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English Language Needs of Industrial Trainees in Chemical Engineering Industry: A Case of UniKL MICET

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ABSTRACT

Industrial training, or internship program, is always a must in any academic institutions, especially those offering engineering programs. Since industrial training is always structured at the end of the program, students going for internships are considered to be already well prepared with the content knowledge of their field of study. However, the job scope of an engineer does not entail content knowledge only. An engineer still has to carry out various other tasks like writing reports and letters as well as participating in meetings or discussions; thus the needs to ensure that these trainees are competent in the English language and effective as communicators. However, which English communication skills in particular do the industries in general require of these students? Venkatraman&Prema (2007) claim that "In the globalized context, students of Engineering and Technology need a specific set of language skills for their success in education and career." All academic institutions should balance their curricula between future professionals and workplace needs of their graduates (Kaneko, Rozycki& Orr, 2008). In light of this, this paper will look at the English language needs of 18 organisations related to the chemical engineering industry where industrial trainees from Universiti Kuala Lumpur Malaysian Institute of Chemical & Bioengineering Technology (UniKL MICET) were sent to. A survey conducted found that all but one of the organisations see that English language is important even though not all of them use the language at work. This paper discusses the tasks in which English language is most required and what language functions are most commonly used in the organisations. Trainees' feedback on the actual usage of English language while they are on industrial training for three months will also be discussed.

1.0 INTRODUCTION

All academic institutions provide industrial training for their final year students. Internship program is always a must, especially for institutions offering engineering programs. This also holds true for students in Universiti Kuala Lumpur Malaysian Institute of Chemical &BioEngineering Technology (UniKL MICET). UniKL MICET offers Diploma and Bachelor's Degree in Chemical Engineering Technology. Chemical engineering is the branch of engineering that deals with the application of

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physical science (e.g. chemistry and physics), and life sciences (e.g. biology, microbiology and biochemistry) with mathematics, to the process of converting raw materials or chemicals into more useful or valuable forms (Wikipedia). For the case of UniKL MICET, the students are further specialized into five different areas of their choice: Process, Polymer, Food, Bioprocess and Environment for both the Diploma and Bachelor's Degree levels.

In UniKL MICET, the industrial training is structured at the end of the program. All students in the final year are expected to complete at least four months of internship as a prerequisite for graduation. This is in accordance with Board of Engineers' (BEM) general requirements which state that only an internship program of more than three months is recognized for a particular program to go for accreditation by the board. Since industrial training is at the end of the program, it can be assumed that these students are equipped with the content knowledge in their area of specialization. However, the question remains whether these trainees are competent and thus effective language-users?

The language of international engineering, including chemical engineering, is English. For this very reason, all chemical engineers and/or technologists must go through English language training as part of their curriculum in tertiary education. For years now, English for Specific Purposes (ESP) has been widely used to approach the teaching of engineers outside the native English-speaking environments (Kaneko, *et al.*, 2009). Globalization may have caused the need for competency in English to rise further. The advent of globalization is synonymous with higher mobility for both employers and employees. Many employers come into the country and set up their companies here, thus the term MNC (multi-national corporations). On the other hand, employees, in this case, the engineers and/or technologists have become more mobile, resulting in them having more options to work in whichever companies of their choice. However, their options are very limited if they are only knowledgeable in their content area but not competent in English. Venkatraman &Prema (2007) state that the professional profile of a modern qualified engineer should include well-developed communication skills and high English language proficiency to help him achieve success in the modern highly competitive global work arena.

How do we know if these would-be engineers/technologists have developed competency in the language to face the "highly competitive global work arena"? How do we find out what their language needs are? To answer these questions, this survey was conducted because years of learning English since Year 1 (aged 7 years) to Fifth Form (aged 17) are sufficient to make these students competent communicators in the language. As they enter higher academic institutions, curriculum designers need to identify their special needs in relation to the area they are specialized in and design their syllabi as such. This is in line with Finocchiaro's (1983) statement (cited in McCracken, 1996: 25) that "A well-designed curriculum will start with an attempt to specify the needs of the learners." In fact, a needs analysis such as the one done in this survey is considered a prerequisite to the process of course design because of the uniqueness and situation-based nature of ESP. Carrying out a needs assessment enables curriculum designers to see to what extent the existing language courses are in line with the learners' real language needs.

