



PROFESSIONAL DEVELOPMENT FOR MARITIME ENGLISH TEACHERS THROUGH COLLABORATIVE CLASSROOM RESEARCH

Gregory Sholdt*

Abstract. Conducting classroom research allows maritime English teachers to improve learning in their classrooms, carefully evaluate pedagogical approaches and theory, and make contributions to their professional community. However, a strong understanding of research methodology is essential to plan and execute meaningful studies, and many teacher training programs emphasize learning theory and pedagogy with little attention on research methods. **Aim:** The goal of this paper is to introduce a unique approach to professional development that helps teachers gain skills and knowledge related to conducting classroom-based quantitative research and to show how it can be utilized by maritime English teachers working at international universities. **Methods:** Based on the backgrounds, interests, and needs of language teachers in Japan, three general principles became the core of the recommendations for teachers looking to get started with quantitative methods—build a solid foundation of knowledge in fundamental concepts, do small-scale research in the classroom as practical experience, and collaborate with a like-minded partner throughout the process. **Results:** Three separate year-long professional development projects were conducted involving over 100 language teachers across Japan that centered on those core principles. In each project, teachers independently and concurrently replicated the same study in their own classrooms, analyzed the data they collected, and published findings in in-house journals while sharing experiences and receiving guidance online through live meetings and asynchronous interaction. **Conclusions:** This approach for collaborative professional development can be adapted by maritime English teachers working at the same or different international maritime universities. Key recommendations include finding a group of teachers with similar motivations, setting achievable learning goals, employing a simple research design, investigating vocabulary learning or reported engagement in communicative activities, and publishing findings as a tangible goal.

Keywords: Maritime Education and Training; Maritime English; Professional Development; Classroom-Based Research Methods.

Kobe University, Graduate
School of Maritime Sciences,
Kobe, 5-1-1 Fukae
Minamimachi, Higashinada,
Japan

*** Corresponding author:**
gsholdt@maritime.kobe-u.ac.jp

<https://doi.org/10.7225/imla30.29>

1. INTRODUCTION

For many teachers working in maritime education and training, conducting and publishing research is an integral part of their job. This research work is usually centered on personal academic interests and critical to their careers but may be seen as an activity that exists almost entirely separate from the teaching they do in their classrooms. While few teachers are looking to add to their workloads, expanding research-related activities to include exploration of the learning taking place in their classrooms can reap benefits on numerous fronts. Conducting classroom-based research allows teachers to evaluate and enhance their teaching and to assess and improve their students' learning outcomes (Borg, 2010; Brown & Rodgers, 2009). This line of inquiry can become a primary focus of research as well by evaluating traditional or new pedagogical approaches, testing and developing theory, and aiming to make contributions to their institution's program, professional community, and larger field of study. Collaborating on classroom research can foster bonds among colleagues and help build new ones outside their institution, both locally and internationally. The core interaction of teaching and learning transcends specific fields and connects everyone working in maritime education and training.

Just as there are specialized research methods that are employed in different fields, there exists a range of methods that are featured in classroom research and vary based on the goals and nature of the inquiries being made (Cohen, Manion & Morrison, 2018). Maritime teachers looking to explore the nature and outcomes of the teaching and learning in their classrooms need to be aware of the challenges they face before jumping into this new line of inquiry and be aware of the gulf that can arise between what they hope to do with their research and what they are able to do within the constraints of a classroom.

1.1. Aim and Scope of the Paper

The goal of this paper is to introduce a unique approach to professional development that can help maritime teachers gain valuable experience and build knowledge and expertise related to conducting classroom-based research. While the basic principles underlying this simple approach can be followed to develop skills in qualitative methods and used by maritime lecturers teaching in nearly any subfield, the specific recommendations of this paper are focused on maritime English teachers working to build knowledge in quantitative methods. This limitation helps to keep a reasonable scope for the paper and connects with the author's personal

experience working in English language education in Japan. Following an overview of different methods employed in educational research, the author shares some background on language teachers doing research in Japan. The intention is for readers to recognize similarities with their own situations and experiences and better understand the rationale behind the approach. The focus shifts to a description of the underlying principles and goals of the approach and how they guided the development and execution of three yearlong professional development projects for English teachers working at universities across Japan. Finally, recommendations are made for maritime teachers, specifically English teachers, who might be interested in applying this approach to collaborate on research in their own classrooms.

