



ESTEEM

Academic Journal UiTM Pulau Pinang

Volume 4, Number 2

2008

ISSN 1675-7939

SCIENCE & TECHNOLOGY

Using Kaplan Meier and Cox Regression in Survival Analysis:
An Example

Teoh Sian Hoon

A Study on the Higher Moment of a Biased Estimator

Ng Set Foong
Low Heng Chin
Quah Soon Hoe

The Structural Modifications of *Candida albicans* Cells
After Treatment with *Cinnamomum zeylanicum*
Blume Crude Extract

Noor Hazarina Nordin
Darah Ibrahim
Siti Nurdijati Baharuddin

Simulation of Routing Probability in Ad Hoc
Networks

Ahmad Zia Ul-Saufie Mohamad Japeri
Muhammad Hisyam Lee
Shaharuddin Salleh

Decomposition and Dipteran Composition
on Exposed Carcasses in an Oil Palm Plantation:
A Forensic Entomology Study

Azwandi Ahmad
Abu Hassan Ahmad

SOCIAL SCIENCES

Kajian ke atas Keberkesanan Kursus CAD/CAM Terhadap
Kecekapan Jurutera Pembuatan dan Jurutera Mekanikal
bagi Graduan-graduan Universiti Awam

Mohamad Irwan Yahaya
Rosley Jaafar
Noor Iswadi Ismail

Korelasi antara Persekitaran Pembelajaran Matematik,
Sikap Pelajar Terhadap Matematik, dan Pencapaian
Pelajar dalam Matematik: Satu Kajian Kes

Salina Hamed
Peridah Bahari
Abdul Ghani Kanesan Abdullah

EDITORIAL BOARD
ESTEEM VOLUME 4, NUMBER 2, 2008
Universiti Teknologi MARA (UiTM) Pulau Pinang
SCIENCE & TECHNOLOGY AND SOCIAL SCIENCES

ADVISORS

Dato' Seri Prof. Dr. Ibrahim Abu Shah
Assoc. Prof. Mohd Zaki Abdullah

PANEL REVIEWERS

Assoc. Prof. Dr. Abdul Halim Zulkifli (*UiTM Pulau Pinang*)
Assoc. Prof. Dr. Fauziah Hj Ismail (*UiTM Malaysia*)
Assoc. Prof. Dr. Foo Fong Lian (*UiTM Malaysia*)
Assoc. Prof. Dr. Roshidi Hassan (*UiTM Malaysia*)
Assoc. Prof. Cheang Eng Kwong (*UiTM Pulau Pinang*)
Assoc. Prof. Lim Kim Poon (*UiTM Pulau Pinang*)
Assoc. Prof. Peridah Bahari (*UiTM Pulau Pinang*)
Dr. Mohamad Abdullah Hemdi (*UiTM Pulau Pinang*)
Dr. Sarminah Samad (*UiTM Malaysia*)
Dr. Teoh Sian Hoon (*UiTM Pulau Pinang*)
Lim Soo Giap (*UiTM Pulau Pinang*)
Muzamil Mustaffa (*UiTM Pahang*)
Zulfikri Mohd Zain (*UiTM Pulau Pinang*)

CHIEF EDITOR

Hoe Foo Terng

MANAGING EDITOR

Mohd Aminudin Murad

PANEL EDITORS

Leow Chiuan Herng	Sofwan Hasbullah
Lim Teck Heng	Sopiah Ishak
Nor Fadhlin Jaafar	Syarifah Adilah Mohamed Yusoff
Santhanamery Thominathan	Yeoh Guan Joo

EDITORIAL ASSISTANT

Fara Azwani Yahya

Copyright © 2008 by the Universiti Teknologi MARA, Pulau Pinang

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission, in writing, from the publisher.

ESTEEM Academic Journal is jointly published by the Universiti Teknologi MARA, Pulau Pinang and University Publication Centre (UPENA), Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia.

The views, opinions and technical recommendations expressed by the contributors and authors are entirely their own and do not necessarily reflect the views of the editors, the Faculty or the University.

ESTEEM

Academic Journal UiTM Pulau Pinang

Volume 4, Number 2

2008

ISSN 1675-7939

Foreword

v

SCIENCE & TECHNOLOGY

1. Using Kaplan Meier and Cox Regression in Survival Analysis:
An Example 3
Teoh Sian Hoon
2. A Study on the Higher Moments of a Biased Estimator 15
Ng Set Foong
Low Heng Chin
Quah Soon Hoe
3. The Structural Modifications of *Candida albicans* Cells After
Treatment with *Cinnamomum zeylanicum* Blume Crude Extract 31
Noor Hazarina Nordin
Darah Ibrahim
Siti Nurdijati Baharuddin
4. Simulation of Routing Probability in Ad Hoc Networks 39
Ahmad Zia Ul-Saufie Mohamad Japeri
Muhammad Hisyam Lee
Shaharuddin Salleh
5. Decomposition and Dipteran Composition on Exposed
Carcasses in an Oil Palm Plantation: A Forensic Entomology Study 51
Azwandi Ahmad
Abu Hassan Ahmad

