

AN ANALYSIS OF TECHNICAL ORAL PRESENTATION
ANXIETY IN ENGLISH AMONG ENGINEERING
STUDENTS IN UNIVERSITI MALAYSIA PAHANG

by

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LIST OF ABBREVIATIONS

AAT	:Achievement Anxiety Test
ABET	:Accreditation Board of Engineering and Technology
CMLHS	:Centre for Modern Languages and Human Sciences
COM	:Communication-Orientation Modification
EAC	:Engineering Accreditation Council
EAP	:English for Academic Purposes
EMARS	:Electronic Mathematics Anxiety Rating Scale
EFL	:English as a Foreign Language
ESL	:English as a Second Language
ESOPS	:Engineering Students Oral Presentations
ESP	:English for Specific Purposes
FCNRE	:Faculty of Chemical and Natural Resources Engineering
FL	:Foreign Language
FLCAS	:Foreign Language Classroom Anxiety Scale
GPA	:Grade Point Average
L1	:First language
L2	:Second Language
MARS	:Mathematics Anxiety Rating Scale
MEES	:Malaysian Engineering Employability Skills
MoHE	:Ministry of Higher Education
OCA	:Oral Communication Apprehension
OPQ	:Oral Presentation Questionnaire
PET	:Processing Efficiency Theory
PRCA-24	:Personal Report of Communication Apprehension
PRCS	:Report of Confidence as a Public Speaker
PRPSA-34	:Personal Report of Public Speaking Anxiety
SCT	:Social Cognitive Theory
SPSS	:Statistical Package for Social Sciences
STAI	:State Trait Anxiety Inventory
TAI	:Test Anxiety Inventory
TOP	:Technical Oral Presentation
UMP	:Universiti Malaysia Pahang
URP	:Undergraduate Research Project
URPII	:Undergraduate Research Project II

**SATU ANALISIS TENTANG KERESAHAN DALAM PEMBENTANGAN
LISAN TEKNIKAL DALAM BAHASA INGGERIS DALAM KALANGAN
PELAJAR KEJURUTERAAN DI UNIVERSITI MALAYSIA PAHANG**

ABSTRAK

Kajian ini bertujuan menganalisis keresahan pelajar kejuruteraan semasa menjalani pembentangan lisan teknikal dalam bahasa Inggeris dalam konteks pendidikan kejuruteraan kimia. Kajian ini juga mengenal pasti faktor-faktor yang menyebabkan wujudnya perasaan resah dalam kalangan pelajar semasa pembentangan lisan teknikal berkenaan. Kajian ini mendasari Social Cognitive Theory (Bandura, 1986), Processing Efficiency Theory (Eysenck & Calvo, 1992) dan Recursive Framework of Anxiety, Cognition and Behaviour (MacIntyre, 1995) untuk membincangkan keresahan dalam kalangan pelajar kejuruteraan semasa pembentangan lisan teknikal. Konsep Communication Apprehension (McCroskey, 1982b) juga digunakan untuk membincangkan keresahan yang dialami oleh pelajar semasa pembentangan lisan teknikal bahasa Inggeris. Kajian kes ini turut mengaplikasikan pendekatan gabungan (mixed method sequential explanatory approach) yang diperkenalkan oleh Creswell (2003). Dua bentuk soalan soal selidik iaitu Personal Report of Public Speaking Anxiety (PRPSA-34) (Richmond & McCroskey, 1998) yang telah disesuaikan untuk kajian ini dan Personal Report of Communication Apprehension (PRCA-24) yang diketengahkan oleh McCroskey (1982a) digunakan dalam kajian ini. Selain itu, analisis dokumen dan temu bual separa struktur juga telah dijalankan terhadap sampel kajian. Sampel kajian ini melibatkan 135 orang pelajar tahun akhir, enam orang pensyarah Fakulti Kejuruteraan Kimia dan Sumber Asli, Universiti Malaysia

