Conceptualizing English Workplace Communication Needs of Professional Engineers: The Challenges for English Language Tertiary Educators

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Abstract

Mastery of English oral communication skills is an advantage to employees in their workplaces. In the engineering industry, professional engineers possessing English oral communication skills are at an advantage; either for executing daily tasks or for promotion and career advancement. This paper aims to conceptualize and highlight the communicative events whereby engineers need to have a set of appropriate English communication skills in order to function well in their workplaces. At the same time, this poses great challenges for English language educators in the Malaysian Higher institutions whereby they must train and equip engineering undergraduates with adequate English communication skills in order for them to function effectively in their future engineering workplaces and to tackle the issue of graduate unemployment as a result of lack of English communication skills.

Keywords: English communication skills, language and communication needs, communicative events, engineering graduates, engineering workplace communication, graduate unemployment

1.0 INTRODUCTION

1.1 Importance of English in Engineering Workplace

The emergence of the English language as the international language for global business interactions has had effects in many workplaces entities across Asia (Bolton, 2008; Curtis, 2012). In these workplaces, as a lingua Franca (Kirkpatrick, 2010), the English language has not only become a language used for communicating with global business partners (Riemer, 2002) but also has significantly been used in daily operations among employees (Warschauer, 2000). Similarly, in engineering workplaces, English oral communication skills have become a necessity in engineers' daily workplace communication (Riemer, 2007). The scenarios where employees need to use English language in their daily task executions are known as 'communicative events' (Kassim & Ali, 2010; Moslehifar, & Ibrahim, 2012) whereby the expectancy of a certain level of proficiency of English language skills needs to be exhibited by the engineers for workplace communication efficiency. The needs to display these language skills are tantamount to the success of the execution of workplace events and tasks by engineers in their daily routines.

1.2 English Language Need and Communicative Events for Engineers in engineering Workplace

English is widely used for communication in business sectors and the term 'language needs' is used by researchers to describe studies which investigate in detail the nature of language needed by certain employees in workplaces (Kaewpet, 2009; Kassim & Ali, 2010). English language needs for engineers can be studied and analyses from engineers' involvement in communicative events in engineering workplaces (Kawpet, 2009; Bhattacharyya, Nordin & Salleh, 2009; Kassim & Ali, 2010; Moslehifar & Ibrahim, 2012). Language and workplace communication researchers began to analyze communicative events where engineers need to use English language in order to execute their workplace responsibilities. For instance, Kassim and Ali (2010) distributed questionnaires to engineers working in 10 Malaysian multinational companies to investigate the types of communicative events where engineers need to have sound English oral communication skills. Events such as teleconferencing, formal discussion of work related matters, giving oral presentations, networking, instructing, explaining and demonstrating were rated with highest frequency mean. They speculated that in most of these communicative events, the engineers will need to "sell ideas and to convince another person of their own ideas" (p. 177).

Like Kassim and Ali (2010), Kaewpet (2009) in an attempt to link classroom syllabus to the English language needs in target situations in Thailand's context, studied the communicative events as stated in the course description of 'Technical English 1' subject and questioned whether such communicative events listed in the course description 'continued to be significant in the current situations of engineering workplace communication (p. 267). Based on an extensive review of literature on engineering reading articles which were published in international journals such as English for Specific Purposes, IEEE transactions on professional communication and research reports in Thailand, Kaewpet drew 33 communicative events in which engineers (civil engineers) and engineering students might be involved in. Table 1 shows a summary of communicative events where engineers need to use English language in engineering workplaces as reported by researchers in Thailand (Kaewpet, 2009), Malaysia (Kassim & Ali, 2010) and Taiwan (Spence & Liu, 2013).

