8 Facilitating the development of collaborative online dictionaries in the ESP field

Eleni Nikiforou[1]

Abstract

The English for Specific Purposes (ESP) field is currently receiving a lot of attention as researchers and practitioners seek to improve the learning experience for the students and raise the quality of the courses. To advance ESP practice, it is crucial that teacher training in ESP is enhanced and supported through exemplary practices. Vocabulary development is established as a central trait in ESP, yet it still poses a challenging aspect of the teaching practice. This chapter discusses a specific vocabulary task through which guidance is provided to teachers in order to facilitate the development of ESP vocabulary in their ESP teaching contexts. This research reports on the results of data collected from a course in a tertiary institution in Cyprus where ESP students worked collaboratively to create an online biomedical dictionary on a wiki. The research conducted is qualitative, and grounded theory was applied. Finally, this chapter concludes with certain criteria which afford the application of this vocabulary enhancement task in any ESP and English as a Foreign Language (EFL) course across different language levels as well as in mixed ability classrooms.

Keywords: ESP, online dictionary, collaboration, wiki, teacher training.

1. University of Cyprus, Nicosia, Cyprus; eleninik@ucy.ac.cy; https://orcid.org/0000-0002-3603-5091

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1. Introduction

One of the key aspects of ESP teaching is the enhancement of the students' vocabulary in the specific area they are studying. Dudley-Evans (1998) includes vocabulary as one of the absolute characteristics for ESP: "ESP is centered on the language appropriate to these activities in terms of grammar, lexis, register, study skills, discourse and genre" (p. 6). Further to this, vocabulary learning is often viewed as a challenge for language learners (Akbarian, 2010; Coxhead, 2013; Weil, 2008). To enhance the development of ESP vocabulary, language instructors need to design tasks and use information technology tools that support the learning process (Chen, Doong, & Hsu, 2013; Ching, 2012). This chapter illustrates a specific vocabulary task that ESP instructors can apply in their language classrooms in order to enhance the learning of new ESP vocabulary items. It discusses aspects of the design and administration of the specific vocabulary task in order to enable the discussion of those conditions that need to be met for the task to be used effectively in ESP courses. The task may be transferable to other ESP courses and it can be adjusted to suit different levels of language learning.

More specifically, this chapter looks at the variety of contributions made by students on a wiki in order to create their own biomedical dictionary in an English for Biomedical Sciences course offered to undergraduate students of the University of Cyprus so that the discussion on how teachers can apply the task is afforded.

A wiki is an online tool that has the features of a website and allows multiple users to collaborate "allowing any user to add and edit content" (Oxford Dictionary[2]). The wiki as a tool is distinctive because of its "dynamic and constantly changing web-based environments" (Aydin, 2014, p. 208). There are multiple studies that support the use of the wiki for collaborative language learning (Bradley, Lindstrom, & Rystedt, 2010; Kessler & Bikowski, 2010; Matthew, Felvegi, & Callaway, 2009).

2. https://en.oxforddictionaries.com/definition/wiki

The majority of the studies on the use of wikis in language classrooms focus on the improvement of writing skills through collaboration (Arnold, Ducate, & Kost, 2009; Bradley et al., 2010; Li, 2012; Wang, 2015). No research studies were found that focus specifically on the development of vocabulary skills with the use of wikis. In fact, Kilickaya and Krajka (2010), in a study about the teachers' technology use in vocabulary teaching, found out that the wiki is rarely used for vocabulary development. However, the development of vocabulary skills is mentioned in a few studies as a skill that can also be improved through the wiki application in the language learning classroom (Carney-Strahler, 2011; Wiseman & Belknap, 2013).

2. Methodology

2.1. Context

The course, English for Biomedical Sciences, as an ESP course followed a student-centred approach, taking into consideration the learner-needs and the context. Furthermore, the course also applied blended learning, collaborative learning, and task-based language learning methodologies.

