Research Paper

Dealing with the English communication difficulties faced by Computer Science Students during their internship

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ABSTRACT:- *This paper reports on the difficulties faced by the Computer Science students in their English communications during their internship which is part of their program in a university in Hong Kong. The difficulties that the students encountered in reading, writing and speaking in English and listening to English are reported and suggestions on how to solve the problems are given.*

I.   INTRODUCTION

There has been a growth in internship more generally for university students, including Computer Science students. The aim of the internship is to provide students with an opportunity to experience implementing what they have learned in their discipline in the workplace. Internships become the first interface between the students' knowledge in their discipline and that of the business world in which they will be engaged after graduation. Because of this, the English communication needs during their internship may be different from those in their workplace after graduation as the level of their work is different. Thus, it appears that there is a growing need to design particular ESP courses to prepare Computer Science students for their internship. To make sure the students can fully benefit from such a course, a needs analysis needs to be conducted to identify the relevant items to be included in the course.

According to Basturkmen [1], in analyzing needs, besides doing situation analysis in which the tasks and sub-tasks involved in the work or study area and the standard for performance will be identified, the difficulties faced by the students in language-based skills or tasks and the nature of their difficulties also need to be investigated.

Regarding what has been recorded in the literature, as commented by Pholsward [2], little research work has been done on the language needs of computer science students in their workplace. Among the few studies which investigated the English communication needs of computer scientists in their workplace, the focus of investigation is on the tasks that the professionals need to perform in their workplace. For example, Pholsward [2] in his study on the English language need of Thai Computing professionals found that the writing tasks most frequently required were writing reports, short notes, memorandums, summaries and correspondence. The frequently required listening/speaking tasks were contacting customers, etc., conducting meetings, and holding general or telephone conversations. Kaneko et al. [3] conducted a survey of workplace English needs among Computer Science Graduates in Japan through a comprehensive survey. They found that the most frequent tasks for the workplace were reading and writing of business-type documents such as emails, memos, faxes. Regarding listening, listening to lectures or presentations came first. Regarding speaking, the most frequently used skills daily and once or twice a week was the speaking skills for social interaction in conversation and small talks. However, the language difficulties faced by the professionals are seldom explored. Pholsward [2] mentions the difficulties encountered by his subjects, which were poor listening skills, lack of vocabulary, confusion over structure and word order and pronunciation problems. However, since the study was conducted in 1993, the findings obtained might have become dated. There seems to be a need to fill the often neglected gap by incorporating the investigation of the difficulties faced by the students into needs analysis studies.

In an English for Specific Purposes (ESP) course which prepares Computer Science students for their internship in a university in Hong Kong, a needs analysis [4] has been carried out to identify the needs of the students when communicating in English during their internship. Results of the situation analysis suggest that writing emails, reports, giving an oral presentation and conducting a meeting are the items that could be included in the ESP course. However, to make sure that the course fully meets the needs of the students, at the stage when the course contents need to be designed, it is important to find out the problems faced by the students so that the solutions to these problems could be incorporated into the pedagogical design of these communicative tasks in the course. Thus, the difficulties faced by their students during their internship were

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investigated in this study. This paper reports on the difficulties identified and provides suggestions on how the problems can be solved.

II.   RESEARCH METHOD

Long [5] comments that "use of interviews is widely reported in needs analysis in ESP." As interviews allow the subjects enough time to elaborate on the points made, more rich data can be obtained. Thus, an interview was chosen as the research instrument instead of a questionnaire.

A convenience sample of 12 students who returned to the Computer Science programme after their internship was selected for in-depth interviews, each lasting for half an hour. In the interviews, they were asked probing questions to help them talk about the difficulties they encountered when reading, writing, speaking and listening to English during their internship.

All interviews were tape-recorded, and the interview data were transcribed, tabulated, categorized and analyzed using the method of content analysis, through which "fairly simple classifications or tabulations of specific information" were formulated [6] and frequency counts were tallied on some classified items.

III.   RESULTS

This section reports on the difficulties faced by the students when they read, wrote, spoke in English and listened to English during their internships.

3.1 The kinds of difficulties students encountered when reading in English

About 31.4% of the students said that they had no difficulty or not much difficulty reading in English during their internship. It seems that the greatest difficulty the students had was with understanding difficult vocabulary or difficult technical terms. One student mentioned in the interview, "When I read the documents, there were often some technical terms used in the computer world that I was not familiar with. If I have not come across them in class, it is difficult for me to find out what they mean in the workplace." The kinds of materials that they found difficult to understand were resource materials, reference books, articles and website tutorials. Reading speed was also a concern because they could not read quickly enough in their opinion. One student explained in his interview that because he often needed to read specifications and such documents included many requirements, it would have been helpful to have the ability to read more quickly while capturing the essence of the text.

3.2 The kinds of difficulties encountered when writing in English

One student reported that he did not need to write anything in English. About 31.4% of the students said that they had no difficulty or not much difficulty writing in English during their internship. It seems that the greatest writing difficulty the students had was their grammar. One student reported in his interview that his classmate had written something that had to be signed by his supervisor, and his supervisor was furious about his grammar and corrected the whole document. Another problem raised by four students concerned the format of written items such as reports, proposals, formal letters and emails, especially how to start and finish them. For example, they were not certain in which documents headers needed to be used and when they needed to have opening and closing salutations. They also had problems with the usage of words and technical terms. One student reported in his interview that he had difficulty expressing some ideas because he was not familiar with certain terminology and concepts. Style was also a problem. One student described his experience. "Once I showed my boss the drafts of some emails to be sent to some clients. My boss shouted to me,' Hey, those emails are too informal. You must rewrite them!'" Stylistic problems as reported by two students included how to write fluently and politely with the appropriate degree of formality and politeness when the work relationship, power relationship or the social distance between the writer and the reader was changed. Spelling was also considered a problem by one student. He often forgot how to spell certain words or he spelled them wrongly.