Pahang dan tujuh orang wakil industri dalam bidang kimia. Dapatan kajian ini menunjukkan hampir sebahagian daripada jumlah responden (46.7%) menghadapi keresahan pada tahap tinggi dan sederhana semasa pembentangan lisan teknikal dalam bahasa Inggeris. Keputusan juga menunjukkan majoriti responden (73.3%) mengalami tahap keresahan yang sederhana semasa berkomunikasi secara lisan dalam bahasa Inggeris. Walau bagaimanapun, kebanyakan responden mengalami keresahan tahap tinggi semasa memberikan pengucapan awam. Analisis statistik menunjukkan korelasi negatif yang lemah antara tahap keresahan para pelajar semasa pembentangan lisan teknikal dalam bahasa Inggeris dan skor ujian pembentangan lisan PSM II. Keputusan juga menunjukkan para pelajar mencapai markah yang tinggi dalam ujian pembentangan lisan teknikal dalam bahasa Inggeris, walaupun kebanyakan pelajar mengalami keresahan tahap tinggi dan sederhana semasa pembentangan lisan itu. Selain itu, temu bual fokus bersama enam kumpulan pelajar dan temu bual secara individu bersama para penilai juga dijalankan. Dapatan menunjukkan persamaan dan perbezaan dari segi persepsi terhadap faktor-faktor yang menyebabkan keresahan para pelajar semasa pembentangan lisan teknikal dalam bahasa Inggeris. Kedua-dua kumpulan berpendapat bahawa pengetahuan teknikal yang cetek, barisan penilai dan kekangan kemahiran dalam bahasa Inggeris merupakan penyumbang besar yang mempengaruhi keresahan para pelajar semasa menjalani pembentangan lisan teknikal dalam bahasa Inggeris. Para penilai juga melihat faktor-faktor seperti kurang kemahiran pembentangan lisan dan tidak cukup persediaan turut menyebabkan keresahan dalam kalangan pelajar. Namun demikian, para pelajar tidak mempunyai pandangan yang sama. Mereka berpendapat bahawa faktor penyelia, masa dan persepsi negatif terhadap pembentangan lisan teknikal

menjadi penyumbang terhadap keresahan yang dialami oleh mereka. Kajian ini merupakan hasil lanjutan dari kajian lepas dengan menggunakan pengalaman sebenar pelajar semasa pembentangan lisan teknikal dalam bidang English for Specific Purposes (ESP). Kajian secara mendalam melalui perspektif para pelajar dan penilai terhadap faktor-faktor penyumbang keresahan para pelajar juga menyokong dan menambahkan kefahaman terhadap topik kajian ini.

**AN ANALYSIS OF TECHNICAL ORAL PRESENTATION ANXIETY IN
ENGLISH AMONG ENGINEERING STUDENTS IN UNIVERSITI
MALAYSIA PAHANG**

ABSTRACT

This main aim of this study was to analyze the anxiety experienced by engineering students in delivering effective technical oral presentations (TOP) in English in the context of chemical engineering education. It also investigated the factors that may have contributed to the students' feelings of anxiety. This study draws on the Social Cognitive Theory (Bandura, 1986), Processing Efficiency Theory (Eysenck & Calvo, 1992) and the Recursive Framework of Anxiety, Cognition and Behaviour (MacIntyre, 1995) in discussing engineering students' technical oral presentation anxiety. In addition, the concept of Communication Apprehension (McCroskey, 1982b) was used as a basis in further understanding the anxiety experienced by the students in technical oral presentation and oral communication in English as a second language (ESL). This case study used a mixed method sequential explanatory approach proposed by Creswell (2003). Two questionnaires were used in this study: (1) an adapted version of Personal Report of Public Speaking Anxiety (PRPSA-34) (Richmond & McCroskey, 1998) questionnaire and (2) the Personal Report of Communication Apprehension (PRCA-24) (McCroskey, 1982a) questionnaire. Other instruments used were semi-structured interviews and document analysis. The sample comprised 135 final year engineering students and 6 lecturers from the Faculty of Chemical and Natural Resources Engineering (FCNRE) in Universiti