Apart from that, Kuter (2000) claims that asking learners about their needs can motivate them and maximize the likelihood of their participation. A point that should be taken into consideration, however, is that needs assessment should be an on-going process (Richterich, 1983; Huchinson& Waters, 1987; Robinson, 1991). It should be carried out during the 'lifetime' of every language course since learners' needs are not static – they are changing too. Another point of contention is to ensure

that higher education institutions have to prepare efficient and successful students for the labour market (Fricz, *et al.*, 2010).

2.0 OBJECTIVES OF THE STUDY

This survey was conducted with these objectives in mind:

1. To identify the English language needs of industrial trainees in chemical engineering-related companies
2. To discuss the actual use of English during industrial training.

3.0 SURVEY DESCRIPTION

A set of questionnaire was given to UniKL MICET's industrial trainees and another set was given to the immediate supervisors from the companies where these students underwent their internship stint. The questionnaire for trainees asked them to specify their area of specialization (Process, Polymer, Bioprocess, Environment or Food Technology), in which department and at what setting (office, factory, etc.) they were stationed at and whether they were required to use English during the course of their training. They were then asked to rank the importance of the four language skills (listening, reading, writing and speaking) and in what contexts they used them. These trainees were also asked whether they learnt enough English during their course of studies. The questionnaire given to the companies basically asked the same questions.

Twenty-six (26) trainees and eighteen (18) companies (private and public sector) responded to the questionnaire distributed, which was distributed during the university supervisors' visit to the industries.

4.0 FINDINGS AND DISCUSSION

Of the 18 companies surveyed, 14 responded that employees were required to use English at the workplace. However, only 11 actually used English. This is due to the different importance of English language usage in their respective places. More than half responded that English language was very important at work. Based on the comments obtained, this is especially so in multinational companies where English is considered a main medium for communication within the company, as well as with customers and clients. One respondent made a comment that the earning power is proportional to a worker's English language skills. Only one organization responded that English was not important. This could be probably be due to the background of the organization, which was a government department that had to deal with the general public that understood Malay more than English. However, another

government officer commented in the survey that more and more government agencies were using English nowadays.

On the frequency of English language usage, only 13 companies responded, reinforcing the fact that English was very important in the chemical engineering industry, Table 1 shows that more than half used English in eleven different situations listed. However, some tasks required more frequent use of English than the other. The highest usage of English can be seen in writing activities, in this case, reports, letters, memos or faxes. Other tasks which show high frequency of English use but mixed with mother tongue are speaking to clients, participating in meetings, giving presentation as well as writing emails. It can be deduced that writing-and speaking-related tasks required frequent use of English. The least frequent usage of English can be seen in situations where the respondents had to speak to colleagues and also in informal social conversation situation. This shows that workers in the chemical engineering industry frequently used English in formal situations. There is only one respondent who did not have the need of using English for these three tasks: make/answer phone calls, write letters, social conversations. This is not surprising as this respondent opted that English was only important at certain times in his organization.

Twelve language functions were listed in this survey (Table 2) and almost one third of the respondents used almost all of the functions at their workplace as the functions were all related to the tasks that they had to carry out at work. The language function most used was persuading colleagues or clients. This shows that working in this field required a lot of interaction with colleagues and clients. They were required to convince their colleagues in decision making matters and give explanations to their clients. The next most used functions were making complaints, handling complaints and describing process. This is perhaps due to the respondents' position as supervisors where they had to deal with their staff, handled any problems and gave explanation of how things should be done. The least used function was networking, most probably because they would use the language most comfortable to them or to their network group (they or their network group members are most comfortable with). This paragraph does not explain why these functions need to be carried out in English? It only explains that these functions need to be carried out as these are the tasks that engineers do at work.

As for feedback on UniKL MICET's trainees, the supervisors from the companies rated the students' level on English as average. Based on their rate on a set of skills listed (Table 3), most supervisors agreed that the skills which required improvement were face-to-face communication and report writing. This indicates that students not only need to improve writing skills but most importantly their soft skills. This is because report writing is one of the main tasks in this industry while soft skills are very important in daily interaction within a company and with clients. The lowest rated skills were telephone skills and letter writing; this is probably because trainees were not required to do much of these tasks. It is interesting to note that some of the respondents felt that socializing skills needed to be improved as this did correspond to need of better face-to-face interaction.