Data was collected from the completion of a vocabulary task that involved the students working collaboratively to create an online biomedical dictionary on a wiki, for which the free version of pbworks wiki was used. The wiki was password-protected; therefore, only the students taking the specific course, and their instructor, had access to it. The instructor introduced the task in-class and gave the guidelines which entailed the addition of three vocabulary items (in alphabetical order) on the wiki dictionary page approximately once a week during the 13-week semester. Further to this, the students were informed that this task was not graded. The task commenced in Week 2 and continued to Week 13.

This task was designed to support a variety of activities and projects that were included in the course syllabus. The words added to the dictionary were

selected by the students from the course authentic online material as well as material from books used for reading, listening, writing, and speaking tasks. For example, students added words in their online dictionary after reading an article, completing a listening task, and researching sources for their scientific poster presentation. The students were asked to provide a definition, as well as an example sentence for each vocabulary item. They were also encouraged to offer more information such as pronunciation guides for each lexical item, word parts, pictures, and videos, but this was optional.

Students were required to enter new words in the dictionary that had not been already added by their peers. This supported scaffolding of the vocabulary level of difficulty as the students chose the vocabulary items based on their own individual language level and language competency. As well as learner autonomy, as they were in control of selecting the vocabulary items for the wiki.

2.2. Participants

There were 29 participating students in the study. They were first and second year undergraduate students from the Department of Biological Sciences. There were 21 female and eight male students. Although descriptors at Common European Framework of Reference for languages (CEFR) level B2 are embedded in the course syllabus, the actual level of the students, as indicated by a diagnostic test given at the beginning of the semester, was mixed ability, varying from A2 to C1.

2.3. Grounded theory approach

This research project followed a grounded theory approach, which is defined as the "discovery of theory from data" (Glazer & Strauss, 2009, p. 1). Grounded theory has an "inductive but systematic approach to design and data analysis" (Gray, 2009, p. 171) as the theories derive through the analysis of rich data (Charmaz, 2006, p. 14). The application of this approach enables surfacing concepts to initiate further research in the area. In this research project, the

retrospective quality of grounded theory helps the researcher gain a good insight into the learning processes that occur. In addition to this, it facilitates the development of specific criteria that teachers need to follow in order to transfer this task to their own professional practice.

An integral part of grounded theory is coding, as it helps in the "conceptualization of data" (Holton, 2007, p. 238). In this research project, the emergent themes were identified in a comparative analysis, which in turn enabled the formation of the three categories (student collaboration, frequency of participation in the task, quality of participation in the task) as discussed in the data analysis section below.

The collected data were analysed and coded following the principles of grounded theory. The wiki history page provided most of the data for this research project. Furthermore, student questionnaires (n=29) and three student semi-structured interviews offered a valuable insight on diverse aspects of the task and afforded the triangulation of results.

3. Data analysis

The history of the wiki page was coded to allow for themes to emerge following the guidelines of grounded theory. The transcripts of the interviews were coded and analysed, focussing on similarities and differences so that themes could surface. Finally, the student questionnaires were analysed using Microsoft Office Excel Spreadsheets because of the small number of questions and participants. The themes that derived from the data analysis were translated into the following three categories as shown in Table 1 below:

- student collaboration to complete the task;
- student frequency of participation in the task; and
- student quality of participation in the task.

Table 1. Data analysis

Source	Themes	Categories
• Wiki history page • Wiki page • Questionnaire and interviews	• Student involvement in other people's entries • Outcome of the task • Motivation • Student collaboration • Addition of vocabulary items • Editing other students' work • Maintaining the appearance of the wiki dictionary page	• Student collaboration
• Wiki history page • Interviews	• Number of student revisions on the wiki page • Dates of students' edits on the wiki page • Time spent on the task • Frequency of additions and revisions	• Frequency of student participation
• Wiki history page • Wiki page • Questionnaire and interviews	• Formatting: changes to the font colour, font size, italics, bold letters • Media: pictures and videos • Editing: surface mistakes (typographical errors, spelling mistakes, and grammar mistakes) • Paraphrasing: rewriting and meaning changes • Outcome of the task • Kinds of revisions • Motivation	• Quality of student participation