Malaysia Pahang (UMP) as well as 7 industry personnel from chemical-related industries. Results showed that almost half of the respondents (46.7%) experienced high and moderately high anxiety in delivering technical oral presentations in English. Results also showed that majority of the respondents (73.3%) reported feeling moderately apprehensive in communicating orally in English and most respondents were highly anxious when giving speeches in public. Statistical analysis shows a negative weak correlation between the students' levels of TOP anxiety and their URPII final oral presentation scores. Results also showed that the students scored high marks in their URPII final oral presentation assessment even though most of them were reported to experience high and moderately high anxiety in the presentations. Six student focus group interviews and individual interviews with the panel of evaluators were also conducted. Findings revealed both similar and different perceptions of factors that affected students' TOP anxiety. Both groups perceived limited technical knowledge, panel of evaluators and barriers in students' English language to be major sources that impacted students' anxiety. However, factors such as lack of presentation skills and inadequate preparations were the two factors emphasized by the evaluators but not pointed out by the students. The students, on the other hand, perceived unhelpful supervisors, time constraints and having negative attitudes towards technical oral presentations as factors that affected their feelings of anxiety. This study extends previous research by including the findings from the students' actual experience in delivering individual technical oral presentations (TOP) in the field of English for Specific Purposes (ESP). Furthermore, an in-depth investigation on the sources of anxiety also contributes to understanding the anxiety experienced through the perspectives of both students and the evaluators.

CHAPTER ONE

INTRODUCTION

1.0 Background of Study

The issue of employability has been frequently discussed and debated by employers and higher education institutions (Baldwin, 2011). Today, the graduate employment market is facing rapid changes due to globalization, competition and intensification of knowledge-based economies (Wilton, 2011; Harvey, Lockey & Morey, 2002). There is growing awareness of the importance of higher education moving towards preparing graduates with important competencies and skills to enhance employability. Ju, Zhang and Pacha (2011) define employability skills as "general and nontechnical competencies required for performing all jobs regardless of types and levels of jobs" (p. 2). One has a higher chance to be employed, to be an asset to the employer and to be successful in the workplace if he/ she possesses appropriate soft skills, abilities (a set of achievements) and good personal characteristics (Baldwin, 2011; Barrow, Behr, Deacy, Mchardy & Tempest, 2010).

In the United Kingdom (UK) for instance, due to employers' demand for particular employability skills among graduates, higher education institutions are required to explicitly embed employability skills, professional development courses and lifelong learning modules in the degree curriculum to enhance employability skills among their graduates and hence increase employability (Wilton, 2011; Barrow et al., 2010). Among the main employability skills sought after by UK employers are communication skills, enhanced Information Technology (IT) skills and relevant work experiences (Wilton, 2011).

Similar to UK employers, it was reported that leading Australian employer associations have also started placing less emphasis on training new employees (Sheldon & Thornthwaite, 2005). They expect the vocational education and training (VET) system to be responsible to produce future vocational employees with higher levels of key skills and an extensive set of employability skills namely soft-skills (i.e. communication skills, problem solving skills and team working skills) and higher levels of personal qualities (i.e. values, attitudes and personality characteristics). Furthermore, other training providers are also urged to include employability skills in their formal assessments in the curriculum and students be given certificates for their achievement.

In Malaysia, the issue of human resources has also been appropriately highlighted and identified at the national level to be one of the critical factors that contribute to the nation's economic development. Realizing the important role of higher education institutions, the Ministry of Higher Education (MoHE) laid out the National Higher Education Strategic Plan in 2007, emphasizing the importance of producing knowledgeable, skilful and superior personality human capital in order to face development challenges as the country moves towards a knowledge-based economy (Ministry of Higher Education, 2007). However, the Malaysian Prime Minister, Datuk Seri Najib Tun Razak said that, as reported in the 10th Malaysia Plan Report in 2010 by the Economic Planning Unit of the Prime Minister's Department Malaysia (2010), unemployment among graduates from local universities who graduated in 2009 was as high as 27% six months after graduation. The problem may be attributed to the fact that many local university graduates lack skills and competencies required by employers as reported in the Malaysia New Economic Model report (National Economic Advisory Council, 2009).

Various research studies on Malaysian employers' expectations of Malaysian graduates have been conducted and findings show that oral communication skills are highly valued and sought after by Malaysian employers (Yuzainee Md Yusoff, Azami Zaharim & Mohd Zaidi Omar, 2011; Suzana Ab. Rahim & Farina Tazijan, 2011; Ayiesah Ramli, Roslizawati Nawawi & Chun, 2010; Mohd Yusof Husain, Seri Bunian Mokhtar, Abdul Aziz Ahmad & Ramlee Mustapha, 2010; Rajan, 2010; Azami Zaharim, Yuzainee Md Yusoff, Mohd Zaidi Omar, Azah Mohamed & Norhamidi Muhamad, 2009).