From the point of view of the trainees, of 26 trainees, 20 stated that they were required to use English at work. However, only 17 actually used English. Majority of the trainees responded that English was very important to carry out the tasks due to various reasons. One of the reasons was to assist interaction between workers, with supervisors as well as clients because not all were of the same ethnicity, thus using a global lingua franca i.e. English was best. In terms of tasks which involved listening (Table 4), the respondents rated listening to process descriptions and instructions as the tasks

which had high importance of English. To know what exactly was involved in certain processes and to know what exactly they had to do, trainees needed to listen attentively as the instructions were in English.

For tasks involving reading (Table 5), English was most important in reading reports. This task was required because the trainees had to write many reports, thus, they were required to familiarize themselves with the different types of report written in the company. With regard to speaking tasks, important tasks were speaking to superiors and participating in work-related discussions. The trainees had constant interaction with their superiors during this period and they were also required to be involved in discussions related to their job scope. Table 6 shows that using English while interacting with coworkers (include hyphen) and clients was also important. Just as reading reports, writing reports was also important (Table 7) because a significant part of a chemical engineer's and/or technologist's job was writing reports of the lab work that they had done. A trainee respondent commented that he had to write reports weekly during the industrial training

As for the question on whether they learnt enough English during their studies, more than one third of the trainees felt that they did not learn sufficient English during their studies. However, they acknowledged that the English courses they took during their studies were useful for their training, although two respondents disagreed with this statement. The respondents commented that they needed more practice in using the language during their studies and that students should be involved in more activities which required them to communicate in English. Related to this, respondents were required to give feedback on which skills they would need to improve on. Majority felt that they need to improve on their presentation skills as many were required to participate in discussions, which was a form of presentation; face-to-face communication, especially when they had to interact with their superior quite often and write report. Many felt that telephone skill was not important and so was socializing skills (as opposed to the companies' response).

5.0 CONCLUSION

From the survey on the English language needs of trainees in the chemical engineering industry, it is clear that English plays a vital role in the workplace. The tasks that were required to be carried out in English can be categorized under the four skills of English language – listening, speaking, reading and writing. It is found that listening to processes and instructions, speaking to superiors, reading reports and writing reports are very important tasks in the workplace.

Meanwhile, the most important language functions include describing processes for both trainers and trainees and this is due to the nature of the field where workers need to be familiar with certain procedures and processes. Both trainers and trainees felt that face-to-face communication needs to be improved, showing the importance soft skills. It is also interesting to note that socializing skills are also considered important.

Based on the study, it can be recommended that besides report writing, which is a common assignment that chemical engineering students have to do, reading reports for comprehension as well as listening to processes and procedure should be given emphasis. Students should also be engaged in more purposeful speaking activities due to the importance of face-to-face interaction in this field.

REFERENCES

Chemical Engineering. 2010. Available at http://en.wikipedia.org/wiki/Chemical_engineering [Accessed 14 March 2010].

Finocchiaro, M. and C. J. Brumfit. 1983. *The Functional-Notional Approach: From Theory to Practice*. Oxford: Oxford University.

Fricz, J. M., Zita, H., Csaba, J. &Wiwczaroski, T. B. 2010.Harmonizing (L2/SP) Competencies with Labour Market Needs [PDF]. *ESP World Online Journal*. Issue 1(27)Volume 9. Available at http://www.esp-world.info/Articles_27/FRITZ_HAJDU_WIWCZAROSKI12009.pdf [Accessed 2 March 2010].

Huchinson, T. & Waters, A. 1987. *English for Specific Purposes: A Learner-centered Approach*. Cambridge: Cambridge University Press.

Kaneko, E., Rozycki, W. & Orr, T. 2009. *Survey of Workplace English Needs among Computer Science Graduates* [Online]. Available at http://www.computer.org/plugins/dl/pdf/proceedings/ipcc/2009/4357/00/05208704.pdf[Accessed 1 March 2010].

Kuter, S. 2000. *An Academic Needs Analysis in EFL Classrooms* [Online].