4. Results and discussion

4.1. Collaboration

Data analysis indicated that the students collaborated to enter vocabulary items and to make meaning changes in the online dictionary. The wiki history page demonstrated that all students (n=29) added different vocabulary items from each other, and most of them (n=24) edited the words added. Student interviews support the above findings. A theme that derived from all three interviews was that the students spent some time to confirm that the words they planned to add had not already been entered on the online dictionary. This was an indication that the students collaborated by assuming responsibility for the definition of different terms. This is an indicator that the dictionary development, in relation to the variety of the word items added, was the result of student collaboration.

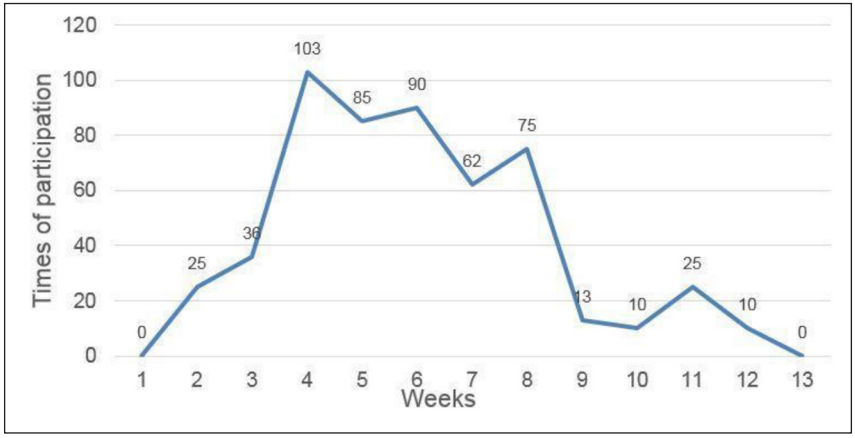
Furthermore, the students collaborated to format and edit vocabulary items as well as to add pictures and videos as reflected on the wiki history page. The history page showed that 17 students improved spelling mistakes or surface grammatical errors in other students' vocabulary items. Approximately half the students (n=15) also added pictures or videos to each other's word entries. It is interesting to note that the number of students (n=13) who had originally added the vocabulary items noticed these additions and revised what their classmates added to their word entries by making mainly formatting changes. The results from the student questionnaires also confirm that to a great extent students collaborated to improve the entries on the online dictionary in the areas of media, formatting, editing, and to a lesser extent they collaborated to improve the meaning of those entries by paraphrasing (see Table 2 below).

4.2. Frequency of participation

The students started to enter and edit their vocabulary items in Week 2. There was a radical increase in Week 4 in the number of times the students edited the online dictionary (see Figure 1 below). The analysis of the data from the wiki

page illustrated that the students added not only definitions and examples of the vocabulary items, but also pictures and videos. They also made formatting changes.

Figure 1. Arabic 1 frequency of participation



As reflected on the wiki history page, four students added pictures and videos on the wiki during Week 3. This seems to have motivated the majority of the students (n=22) to revisit their vocabulary items to add pictures and videos as it was evident on the wiki history page in Weeks 4 and 5. This was an indication that the students were interested in the outcome of the dictionary, and it also illustrated that the students wanted to offer consistent and coherent information for the word entries.

The frequency of participation remained high with only a significant decrease in Week 9 when the students took their midterm exam as they were not required to add words in the wiki. It is also noteworthy that after Week 10 the students were not assigned any specific homework in relation to this task, so any additions and/or edits were their own initiatives. When asked in the student interviews on whether they visited the online dictionary and worked on it after Week 10, the students' responses showed different points of view:

> "I did not put [sic] anything, but I visited the dictionary to see it again. We did not have homework, so I don't work but I got an email [from pbworks] about changes and want [sic] to see them" (Student 1).

> "I wanted to add vocabulary because it was fun" (Student 2).

> "I didn't add words, but I uploaded pictures for two words that I put in the past" (Student 3).