1.2. Classroom Research Methods

Action research is used in a broad range of professional settings and typically centers on a cyclical approach to problem-solving that involves identifying an issue, implementing a possible solution, observing the effects, and making further changes to seek greater improvements (Burns, 2009; Freeman, 1998). Teachers engaging in action research in their classrooms may be looking to address a particular problem that has been occurring, seek general learning outcome improvements, better understand the impact of their teaching approaches, or explore new pedagogical tools. The outcomes of this type of research are relevant to the specific classroom or classrooms being investigated rather than generalizable to a larger population of students or classroom settings (Nunan, 2005). Many teachers still share their findings within their institution or more publicly through academic presentations and publications as they may inspire changes or inquiries for other teachers in similar situations. Action research methods are wide ranging but by design accessible to those with limited training in conducting educational research, and the projects are not so encompassing, demanding, or costly as those using more formal, involved methods.

Graduate programs in educational psychology, educational research, and other education-centered fields typically offer extensive training in classroom research methods for studies that are larger scale than action research and adapt components of qualitative and quantitative methods common in the behavioral sciences (Cohen, Manion & Morrison, 2018; Nunan, 2005; Trochim & Donnelly, 2008). In simplified terms, teachers employ qualitative methods to observe, describe, and understand their students' perspectives. They use flexible designs with small

samples, collect qualitative data through observation and interview, and interact closely with the students throughout the process. Using quantitative methods in classroom research usually means running more controlled experiments to test theory, establish facts, or make statistical descriptions about teaching and learning in the classroom. Students often serve as a convenient sample, and analysis of quantitative data is done to generalize to a larger population those students represent (Bogdan & Biklan, 2007). Mixed methods research involves components or stages of both qualitative and quantitative methods to provide a more thorough investigation and richer description of the focus of the research or to address shortcomings from limits of using just one approach. Successfully conducting meaningful studies based on qualitative, quantitative, or mixed methods generally requires high levels of expertise, careful planning, significant time investment, and financial support.

1.3. Getting Started with Classroom Research

Maritime teachers interested in getting started with classroom research should consider their goals, experience, knowledge, resources, and commitments and then explore a variety of published studies before settling on a direction for their own lines of inquiry. As with many new endeavors, it is best to start small and work your way up to more challenging projects. From this perspective, action research can serve as a versatile entry point for many maritime teachers. For those who have established areas of research that will remain central to their work but would like to improve their teaching and the learning in their own classrooms or within a larger program at their institution, action research methods can guide projects working towards those goals without excessively burdening those involved. Numerous guides are available that provide step-by-step procedures to planning and executing action research studies and are written in clear, accessible language (e.g., Burns, 2009; Freeman, 1998; Richards & Lockhard, 2010). These texts often feature data collection and analysis methods that fit with the larger category of qualitative methods, and so, action research projects are a great starting point for teachers whose goals and interests match up with that approach to research.

Some maritime teachers will have interests in running the kind of research for which quantitative methods will be essential. Even with extensive research experience in other settings and familiarity with measurement theory, research design, and statistical analysis, it is best to start with small-scale studies to build an understanding of the requirements and constraints of conducting research in a classroom. For teachers without that background to

rely on, it is critical to develop that knowledge while gaining practical experience. Jumping in and pursuing even small-scale quantitative studies without a deep understanding of the steps being followed can lead to study designs that have fatal flaws with no hope of providing evidence to answer the original research questions. There are some excellent textbooks that introduce critical topics behind quantitative methods with an eye on presenting them as clearly as possible (e.g., Larson-Hall, 2016; Strunk & Mwavita, 2021; Turner, 2014), but they must cover measurement theory, research design, and statistical analysis representing three separate but interconnected fields of study. Written language describing abstract mathematical concepts, extensive specialized vocabulary, and pervasive formulas and symbols all contribute to difficult reading and a high bar for studying on your own. These research methods are best learned in a classroom with a knowledgeable, skilled teacher and a lot of time to devote to supplemental assignments. However, like most difficult things to learn, setting reasonable goals, focusing on the fundamentals first, getting a little support, and having some patience are paths to success.