SOCIAL SCIENCES

- | | |
|--|------------|
| <p>6. Kajian ke atas Keberkesanan Kursus CAD/CAM Terhadap Kecekapan Jurutera Pembuatan dan Jurutera Mekanikal bagi Graduan-graduan Universiti Awam</p> <p>Mohamad Irwan Yahaya
Rosley Jaafar
Noor Iswadi Ismail</p> | <p>75</p> |
| <p>7. Korelasi antara Persekitaran Pembelajaran Matematik, Sikap Pelajar Terhadap Matematik, dan Pencapaian Pelajar dalam Matematik: Satu Kajian Kes</p> <p>Salina Hamed
Peridah Bahari
Abdul Ghani Kanesan Abdullah</p> | <p>91</p> |
| <p>8. Penerangan Tentang Penggunaan Tulisan Cina Berasaskan Prinsip-prinsip <i>Liu Shu</i> dalam Buku Teks Mandarin</p> <p>Hoe Foo Terng</p> | <p>105</p> |
| <p>9. Students' View on Using Web-Based Resources in Learning: Qualitative Study</p> <p>Peridah Bahari
Salina Hamed</p> | <p>119</p> |
| <p>10. Al-Rahmaniah: Sejarah dan Peranan yang Pernah Dimainkan dalam Aktiviti-aktiviti Dakwah Islamiah di Malaysia</p> <p>Zulkifli Dahalan</p> | <p>133</p> |
| <p>11. Designing Learning Resources as Classroom Activities with the Use of Newspapers</p> <p>Cheang Eng Kwong</p> | <p>151</p> |
| <p>12. A Needs-Analysis on the Engineering Undergraduates' Communication Skills</p> <p>Suzana Ab. Rahim</p> | <p>163</p> |

13. A Study of At-Home and Out-of-Home Parental Involvement and Student Achievement in English	185
Liaw Shun Chone Angelina Subrayan	
14. Peranan Kepimpinan Mahasiswa di Kolej Kediaman dalam Memperkasa Kemahiran Insaniah (<i>Soft Skills</i>)	199
Fairus Muhamad Darus	

Foreword

This is the first time that ESTEEM Academic Journal UiTM Pulau Pinang has come up with 2 publications in a year! Previously, ESTEEM was published once biennially.

For these publications to materialise, I would like to thank Associate Professor Mohd Zaki Abdullah, the Director of UiTM Pulau Pinang for his unflinching support and who always told me, “Go ahead, don’t worry about the money!”.

Both the Associate Professor Mohd Zaki Abdullah and Dr. Mohamad Abdullah Hemdi, the Deputy Director of Academic Affairs really provided me with a great deal of assistance in ensuring that there are sufficient articles for publishing. Both of them have emphasized the need for lecturers to embark on journal writing. Incidentally this is one of the prerequisites for promotion among the academic staff members of UiTM Pulau Pinang.

I do not think I can run the show alone without the help from the editorial board, reviewers and the cooperation from University Publication Centre (UPENA) of UiTM Malaysia. My special thanks to Mr. Mohd Aminudin Murad for his efficiency in editing articles and to Dr. Khairil Iskandar Othman for speeding up the final stage of printing process.

Since writing is an important criterion in rating a university, I feel it is a great responsibility for me to produce a good journal. Fellow colleagues, let’s work closely to put UiTM Pulau Pinang in the final list of Anugerah Kualiti Naib Canselor (AKNC) and Anugerah Kualiti Perdana Menteri (AKPM) by submitting more quality articles to ESTEEM!

Lastly, let me end by thanking all of you for giving your unwavering support to UPENA.

The Chief Editor
November, 2008

A Needs-Analysis on the Engineering Undergraduates' Communication Skills

Suzana Ab. Rahim

ABSTRACT

With the recent development requiring the engineers of today to be endowed with soft skills; particularly in having the ability to communicate well, it is pertinent that the engineering undergraduates' needs towards being more conversant and their ability to communicate well be looked into. With that in mind, this study will look into the English Language communication skills required by the practising engineers at the work place. For the purpose of this study, the samples come from the engineering lecturers who have served as practising engineers so as to validate the work place requirements. The findings indicate that various language skills and language items are some of the areas need to be focused on and taught to the engineering undergraduates to further equip them with the essential package of being more marketable engineering graduates.

Keywords: *need analysis, verbal and written communication skills, engineering undergraduates, practicing engineers*

Introduction

Much has been said about the Malaysian graduates sadly lacking of the relevant soft skills deemed indispensable by the employers, resulting in a hindrance for these 90,000 youngsters getting employed ("Congratulations, You Fit," 2007). The lack of soft-skills, which include the use of the English language and the ability to communicate have been propagated to be among the major factors contributing towards the number of unemployment among the many graduates of this country according to the Minister of Higher Learning, Dato' Dr. Shafie Mohd Salleh ("Ramai Menganggur," 2005). In addition to this, according to another report in the national daily ("Advance for Graduates", 2005), The Penang State Economic Planning, Education and Human Resource, Science, Technology and Innovation committee chairman, Datuk Dr. Toh Kin Woon stated

that “most of the graduates fail the many tests conducted by the prospective employers due to their lack of soft skills like communication and interaction” (p. 2). He then suggested that “it is therefore important for local universities to meet the needs of industries and further improve methods of teaching to make their graduates more attractive to prospective employers” (p. 2).

