

SEEKING SAVVY: A SURVEY COURSE

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Abstract

English remains a primary science language in the world today. Naturally, when teaching (non-English) science majors, it behooves students if course content is related to their field of study. Such a course can aid learners' improving their competence in communicating complex ideas to the layperson while simultaneously helping make them cognizant of that which others are aware about their field. This paper will discuss the development, implementation, and results of a syllabus designed for and deployed in two separate EFL classes of environmental science students. The course, adapted from material developed by Tomei (2014), focused on the composition, conducting, analysis, and presentation of surveys by students in small groups, and was divided into a series of incremental tasks subsequently building up to a survey project in which students performed each step culminating in conference-style poster presentations. In addition to data collected through instructor observation, upon completion of the course, student responses regarding motivation, perceived success, and recommendations for future classes were collected and analyzed. Initial results indicate that, while there still exists room for improvement, learners recognized the merit of the course and valued the opportunity to simultaneously develop both language and major-related competencies.

1 Introduction

It is often no easy task to begin a required university EFL class for non-English majors. The number of enthusiastic students is inevitably, and not surprisingly, lower when most are only there because they have to be. While implementing a syllabus focused on daily conversation and regular communication may benefit some members of such a class, it may not have much long-term gain for others. Furthermore, if a class composed of non-English majors could be faced with distinct language in their field in the future--engineering for instance--it makes sense to specifically focus on that field--English for engineering, for example. Hence the current trend of English for specific purposes (ESP) in EFL (Hutchison & Waters, 1987), particularly in Asia, where a dedicated ESP journal has existed since 2005 (The Asian ESP Journal, 2014). After all, if students can engage in the very kind of language in which they will be working in their careers, why not pursue such a curriculum, for students' future use?

This paper is a report on the implementation of a project-based course for environmental science majors. With his permission, I adapted a plan originally conceived by Joe Tomei (2014) focusing on survey projects, in which small groups of students compose survey questions, conduct a survey, analyze results data, and give a presentation on their findings. As explained in the next section, this was for the twofold goal of providing students with experience communicating field-specific content in English, and eliciting student interest and perceived worth of the course by doing so (Hutchinson & Waters, 1987).

2 Background

Upon being introduced to the survey project idea by Tomei (2013), it seemed like a promising fit for the EFL classes I was teaching for (non-English) science majors. As stated above, in Tomei's (2014) original plan, the survey project was a one-off, several-class affair. For the purpose of the current study, the plan was expanded upon to fit a full semester. This section will discuss the impetus for developing this curriculum and its design, as well as the specific situation in which it was implemented.

2.1 Motivation for the design

The course in which the current study was implemented was one commonly found in Japanese universities. Titled Language Communication, it is a once-per-week 90-minute class required of all students in the Faculty of Environmental Science. I have taught this class for several years as a part-time instructor. In the semesters leading up to this new survey project course design implementation, I had been attempting to adapt a basic speech course, across consecutive semesters, for the purpose of eliciting both spoken English and environmental science content in English. The results of this attempt have previously been documented in detail (Hensley, 2011), but in brief, the semester stages were as follows: 1) individual speeches presented in both small groups and plenum-style, in which only the final speech was on an environmental topic; 2) individual plenum speeches all on environmental topics; 3) individual speeches in which all were presented to small groups on non-environmental topics except the final, which was plenum and on an environmental topic; 4) a shift to a more task-based style, in which a cycle of study-preparation-present was employed with students working cooperatively in pairs, and all speeches were plenum and on environmental topics. The final iteration of the above adaptations (stage 4) received the most positive feedback from students on course-final evaluations. Having in-class time to prepare a speech cooperatively with a partner seemed to be favorable to the students, despite the requirement that all speeches be on environmental topics. Where this syllabus design still seemed to fall short was in the quantity and quality of field-specific (environmental science) English used, as well as the skills being garnered. Despite being encouraged to imagine a target audience of English-speaking schoolchildren, student speeches tended to be jargon-heavy on any given topic (e.g. air pollution), which rendered them largely unintelligible to the rest of the class audience, which served to hinder the very ESP communication I was attempting to elicit. Furthermore, the skills being practiced (e.g., hand gestures) may have proved useful for students in the future, but this was mostly speculative (one student commented that the body language we had practiced would help her when interviewing for jobs). Even after heavy adaptation, the syllabus still seemed inadequate to meet students' ESP needs as environmental science majors.