2. MY EXPERIENCE PROVIDING RESEARCH TRAINING IN JAPAN

For nearly twenty years, I have been working to address a need for research training among language teachers in Japan through workshops, published guides, online instruction, and extended training programs (e.g., Sholdt, 2006; Sholdt, 2011; Sholdt, 2017). Early on in my career teaching English at university, I started encountering peers who shared a similar story—they had experience publishing and presenting about their teaching activities but were very interested in better understanding published research and doing their own classroom research. They felt pressure for continued employment or advancement, had interests in showing the value of their teaching techniques, and wanted to contribute to their professional community. However, they lacked meaningful graduate training, particularly in quantitative methods, and attempts to learn on their own were frustrating and short-lived. In this section, I will share about the situation of English teachers at Japanese universities and then present the approach that I have been using to provide professional development tailored to their needs.

2.1. Background on English Language Teaching in Japan

Nearly all departments at universities, junior colleges, and trade schools in Japan require some form of

English language study. This typically amounts to six to eight courses over the first two years of study and emphasizes spoken communication along with writing, reading, and listening. As a result, there is a large market for native speakers of English to teach the bulk of these courses, especially the communication classes. They hold fulltime tenured positions, fulltime limited term contracts, typically around 5 years, or part time contracts at multiple institutions. Although more institutions are seeking teachers with PhDs, especially for tenure-track positions, the basic requirement for university work is a master's degree, preferably related to language teaching or another English-related field such as English literature (McCrosty, 2010). Depending on the contract and institution, there can be different expectations beyond teaching and administrative duties, but most expect teachers to publish on a regular basis and to seek external funding such as the grants offered by Japan's Ministry of Education.

The community of language teachers in Japan is quite active with two major professional organizations, the Japan Association of College English Teachers (JACET) and the Japan Association of Language Teachers (JALT). Both organizations have local chapters and smaller specialized conferences along with larger national conferences and publish multiple journals. Many language teachers focus on presenting and publishing on the practice side of their work—teaching methods, special programs like study abroad, classroom activities, and curriculum planning. Others develop textbooks and materials either independently or through major publishers. There is strong interest in doing research as well, but involvement in research can greatly depend on educational backgrounds. Some graduate from programs in applied linguistics or other areas that provide extensive training in classroom research methods. They will develop their personalized research interests, conduct studies utilizing sophisticated qualitative and quantitative methods, and publish their findings locally or in international journals. Other teachers studied in teacher training programs that emphasize pedagogy with only limited attention to research methods. These teachers tend to publish and present on practice or do materials development, but they are the ones who often reach out to express an interest in ways to get more involved in doing research.

2.2. Development of a Sensible Approach to Learning Research

Using my graduate training in educational psychology and experience teaching introductory statistics for my department, I responded to the needs I was encountering by developing workshops on the

fundamentals of quantitative methods that I could give at local chapter meetings and national conferences for JALT. The interest that these workshops received encouraged me to concentrate my non-teaching professional work on this area and expand into larger scale professional development projects. As I gained familiarity with the language teachers' backgrounds, interests, and needs, I landed on three general principles that became the core of the recommendations that I make and the professional development activities that I run. In my workshops, I introduce this as a "sensible approach" as it connects with the way we learn most difficult things—master the basics, start small, and get support (Sholdt, 2011).

2.2.1. Build a Solid Foundation of Fundamentals

The term "quantitative methods" represents a broad range of interconnected and often complex subjects, but there is a small set of fundamental concepts that are critical to the most advanced topics. They are typically covered in introductory statistics and research methods courses in the behavioral sciences and include central tendency, variability, types of variables, hypothesis testing, probability, statistical inference, effect size, reliability, and different kinds of validity among others. Few would call learning these well an easy task, but with determination, discipline, and patience, it is an achievable goal, even studying on your own. The effort put forth into this task will pay off in two important ways. First, this knowledge will allow you to have a basic comprehension of advanced research designs and analyses that you encounter in published literature. Even if you do not fully understand everything being described, the "broad strokes" will make sense. Second, a deep understanding of these fundamental concepts will provide the foundation necessary for developing expertise in advanced topics in quantitative methods and applying them correctly in complex research studies.

Collect textbooks, articles, websites, and video links that introduce and explore these topics. Review them and narrow them down to a few that feel most accessible to you. Master them in the true sense of the word. Read each sentence, paragraph, and chapter again and again until you understand it. Do not move forward to the next part until you do. Skipping over confusing topics or just pushing through to the next paragraph in the hopes that something will make sense later is usually going to end in frustration with nothing making sense. Watch video explanations of the same topics and read alternate materials to get slightly different perspectives and encounter varied language to explain the same topics. Eventually you should start to confidently follow and under-

stand explanations and examples from new resources. This solid foundation of fundamentals will provide you the conceptual tools to understand more advanced topics and be sufficient to do some basic but meaningful research.