Engineering education as summarized by Lim Eng Hwa (2004) is a lifelong process, which should not end the moment one leaves the university with a basic degree course. In fact, emphasizes Lim Eng Hwa, it is the responsibility of the engineers in the academia as well as the industry to churn out the best out of these engineering graduates. According to him, both quarters in hand with the government would be able to realise the goals and visions of witnessing greater success in the field of industry, particularly that of engineering. He also insists on the relevant party to “allocate some time and resources to train the young graduates well, both in the technical and non-technical aspects of engineering” before the older generation of engineers can confidently let the younger ones take over the reins.

Statement of Problem

As in the case of engineering graduates, technical competency must be complemented by their mastery in communication skills since both are complementary especially as Riemer (2002) suggests “a lack of communication skills serves only to undermine the image of the engineer”. (p. 91)

Following the stark reality that most of the engineering graduates still lack the ability to express themselves well in the target language especially, in spite of the acknowledged level of technical knowledge they may possess, it is pertinent to look at the real needs of graduates of engineering by analysing and observing what the industry requires of them; whether their workplace really requires them to be not only verbal in expressing matters relating to their areas of expertise but also verbal in the many areas of interpersonal skills.

The needs of the industry as underlined by the study conducted by Siti Hindon and Rofiza (2002) also require on the part of the undergraduates to be interactive and articulate so as to be competent in their careers. To emphasize this point further, it is the employers’ expectations that such graduates will possess good interpersonal

communication skills whereby the ability “to handle customer complaints, get feedback, liaise between customers and factory personnels to resolve problems and make improvements are some instances cited in the analysis of job advertisements requirement for a potential successful candidate for the engineering profession” (Siti Hindon & Rofiza, 2002, p. 2).

Thus, since it is very much the demands of the engineering profession that graduates should be able to put into use their technical and non-technical knowledge, it is therefore important for us to look at how the engineering undergraduates perceive their ability in communicating as well as to prepare them for their future work-place requirements by analysing their needs, wants and lacks in the written and verbal communication skills particularly in the target language, English.

However, a learner-centred approach towards analysing merely the needs of the learners would not suffice. Thus, it is also of importance that the target-situation analysis of the lecturers who are a representation of practising engineers be highlighted in this study as well as their insights regarding the actual needs of a practising engineer will help steer these undergraduates into the right direction. Moreover, this serves as the purpose of providing a better and genuine input for what is in store should these undergraduates fulfil their roles later.

Purpose of the Study

As such, the study seeks the following objectives:

1. To identify and describe the communication skills in the English language as required by the engineering profession.
2. To find out the types of communication skills in the English language should be taught to the engineering undergraduates.

Research Questions

The study seeks to answer the following research questions:

1. What kinds of communication skills in the English language are required by practising engineers to function effectively at their work place?
2. What kind of communication skills in the English language should be taught to the engineering undergraduates?

Literature Review

Needs Analysis

Cited in Brown (1995), “needs analysis refers to activities involved in gathering information that will serve as the basis for developing a curriculum that will meet the language needs of a particular group of students” (p. 35). He goes on to explain that these identified needs can be defined in goals and objectives, to help develop tests, materials, teaching activities and evaluation strategies; thus explaining the pertinent role of needs analysis in a “systematic curriculum building”.

Brown further emphasises that needs analysis, “involves the gathering of information, to find out how much the students already know and that they still need to learn” (p. 35). Pratt (as cited in Richards, 1985) defines goals of needs analysis as “referring to an array of procedures for identifying and validating needs and establishing priorities among them” (p. 7).

Needs analysis, more importantly as explained by Richards (1985), highlights the eventual function of using the language upon the language programme completion. More precisely, it addresses the relevance of the language to be used in a certain setting. Therefore, Richards puts forward the term *target situation analysis* (TSA) whereby it involves the “procedures for identifying the settings in which learners are to use the target language, the role relationships in which they are to be involved, the medium of communication, the types of communicative events and also the level of competence required in the target language” (cf. Munby, 1978). All these will steer into focus “the type of language skills and level of language proficiency the programme should aim to deliver.” (p. 9)

However, it should be noted that it is imperative that the question of the kind of information is actually conveyed to us by a needs analysis be answered. The proposed research would take into account both target situation needs and learning needs as suggested by Hutchinson and Waters (1987). It is pertinent both needs be addressed as one complements the other. While analysis of the target situation can relate to us what people do with the language, it is also of importance that we analyze “how the people learn to do what they do with language.” (p. 54) In other words, Hutchinson and Waters are of the opinion that by addressing both needs, a learning-centred approach to needs analysis would thus be taken.

Related Discussions on the Importance of Language and Communication Skills for Engineering Students

As presented by Megat Johari, Abang Abdullah, Osman, Sapuan, Maruin, Jaafar, Ghazali, Omar, and Rosnah (2002), not only the engineers nowadays have to be technically competent but also have to possess the interpersonal skills to deal with the public effectively. "In the making of leaders in the development, these engineers must be trained with various industrial skills namely communication, management, law, politics and environment" (p. 9).

In fact, oral communication has been cited an instance of the many skills or competencies that should be acquired by the engineering undergraduates as summarized by the Dearing Report (1997). While successful engineering undergraduates are observed to have little difficulty in solving problems encountered, Seat, Parsons, and Poppen (2001) however put forward an argument that despite having effective problem-solving skills, they lack the interpersonal skills especially where people are concerned. Although one might argue that their hard-skills more than soft-skills are undeniably more crucial, reality has proved otherwise especially in meeting up changes and challenges of a more globalized engineering trend. The respective skills should be honed and enhanced since the failure to do so would be a drawback for their careers.