3.3 The kinds of difficulties the students encountered when speaking in English

About 28.6% of the students reported that they did not or seldom needed to speak in English, and 36.2% stated that they had no difficulty or little difficulty speaking in English. A very low percentage of students (below 10%) reported further areas of difficulty. Among these areas, having a limited vocabulary and the use of technical terms seemed to be the greatest problems. Other difficulties included an inability to express their ideas and speak fervently and with confidence, using the correct pronunciation, grammar and accent.

For example, one student reported in his interview, "When I wanted to say something, I could not turn my thoughts into English. When I wanted to speak up, the English words could not come out fluently, but I had to speak English because there was a foreigner in the meeting!"

3.4 The kinds of difficulties the students encountered when listening to English

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About 20.9% of the students reported that they did not or seldom need to listen to English, and 32.4% thought they had no difficulty listening to English. The difficulties they mentioned included the speed of speech, vocabulary and the accent of the speaker. They also had difficulties adjusting to the different kinds of English spoken by people from different countries, taking notes and listening with confidence.

Five students reported in their interviews that the speed at which foreigners spoke was too fast, and that they found the Australian, Indian and Korean accents difficult to understand. One student mentioned in the interview, "My colleague is a Korean. Other than Korean and English, he doesn't speak other languages, but his English is poor. He has a strong Korean accent. So, we have to communicate word by word and sometimes using body language."

IV. DISCUSSIONS

Suggestions on how to help the students overcome the difficulties they encountered in reading, writing, speaking and listening are given in this section.

As did the students in Xenodohidis' [7]study, the students in this study had problems with reading technical materials. If students have difficulty understanding vocabulary or difficult technical terms, professors of English might need to feed such information back to computer science professors to make them aware they need to give students extra help by explaining technical terms in their field. Professors of English could teach students vocabulary skills [8] , such as by having students deduce the meaning of words from the context or teaching them how to analyze a definition, but in terms of the meaning of terms and their underlying concepts, professors from the discipline concerned are in a better position to help students. Source materials from which professors of English and computer science can draw on technical terms include students' reference materials such as textbooks, journal articles or even website tutorials. In fact, liaison with employers and subject teachers helps the provision of necessary resources [7]. The interview results also show that students are sometimes given limited time to read materials during their internships and find it difficult to read and understand English texts quickly. While professors of English can teach students speed reading skills, because the root of the comprehension problem still involves difficult vocabulary, this issue needs to be addressed first before they learn how to read quickly.

Regarding writing, though the percentage of the students who mentioned they had difficulties in this area was not high, as the medium of instruction was English, if focuses need to be identified, it seems that more attention could be paid to the structure and format of each piece of writing, the usage of words and style , and grammar. The pieces of writing could be set in computer science contexts to give the students the opportunity to learn how to express ideas and concepts using terminology in that field [7]. It must be admitted that after time has been spent on introducing the genre of a certain document to the students, usually almost no time can be left in class for dealing with grammar, which the students should have mastered to a certain extent now that they are at the tertiary level. Blume et al. [9], in their discussion of how to help their students improve their written communications in their novel undergraduate course on "Communication Skills for Computer Scientists", advocate that to help the correction of students' common errors, the whole class can be given exercises to do or sent to a website for an exercise and test. Students' language problems might also have to be dealt with during teacher-student conferences or the students could be sent to the Writing Centers or Language Clinics for help if such Units exist in the university. There may also not be enough time to teach spelling. However, this should not be a major problem because spellings can easily be checked by computers nowadays.

In terms of speaking, it seems that the students did not have much need for this communication skill in their internship and had little difficulty speaking in English when required to do so. As suggested by Pholsward [2], more attention could be paid to pronunciation, and the building of students' confidence is also important. Given the limited time in class, students could be advised to get extra help to improve their pronunciation through self-access materials put in the library or the self-access center if such a center exists in the university. Other areas of difficulty, such as grammar and vocabulary, have to be dealt with when teaching reading and writing. As suggested by Spencer and Liu [10], simply providing students with the chances to build up their confidence in speaking in front of people is also helpful.

In terms of listening, listening to English did not seem to be a major problem. In line with the finding of Spence and Liu's [10] study, the accented English of speakers from different countries caused major difficulties in listening. Exposing students to different kinds of English spoken at different speeds and with different accents through videos or recorded tapes could improve their ability to listen to and understand spoken English.

V. CONCLUSION

This paper provides information about the difficulties that the students faced when communicating in English during their internship and some suggestions on how to solve the problems when teaching the ESP course. Though it seems that the students did not face major difficulties, it is hoped that when the solutions to

the problems reported, no matter how serious or minor they were, are taken into consideration when teaching the students the communicative tasks identified through situation analysis, the course can fully meet the needs of the students.

Though the sample in this study is too small to be generalizable, the results of this study could still be a source of reference for the course design of pre-internship ESP courses not only for Computer Science students, but also for students in other disciplines in this university and in other institutions having similar learning contexts not only in Hong Kong but in other parts of the world. If this study is replicated to include much larger samples from more institutions in more disciplines or contexts to prepare for internships, students from a broader academic community could also benefit.

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