2.2.2. Do Research for Professional Development

Research that utilizes quantitative methods usually starts with a question for which the most appropriate design and analyses are determined to best answer that question. For teachers with limited background and experience with quantitative methods, the most appropriate designs and analyses for their research questions may be beyond their understanding and capabilities. They may fail to recognize the best design for their particular research question and setting, improperly implement the design that has been selected, and misunderstand or inaccurately interpret and report the results of their study. This can result in wasted time and energy for the teacher doing the research and the students participating in it. My recommendation to teachers interested in pursuing research that requires quantitative methods is to set aside their big research questions until they are ready to run the studies required to answer them. Instead, focus on building basic knowledge in quantitative methods and do short-term, small scales studies as a form of practical experience to complement that study of fundamental concepts.

Rather than starting with a research question and choosing the design that matches that question, target a simple research design that you want to learn about and find a research question that would be appropriate for that design. The focus of this research should fit with an activity you are already conducting in your classroom or can implemented with minimal disruption, and the entire data collection should be completed within the duration of one course or semester. As you plan and implement your study, analyze your data, and interpret your results, you are studying each step in detail, connecting them with topics in your materials, and making sure you understand the rationale and concepts behind everything you do. A write up and publication of the findings should also be included in this process. Including an action research type goal and collecting supplemental qualitative and descriptive data will add a practical aspect to the project and provide enough material to discuss for a full-length manuscript appropriate for publication in a local or institutional journal. This approach can lead to compromises, weaknesses, and limitations in the meaningfulness in the findings, but those will be a part of any classroom-based study. Accurately describing them in the manuscript will be a valuable learning experience as well.

2.2.3. Engage in Collaboration and Community

Research is often undertaken as a solo endeavor in order to pursue highly personalized academic interests and promote individual innovations, but for teachers trying to build knowledge and gain practical experience in classroom research, working with a collaborative partner can be a wiser approach. Sharing the experience with a partner can increase the likelihood that the project gets completed. It is more difficult to step away from a commitment that involves another person. There is greater likelihood that problems can be solved by discussing them with others and by making use of different strengths. Understanding and depth of learning can increase with someone to discuss interpretations and do comprehension checks. Division of labor can make menial tasks faster and easier to complete. Finally, the experience of doing and learning about research may simply be more enjoyable when shared with a partner. Sharing about your efforts to learn more about research by presenting and publishing may inspire colleagues in your institution and other peers in your professional community to engage in similar pursuits or join you in yours. You may form new connections and find new opportunities for new collaborative projects.

2.3. Quantitative Research Training Projects

On three separate occasions, I have developed and coordinated year-long quantitative research training projects for groups of language teachers in Japan (Sholdt, 2012; Sholdt, 2017; Sholdt, 2019). These projects centered around direct instruction on the fundamentals of quantitative methods in an online course, a practical experience with a small-scale classroom study that was conducted independently by each participating teacher, and peer collaboration that would take place through an online project co-ordination site. Several months prior to the start of a project, I would recruit interested teachers through presentations and workshops at JALT events and conferences around the country with a goal of finding about 30 participants. Each new project schedule would follow the academic year with breaks in between two 15-week semesters. In the first semester, I would provide a series of online lectures on fundamental topics in research design and measurement and share a procedures guide for a small-scale study that was readily adaptable to a range of instructional settings. In the first two projects, the study compared the effects of a varying the method of topic selection in a writing task on a measure of written fluency. In the third project, the study investigated the effects of variations of a reading activity on reported engagement in the activity. In order to participate in the

project, teachers would need to have enough control over the curriculum of a class that they could incorporate the activity and collected data for six to eight weeks. After receiving the procedures guide, they would adapt it as necessary and independently run the study with their own students in their own classrooms. While the instruction and practical experience took place, the teachers could interact with other each through a discussion forum set up on an online project coordination site as well during the weekly online video meetings. They would share materials they had prepared, raise issues that were encountered while collecting data, describe successful adaptations they made, and discuss progress on the study. The data collection would be completed before the end of the first semester.