Bakos (1997) emphasizes the requirements of the industry or professional practice of an engineering graduate are that of "a broadly educated engineer who can think, solve problems, communicate and work with others" (p. 14). This is especially true since the engineering educators and practitioners are in tandem with a more effective method and technique implementation on the engineering education in line with the aggressive demands of the 21st century, requiring engineers to upgrade their non-technical abilities. The ability to be adept in their careers in the "increasingly complex and interactive society" (p. 14) includes the oral and written communication skills.

These communication needs are further strengthened by Bakos (1997) who writes on communication skills for the 21st century as seen from the point of view of civil engineering educators and practitioners. According to Bakos, these civil engineering educators and practitioners analyse the ways effective methods and techniques are implemented in order for civil engineering education to be further improved. Among the future needs identified then were those of mechanical abilities of civil engineers due for "increasingly complex and interactive society" amongst

others (Bakos, 1997, p. 14). Nevertheless, of prior importance are the needs to include basic tools as written and oral communication skills into related fields of education.

Hence, far broader skills ranging from “written and oral communication skills to cultural awareness and from economics to interactional and interpersonal relations” are proposed to be concocted with the elements of a traditional civil engineering education (Bakos, 1997, p. 14).

He goes on to state that in the case for the civil engineering professionals who have foreseen the needs for an effective skill at communicating, their move is deemed very timely, due “to the increasingly complex and interactive society” where communication skills and the ability to work in interdisciplinary teams in a global market takes on a more important role (Bakos, 1997, p. 14)

Nonetheless, of importance is also the role of the engineering educators who are directly involved in the moulding of engineering graduates. They must be made aware that they have to face the challenge of updating their knowledge base, which is expanding, even as we speak. Emphatically Bakos (1997, p. 15) insists that no longer are skills of memorising and retaining information relevant to a successful career but it is the training of these future engineers to “effectively access this vast information and critically evaluate for “its future professional use”. Bakos (1997, p. 16) sums up reminding the faculty of its proactive participation in adapting to such changes and also in preparing students to “communicate effectively in oral, written and online formats”.

Chisholm (2003) states that despite the emergence of new technologies substituting the traditional engineering technologies in reviewing and regenerating the curriculum and maintaining relevance to industry, commerce and society, engineering remains a discipline threatened and challenged, hence, the significance and a careful review of its role in the society today and tomorrow.

He goes on to say that among the many issues related to the engineering discipline is the issue of whether the lack of communication skills such as oral and written is undermining the whole profile of its discipline. He also highlights the concerns over the declining quality of graduates based on the feedback gained from a number of industries. Since “technologies are transient and change quickly, engineering graduates need a set of sustainable life skills so that they can cope with technological knowledge change” (Chisholm, 2003, p. 31).

Methodology

The researcher uses a set of questionnaire adapted from One Stop English website (<http://www.onestopenglish.com>). This questionnaire is selected because there are many detailed aspects of verbal and written communication skills that are covered within it. This will help contribute towards giving the researcher an overview of the language needs, reading, writing, speaking, listening, verbal, and written communication skills as required in the research questions. The set of questionnaire is designed in the forms of open-ended and Likert Scale.

Set A is divided into 3 parts: Part A (*Personal Information and Part*), Part B (*Skills and Language*), and Part C (*Communication Skills [Verbal Communication and Written Communication]*).

Samples and Instrument

The sample of this study consists of 50 respondents who are currently serving as engineering lecturers in Universiti Teknologi MARA (UiTM) Pulau Pinang. The respondents for the lecturers are selected using the purposive sampling technique whereby the 50 engineering lecturers with the background of industrial training or attachment are sought with the assistance of the Head of Programme from three different engineering disciplines namely, the Civil Engineering, Electrical Engineering, and Mechanical Engineering. These lecturers have all served in the industry prior to joining the respective university and would have at least a minimum of a year to a maximum of 25 years of service in the industry.

The set of questionnaire aimed to elicit information that will help highlight the needs of the undergraduates in relation to the perceived needs of the lecturers regarding the engineers' communication skills that are required of them at their work-place. In addition to this, the questionnaire is also concerned with the lecturers' perceptions on the importance of verbal and written communicational skills to the engineers.

Data Analysis and Findings

The Statistical Package for the Social Sciences (SPSS) version 12 is used to analyse the questionnaire. Simple descriptive measures in the form of frequency counts and percentage are applied.

The first section describes the findings of the lecturers' views regarding the importance of communication skills among practising engineers.

This study also aims to look at the practising engineers' trend of verbal and written communication whereby what is viewed of importance should then be imbued with more zest to these undergraduates so as to create an awareness for them that there is more than just hard-skills to their profession that they have to master.

Lecturer's Perceptions

This section will highlight the findings from the questionnaire distributed to the lecturers. Their responses are presented in frequency count and percentage. Their responses are to answer the questions regarding communication skills required by the practising engineers to function effectively at their work-place and also the ability of the undergraduates' in verbal and communication skills. This section will also attempt to pinpoint the components that should be taught to these undergraduates so as to help them achieve better communication skills; verbally and written.

It should be noted that the respondents are asked to rate the importance of these skills according to 4 scales: *unimportant*, *somewhat important*, *important*, or *very important*. For ease of reference, these scales are then sub-grouped into three levels comprising *unimportant*, *somewhat important*, and *important and very important*.