Table 1: Comparison of engineers' involvement in communicative events/tasks in Thailand, Malaysia and Taiwan*

Thailand (Kaewpet, 2009)	Malaysia (Kassim & Ali, 2010)	Taiwan (Spence & Liu, 2013)
1. Reading -Reading English in design drawings; reading written instructions/advice; reading/using a computer program; reading exercise/test questions; abstracts of projects; journal/ publication; reading manuals; reading project documents; searching the internet for English resources; reading office documents; reading safety signs and reading professional texts 2. Writing	1. Discussing work- related matters informally 2. Discussing work- related matters formally. 3. Teleconferencing 4. Conversing informally and socially 5. Giving oral presentations 6. Networking 7. Developing contacts for advice and information 8. Instructing, explaining and demonstrating 9. Communicating via telephone	1. Reading -E-mails, office documents, project documents, written advice, professional texts and manuals 2. Writing -E-mails, reports, memos, meeting minutes, project proposals, presentation slides, business letters 3. Speaking -Meetings, presentations, teleconferences, telephone

-Recording/ completing equipment and safety checklists/forms; writing English in design drawings; writing and communicating through e-mails; writing minutes of meetings; writing daily/ periodic reports; writing study reports; writing completion reports, writing abstracts for projects and writing documents for projects (i.e. proposals, list of building materials); 3. Speaking - Delivering oral presentations; attending meetings/seminars; attending to occasional visits; talking about everyday tasks and duties; talking in daily life situations 4. Listening -Receiving spoken instructions/advice; listening in international seminars/ conferences 5. Other occasions -Using technical terms in professional Thai conversations; applying for jobs; joining field trips and training abroad	10. Presenting new ideas / alternative strategies 11. Building relationships 12. Handling external correspondences 13. Resolving conflicts 14. Negotiating with team members 15. Working in teams	conversations, talking about daily tasks with foreign customers, speaking with foreign customers on occasional visits, speaking for social conversation with foreign customers 4. Listening -Meetings, presentations, telephone conversations, teleconferences, receiving spoken instructions/ advice, seminars/ conferences

* Note that Kaewpet (2009) studied communication events for Thai civil engineers; Kassim& Ali (2010) studied communication events for Malaysian chemical engineers; Spence & Liu (2013) studied communication events/tasks for Process integration engineers (PIEs) at a semi-conductor manufacturing company in Taiwan.

From Kaewpet's (2009) findings, communicative events for Thai engineers occurred and involved all of the four English language skills (reading, writing, speaking and listening). The important communicative events for Thai civil engineers include their ability to read manuals, write reports, deliver and listen to presentations, give and receive instructions and communicate with customers and external business partners either via e-mail, telephone or face to face discussion. In addition, Spence and Liu (2013) found out that, similar to other engineers in Asia-Pacific Nations, Taiwanese engineers are also highly involved in numerous English workplace communicative events. The events are writing and reading events (e-mails, reports, and memos) and common oral communication events like meetings, teleconferences and presentations.

Although Kaewpet (2009) and Kassim and Ali (2010) reported their studies of communicative events in which engineers might be involved (Kaewpet 33 events; Kassim & Ali 14 events), the types of communicative events (see Table 1) for chemical engineers were different from Kawpet's but quite similar to the communicative events reported in Spence and Liu (2013). However, unlike Kaewpet (2009), Kassim and Ali (2010) did not list any communicative events that require reading skills, but placed more emphasis on English oral communication skills used in communicative events. Kassim and Ali's (2010) emphasis on the English oral skills needed for Malaysian professional engineers concur with other researchers (Seliman, 1996; Seliman, 2002; Bhattacharyya, Nordin & Salleh, 2009; Radzuan & Kaur, 2011; Yusof, 2010). These findings

solidify the importance of English oral communication skills among engineers, especially in the Malaysian technical job market.

A straightforward analysis of the communicative events which occur in the engineering workplaces reported above clearly shows that the English communicative needs and skills required are to be nurtured and emphasized by curriculum developers and English language training providers. One area which requires a great deal of effort in the engineering undergraduates' language training in higher learning institutions is in the English oral communication skills.

1.3 Importance of English Oral skills

There is an extensive amount of literature that shows the importance of English oral communication in the engineering workplace (Bhattacharyya, Nordin, & Salleh, 2009; Crossling & Ward, 2002; Hart-Rawung & Lynne, 2008; Kaewpet, 2009; Kassim & Ali, 2010, Lehtonen & Karjalainen, 2008; Myles, 2009; Smythe & Nikolai, 2002 among others). English oral communication skill gives more emphasis than written communication in industries. Malaysian employers expect employees to possess and demonstrate their English oral skill as early as at the recruitment interview stage (Kassim & Ali, 2010). In the Malaysian workplace context, Bhattacharyya, Nordin and Salleh (2009) discovered that English oral communication is important in meetings, in team events and in non technical discussions.