During the break in terms, the activities in the project paused to give space for teachers' varied personal plans, but there was a recommendation for them to organize the data they collected, code them, and enter them all into a single database. At the beginning of the second semester, the online meetings restarted, and the focus of instruction was basic topics in statistics with specific attention to the analysis steps required for their study. During this time period, teachers needed to move forward with the various steps required to clean their data set and run their analyses. Some teachers had access to commercial statistical packages like SPSS but others used free online applications. There would be a fair amount of discussion and collaboration related to using the applications to complete the analyses. Finally, teachers work towards a write-up of their findings that can be published in their department's journals. Having an institutional avenue for publication was also a requirement for participation in the project so that local journals would not be flooded with submissions of manuscripts describing studies based on the same design. The deadlines for most Japanese university department journals are usually at the end of the academic year, and so that was the targeted end of the training project. In total, over one hundred teachers from all across Japan participated in these three projects. Program evaluations demonstrated positive experiences for the participating teachers, meaningful learning exchanges in the online forums, and tangible results in the form of academic presentations and publications. Participation levels were highest during the first semester and the data collection stage of the study; however, during the second semester when the focus shifted to the writing ups of their studies, a smaller number of teachers were able to keep the same level of attention on their projects with many only completing papers until well into the following academic year and some giving up on them entirely. Even for those teachers, there were

positive gains through the instruction they received, the experience of conducting the study, and the connections they made with their peers.

3. SUGGESTIONS AND CONSIDERATIONS FOR MARITIME TEACHERS

This approach for collaborative professional development can be adapted by maritime teachers working in teams at the same or different maritime universities and academies. Some of the recommendations below target maritime English teachers, but most of the steps are general enough to apply to those teaching different maritime topics. Although the recommendations are organized in order of stages for conducting a study, it is not intended to be a step-by-step guide. Instead, this is a set of general suggestions and reminders of important considerations. Ultimately, you will need to guide your decision-making and preparation based on your own personal goals, your unique teaching situation, and the arrangements with your team of collaborative partners.

3.1. Find a Research Partner

This first step of finding a partner to collaborate with on a project is possibly the most important one. You will want to find someone that has similar interests in doing research, you can work well with, and can be relied on to follow through on this commitment. Ideally, you will be incorporating and testing the same activity into courses with similar goals, but it can still work if you are teaching engineering related English vocabulary and your partner is teaching port radio communication. It will be easier to touch base and keep each other updated if you are both at the same institution, but as long as you maintain regular contact through video chats and email, it is entirely possible to work with a partner at a different institution or even in a different country. A collaboration with a maritime teacher at an international university adds an interesting layer to a project like this. It is fine to expand the team by adding more partners, but it is best to start with one person that you know will stick with you until the end.

3.2. Set Achievable and Reasonable Goals

First, do not to be overly ambitious when setting up your research plan. This really should be a project that does not dominate your time or energy. A first step is to aim to complete the study in full—from planning, to execution, to publication. It does not need to be a groundbreaking project, but it does need to be finished. Getting your data collection and

analysis completed within a single semester or three-month period is ideal. Nothing will be more important for those last two goals than keeping the scope of your study very limited. Also, be sure to incorporate a tangible outcome such as a published manuscript or at least a presentation. Something that goes on record as a completed task and is valuable to you beyond the experience and knowledge you gain in the process. This will be an unusually small-scale study with significant limitations that is very specific to your classroom, so targeting a departmental journal or local conference is ideal. You can collaborate on a manuscript with your partner if you are sharing the same dataset, but ideally, you will write and publish separately.

Next, you will want to consider the knowledge-building component of this project and how much of a commitment you can make to it. Ideally you will find one textbook that roughly covers introductions to research methods and statistics and does not overwhelm you when reading it. If you have taken courses on these topics in the past, textbooks that you used could be a great choice. You can review materials that you have previously studied. You could see what courses are being taught in your university, and look at the curricula and materials they are using. Different textbooks go into different levels of depth depending on their target audience. Doing Second Language Research (Brown & Rodgers, 2009) is aimed for teachers and provides a friendlier overview of classroom research methods. The Research Methods Knowledge Base (Trochim & Donnelly, 2008) is a free online textbook that has a nice balance of depth and readability, but the examples are not specific to language instruction. Finally, Research Methods in Education (Cohen et al, 2018) is a thorough, detailed, and readable resource that covers almost everything that you would want to know. Find a book in English or in your native language that feels like it works on your level and set some reading goals that are reasonable and achievable. You do not need to master everything with this first project, but you do want to get a solid understanding of the basic concepts that are introduced.