4.3. Quality of participation

While examining the kind of modifications that the students did on the wiki page, as well as their responses to the questionnaire and student interviews, four themes surfaced that relate to the quality of their work (see Table 1 above):

- formatting: changes to the font colour, font size, italics, bold, etc.;
- media: addition and deletion of pictures and/or videos;
- editing: surface mistakes such as typographical errors, spelling mistakes, and grammar mistakes; and
- paraphrasing: rewriting the items using their own words and meaning changes (see Figure 2 below).

More than half of the changes (53%) that took place after the items were added on the wiki related to format changes. Format changes included modifications to the colour or the size of the fonts, capitalisation, use of italics, or bold letters. This percentage indicates that the students spent time taking care of the appearance of the wiki page. This is also supported by their responses in Question 7 and Question 8 in the questionnaire as shown in Table 2 below. From the student responses in the interviews, it was evident that the students' formatting changes stemmed from a variety of incentives. It seems that certain students might

have found it easier to deal with formatting changes, others were interested in improving the appearance because this would enhance the learning process, and other students might have edited for their own personal reasons:

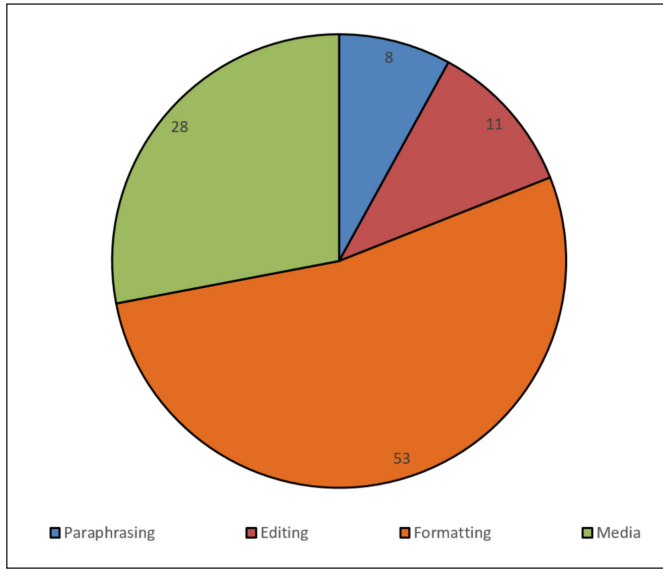
> "It's easy to change letters…um…the colour…so I help this in the wiki" (Student 1).

> "I wanted the dictionary to look good so it was easy to find the words" (Student 2).

> "I have OCD, I wanted to fix everything" (Student 3).

As only three students were interviewed, there cannot be a generalisation regarding formatting changes but nevertheless, it is an indication as to how the students approached the task.

Figure 2. Arabic 2 quality of participation



Another percentage (28%) related to the media uploaded on the wiki, which included both adding and/or deleting pictures and videos or changing the pictures and/or videos. This percentage increased in Weeks 3 and 4 after four students added the first pictures and videos in Week 2. This was an indication that they may have found the media useful in the understanding of the vocabulary items. This was also supported by all three student interviews as the students stated that the use of media helps them "understand difficult words" (Student 1), "made the definition of the words complete" (Student 2), and "help illustrate the meaning" (Student 3). It is interesting to note that five students returned to delete already existing videos and pictures and add new ones in different word items as shown on the history page of the wiki. A reason for this was provided by Student 3 in the interview, as they pointed out that they "deleted videos and found better ones to explain the words". The replies to Question 3 and Question 4 relating to the media in the questionnaires also agree with the findings from the wiki and the interviews (see Table 2).

The students (11%) improved editing issues on the online dictionary including surface mistakes such as spelling mistakes, typos, and grammar mistakes as well. Surface mistakes were corrected once and students did not come back to them which explains the low percentage of changes. The majority of the students supported that they edited their work (nu.=16 agree or strongly agree) and other students' work on the wiki (n=21) as shown in the results of the student questionnaire in Table 2.