Language Skills

Almost all the lecturers gave an equal level of importance to *reading* and *writing* based on the number of respondents that voted for these two skills. Ninety-nine percent of the respondents agreed that reading and writing are the first two major skills of priority. Therefore for them, grammar does not seem to be of higher importance since only 68% of the total number of respondents responded to it being important and very important as compared to the higher percentage of respondents opting for the other five skills listed in the above table. This however, does not suggest that grammar is to be ignored for practising engineers since there are still many of them who still believe that Grammar is important even though the number of respondents is not as high as the number of respondents for the other reading skills.

Table 1: Importance of Language Skills to Practising Engineers

Skill	Somewhat important		Important very important		Total	
	Count	Percentage	Count	Percentage	Count	Percentage
Reading	1	2%	49	98%	50	100
Writing	1	2%	49	98%	50	100
Speaking	2	4%	48	96%	50	100
Listening	3	6%	47	94%	50	100
Vocabulary	10	20%	40	80%	50	100
Grammar	16	32%	34	68%	50	100

The Importance of Reading Materials for Effective Communication

With reference to Table 2, all the reading materials are considered to be important and very important based on the findings. Firstly, the two most outstanding reading materials that help them to communicate effectively are specialist articles and technical reports whereby this can be seen from the above table that 49 out of 50 respondents agreed on both choices of materials. Slightly lower than those two materials and at 96% is the instructional booklets highly regarded by the respondents to be of help as materials in improving their communication skills to a higher level.

On the other hand, the two least important reading materials are faxes and business letters where only 33 and 32 respondents agreed on their importance as reading materials in helping to better one's communication skills. However, other reading materials are still of importance to the practising engineers for between 35 to 48 respondents chose them to be of importance when wanting to improve their communication skills.

The Importance of Writing Ability

Regardless of their specialization, a majority of these respondents are in agreement of the importance of possessing an effective writing ability which can be seen in the distribution of respondents in the table above. The majority of lecturers (96%) agreed that the ability to write effectively is important and very important in communicating effectively. Only 4% of the total respondents disagreed that writing ability is of importance in order for one to communicate effectively. This is shown in the distribution of respondents in the columns of *unimportant* and *somewhat important*.

Table 2: Importance of Reading Selected Materials in Communicating Effectively to a Practising Engineer

Material	Unimportant		Somewhat important		Important and very important		Total	
	Count	%	Count	%	Count	%	Count	%
Specialist articles			1	2%	49	98%	50	100
Technical reports			1	2%	49	98%	50	100
Instructional booklets			2	4%	48	96%	50	100
User manuals			7	14%	43	86%	50	100
Official notices			8	16%	42	84%	50	100
Memos			9	18%	41	82%	50	100
Management reports			10	20%	40	80%	50	100
Websites			11	22%	39	78%	50	100
Contract			12	24%	38	76%	50	100
General interest articles			12	24%	38	76%	50	100
Formal business e-mails			13	26%	37	74%	50	100
Sales-related materials	1	2%	13	26%	36	72%	50	100
Company brochures			15	30%	35	70%	50	100
Faxes			17	34%	33	66%	50	100
Business letters	2	4%	16	32%	32	64%	50	100

Table 3: The Importance of the Ability to Write Effectively

	Unimportant		Somewhat important		Important and very important		Total	
	Count	%	Count	%	Count	%	Count	%
Ability to write effectively	1	2%	1	2%	48	96%	50	100

The Importance of Writing Selected Materials

As shown in Table 4, every item in the list showed that it is deemed important and very important in terms of its writing to the practising engineers in communicating effectively. Where writing of these materials

is concerned, the most important selected material is the technical reports chosen by 48 respondents whereas sales-related materials is the least in order of importance with only 31 respondents in agreement with its importance. This accounts for 62% of the total number of respondents in comparison to the number of respondents for technical reports which stands at 92%. Meanwhile, the findings observe above 85% of respondents agreeing to the importance of writing of specialist articles and instructional booklets in order for them to communicate effectively. Nonetheless, none of these selected materials are considered to be unimportant although the weightage differs from one material to another based on the practising engineers' area of specialization.

Table 4: The Importance of Writing Selected Materials in Communicating Effectively

Material	Unimportant		Somewhat important		Important and very important		Total	
	Count	%	Count	%	Count	%	Count	%
Technical reports			2	4%	48	96%	50	100
User manuals			5	10%	45	90%	50	100
Specialist articles	2	4%	4	8%	44	88%	50	100
Instructional booklets			6	12%	44	88%	50	100
Formal business e-mails			10	20%	40	80%	50	100
Management reports	1	2%	10	20%	39	78%	50	100
Memos			11	22%	39	78%	50	100
Faxes	1	2%	11	22%	38	76%	50	100
Official notices			12	24%	38	76%	50	100
Business letters			13	26%	37	74%	50	100
Websites	2	4%	12	24%	36	72%	50	100
Company brochures	2	4%	13	26%	35	70%	50	100
Contract	5	10%	11	22%	34	68%	50	100
General interest articles	1	2%	15	30%	34	68%	50	100
Sales-related materials	1	2%	18	36%	31	62%	50	100

Relevant Situations Utilizing the Speaking and Listening Skills

For items *Relevant Situations Utilizing the Speaking and Listening Skills* and *The Usage of English Language at the Workplace* the lecturers are asked to rate the frequency of relevant situations requiring their participation and the frequency of people they commonly converse with according to four scales namely *never*, *seldom*, *often*, or *always*. These responses are then sub-grouped into three different scales of *never*, *seldom*, or *often and always*.