3.3. Select a Study Design

If you are just starting out with classroom research and have limited experience doing research of any kind, then an action research project is a great way to start. Find a textbook or online resource and just follow along with their recommended approach. If you are looking to get started with quantitative research, the single-sample repeated measures design is an ideal choice. This design features most of the foundational concepts and procedures that if

understood very well can make moving into more complex designs much easier. Two key benefits of using this design are that you only need one class or students to serve as your sample and that you can adapt a class activity that you are already running to serve as the focus of your research. Sholdt (2017) provides a more detailed explanation of how you can adapt this design and a set of procedures that can be used to run a study based on it. This design will result in a single statistical comparison that is not a sufficient centerpiece for a full manuscript, so you will want to collect some additional qualitative and descriptive data connected to the focus of your research. This will allow you to explore your topic in more detail and with more depth and means that you are also taking a first step to using mixed-methods designs. You can review action research texts for more ideas, but at least you can record your own observations about the execution of the activity and student reactions to it and have students complete short surveys after each activity and at the end of the data collection period. You should include Likert type items and open-ended items aiming at understanding their perspectives on the variations of the activity.

3.4. Identify a Focus

Once you have a good idea about the study design you want to use, you need to look at your teaching situation and consider possible research questions that you can ask that will require the use of that design. You need to recognize that your course goals are the priority and that you want to cause minimal disruptions to your curriculum when collecting data. Focusing on an activity that you are already running or adding one that connects to established course goals is best. If you plan to use the single-sample repeated measures design, then you will want to identify an activity that can be varied in two possible ways and an outcome that can be measured to show the impact of that variation in the activity. In the first two projects that I ran (Sholdt, 2012; Sholdt, 2017), we looked at a free writing activity where students are required to write as much as possible on a single topic for 10 minutes. We varied the selection method of the topic so that either students chose their own topic or the teacher assigned the topic. Then, we assessed their written output using a written fluency index for each activity. Over six successive weeks, students alternately chose their own topic or were assigned a topic before writing for 10 minutes. Means of the fluency index scores were calculated for three instances of each condition and then statistically compared to determine the effect of varying topic selection method.

Because building knowledge of technical English vocabulary and developing English communication skills are critical goals in maritime English courses, focusing on classroom activities related to those goals would be ideal targets for this project. For example, if you use a vocabulary learning application to support your instruction on technical terms in your class, you could vary the presentation of weekly vocabulary sets so that one set of vocabulary is learned with English definitions and another set is learned with definitions in your students' native language. You can compare scores on vocabulary quizzes to see the effects of the learning the vocabulary with different definition languages. For a project on building English communication skills, you could look at how reported engagement is affected by variations in a communication activity that you regularly run in your classroom. See Sholdt (2019) for an example of a study on engagement in a reading activity. Identify and think about activities that you run repeatedly in your classes. Can you vary that activity in some small but meaningful way and then incorporate a measurement of an outcome to capture the effects of that variation? You can also get ideas from the published research in maritime English education. You may be inspired to implement and test a new activity in your classroom or see a way to replicate one part of a larger study. Just keep in mind as you settle on the focus of your research that you need to set reasonable and achievable goals.

3.5. Set Your Schedule

Once you have collected all your learning materials and settled on the design and focus of your research, meet with your collaborators and work on the procedures—the set of steps to complete your study with an accompanying schedule. The more detailed you can be at this stage, the better prepared you will be during the data collection stage. Aim to do your data collection in the middle part of your course so that you have enough time at the start to settle into the lessons, prepare necessary materials, introduce the study to your students, and run a short pilot with one or two practice activities. Likewise, you want to leave lessons open after the data collection has been completed in case there are any unexpected interruptions that cause delays or you need to have students make up missed activities. The critical stage of your project is the data collection period, but you should also set target dates for completion of the data analysis, drafts of your manuscript, submission of presentation proposals, and final deadlines for submitting work for publication. At the same time, prepare a schedule of readings and short assignments based on the materials you collected. If you can treat this as a self-study

graduate course that corresponds with the semester of your data collection, you have a better chance of completing the readings. You should also aim for weekly meetings with your collaborators to discuss the learning materials and progress on your studies.

As you get closer to the start of your semester and your study, there are a few final steps that can be followed. First, find out what steps you need to take to get permission to run the study in your classroom such as completion of an ethics board, participation agreements from students, and other paperwork. Check in with all the parties involved, including your collaborators, department staff, and administrators to confirm that everything is in place and ready to go. Make sure that collaborators are clear about roles and responsibilities. If you are planning to share data or co-author papers, then areas of potential conflict such as ownership of data and order of authorship should be agreed upon ahead of time. You may need to adjust your course curriculum, prepare materials, and plan how you will store and organize data as it comes in.