McCracken, J. 1996. Creatively Adapting Syllabi to match Learners' Needs and Interests. *The English Teacher*. Petaling Jaya: MELTA. XXV: 20–35.

Richterich, R. 1983. *Case Studies in Identifying Language Needs*. Oxford: Pergamon.

Robinson, P. 1991. *ESP Today*. Hemel Hempstead: Prentice-Hall International.

Venkatraman, G. &Prema, P. 2007. English Language Skills for Engineering Students: A Needs Survey [PDF]. *ESP World Online Journal*. Issue 3(16) Volume 6. Available at http://www.espworld.info/Articles_16/Skills.htm [Accessed 1 March 2010].

APPENDICES

Table 1 Frequency of English use in carrying out tasks

No	Situation	Frequency of English Usage in carrying out the task				
		Always (4)	Mixed with mother tongue but mostly English (3)	Mixed, but mostly mother tongue (2)	Never (1)	Not required to do task (0)
1	Speak to clients	9	3	1	0	-
2	Speak to superiors	6	4	3	0	-
3	Speak to colleagues	2	5	6	0	-
4	Give presentation	8	3	2	0	-
5	Make/answer phone calls	4	7	1	1	-
6	Write letters/memos / faxes	10	1	1	1	-
7	Write reports/ proposals	11	0	2	0	-
8	Write e-mails	8	3	2	0	-
9	Participate in meetings	9	2	2	0	-
10	Participate in work related discussions	7	5	1	0	-
11	Informal social conversation	2	7	3	1	-
Total		**76**	**40**	**24**	**3**	**-**

Table 2 Language functions used at work

No	Language functions	Usage at work	
		Yes	No
1	Give instruction	7	8
2	Make/answer enquiries	10	5
3	Ask & give explanation	8	7
4	Make complaints	11	4
5	Handle complaints	11	4
6	Describe process/how something works	11	4
7	Compare & contrast	9	6
8	Describe cause & effect	10	5
9	Negotiate	10	5
10	Interviewing	7	8
11	Persuade colleague/clients	12	2
12	Networking	6	9
Total		**112**	**67**

Table 3 Required improvement

No	Tasks	Students should improve	
		Yes	No
1	Face to face communication	10	7
2	Telephone skill	2	15
3	Presentation skill	7	10
4	Report writing	10	7
5	Letter writing	3	14
6	Meeting participation	7	10
7	Socializing skill	5	12
	Total	**44**	**75**

Table 4 Tasks involving listening

No	Task	English language importance in carrying out the task				
		Very important (4)	Important (3)	Important at times (2)	Not important (1)	Not required to do task (0)
1	Listen to instruction	12	5	4	1	0
2	Listen to process description	13	5	2	2	0
3	Answer telephone calls	3	8	4	2	5
4	Listen to work related discussion	10	8	2	2	0
	Total	**38**	**26**	**12**	**7**	**5**

Table 5 Tasks involving reading

No	Task	English language importance in carrying out the task				
		Very important	Important	Important at times	Not important	Not required to do task
1	Business letter/memo/fax	7	11	2	1	1
2	Reports	12	7	2	1	0
3	Technical Materials	3	5	3	12	0
4	Read to give explanation	9	10	3	0	0
	Total	**31**	**33**	**10**	**14**	**1**

Table 6 Tasks involving speaking

No	Task	English language importance in carrying out the task				
		Very important	Important	Important at times	Not important	Not required to do task
1	Speak to clients	4	12	5	0	1
2	Speak to superiors	2	13	4	2	1
3	Speak to subordinates	1	11	8	2	0
4	Give explanation	5	11	2	4	0
5	Make/answer phone calls	3	9	6	3	1
6	Participate in meetings	7	7	6	2	0
7	Participated in work related discussions	4	13	1	3	1
8	Informal social conversation	6	5	7	3	1
	Total	**32**	**81**	**39**	**19**	**5**

Table 7 Tasks involving writing

No	Task	English language importance in carrying out the task				
		Very important	Important	Important at times	Not important	Not required to do task
1	Write letters/memos/faxes	6	10	3	1	2
2	Write reports/proposals	11	8	3	0	0
3	Write e-mails	6	8	6	0	2
4	Write minutes	7	8	1	2	4
	Total	**30**	**34**	**13**	**3**	**8**