Only 8% of the changes related to paraphrasing and rewriting the items using their own words. This was not surprising for the researcher, as the students were introduced to paraphrasing later in the semester whereas the online dictionary was developed in the beginning of the semester. However, this percentage indicates only the changes that occurred after the items were added to the dictionary. This means that they could have already been paraphrased upon their addition to the dictionary. Student questionnaires showed that approximately half the students (n=15) edited their own entries for meaning and only four students edited other students' work for meaning (see Table 2).

Furthermore, it is noteworthy that each vocabulary item was formed by accumulating information from different sources as the actual wiki page showed, for example for the definition of the word *meiosis* the students used an online dictionary for the pronunciation guide and word part, Wikipedia for the definition, and YouTube for a video that explains the word. The students used a variety of sources in researching and writing the information for each vocabulary item as the end-result illustrated on the online dictionary. This was also supported from the student questionnaire, as 28 students strongly agreed that they used two or more sources to collect information before adding work on the online dictionary (see Table 2).

Data from the questionnaire, in an open-ended question on the student's opinion on the task, indicated that the students found the development of the online dictionary: 'useful' (n=19), 'motivating' (n=26), 'fun' (n=13), 'easy' (n=27), 'interesting' (n=22), 'worthwhile' (n=9), and 'appropriate' (n=4). Further research is necessary to indicate as to why the students attributed these characteristics to the task and to confirm the hypothesis that results from the use of these adjectives.

Table 2. Questionnaire results

Question	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Overall, I enjoyed working on the online dictionary task.			2	15	12
I added three words every week.				2	27
I added media (pictures and/or videos) to the words I added.			2		27
I added media (pictures and/ or videos) to the words other students added.		7	4	13	5
I edited the words I added.		10	3	15	1
I edited other students' words.		5	3	20	1
I changed the colours, the fonts, italics on the dictionary of the words I added.			2		27

I changed the colours, the fonts, italics on the dictionary of the words other students added.		6	3	8	12
I corrected/edited the meaning of the words I added.		12	2	14	1
I corrected/edited the meaning of the words other students added.	8	14	3	3	1
I collected information from only one source.		27	2		
I collected information from two or more sources.			1		28

5. Conclusions

It should be noted that the specific task was perceived as effective since the students spent time working with ESP vocabulary items and created their own ESP dictionary. However, the application of the grounded theory approach in the project, which is inductive in nature, facilitated only the students' perspectives to surface from the data analysis.

The data were collected and analysed from the specific context, course, and students offering the student perspective; therefore, generalisations should be avoided. More research would enable a greater insight in the task to establish the actual learning outcomes resulting from the specific task. Further to this, the task should be repeated in different contexts in order to confirm the results of this research project and evaluate the characteristics suggested below.

As mentioned above, the specific task enabled the students to work with vocabulary and to create their own artefact. For such a task to work in language rooms, we need to apply the characteristics that increased its effectiveness and can potentially make the task transferrable to other language learning contexts.

The following task characteristics are likely to have contributed to the effectiveness of the task:

- ownership: the students felt that they were creating an artefact that belonged to them and they wanted to make sure that it was coherent, effective, and engaging;

- scaffolding: the students were able to contribute to the task to the extent of their abilities – the weak students could contribute with easier words and the stronger students with more challenging vocabulary;

- autonomous learning: the students were given control over the content and they were encouraged to assume responsibility for their learning;

- safe environment: the wiki was password-protected so only students taking the course could access the dictionary; and

- task rationale: the students could relate to the rationale behind the task which motivated them to add the vocabulary items and to edit them.

These characteristics that have afforded the enhancement of vocabulary skills in ESP courses may be used as criteria for the successful application of the task in other teaching contexts. With careful planning and introduction, this task can be successfully transferred to a variety of contexts, content subjects, and levels. Language practitioners can use this task in their ESP courses to further enhance the development of ESP technical vocabulary. Further research is recommended to identify how the students respond to this type of task in order to further improve its implementation in the language learning classroom and other ESP contexts.

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