Table 5 illustrates an overall analysis of the respondents' frequency of relevant situations in which practising engineers usually participate in utilizing his speaking and listening skills. Ninety-two percent or 46 out of 50 respondents responded that group meetings often and always require the engineers to use their speaking and listening skills to participate in such events. However, 30 (60%) respondents responded that they never or seldom make use of the two language skills in conference calls as compared to other relevant situations requiring their speaking and listening skills such as in one-to-one meetings, one to one phone calls, presentations, socializing as well as conferences.

Table 5: Frequency of Relevant Situations Which Practising Engineers Usually Participate in

Situation	Never		Seldom		Often and always		Total	
	Count	%	Count	%	Count	%	Count	%
Group meetings			4	8%	46	92%	50	100
One to one meetings			11	22%	39	78%	50	100
One to one phone-calls			12	24%	38	76%	50	100
Presentations	1	2%	13	26%	36	72%	50	100
Socializing			18	36%	32	64%	50	100
Conferences	1	2%	20	40%	29	58%	50	100
Conference calls	7	14%	23	46%	20	40%	50	100

The Usage of English Language at the Workplace

According to the findings in Table 6, people whom the practising engineers commonly converse with in English at their work place range from customers, immediate superior, potential customers, other superiors, colleagues to subordinates. Eighty-eight percent of the respondents chose customers as the group of people the practising engineers tend to converse more often. In spite of only 60% who opted for subordinates as the least frequent group of people the practising engineers commonly converse with, all these people still fall under the category of people the practising engineers hold conversations more frequently. Ranging from as low as 60% to 88% the respondents responded that customers are the group of people they often mingle more followed by their immediate superiors and customers both at 88% and 80% respectively.

The Importance of Verbal Communication Skills to Practising Engineers

This item highlights the lecturers' view regarding the importance of selected verbal communication skills for practising engineers to function effectively at their workplace. Their responses are categorized into three levels of importance namely *unimportant*, *somewhat important*, and *important and very important*.

Table 6: Frequency of the People at the Workplace Whom the Practising Engineers Commonly Conversed with

People at work	Never		Seldom		Often and always		Total	
	Count	%	Count	%	Count	%	Count	%
Customers			6	12%	44	88%	50	100
Immediate superior			8	16%	42	84%	50	100
Potential customers	1	2%	9	18%	40	80%	50	100
Other superiors	1	2%	12	24%	37	74%	50	100
Colleagues	1	2%	16	32%	33	66%	50	100
Subordinates	1	2%	19	38%	30	60%	50	100

Based on Table 7, it can be concluded that every skill listed is important and very important. All the respondents agreed unanimously that the skills of facilitating groups and/ or meetings and responding appropriately to questions are truly important to a practising engineer's verbal communication skills. Although there exists variation of percentage from one skill to another, they are undeniably important as shown in the number of respondents who have opted for them to be significant than less significant. In short, the lecturers rated that all these selected skills as highly important for practising engineers.

Table 7: Lecturers' View of the Importance of Verbal Communication Skills for a Practising Engineer

Verbal communication skill	Unimportant		Somewhat important		Important and very important		Total	
	Count	%	Count	%	Count	%	Count	%
Facilitating groups and/or meetings/ discussions					50	100%	50	100
Responding appropriately to questions					50	100%	50	100
Communicating with the public in groups (team work)			1	2%	49	98%	50	100
Explaining information, ideas, opinions			1	2%	49	98%	50	100
Attending job interviews	1	2%	1	2%	48	96%	50	100
Presentation and public speaking skills			2	4%	48	96%	50	100
Gathering and probing for information			3	6%	47	94%	50	100
Communicating with the public individually			4	8%	46	92%	50	100

(Table continues)

Table 7 (*continued*)

Verbal communication skill	Unimportant		Somewhat important		Important and very important		Total	
	Count	%	Count	%	Count	%	Count	%
Expressing/ discussing ideas and information with clarity and organization			4	8%	46	92%	50	100
Making official telephone calls			4	8%	46	92%	50	100
Corresponding with business partners			5	10%	45	90%	50	100
Using diplomacy and politeness			5	10%	45	90%	50	100
Counseling/guiding/ advising others on on options, information, issues			6	12%	44	88%	50	100
Negotiating effectively			8	16%	42	84%	50	100
Socializing			13	26%	37	74%	50	100

The Importance of Written Communication Skills to Practising Engineers

This item highlights the lecturers' view regarding the importance of selected written communication skills for practising engineers to function effectively at their workplace.

Table 8 (Table 9?) refers to the importance of written communication skills to practising engineers in which the respondents (100%) fully agreed that two skills are of higher importance to them. These skills are writing effective proposals and technical reports. Following closely at 98% is the skill of writing informal e-mails whereby a majority of respondents pointed out that although it is a form of informal writing documentation, it is still considered important to one who holds the post of an engineer. In short, all these written skills are undeniably important for practising engineers to better their skills of communication.