Crossling and Ward (2002) studied the perception of the employers of business graduates, both native speakers and ESL students from Monash University, regarding their needs for and use of oral communication in the workplace. Similar to the findings by Kassim and Ali (2010) and Bhattacharyya, Nordin and Salleh (2009), found that oral communication is important for recruitment and promotion, and is essential in ensuring employees' career success. Based on the data in their study, they acknowledged the need to include oral communication as a significant part of undergraduate preparation for the workplace. Crossling and Ward (2002) also connected that formal presentation skills taught at universities are inadequate for business graduates' workplace communication preparation. The data from their study also showed that graduates were involved in oral communication mostly with the personnel within the same department, and had less communication with different departments within the company or with those outside the company. The communication within the same department revolved around informal work related discussions, following instructions and giving oral responses, informal social conversations and networking for advice and information, and also participations at meetings and in teamwork.

Similarly, Bhattacharyya, Nordin and Salleh (2009), who studied internship students' experiences of workplace communication, also reported participation in meetings and team discussions as normal oral English oral communication activities that occur in workplaces. In addition, participation in meetings was considered by almost all of their respondents as very important for job success and career advancement. In a similar vein, Sarjit and Hua's (2006) study of workplace oral communication needs in English among IT (information technology) graduates conducted in Malaysia revealed that the three most frequently used forms of workplace oral communication or social interaction, participation in meetings and telephone conversations. According to them, similar to Kassim and Ali's (2010) study, IT employers regard presentation, listening, interviewing and conversational skills in English as vital for IT employees.

2.0 SCENARIO IN MALAYSIA: GRADUATE UNEMPLOYMENT AND ENGLISH LANGUAGE SKILLS

The underemployment of Malaysian university graduates is widely reported. In 2006, the Malaysian government announced that there were some 45,000 unemployed college graduates. In the recent report, the Ministry of higher Education in its "Graduate Tracer Study Executive Report 2010", published on Feb 11, 2011 reported that from 174, 464 graduates who participated in the survey, 24.6 percent were not employed after six months of graduating.

One of the main reasons given is poor command of the English language (Phang, 2006). Studies of the English language need in the workplace conducted in Malaysia suggest that graduate workers require English language skills in order to communicate effectively in the workplace as the main language for communication among them is English (Bhattacharyya, Nordin, & Salleh, 2009, JobStreet.com, 2005; Kassim & Ali, 2010; Morais, 1998; Talif & Noor, 2009; Zaharim, Omar, Basri & Isa, 2007). A report by Job street.com, an internet job search company, shows that a majority of Malaysian graduates has poor English communication skills and this significantly affects their employability (Chang, 2004). In the bigger picture, the former Minister of Higher Education Dato' Sri Mohd. Khaled Nordin, in the foreword of The National Graduate Employable Blue Print 2012-2017 stated that prospective employers complained that Malaysian graduates lack prerequisite attributes necessary for employment where "more than 50% (actual data: 58.8%) of fresh graduates are deemed to be unsatisfactory in English communication skills" (Ministry of Higher Education Malaysia; 2012: p.i). In the same document, then the Minister of Higher Education urged the management of Malaysian Higher learning institutions to increase opportunities for their graduates to be employed after graduation by placing "greater emphasis on the proper preparation of their students, ensuring that they are equipped with the adequate exit attributes" (Ministry of Higher Education Malaysia; 2012: p.i).

Although there are many factors that lead to a high rate of unemployment among Malaysian graduates, the lack of English proficiency is identified as the main factor (Berhanuddin et al., 2007; Phang, 2006). The Malaysian Employers Federation (MEF) (2004) specifically states that employers look for "English language proficiency-oral and written and communication skills" (p. 16) from graduates. Furthermore, the Malaysian Employers Federation (2004) also points out that "local graduates are highly qualified, but poor in English language" (p. 5). Thus, employers are not willing to send the newly employed graduates for further training as the process is costly and adds "liabilities to the corporations" (Quek, 2005: 233). Employment and impact surveys carried out by Malaysian companies such as the Multimedia Development Corporation (Ungku Harun, 2004), JobStreet.com, (Chang, 2004), and the Malaysian Employers Federation (2004) report that the key skill in communication, looked for by employers, is oral communication, especially the ability to deliver powerful and effective presentations. However, many employers felt that many graduates lack these skills and this can be seen from the findings of studies about graduate engineers' performance against the expectation of the engineering employers (Bhattacharyya, Nordin & Salleh, 2009; Talif & Noor, 2009; Zaharim, Omar, Basri & Isa, 2007).

