ESP vs. EGP: Investigating English Needs of University Students in Transportation Science

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Abstract

The goal of this study was to investigate the English needs of Transportation Science students and examine similarities or differences between teachers' and students' perceptions on their needs; specifically, this study attempted to understand their views on English for general purposes (EGP) courses and English for Specific Purposes (ESP) ones. For these purposes, a questionnaire survey was distributed to senior students. Then, eight volunteered students, two English instructors and three subject instructors were interviewed. Based on the questionnaire and interview data, four themes were identified. First, Transportation Science students' English needs and wants were different from their English lacks. Although the results showed that the students lacked ESP skills, they believed that they needed and wanted to learn EGP skills. Second, both instructors and students agreed that students needed to improve general English proficiency, especially speaking. On the other hand, the instructors questioned the feasibility of ESP courses due to the lack of qualified ESP instructors. Finally, regarding their views on ESP courses and EGP courses, both instructors and students held a similar view that EGP courses were more essential than ESP courses as it was more urgent to improve students' general English proficiency.

Keywords: English for Specific Purposes; needs analysis; transportation science; teachers' perceptions; students' perceptions

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1. Introduction

With the impact of globalization, English is becoming highly valued and is regarded as a major medium of international communication. Therefore, the demand for non-native English speakers who want to learn English in their particular domain is growing increasingly. In English-as-a-foreign-language (EFL) countries, before entering workplace, EFL speakers' English ability is mostly developed in English courses at school (Lin, 1995; Wang 2004). For instance, most of the Taiwan universities offer required English courses for freshman students and elective English courses (Liu 2005). However, whether these English courses meet the needs of students in different departments remains uncertain. Huang (1998) showed that English courses offered at most universities in Taiwan might not have been successfully helping and motivating students to improve their English performance. Moreover, English courses at universities have been criticized for not fulfilling students' different language needs (Chia, Johnson, Chia, & Oliva, 1999; Leki & Carson, 1994; Littlewood & Liu, 1996; Liu, Chang, & Sun, 2011.).

To better prepare students, English needs of students in different fields have been investigated, including medical science (Chia et al., 1999), maritime science (Chang & Wang, 2012), engineering (Kaewept 2009; Spence & Liu 2013), and business (Crosling & Ward, 2002; Forey, 2004; Leena, 1996; Zhang, 2013). Some of these studies revealed that English courses at universities, which often covered English for general purposes (EGP) topics, were not able to fulfill students' expectations (Chia et al., 1999).

Some scholars thus suggested English for Specific Purposes (ESP) courses, which are designed based on learners' needs (Kaur, 2007; Tsou, 2009; Chang & Wang, 2012). However, several problems were found in the implementation of ESP courses. For example, Evans and Green (2007) found that learners' insufficient English proficiency

might lead to difficulties in learning ESP content. Secondly, while ESP course design is informed by learners' needs, in reality few ESP teachers conducted needs analysis before teaching (Eslami, 2010; Farhady & Hedayati, 2009; Mazdayasna & Tahririan, 2008). In addition, even when a needs analysis was conducted, ESP teachers might still find it difficult to design ESP courses as teachers and students had different views on the needs (Liu et al., 2011; Xiao, 2006). As a result, whether EGP courses or ESP courses could better meet students' needs remain uncertain.

In order to understand university students' needs and their perceptions on EGP/ESP courses, this study aimed to investigate the English needs of students in Transportation Science. The field of transportation science was chosen because the development of international trade and logistics is becoming increasingly important and yet little research has focused on the English needs of this specific field. Therefore, this study aimed to understand the needs of students in this field and to compare the perceptions among students, subject instructors, and English instructors in order to gain insights and give suggestions to enhance their English language curricula. This study was guided through the following research questions:

1. What are Transportation Science students' perceptions of English needs?
2. What are English instructors' and subject instructors' perceptions of student's English needs?
3. What are the similarities and differences between the perceptions of instructors and students?

2. Methods

2.1 The participants

The student participants were 84 senior students majoring in Transportation Science at a Taiwan university. The reason for choosing senior students is that they have taken most of their subject courses and English courses. Therefore, they are most likely to have enough knowledge about their field to identify their needs, wants and lacks.

The instructor participants included two English instructors and three subject instructors. The English instructors taught Transportation Science students in Freshman English courses and the subject teachers taught the content courses. The criterion for choosing the instructor participants was that they had had more than four years of teaching experiences, so that they would have enough experiences teaching this group of students and might better understand the students' needs, wants and lacks in terms of English.

