grammar and reading test, while the second data set consisted of students' scores on a paired conversation test administered as a final exam. Needing a way of dividing this data into something that might represent a control group and an experimental group, I decided to compare the speaking test scores of students in team-taught classes with the scores of students in non-team-taught classes to see if any impact of team-teaching could be found. The final speaking tests involved pairs of students asking one another questions related to a topic given on a prompt card. To diminish rater bias, a norming session was held in advance, and during the test no teachers rated their own students. Students were rated according to a rubric that had bands for fluency, vocabulary, asking questions, and responding to questions, each on a scale of 0 to 5, with a perfect score thus being 20.

Although I had more than two dozen classes from which to select my data, I naturally wanted to compare scores from classes that would be as similar as possible. Scheduling issues had prevented different faculties from being blended into shared classes, so the most straightforward option was to simply choose a team-taught and a non-team taught class of roughly the same size from each of four faculties, making a total of eight classes. In analyzing the data, I chose to compare the means using a *t*-test to determine if any difference between the two means was statistically significant (see Table 1).

Table 1. Descriptive Statistics and *t*-Test for Teaching Conditions

	N	Mean	SD	<i>t</i>
Team-Taught	118	16.08	1.66	2.88*
Non-Team-Taught	95	16.76	1.75	

* $p < .01$.

Issues Encountered

At first glance my results appeared to indicate that team-teaching had not had a positive impact on students' speaking test scores, as the difference between means was indeed found to be significant ($p < .01$), and the mean for the team-taught students' scores was over a half a point lower. Upon further reflection I considered the fact that the placement tests had enabled us to place lower ability students into a class of their own, and that it was this class for which we chose to implement team-teaching in order to provide students with more individualized support. In that light, the fact that team-taught students' mean speaking test scores were within one point of the mean for non-team-

taught students' scores could be seen as an indicator that team-teaching had indeed had a positive effect.

Unsurprisingly, a number of mitigating factors would make it difficult to draw clear conclusions from these numbers. Making a claim that team-teaching had had an impact would require me to assert that the placement test had separated weak speakers of English from strong, and then to assert that the final speaking test had narrowed this gap. Given that the placement test had only called for the selection of multiple-choice responses to written prompts, any such claim would be highly suspect. (If I were not working with readily available data and had instead prepared to research team-teaching and speaking ability from the start, it would have been much better to use a more rigorous research design, perhaps using a pre-test/post-test model to measure any changes in speaking ability.) As this was my program's first administration of a speaking test of this nature, there were also a number of issues regarding implementation of the test that may have made it easy for students to prepare, thus demonstrating their ability to memorize as opposed to their ability to speak. Other issues included a lack of inter-rater reliability (anecdotal evidence indicates that at least one teacher chose to heavily adapt the rubric to align with that teacher's personal views) and the possibility that the speaking test was simply not good at teasing out differences in students' speaking abilities, as the majority of all test scores fell between 14.5 and 18.5.

Solutions and Recommendations

Issues with validity and implementation will be concerns in virtually any study, of course. Perhaps the best that can be done is to do one's homework, plan carefully and pilot test, and document the process thoroughly enough to make a full account of mitigating factors in a paper's discussion section. Of course, it can also be invaluable to involve one's peers to get feedback and

pick up useful insights. Indeed, it was through discussions with other teachers that I came to a more thorough understanding of some of the drawbacks of my study and ways that it could be improved upon, which provided valuable experience that I can apply to future projects as well as my interpretation of others' research findings.

Opportunities for Collaboration

The preceding sections represent encounters with quantitative research that are typical for language teachers and highlight the usefulness of collaboration. The *Sharing Experiences with Quantitative Research* workshop provided participants at JALT2011 with one such opportunity for collaboration with their peers by creating a space for them to share their own experiences and benefit from those of others. Along with the four presenters, thirty conference participants, both foreign and Japanese, attended the workshop, coming from instructional settings mainly at the university level, but also from elementary and secondary schools and private companies. Following short presentations based on the previous sections of this article, active discussion among the small groups initiated without hesitation and continued right up until the concluding remarks. Common issues discussed among the groups were difficulties with understanding the steps behind quantitative methods, choosing correct designs, interpreting statistical findings, and being isolated during the process. Advice for group members included careful selection of research topics with achievable goals, use of small-scale studies, and collaboration with co-workers. Based on the number in attendance and the level of participation, this workshop was viewed as a success and a strong indication of the interest in discussing research among language teachers involved with JALT.

However, a single short discussion period has limited benefits, and additional ways of encouraging and providing opportunities for collaboration should be explored. Ideally,

teachers should engage in full collaboration on research projects with other teachers and experienced researchers. Being flexible with the topic of research can greatly increase the possibility for such collaboration to take place. If someone knowledgeable about research methods is not available for collaboration or advice, replicating published studies and limiting the scope of the project is advisable. Opportunities for open discussion need to be increased as well. The format of this workshop can serve as a model for workshops at future JALT national conferences, smaller SIG-organized conferences, and local chapter events. These workshops can be set up for general quantitative or qualitative research or can focus on specific topics, such as vocabulary, extensive reading, or motivation, to allow discussion to center on research designs typical for those areas. Additionally, conferences or other professional gatherings can welcome presentations on works-in-progress with significant presentation time allotted for interaction with the audience. Teachers should actively seek out and build support systems within their institutions through activities like program evaluation projects and weekly brown-bag lunch meetings. Finally, online discussion forums for language teachers can also make space for discussion of research projects, quantitative methods, and published research.

As Borg (2010) suggests in his comprehensive assessment of language teachers' research engagement, collaboration and dialogue both with academics and other teachers can be critical components of successful classroom-based research. Professional organizations, school administrators, academic researchers, and teachers themselves should strive to make all aspects of research a topic for discussion, not just the final results of successful studies.

Bio Data

Gregory Sholdt studied Educational Psychology at the University of Hawaii and currently teaches in the School of Languages and Communication at Kobe University. His interests include teacher development, classroom-based research methods, English for academic purposes, and fluency instruction. He has been exploring innovative approaches to professional development through collaborative research. He currently serves as the consulting editor for the *JALT Journal*. <gsholdt@gmail.com>

Beth Konomoto has taught in Japan since moving from Canada in 2005. She is currently writing her dissertation to complete a master's in TEFL/TESL with the University of Birmingham. Action research, music and language, materials development and online learning are among her interests. <sakurabeth@gmail.com>

Michio Mineshima holds an MA in TEFL/TESL from the University of Birmingham and currently teaches at Niigata Institute of Technology as associate professor of English after having taught high school for more than 20 years. His research interests include material writing (he has co-authored several senior and junior high school English textbooks and teachers' manuals), discourse analysis, critical thinking, and remedial education. <mmineshima@iee.niit.ac.jp>

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