2.2 From speeches to surveys

Thus, Tomei's (2014) survey project idea seemed to be a logical next step in an attempt to better provide practical major-related (i.e., environmental science) content by "making language use meaningful" (Belcher, 2006, p. 138). While there continues to be much debate on the appropriate method for implementing an ESP curriculum (Belcher, 2006), the pre-existing conditions of the course itself, which are described below, limited what was feasible. The goal of using survey projects was to provide students with a group task, which applied directly to their major study and dealt with actual content (survey results data) to be

communicated (Freedman, 1993). By doing so, it was my hope that students would gain practical experience in real-world data collection (via surveys) concerning self-selected major-related topics of interest, and by doing so would engage in the class more fully and finish the semester recognizing the value of such a course having communicated scientific data at a comprehensible L2 level.

2.3 The setting

As stated above, this survey project course design was implemented in two third-year classes in the Faculty of Environmental Science at a public university in Japan. The classes met once per week for 90 minutes and ran for a total of 16 weeks. The classes were small, with only 17 and 18 students, respectively. Moreover, one section was composed of humanities-focused students, while the other was science-focused. This distinction served to constrain the course design to content generalizable across both classes. As it was the initial rollout of this survey project design, the same course was implemented for both humanities- and science-focused majors in order to obtain common feedback from both kinds of students.

All of the participant students in both classes were (non-English) environmental science majors. For this reason, I wanted as much course content to be environmental science-related as possible. However, not being a specialist in environmental science myself, I had to limit the content depth at which groups would conduct research. Thus, in both classes the final target audience for the survey project presentations was determined to be an English-speaking layperson. This allowed the course to deal with appropriate content, while maintaining an appropriate language level for the students (Weigle & Nelson, 2001).

3 Syllabus design

This section will first introduce the original survey project plan developed by Tomei (2014). It will then describe how Tomei's plan was adapted and expanded to fit a sixteen-week semester course.

3.1 The original plan

In his original plan, Tomei (2014) includes five main steps. First, students are introduced to the survey project and its deadlines. Surveys and survey questions are then introduced by means of a newspaper article reporting on the results of a short survey. Students are required to read the article, then reconstruct the questions (and possible answers). The next step consists of a sample survey, which can be conducted by students in class. Following the in-class practice survey, student groups select a topic and compose their own survey questions and answer choices (where applicable), which they administer outside of class. Finally, students prepare a presentation on their survey results data. Tomei has stated that he typically conducts in-class group presentations via posters and in a round robin format (2013).

3.2 Developing the course

This section will briefly delineate the syllabus developed from Tomei's (2014) original plan, which was expanded to fit a full sixteen-week semester. The first two weeks were kept to a course introduction, icebreaker and get-to-know-you activities (despite being in their third

year, many students in both classes were not well-acquainted with one another), and an introduction to the speaking activities to be used as warm-ups throughout the semester. This was in order to save time on content days by not having to introduce and explain each new activity every week.

The third class introduced data collection by means of an observational campus survey. Students were placed in small groups and sent to different faculties' buildings on campus to observe how environmentally friendly each faculty's building appeared. The following week consisted of groups reporting on their data observations around campus, which they did by means of a simple fill-in-the-blank type worksheet. In the same week, students were introduced to group presentations via a scaffolded group presentation plan. Groups completed the observational data report presentation by entering their results and ideas on the worksheet, dividing sections among them, and then presenting to another group. As this was the first instance of group presentations, the presentations were kept informal, and students were permitted to read from their worksheets if necessary.

Weeks five and six involved the introduction of survey question items and initial conducting of in-class surveys. These lessons were adapted directly from Tomei's (2014) plan, as discussed in the previous section. In week five, students read the newspaper article reporting on the results of a survey and worked backwards to reconstruct the original questions. Once all groups had done so successfully, the survey questions were then administered to the class as a whole, and working graphical depictions of their answers were displayed at the front of the class using spreadsheet software. In week six, as a practice exercise, all the students in each class received a short pre-made survey. Every student then circled about the class and surveyed ten others. When the surveys were complete, students formed small groups, totaled their results, and analyzed their data for interesting results, which a group spokesperson shared with the class (with help from the instructor). Finally, each small group chose a new topic (as this was still in the introductory practice stage, topics did not have to be related to environmental science) and composed eight survey questions. When all groups were finished composing questions, the students once again surveyed the others in the class, this time in ordered groups (in an AA-BB to AB-AB format) so that no two students surveyed the same respondents twice.

Week seven was a full self-contained "dress rehearsal" for the survey projects to come. Students reassembled in their groups from the previous week and then analyzed their results together. Each group then prepared a simple poster, using only one piece of poster paper and a single marker, to present their results. Groups were also provided a scaffolded presentation form worksheet to aid in the composition of their group presentation. This time, the worksheet included the following four sections: introduction, expected results, unexpected results, and surprises/points of interest. Using their simple posters and presentation worksheets, the groups performed round robin presentations to one another. With this lesson completed, students should have possessed all the necessary information and materials with which to successfully complete the survey projects.