2.2 Questionnaire

The questionnaire design of this study followed Hutchingson and Waters' (1987)

needs analysis. Hutchingson and Waters divided needs into three subcategories: needs, wants, and lacks. Needs are referred to as the knowledge that learners have to know in order to function effectively in a target situation. Wants mean learners' own perceptions of their needs and their wants could greatly influence their learning efficacy. Lacks are defined as the gap between learners' target proficiency and existing proficiency or the knowledge that learners perceive as insufficient. The questionnaire was thus designed based on the three subcategories; in addition to the first section that asks students' learning background, the second, third and fourth section of the questionnaire focused on students' needs, wants, and lacks, respectively, in a five-point Likert scale. Each section consists of 20 questions in terms of four language skills and vocabulary, and these aspects were further categorized into EGP orientation and ESP orientation. These questions were adapted from Liu et al. (2011) and Atai and Shoja (2014). For example, an item in their questionnaires, "speaking with foreigners in English," was adopted as an EGP speaking question, whereas another item "translating technical texts" was deleted because it was less relevant to the four language skills and vocabulary. After the questionnaire was finalized, it was then translated into Chinese.

In order to obtain the consent from students to participate in this study, the head of the Department of Transportation Science was informed about this study by e-mail first. Then the senior students were invited. After they agreed to be participants, the questionnaire was emailed to the students because they did not attend the same course together. Therefore, it was difficult to have all of them fill in the questionnaire at the same time. All of the 84 questionnaires were collected and sent to one of the researchers by a class representative.

2.3 Interviews

In order to triangulate the data, semi-structured interviews were held with students after they finished answering the questionnaire. Eight students were randomly selected from those who volunteered to be interviewed based on their average scores in their English courses in order to understand the perceptions of students with different English levels. Four students who scored 80 to 90 were categorized as higher-level students while the other four who scored 70 to 80 were categorized as lower-level students. As less than four students scored under 70, so these students were not selected as students with lower English level for the interviews. The interviews were carried out in Chinese with which the students were familiar. Each interview with students took place at their classroom separately for about fifteen minutes and was audio-recorded and the responses were transcribed.

Semi-structured interviews were also held with subject and English instructors in order to understand their perceptions on students' needs and lacks. Except for one

English instructor, who was native English speaker and was interviewed in English, the other instructors were interviewed in Chinese. Each interview took place at their office for about 15 to 30 minutes.

2.4 Data analysis

   Descriptive statistics was computed via the Statistical Package for the Social Science (SPSS) Windows version 18 to analyze the questionnaire results. The five-point Likert scale responses were numbered as *strongly disagree* =1, *disagree* = 2, *neither disagree nor agree* = 3, *agree* =4, and *strongly agree* = 5. After means and standard deviations were calculated, the questionnaire responses were tabulated. As for the data from interviews, they were analyzed according to Seidman (2006). The first step was to manage the data. The participants' information was labeled and filed to keep track of the participants' profiles. The student participants in the interview were coded as S1 to S8, with S1 to S4 being higher-level students and S5 to S8 being lower-level students. The instructor participants were coded by pseudonyms. After the interviews were transcribed, data that were most related to students' needs, lacks and wants were identified and grouped. For example, the transcripts that indicated students' needs were piled together and highlighted in a color. After relevant data were grouped, interesting themes were identified by comparing perceptions between teachers and students and by comparing interview data with questionnaire results. For example, both the results of the questionnaire and the interviews showed that most of the students wanted EGP courses rather than ESP courses. The explanations for favoring EGP courses were then further explored in the interviews.

3. Results and Discussion

3.1 Students' perceptions of English lacks, needs, and wants

   This section aims to answer the first research question "What are Transportation Science students' perceptions of English needs?" According to the findings of the students' questionnaires, the skills that students mostly lacked, needed and wanted are listed in Table 1.