3.6. Data Collection Stage

This will be an exciting and busy stage but try to stick to your schedule as closely as possible and be aware that unanticipated issues almost always come up. In the pilot stage, observe everything that happens and look for potential trouble spots that might interfere with your main data collection. Make adjustments as necessary but carefully consider how any changes may affect other stages down the line. Take notes on each step of the data collection and be sure to record any events that may affect the interpretation of your results. These notes will be invaluable when you do your write up and discuss the findings. Your raw data need to be transcribed and entered into a database with helpful labels and codes. It is a good idea to do this right after each week's data collection as you may notice issues that need attention and can monitor missing data that needs to be collected in make-up sessions. In most cases, every participant in your statistical analysis must contribute a data point for every part of the analysis. If a student skips one item in one questionnaire, you may need to drop them from the study entirely. Try to stay on top of everything that is happening to avoid surprises down the line when it is too late to correct them.

3.7. Data Analysis

When you reach this step in your study, it will be important to slow down and take your time. You want to do more targeted reading related to each analysis step you take and try to connect the material

that you read with the data you have in front of you. It might be a good idea to work on this stage during a break in classes when you have more time and energy to devote to this task. Meet with your collaborators and do these tasks together, compare data and results with each other and try to understand why there are differences. If you have a colleague with a strong background in statistics, reach out when you have completed your statistical analyses. Try to explain each step that you took and why you took it to get confirmation that you understand what you have doing. The procedures guide in Sholdt (2017) includes steps that you can follow, but you will need to conduct a repeated measures *t* test and calculate an effect size as a part of your main analysis, and then for any supplemental questionnaires, calculate descriptive statistics to summarize data from Likert items and code and summarize qualitative data from open-ended items. All of these analyses can be found in much more advanced studies, and taking the time to get a strong understanding of them will be a good investment for the future.

3.8. Reporting Your Findings

Writing up and sharing your findings is the final stage of the project and one where a great deal of learning can take place. Describing statistical procedures and quantitative results requires precise wording and specialized terminology. Researchers who do not fully understand the analysis steps they took in a study or the meaning of the statistical results that they obtained are usually exposed by how they write about them. As you write the methods, results, and discussion sections, you should carefully consider every point you make and the words you choose to make them when writing about the statistical analyses. Find relevant sections in your learning materials and look at examples in other articles to identify organization similarities, appropriate use of technical language, and common phrases that you can adopt in your own writing. Be careful not to overstate the meaning of your results. Your study is small-scale and the generalizations that you can make from it are likewise quite limited. Acknowledge weaknesses and limitations clearly and be sure to refer to them in your discussion and conclusions as needed. It is reasonable to acknowledge that the study was undertaken as a professional development endeavor and that the findings may best serve as a starting point for more rigorous research. Be sure to include a section that discusses future steps and think carefully how you can build upon this hard work. If you can reach out again to that colleague with experience doing quantitative studies, see if they will read your draft and give you feedback before submitting it for publication.

Besides publishing and presenting on the research that you completed, it is a great idea to also formally or informally share about your experience doing research as professional development with your team. This is an unusual activity and can generate a lot of interest from your peers in maritime education and training, especially those who have been facing similar challenges in getting their own research projects going. It is possible to build new relationships and find more opportunities for future collaborations. The special effort that you put into a project like this should be documented and shared.

4. CONCLUSIONS

An important first take-away from this paper is that conducting classroom research using quantitative methods is an endeavor that requires a certain level of expertise, a substantial time commitment, and a lot of hard work. This is not intended to discourage anyone taking from on this challenge but instead to remind them to be aware of their situation and set their goals accordingly. Delaying that ground-breaking study that you really want to do and reframing the next one as a professional development opportunity can lead to numerous valuable benefits. You can develop of an important foundation of knowledge, gain meaningful practical experience, obtain tangible results that can be shared with colleagues and peers, and strengthen connections with your collaborative partners. You are also building towards that dream study and increasing the likelihood that you can successfully complete it. You may even discover that this type of research simply does not fit with your interests or skillset. You can still gain an appreciation of how it works and apply what you have learned to other forms of classroom research. Action research could be a perfect match for you or even a jumping pad to major qualitative studies.