The Board of Engineers Malaysia (BEM), an authority that registers graduate engineers before they can be practicing engineers in Malaysia, is entrusted with the role of ensuring that the engineering programmes achieve a "minimum standard comparable to global practice" (Engineering Program Accreditation Manual, 2003: 1). In the Engineering Program Accreditation Manual (2003), the Engineering Accreditation Council Malaysia, which is the body delegated by

BEM for accreditation of engineering degrees, has imposed an accreditation guideline for the graduate engineers which states that they should possess ten generic attributes. From the ten generic attributes, attribute 'b' relates to the language needs of graduate engineers and is listed here:

> (b) Ability to communicate effectively, not only with engineers, but also with the community at large (Engineering Accreditation Manual 2003: 5).

The manual explicitly remarks that graduate engineers should be equipped with "the ability to communicate effectively" thus showing that communication is one of the key attributes to be attained by engineering undergraduates in order to become successful engineers. However, as discussed above, there is clearly a gap between BEM's aspirations and the engineering graduates' communication skills. The challenge for tertiary education providers is then to train engineering undergraduates to be competent engineers as stated in the Board of Engineers Malaysia's accreditation manual (2003).

3.0   INADEQUACY OF UNIVERSITY LANGUAGE PREPARATION COURSES: CHALLENGES FOR TERTIARY EDUCATORS

Without a clear understanding of workplace language needs and communication practices, it is likely that the university English language preparation program will not be able to provide undergraduate students with the linguistic competence required for communication in the workplace. Talif and Noor (2009) stated that the English language teaching at tertiary level in Malaysia does not provide adequate language skills needed at work. To expose students to the language skills needed at work, the teaching of English to tertiary students may consider employing authentic workplace communication situations relevant to the future workplace of the students. Students may need different language skills depending on their disciplines of study and the types of workplace they intend to work. This notion has been stressed by Lehtonen and Karjailainen (2008) who highlight that literature on Language for Specific Purposes (LSP) and English for Specific Purposes (ESP) has shown that an individual who works in different contexts needs different types of language use.

There is also a clear divide between tertiary education providers and employers' perception of graduates' communication skills and abilities. Mustafa and Greenam (2002) conducted a study of employability of vocational graduates in Malaysia to gather the perception of educators and employers of the role of vocational education in the economic development of Malaysia. They reported that both educators and employers indicated 'uncertain' to a statement in the questionnaire asking whether they think the graduates possessed necessary communication skills for employment.

Findings from several studies that investigated employers' expectation of graduates' English communication showed that Malaysian university language courses in preparation for the workplace is inadequate. A group of researchers (Zaharim, Omar, Basri & Isa, 2007) from the Engineering Education Research Center, National University of Malaysia conducted a questionnaire survey to gather the perception of 422 'high ranking personnel' from engineering industries over a set of attributes of non technical skills that they perceive as most needed by

graduate engineers when they embark on employment after graduation. The sets of non-technical attributes are: team work, communication skills, ethics, and entrepreneurial skills, knowledge of contemporary issues, lifelong learning, understanding professional, social and ethical responsibilities and engineering problem solution. The study was conducted as a part of a larger aim to restructure the engineering curriculum at their university. Among the seven attributes, 'effective communication' and 'engineering problem solving' were regarded as the most important criteria sought after by the industries. While the findings of this study showed that effective communication is important for graduate engineers, the study however did not report more detailed information about 'effective communication' as seen by the industry key players, thus opening the way for more in-depth investigation to be conducted by other researchers especially that of ESP researchers.