Table 8: Lecturers’ View on the Importance of Written Communication Skills for a Practising Engineer

Written communication skill	Unimportant		Somewhat important		Important and very important		Total	
	Count	%	Count	%	Count	%	Count	%
Writing effective proposals					50	100%	50	100
Writing technical reports					50	100%	50	100
Writing informal e-mails			1	2%	49	98%	50	100
Writing instructions			3	6%	47	94%	50	100
Writing management reports			3	6%	47	94%	50	100
Writing memos			4	8%	46	92%	50	100
Writing recommendations			4	8%	46	92%	50	100
Writing specialist articles	2	4%	4	8%	44	88%	50	100
Proofreading, editing or fact checking			6	12%	44	88%	50	100
Writing formal business e-mails			7	14%	43	86%	50	100
Writing minutes			7	14%	43	86%	50	100
Writing official notices			7	14%	43	86%	50	100
Writing general interest articles	3	6%	6	12%	41	82%	50	100
Writing sales -related materials			10	20%	40	80%	50	100
Writing faxes	1	2%	11	22%	38	76%	50	100
Writing contracts	1	2%	12	24%	37	74%	50	100
Writing business letters			14	28%	36	72%	50	100

Conclusion

The findings from the questionnaire showed that more time should be given on writing and oral communication to deal with the requirements at the workplace.

While the lecturers view that of higher importance are the skills of reading and writing, grammar to the lecturers is not as highly important as the other skills. It is quite interesting though to know that grammar takes a back seat to the selected lecturers as many of them are of the opinion that as long as the ideas are comprehensible, then communication to them is successful.

Moving onto the importance of reading materials that could help enhance one's communication skills, the lecturers are of the view that technical reports, user manuals, instructional booklets, specialist articles among others, are of significance in communicating effectively.

Highlighting the response gained from the lecturers' on the relevant situations requiring the practising engineers' participation and thus utilizing their speaking and listening skills, it was found that group meetings recorded the highest number of respondents agreeing to it being an occasion which calls for more participation among the professionals.

As for the group of people the practising engineers commonly converse with at the work place, the lecturers highlighted that customers is the most common group of people that the practising engineers frequently encounter apart from the immediate superior and potential customers which in turn would require them to utilize their listening and speaking skills to the best of their ability. As such, there is a need for the course designers to reflect on the importance of engineer-customer interaction and to include elements of communication that are more customer-oriented which could include the art of making effective negotiations and holding polite conversations with the potential customers.

On the lecturers' view of the importance of verbal communication skills for practising engineers, the prioritized items basically could be tied to the numerous authentic and real-life experience that the lecturers would have had while in the industry and thus explains the choice of facilitating groups of meetings, responding appropriately, communicating with the public in groups, explaining information, ideas and opinions being supported by a higher number of respondents.

It should be noted that in the moulding of an ideal engineer who is endowed not only with hard-engineering skills but also soft-engineering skills, it is a challenge for both the engineering course educators as well

as the language lecturers to instil in them the much-needed verbal and written skills which could help improve other interpersonal and problem solving skills amongst these future engineers. This is where the focus of specified verbal and written communication skills as highlighted in the summary of the findings earlier on, deemed relevant and practical in the work of a practicing engineer must be inculcated in these undergraduates since it is pertinent that they embrace these changes; from being merely competent in their hard-skills to being a person endowed with soft-skills as well, in getting prepared for the demands of their workplace environment.

Highlighting the speaking and listening skills in the events which practising engineers frequently acquaint themselves with, one will notice that group meetings demand the highest frequency of the practicing engineers' time and thus imposing on their verbal communication skills more in these events. In other words, the speaking and listening skills cannot be left unattended to since these situations require the engineers to be alert and sensitive with whatever discussions or conversations taking place. Thus, sharpening these skills would prove beneficial for the fact that they would be of great help to their ability in verbal communication skills.

It should dawn upon the UiTM and particularly the course designers that there is a dire need for a more in-depth communicational syllabus to be included in the undergraduates' engineering course. As indicated by the lecturers' responses that more time is spent on oral and verbal communication as practicing engineers, priority should be placed on improving the speaking and listening skills of the undergraduates for the future formal and informal meetings and presentations they might have to encounter with their superiors, colleagues and potential customers. Furthermore, it is the undergraduates who now need to play a vital role in adopting and adapting the relevant communication skills in English language to meet the current needs of the job market apart from being more sensitive towards the globalized trend of engineering skills as noted in the literature review.

Bibliography

Advice for graduates (2005, March 14). *News Section, The Star*, p. 2.

APA style guide (5th ed.). Retrieved May 29, 2005 from <http://www.lib.usm.edu/research/guides/apa.html>

Bakos, J. D., Jr. (1997). Communication skills for the 21st century. *Journal of Professional Issues in Engineering Education and Practice*, 123(1), 14–16.

Brown, J. D. (1995). *The elements of language curriculum: A systematic approach to program development*. New York: Heinle & Heinle.

Candiah, R. G. (2004, June). Professional education and training. *Jurutera*, 12–14.

Chan, V. (2001). Determining students' language needs in a tertiary setting. *Forum*, 39. Retrieved February 9, 2004 from <http://exchanges.state.gov/forum/vols/vol39/no3/p16.htm>

Chisolm, C. U. (2003). Critical factors relating to the future sustainability of engineering education. *Global Journal of Engineering Education*, 7(1), 29–38.

Collins, R., Shuyun, L., & Cheung, D. (2000). Language professionals in engineering faculty: Cross-cultural experience. *Journal of Professional Issues in engineering education and Practice*, 126(1), 32–34.