Week eight began the first of two survey project cycles. The first cycle took four weeks and included the following steps: 1) students form groups, choose a topic related to environmental science, and compose survey questions, with homework being to conduct their survey; 2) groups combine their results and analyze their data; 3) after a short introduction on how to

express data in English, groups make posters and prepare presentations; 4) group presentations. In this first project cycle, students were allowed to choose their own groups and topics, provided they relate to environmental science. Each student was instructed to survey at least 20 people for homework between weeks one and two in the cycle. Because each group contained four or five students, groups finished with 80 or 100 total respondents.

Week twelve began the second survey project cycle. This project was similar to the previous one, but with a few key differences. Instead of allowing them to choose their own groups, I grouped the students, as much as was possible, according to similar majors and research interests (e.g., green energy, environmental law, or invasive species). Groups were to select a topic which reflected their collective research interests. The rest of the project cycle was conducted similarly to the first, but with an extra preparation and practice week added in (for a total of five weeks) before the final presentation day.

4 Feedback

As this was my first attempt implementing this type of course, I felt that more feedback than my own instructor observations and the standardized university class evaluations would help in assessing whether the course had been successful, or indeed should be continued at all. It would have also been a bit too ironic were a course on surveys not to include its own final survey. The following two sections are, respectively, an introduction to the questionnaire developed for and administered to the students, and the results of said questionnaire.

4.1 The questionnaire

Because the purpose of the questionnaire was to ascertain the success of the course, and not a test of students' L2 ability, the questionnaire itself was entirely in Japanese, the students' L1. It began with a brief description of the purpose of the questionnaire and stated that students' personal information would be kept confidential. At the end of the questionnaire, students also responded as to whether or not they permitted their answers to be anonymously shared for research purposes.

Questionnaire items were arranged pseudo-randomly, so that no two similar questions were adjacent (Dörnyei, 2007). Most items were either multiple choice (e.g. "Had you ever experienced a course like this before?" Yes/No/Not sure) or a visual analog scale (VAS) (Crichton, 2001) line continuum on which students were asked to make a single mark (e.g. "How useful were the provided materials?" Not useful-----useful). As the questionnaire was administered on paper, students drew a single vertical line on the VAS for the latter question type, which allowed for quantification of the results by measuring where on the continuum the vertical line was placed. The VAS was chosen in replace Likert scales in an effort to more finely ascertain students' subjective responses. VAS question items included general course feedback ("What did you think of this survey project course?") as well as more specified items ("Were two surveys projects a good number, or would one, larger project have been preferable?"). One item asked students to rank by order of preference what kind of language class they would want to take: conversation, TOEIC preparation, the current survey project course, or an L2 presentation/speech course. Finally, two open-ended items were included: advice for improving the course, and general comments.

4.2 Results

Despite the two classes being composed of humanities-focused and science-focused students, the questionnaire results were similar in many areas. In each class (humanities and science), 71% of students reported never having experienced this type of class before. Both classes were evenly split on their preference for the self-selected project topics versus the similar research interest topics. Both classes responded that provided materials were helpful at an average rate of 89%, the stepwise introduction to surveys was helpful at an average rate of 80%, and the course's collection and use of data was appropriate at an average rate of 79%. Additionally, students responded that their overall opinion of the course was positive at an average rate of 97%. Likewise, students responded that something from the course was perceived as helpful for the future at an average rate of 97%. Both classes were also overwhelmingly in favor of two survey projects (as opposed to one) at an average rate of 89%.

While still similar, the humanities-focused and science-focused classes differed slightly on their ranking of type of language course they would prefer to take. For this item, students assigned a number, from one to four, for each of the four class types given. Each student assigned 1+2+3+4 rank points for a total of ten, where a lower score equaled more preferable, and a higher score equaled less preferable. The humanities-focused students responded that the current survey project course was their preferred course type, with a regular conversation-style class second. The science-focused students were reversed on this item, with a conversation-style class ranked first and the current survey project course second. However, out of a possible total 170 and 180 rank points from each class, respectively, the difference between the first- and second-ranked class types was only five points for the humanities-focused students and six points for the science-focused students.

More marked differences appeared on items regarding specific survey types and methods. The humanities-focused students found the instructor-selected similar research interest projects helpful at a rate of 83%, while the science-focused students responded thus at a rate of 67%. For the student-selected project topics, the science-focused students responded they were helpful at a rate of 85%, while the humanities-focused students did so at a rate of 72%. Furthermore, when asked whether they preferred the "analog" poster and marker-style presentations, or would have rather used a more digital, computer-based format, humanities-focused students selected the "analog" style at a rate of 82% (12% "Not sure"), whereas the science-focused students selected the "analog" style at a rate of 65% (35% "Not sure").