Being a teacher in maritime education and training should mean that we are always devoting at least some additional attention to the evaluation of the teaching that we do and its impact on learning in our classrooms. Our students are headed into important careers doing serious work, and we owe it to them to care deeply about the education we provide and be constantly striving to improve it. The good news is that doing classroom research can lead to important changes, reinvigorate a passion for teaching, and simply be a lot of fun, especially if we work together.

Acknowledgements: Two projects described in this manuscript were supported by Grants-in-Aid for Scientific Research: Development of a Quantitative Research Training Program for Language Teachers

(JSPS KAKENHI Grant No. 25370717) and Development of a Second Generation Research Training Program for Language Teachers" (JSPS KAKENHI Grant No. 16K02920).

Conflict of interest: There are no conflicts of interest to report.

REFERENCES

- Bogdan, R.C. & Biklan, S.K., 2007. Qualitative research for education: An introduction to theories and methods, 5th Edition. Boston: Pearson. Available at: https://www.researchgate.net/publication/307981818_Qualitative_research_for_education_An_introduction_to_theories_and_methods.
- Borg, S., 2010. Language teacher research engagement. *Language Teaching*, 43, 391-429. Available at: <https://doi.org/10.1017/S0261444810000170>.
- Brown, J.D. & Rodgers, T.S., 2009. Doing second language research. Oxford: Oxford University Press. Available at: https://www.researchgate.net/publication/313169036_Doing_second_language_research.
- Burns, A., 2009. Doing action research in English language teaching: A guide for practioners. New York: Routledge. Available at: <https://doi.org/10.4324/9780203863466>.
- Cohen, L. et al., 2018. Research methods in education, 8th Edition. London: Rutledge. Available at: <https://doi.org/10.4324/9781315456539>.
- Larson-Hall, J., 2016. A guide to doing statistics in second language research using SPSS and R. New York: Routledge. Available at: <https://doi.org/10.4324/9781315775661>.
- McCrostie, J., 2010. The right stuff: Hiring trends for tenured university positions in Japan. *The Language Teacher*, 34(5), 31-35. Available at: <https://doi.org/10.37546/jaltlt34.5-2>.
- Nunan, D., 2008. Research methods in language learning. Cambridge: Cambridge University Press. Available at: <https://doi.org/10.1017/s0272263100012924>.
- Richards, J.C. & Lockhart, C., 2010. Reflective teaching in second language classrooms. Cambridge: Cambridge University Press. Available at: <https://doi.org/10.1017/CBO9780511667169>.
- Sholdt, G., 2006. Exploring issues surrounding the use of post-reading activities, monitoring, and grades in an extensive reading approach. *The Journal of the Teacher Education Program*, Himeji Dokkyo University, 16, 76-91. Available upon request.
- Sholdt, G., 2011. Getting started with quantitative research: A first study. *The Language Teacher*, 35(4), 52-54. Available at: https://jalt-publications.org/sites/default/files/pdf/the_language_teacher/35.4tlt.pdf.
- Sholdt, G., 2012. Report on the development and pilot of a Moodle-based teacher research training project. *Journal of the School of Languages and Communication*, Kobe University, 8, 69-80. Available upon request.
- Sholdt, G., 2017. Procedures for a first-step quantitative study: Exploring written fluency. In P. Clements, A. Krause, & H. Brown (Eds.) *Transformations in language education*, pp. 377-386. Tokyo: JALT. Available at: <https://jalt-publications.org/files/pdf-article/jalt2016-pcp-049.pdf>.
- Sholdt, G., 2019. Sharing experiences from the 2018 Quantitative Research Training Project Extensive Reading in Japan, 12(2), 3-5. Available at: http://hosted.jalt.org/er/sites/jalt.org.erfiles/ERJ/erj_issue_12.2.pdf.
- Strunk, K.K. & Mwavita, M., 2021. Design and analysis in educational research using JAMOV: ANOVA designs. London: Routledge. Available at: <https://doi.org/10.4324/9781003154297>.
- Trochim, W.M.K. & Donnelly, J.P., 2008. The research methods knowledge base, 3rd Edition. Mason, Ohio: Cengage Learning. Available at: https://www.researchgate.net/publication/243783609_The_Research_Methods_Knowledge_Base/references#fullTextFileContent.
- Turner, J. L., 2014. Using statistics in small-scale language education research. New York: Routledge. Available at: <https://doi.org/10.4324/9780203526927>.