   Table 1

   The skills the students mostly lacked, needed and wanted

Skills lacked (Mean)	Skills needed (Mean)	Skills wanted (Mean)
ESP speaking (3.93)	EGP writing (4.11)	EGP speaking (4.20)
ESP vocabulary (3.83)	EGP reading (4.10)	EGP reading (4.19)
ESP writing (3.76)	EGP vocabulary (4.07)	EGP vocabulary (4.15)
EGP speaking (3.75)	EGP speaking (4.06)	EGP writing (4.12)

   As can be seen from Table 1, most of the students believed that they lacked ESP

skills, specifically speaking, vocabulary and writing. Similarly, most of the students from the interviews mentioned that they lacked English speaking skills the most. The students generally stated that they seldom spoke in English and had little chance to practice it. Therefore, they did not know how to speak fluently in English. For example, S2 revealed that his weakest skill in English was speaking,

My weakest English ability is speaking, writing and the amount of my vocabulary…like I said, English speaking is hard to improve because of the environment I live in.

In addition to speaking, ESP writing was another skill that students believed they lacked. Five out of the eight students from the interviews thought that they lacked ESP writing skills but they did not make further explanations. Only S5 attributed his lack of writing skills to insufficient lexical-grammatical knowledge,

If you really want me to choose one English skill that I lack the most, I would say my writing skill is the weakest….because the English vocabulary I know is very little and my grammar is not good either.

The results are in line with Mazdayasna and Tahririan (2008), who found that their students lacked ESP skills. They investigated language needs of undergraduate medical science students in Iran and found that the students had trouble understanding discipline-specific materials in English because they had insufficient English proficiency. Based on S5's explanation, it seems reasonable to assume that students' perception of their lack of ESP skills is a result of their insufficient English proficiency. Another reason for students' lacks of ESP skills may be attributed to scant ESP courses. An examination of English courses at the target university revealed that the university mostly provided EGP courses. Although there was an ESP course offered in the department, the course focused on general English (according to one of the instructor participants, who was the instructor of that ESP course). Therefore, the students might consider ESP skills their lacks rather than EGP skills as the university has provided EGP courses where they could improve EGP skills but not ESP courses.

The questionnaire result showed that students' needs were similar to their wants. Interestingly, while students believed they lacked ESP skills, they considered EGP skills both needed and desired (see Table 1). Moreover, the students in the interview placed great emphasis on speaking. Four students showed they needed speaking skills. S4 further made a detailed explanation why he thought EGP speaking was the most important skill,

I think speaking is vital…like Transportation engineers or business men when you need to negotiate with people from other countries. For example; our MRT system collaborated with companies from Germany or other English speaking countries. I think speaking is the most important when it comes to communication with

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foreigners.

Because the students considered speaking as the most important skill, they were eager to improve this skill. The interview data showed that most of the students wanted to learn EGP speaking skills. S3 gave explanations,

> *I think EGP speaking is enough, because you can communicate with different foreigners in general. As for myself, I want to talk to people from other fields…I want to be able to communicate with foreigners…I think that's what English is supposed to function.*

S6 also responded that he wanted to improve his EGP speaking the most, "I think I want to improve my speaking skills…because basically you can't communicate with foreigners if you are not able to speak in English."

The finding that students needed and wanted to learn EGP skills agrees with Chang and Wang's (2012) finding that university students wanted to learn EGP skills. They investigated the English needs of freshman students in maritime fields and it was found that the students felt they needed not only to learn their professional English terms but general English skills for their future jobs and social life. Moreover, the students believed EGP speaking for daily social communication was essential to life at sea because they had to live with their crewmembers and took care of each other for a long period on board. The similar needs and wants of students from different fields seem to suggest that university students' foremost goal was to improve their general English proficiency.

In order to better understand students' perception on curriculum design, the students were asked whether they preferred EGP courses or ESP courses. The result revealed that most of the students desired to have more EGP courses. This is similar to a previous study conducted in Taiwan (Liu et al., 2011). On the other hand, the finding contradicts Tsou (2009) and Garcia (2002) as both studies suggested that students favored ESP courses. Tsou (2009) compared the effectiveness of an EGP course with an ESP course. The result showed that students positively favored the ESP course because the activities in the ESP course stimulated students' interest in learning about the subject and English.

Students in Tsou (2009) and Garcia (2002) favored ESP courses because they had enrolled in ESP courses and understood the advantages. On the other hand, the students in this study favored EGP courses, probably because they had not experienced ESP courses and did not understand the advantages of ESP courses. Secondly, according to the interviews, the students favored EGP courses because they were uncertain whether they were going to work in transportation-related jobs after graduation. As a result, they considered EGP courses more helpful as they wanted to learn English skills that can be applied to different jobs. Another important finding

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derived from the students' responses was that their lacks were different from their needs and wants, confirming the conclusion of Liu et al (2011). The reason for such variation may be that students found their English needs to be more urgent than their lacks. For example, the present study showed that although the students lacked ESP skills, they believed that it was more urgent to improve their general English proficiency because they could learn ESP skills after they determined their career.