Lastly, in the suggestions and comments sections, six students (five humanities-focused, and one science-focused) responded that they wanted even more opportunities to use the L2 in class.

5 Discussion

Overall, the results of the questionnaire, provided in the previous section, were encouraging. The overall opinion of the course was positive at a rate of over 90% for both humanities- and science-focused students. This seems to indicate that, while slight adjustments could be made based on some items' responses, this survey project-style course seems amenable to different kinds of environmental science majors. One humanities-focused student commented that it was interesting being able to use English as a tool to accomplish a task. Two different

science-focused students commented that this course style was interesting, as they had never experienced this type of (English) class before.

Both classes also seemed to agree that the two survey projects conducted in class were preferable to one, larger project. One humanities-focused student commented that the class moved at a good pace, indicating the number and length of projects was acceptable. While the class only met once a week, spending more than a month on a single project may have had the undesirable effect of lowering motivation. Based on my instructor observations, students appeared to welcome the change in groups at the end of the first project. In fact, one student commented that I should make sure the project groups are composed of all new members, as their second project group had overlapped with their first. Naturally, it follows that having to work with the same group for a longer duration may not suit these particular students.

Each class responded more positively to one of the two projects (self-selected vs. grouped by research interest) than the other. It may be the case that self-selected groups and projects are more preferable to science-focused students, while instructor-selected similar research interest groups and projects are more preferable to humanities-focused students. This seems to suggest that the project groupings and topics would be better served by differentiating between student types.

The class type preference ranking was somewhat unexpected, with both classes ranking the current survey project course and a regular conversation course nearly the same. On the one hand, this means that students find the current survey project course at least as useful as a regular conversation course; on the other hand, the argument could be made that running a conversation-style class would be just as beneficial to the students. This response must be viewed carefully, however, as most students' idea of a regular conversation class is likely one which is informal and both homework- and content-light. Viewed from this perspective, the fact that students rated the survey project course nearly identical with a lighter content conversation-style class is encouraging.

Generally, the responses and student feedback from both classes concerning this first attempt at implementing a survey project curriculum are promising. Positive responses were in the majority, and students reacted positively to most aspects of the course. When asked what was the strongest feature of the course, 49% of students responded "group work", 23% responded "class atmosphere", and 14% mentioned how English was used to administer an actual survey with "real" data results. Ironically, 17% of students responded that the weakest feature of the course was the effort required in surveying twenty people outside of class. Still, these students were in the minority, and as students were only responsible for conducting two surveys outside of class over the sixteen-week semester (with most course work being completed in-class), it does not seem appropriate to alter this aspect of the course.

5.1 Room for improvement

There are several immediate improvements to be made to facilitate student use of the L2 as well as encourage more consistent participation. First, every class period would seem to benefit from the inclusion of at least one conversational activity. A warm-up activity was a part of the beginning of most class periods, but adding a warm-up to every class session, as well as another mid-lesson speaking "break" may serve to incorporate more of a

conversational element to the course, which students rated highly in their responses. Naturally, such a “break” could be connected to that day’s lesson’s content. Another immediate improvement to be made seems to be to reshuffle groups more carefully between first and second survey projects. As students responded that two survey projects were preferable to one, more care could be taken on group makeup. In a similar vein, one of the key issues I observed during project group work was, in some groups, a lack of leadership and structure. Some groups were able to divide up responsibilities (e.g. two students working on the poster while two students worked on the presentation) and begin work rather quickly. Groups without a definite leader or active dynamic, however, were sometimes flagging in their progress without direct intervention from myself as the instructor. As this was the first implementation of this survey project course, I left self-management largely up to the groups themselves, and only intervened when necessary. This would seem a fertile ground for the application of a more deliberate group structure during the survey projects. A more cooperative learning (CL) approach (Johnson, Johnson & Holubec, 1994), with assigned roles and duties, may serve to benefit group progress and, ultimately, groups’ final products.

6 Conclusion

Despite the areas which emerged as needing improvement the overall student reaction to the initial implementation of this survey project course was positive. Student responses to the in-class questionnaire indicated that students perceived as helpful both the course itself and its component parts, such as the step-by-step introduction to surveys and scaffolded handout materials. The majority of students in both classes reported that this kind of course was a novel experience, with several students commenting that the course was enjoyable because of this fact.

While some students expressed a desire for more English conversational opportunities--indeed, a conversation-style course design was rated nearly the same as this survey project course--students appear to have recognized the practical value of this ESP course in their field of study. While only an initial pilot of an ESP course utilizing survey projects, it is my hope that this paper serves to enrich the field of ESP and provide EFL instructors with a novel course design adaptable to their own, unique situations.

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