The same notion was reported by Talif and Noor (2009) who conducted a study among 86 final year university students who had just completed four to six months of industrial internship. According to them, although their respondents suggested that the university course had adequately prepared them for the workplace, some of these students felt that more effort is needed to improve the English language teaching course at the university. Respondents in their study suggested that, after attending the six month industrial attachment programme in the industry, they felt the need to improve their speaking skills as " an overwhelming majority of tasks being performed at workplaces requires a high degree of speaking ability" (p. 76). This shows that there is a gap which needs 'connection' between the ESP curriculum and that of the workplace communication needs for young graduates who wish to start their working life upon graduation. There is a possibility of losing employment opportunities if these graduates approach workplaces when they do not possess specific communication skills required by the industries. They also reported a mismatch of tertiary English language preparation and the target language competencies required in the workplace. According to them, the workplace favored productive skills – speaking and writing, where English is used to communicate with superiors, clients, and colleagues. In contrast, the respondents in their study stated that the university language courses focus much on reading comprehension, role playing and spontaneous speaking but less on speaking skills and practices.

In a similar type of study, Bhattacharyya et al. (2009) surveyed a group of final year students who had just returned from 8 month industrial internships in various organizations. They aimed to investigate the types of communication events that these students had to participate in and to examine whether the language programmes at the university had adequately prepared students for workplace communication during the internship period. Their results illustrated that the communication practice in the companies 'place considerable importance on collaborative work and frequent discussions in the form of meeting, team communication and non technical discussion' (p. 445). Although the majority of students in their study said that they were well prepared for communicative events in the workplace, they suggested that the course content should be relevant to authentic situations in the workplace. Participation in the communicative events such as meetings, technical and non-technical discussions, presentations and socializing with colleagues would only be possible for the new graduates if they are well equipped with English language skills and have the necessary language competencies to express themselves.

As such, there is now much evidence that industry employers expect engineering graduates to possess 'effective communication' prior to embarking on employment. However, there appears to be little studies that investigated the expectations of 'effective communication' and to profile this crucial skill as based on the perspectives of the employers in the Malaysian workplace

context. Although many studies provide findings such as lack of oral communication hinder employment for graduate engineers, very often these studies are based on the result of questionnaires with a set of 'tick-the-box' method sent to employers (Kassim & Ali, 2010) or only the perspectives of students attending short industrial internship (Bhattacharyya et al., 2009; Talif & Noor, 2009). What is needed is an in depth study that pulls together the perspectives of multiple stakeholders.

The scenario above suggests that there is a paucity of research that has examined the extent and nature of employers' perspectives and their demands for ESL education for engineering undergraduate students. According to Kaewpet (2009), it is not known how much English is used in the engineering workplaces and more research is needed to identify communication needs in the engineering field and ESP courses should consider addressing those needs.

4.0 CONCLUSION

Hence, in order to accomplish more, it is a practical necessity for graduate engineers to be able to communicate effectively, not only for the execution of their daily tasks, but also for career advancement. This scenario has resulted in the evolution of new approaches and practices in preparing English language trainings and curriculums that are in line with the needs of the engineering undergraduates' future workplace communication needs.

Cooperation between responsible parties, namely the engineering employers, the universities and the technical English language trainers must be established at a more meaningful and reciprocal level. The existence of such a level of cooperation will establish an effective flow of the changing nature of industry needs and the review of the existing English language curriculum. The reciprocal nature of the cooperation can guarantee the needs of the industry is met and followed by the universities.

The establishment of a needs analysis culture by the English language curriculum designers will be seen as an apt decision in aligning the needs of the industry of the curriculum used in teaching English in the universities. As mentioned previously in this article, the language needs of different disciplines vary from one another (Lehtonen & Karjailainen, 2008). Thus the tenets of ESP are seen as a practical solution in alleviating and aligning the graduate characteristics that is demanded by the industry and the curriculum of the universities involved. Needs analysis can bridge the gap that exists now between the industry and the universities by investigating and identifying in depth the needs of not only the industry, but also the students taking such courses. This provides meaningful information in looking at what the students' value as practical and useful language skills to be used in their professional lives.

Looking at the current trends, the days when engineers solely survived on their technical skills are now changing; they need another 'soft skills' such as communication and language. Their professional repertoire will be greatly enhanced if they display relevant soft skills such as the ones aforementioned.

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