3.2 Teachers' perceptions of students' English needs and lacks

This section aims to answer the second research question that asks teachers' perceptions of Transportation Science students' English needs and lacks. Five instructors—two English instructors Tom and Jenny, and three subject instructors, Paul, Kevin and Anderson—were interviewed (all pseudonyms). Most of the subject instructors and English instructors shared similar views: they agreed that students lacked EGP skills and needed EGP courses, especially speaking. English instructor Tom indicated that it was important for students to be competent in four skills. However, he would focus on speaking and listening for the reason that face-to-face communication was the key to students' future learning and career. However, he pointed out that most of the students were afraid of expressing themselves in English. Therefore, he thought that speaking and listening was essential for students in Transportation Science. The other English instructor, Jenny, and two subject instructors (Kevin and Anderson) also believed that students should improve their general English proficiency first, especially speaking.

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When asked about their views on ESP courses, English instructor Tom and subject instructor Kevin believed that teaching ESP courses was time consuming and full of challenges. For example, they pointed out that the first and biggest challenge was to find qualified ESP teachers. Tom explained the difficulties of developing ESP courses,

> *One of the problems is that there is no teaching material specifically for the field…I think the best approach is simply to have a general English program…There may be a lot of difficulties getting a class going. It has to have a teacher who is qualified in that field…that will cost a lot of money too…so for now I think we have to deal with just the general English.*

Kevin had a similar point of view about ESP courses,

> *I think EGP is good enough because ESP programs involved with other complicated affairs such as how you are going to find qualified ESP instructors. Therefore, EGP is better I think.*

On the other hand, subject instructor Paul questioned the specificity of ESP courses. He stated that if the content went very specific, then there would be many ESP courses for different subfields, and that it would be difficult for faculty to manage

these courses. Therefore, he believed that it was more suitable for English instructors to improve students' general English proficiency and leave discipline-specific content to subject instructors. Paul added his reason for favoring EGP over ESP courses,

> *English for Transportation Science is too broad...it cannot be taught completely by ESP programs. It is better for the center of our general knowledge courses or English class to just teach general English. These subject English contents can be found in our textbooks. Therefore, it is enough for our instructors to teach students subject English with textbooks.*

Likewise, another subject instructor, Anderson, stated, "EGP courses are good enough. The students' subject-related English skills can be taught in different subject courses."

The finding that both English and subject instructors wanted students to enhance general English skills is in line with Mazdayasna and Tahririan (2008), whose study showed that teachers felt that students needed to improve general English. The reason for instructors' belief is probably that good general English proficiency is necessary, and with good general English abilities, students could deal with more advanced English in ESP courses. Eslami (2010) also supported this idea by revealing how students' poor English ability could lead to their learning difficulties and poor performance in ESP courses. Similarly, Tsao, Wei, and Fang (2008) and Chang (2004) showed that learners might have difficulties coping with ESP courses because of weak general English skills. Although not explicitly stated, the instructors in the present study seemed to hold that the students had to have a good foundation of general English skills so that they would have fewer difficulties in learning discipline-specific materials in English in subject courses. Therefore, the teachers thought that the first priority for their students was to enhance their general English abilities in EGP courses.

It should be noted that the teachers preferred EGP courses did not mean they disagreed with the effectiveness of ESP courses. They favored EGP courses because they thought it would be difficult to find and train qualified teachers for ESP courses. The previous studies indicated that unqualified ESP teachers might lead to incomplete course design, unsystematic needs analysis and ineffective syllabus (Farhady & Hedayati, 2009; Mazdayasna & Tahririan, 2008). Thus, without qualified ESP instructors at the target university, the instructor participants did not believe that the university was ready for delivering ESP courses.

3.3 Comparison between instructors' and students' perceptions

This section aims to answer the third research question "What are the similarities and differences between the perceptions of instructors and students?" A comparison between instructors' and students' perceptions indicated that both parties shared great similarities in views on the need for EGP courses, especially training of speaking. Not

only instructors preferred EGP speaking courses but also students needed and wanted to improve their speaking skills. However, while students considered they lacked ESP skills, the instructors felt that students lacked general English proficiency, let alone ESP proficiency, which is built on general English competence.