Congratulations, you fit the bill! (2007, February 4). *Cover Story Education Section, The Star*, p. E10.

Darling, A. L., & Dannels, D. P. (2003). Practising engineers talk about the importance of talk: A report on the role of oral communication in the workplace. *Communication Education*, 52(1), 1–16.

- Dudley-Evans, T., & Jo St John, M. (1998). *Developments in ESP*. United Kingdom: University of Cambridge.
- El-Raghy, S. (1999). Quality engineering education: Student skills and experiences. *Global Journal of Engineering Education*, 3(1), 25–29.
- Engineering Accreditation Council Malaysia. (2003). *Engineering programme accreditation manual*. Kuala Lumpur: Board of Engineers Malaysia.
- Gileard, J., & Gileard, J. D. (2002). Developing cross-cultural communication skills. *Journal of Professional Issues in Engineering Education and Practice*, 128(4), 187–200.
- Hutchinson, T., & Waters, A. (1987). *English for specific purposes: A learning-centred approach*. New York: University of Cambridge.
- Ince, G. (2004, Dec), What do employers look for? *University-Industry Linkage Centre (UILC) News*, 3.
- Kavaliauskiene, G., & Uzpalienė, D. (2003). Ongoing needs analysis as factor for successful language learning. *Journal of Language Learning*, 1(1), 35–49.
- Li Shu Yun & Carmel Heah. (2001). Creating a communication skills module for engineers on an international development programme. *ESP Malaysia*, 7(1), 31–37.
- Lim Eng Hwa. (2004). Engineering education. *Journal Jurutera*, 1.
- Lim Ho Peng. (1994). The language needs of apprentices in the Engineering Industry. *ESP Malaysia*, 2(1), 59–69.
- Malaysian Employers Federation. (n.d.). *Facing the realities of the world of work*. Retrieved September 16, 2004 from <http://www.epu.jpm.my>

- McGregor, H. (2000). *Engineers at work developing communication skills for professional practice*. Retrieved September 17, 2004 from <http://www.stc.org/confproceed/2000/PDFs/0037.pdf>
- Megat Johari, M. M. N., Abang Abdullah, A. A., Osman, M. R., Sapuan, M. S., Marian, N., Jaafar, M. S., et al. (2002). A new engineering education model for Malaysia. *The International Journal of Education*, 18(1), 8–16.
- Mohd Salleh Sulung. (2002). *Expectation of academic excellence: Insight from industry paper*. UiTM Academic Conference 2002, Renaissance Hotel, Melaka.
- Morshidi Sirat, Abdul Aziz Buang, Abdul Majid Mohd Isa, Ambigapathy Pandian, Mohd Asri Abdullah, Mohamed Dahlan Ibrahim, et al. (2004). *Masalah pengangguran di kalangan siswazah*. Pulau Pinang: Institut Penyelidikan Pendidikan Tinggi Negara.
- Munby, J. (1978). *Communicative syllabus design*. Great Britain: Cambridge University Press.
- Nguyen, D. Q. (1998). The essential skills and attributes of an engineer: A comparative study of academics, industry personnel and engineering students. *Global Journal of Engineering Education*, 2(1), 65–75.
- One Stop English. (2003). *Solution for English*. Retrieved October 20, 2004 from the One Stop English website: <http://www.onestopenglish.com>
- Polack-Wahl, J. A. (2000). It is time to stand up and communicate. *30th ASEE/IEEE frontiers in Education Conference*.
- Ramai menganggur kerana bahasa Inggeris. (2005, March 4). *Pendidikan Bestari, Utusan Malaysia*, p. 1.
- Richards, J. C. (1990). *The language teaching matrix*. Cambridge: Cambridge University Press.

- Richards, J. C. (1985). Language curriculum development. *Working Papers, Department of English as a Second language, University of Hawaii at Manao*, 4(1), 1–37.
- Rierner, M. J. (2002). English and communication skills for the global engineer. *Global Journal of Engineering Education*, 6(1), 91–100.
- Robinson, P. (1991). *ESP today: A practitioner's guide*. United Kingdom: Prentice Hall International (U. K.) Ltd.
- Seat, E., Parsons, J. R., & Poppen, W. A. (2001). Enabling engineering performance skills: A programme to teach communication, leadership & teamwork. *Journal of Engineering Education*, 90(1), 7–17.
- Siti Hindon Che Wok & Rofiza Aboo Bakar. (2002). Employers' expectation of engineering graduates. *UiTM Penang 2nd Academic Conference* (pp. 1–4). Pulau Pinang: Universiti Teknologi MARA Pulau Pinang.
- Spretnak, C. M. (1980). *Reading and writing for engineering students*. Retrieved December 15, 2004 from <http://jac.gsu.edu/jac/4/Articles/11.htm>
- The National Committee of Inquiry into Higher Education. (1997). *Higher education in the learning society*. Retrieved July 30, 2003 from <http://www.lifelonglearning.co.uk/greenpaper/ch4005.htm>
- UKM: Relook at practical training for graduates to tackle unemployment. *New Sabah Times*. Retrieved June 12, 2004 from <http://www.newsabahtimes.com.my/May2004/11.5/local2.htm>

SUZANA AB. RAHIM, Akademi Pengajian Bahasa, Universiti Teknologi MARA Pulau Pinang, 13500 Permatang Pauh, Pulau Pinang, MALAYSIA. E-mail: susan548@ppinang.uitm.edu.my