The finding that both instructors and students regarded EGP speaking skills as the most needed skills is inconsistent with Basturkmen (1998) and Ferris (1998), both of whom discovered discrepancies between perceptions of students and those of teachers in terms of English needs. In Basturkmen's study, students with engineering specialties identified listening skills as the most important while the teachers believed reading and listening to be almost equally important in that many reading activities were involved in engineering courses. Ferris (1998) also indicated the teachers and students did not always have the same views on students' English needs.

In the present study, the teachers and most of the students felt that the students needed to improve their EGP skills, especially speaking, for the reason that they hardly used English outside campus. Liu (2005) showed that the majority of non-English-major freshman students in Taiwan seldom used English to communicate with their peers or family members. Therefore, students sought more opportunities to improve their speaking skills (Liu, 2005). Thus, it is possible that the instructors and students both believed that the students needed more opportunities to practice speaking so that they could communicate with foreigners in English.

4. Conclusion

This study investigated English needs of Transportation Science students by comparing the students' and instructors' perceptions. Specifically, this study aimed to understand their views on EGP and ESP courses. The findings indicated that while the students knew they lacked ESP skills, they needed and wanted to learn EGP skills, especially speaking. Similarly, the instructors believed the students should enhance their general English proficiency first (especially speaking). They also brought up some concerns about the implementation of ESP courses, such as lack of qualified ESP teachers.

Several pedagogical implications for language teaching can be drawn from the findings. First, the students in Transportation Science urgently needed and desired to improve their general English proficiency, especially in speaking. In order to understand whether the target university provided enough EGP courses for oral communication, the syllabi of general English courses at the target university were surveyed. A survey on all of the online course syllabi showed that most of the English courses focused on reading and writing rather than speaking. Only five out of 30 elective English courses aimed at oral communication. As a result, students had few

opportunities to practice English speaking in course settings, let alone outside classrooms. Thus, to meet students' needs and wants, more courses that aim at general English speaking are needed. In addition, in English courses that focus on the other skills, English instructors can provide students with real life communication practices. For example, in a reading course instructors can design prompts for students to share their reflections on reading materials in English or ask students to present issues around the reading materials in English.

Second, while most of the students considered general English speaking as the most essential skill, they had other different needs such as reading and writing. Therefore, in freshman English courses, which aim at improving general English proficiency, it would be helpful to students if English instructors can conduct in-class surveys to understand their students' English needs. Based on the survey results, English instructors can revise course syllabi to cater students' needs or design activities for those who have different English needs.

In addition, the finding indicates that Transportation Science students believed that they lacked ESP skills. Although the students did not want to learn ESP skills, such lack can result in frustration in learning discipline-specific knowledge. Therefore, subject instructors can improve students' ESP skills by using English textbooks and giving lectures in English. Moreover, subject instructors can consult English instructors to design syllabi, activities and materials to help students improve their ESP skills. With English instructors focusing on EGP skills and subject instructors on ESP skills, not only students' needs and wants but also their lacks can be met.

Finally, lack of qualified ESP instructors is a major reason why subject instructors did not recommend implementation of ESP courses. However, the effectiveness of ESP courses have been suggested (Tsou, 2009). Therefore, it is important for universities to invest in teacher education and to train prospective ESP instructors. These ESP instructors can then design learner-centered ESP courses and help subject instructors prepare their students for discipline-specific tasks, such as writing for publications and delivering conference presentations.

Even though the present study has identified and compared Transportation Science students' and teachers' perceptions of English needs, there are several limitations. First, the participants of the study were limited to a small group of Transportation Science students. Therefore, the findings may not be generalizable to a larger population. It is suggested that future research on language needs of Transportation Science students can be conducted with a larger size of participants. In addition, more research on needs analysis in different fields and contexts can help teachers understand the needs of students in different domains and design learner-centered English courses.

Another limitation is that this study did not examine the extent to which different factors, such as gender, may influence the students' perception of English needs. Although this study attempted to understand whether higher-level students would have different views from lower-level students, the number of students examined was small and therefore the differences were unrecognizable. Therefore, it is suggested that future research can examine the effects of various factors (e.g. gender) on the students' perception of needs.

Despite the limitations, this study has provided insights into Transportation Science students' English needs and offered pedagogical implications for instructors and curriculum designers to develop effective and learner-centered courses. With more English needs analyses conducted, it is hoped that students' needs can be met; in turn, they will be motivated to learn English and find what they learn is useful for their target goals.

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