A very recent study on engineering employability skills in Malaysia was conducted by Yuzainee Md Yusoff, Azami Zaharim, and Mohd Zaidi Omar (2011). The study aimed to obtain feedback from employers in the engineering sectors on the most required attributes from the newly proposed Malaysian Engineering Employability Skills (MEES) framework. The analysis of 300 questionnaires showed that the most required skills by employers in hiring new entry-level engineers in their workforce were communication skills, followed by team working skills. On communication skills, it was reported that specific abilities such as the ability to speak using clear sentences, present ideas confidently and effectively and listen and ask questions were ranked highly. It signifies the importance of engineering graduates to possess high level of oral communication competence as oral communication skills are highly valued by engineering employers. Mohd Yusof Husain et al. (2010) who also conducted a study with employers in engineering industries found that employers perceived several employability skills as must-have skills among engineering graduates. The top three skills emphasized were personal quality, interpersonal skills and resources skills. Even though the employers did not specifically highlight the significance of oral communication skills, it is important to

note that the ability of one person to interact with others (i.e. interpersonal skills) appropriately and effectively requires effective communication competence. Spitzberg and Cupach (1984) asserted that communication competence is "the yardstick for measuring the quality of our interpersonal relationships" (p.11). In another study, Rajan (2010) distributed a questionnaire to 129 mechanical engineering employers in Negeri Sembilan and found that employers highly valued fundamental skills such as technical knowledge and the ability to apply the knowledge in practice, followed by people related skills. In relation to people related skills, it was reported that these employers demand their employees and employees-to-be to have good communication skills and be able to work effectively in a team.

In a similar study, Ayiesah Ramli, Roslizawati Nawawi and Poh (2010) revealed that the most important employability skills demanded by employers from physiotherapy graduates were the ability of graduates to demonstrate critical thinking skills, to apply theory into practice followed by the ability to display sharp analytical skills. Besides that, the employers also emphasized the importance of oral communication skills especially in giving clear explanations about the problem that patients were suffering from and how the problem would be treated.

In another study, Suzana Ab. Rahim and Farina Tazijan (2011) investigated the verbal or oral communication skills that hotel practitioners demanded of their front office personnel in order to work effectively in the hospitality industry. Findings show that these personnel are highly engaged in verbal communication primarily with customers or hotel guests, managers and co-workers. Being upfront personnel, their job requirements necessitate them to attend to customers' enquiries on daily basis, such as providing appropriate information through telephone or in person. In addition, their job descriptions also involve giving an oral report to hotel

managers and coordinating with other departments in the hotel. Therefore, it clearly shows that being highly competent in oral communication (particularly for front office personnel) is essential in hospitality industry for effective operational management.

A research study by Koo, Pang and Fadhil Mansur (2008) used the framework of pluriliteracy in gathering employers' feedback on literacies demanded of graduates. Data from a questionnaire distributed to 76 employers revealed that positive attitude and mindset were ranked first, followed by competency in the specialization area, competency in communication, vocational competency and competency in language communication. With regard to linguistics competence, employers clearly stated that it was of utmost importance in their organizations and majority of the employers were not ready to retrain new employees in English language literacy. In other words, they expected higher education institutions to train their students in both oral and written English communication as part of employability enhancement programmes.

Apart from research studies on the employability skills demanded by employers, many other studies have been conducted on the gaps between the Malaysian employers' expectations and graduates' competencies. Some of the most recent of these were carried out by Ken and Cheah (2012), Arawati Agus, Abd Hair Awang, Ishak Yusoff and Zafir Khan Mohamed Makhbul (2011) and Rahmah Ismail, Ishak Yusoff and Lai (2011). Most recently, Ken and Cheah (2012) investigated the gaps between employers' expectations for business graduates (in the banking sector) and the business graduates' actual work performance. Business employers have high expectations that graduates are highly resourceful, highly competent in oral communication skills, possess good team-working and computer

skills and are adept at problem solving. Results show, however, that the graduates' actual performances were found to be below the employers' expectations.

In another recent study, Arawati Agus, Abd Hair Awang, Ishak Yussof and Zafir Khan Mohamed Makhbul (2011) explored the gap between graduates' work skills and industry's expectations of employability skills, as perceived by human resource managers in various industries around Malaysia. It was reported that a discrepancy was found between expectations and actual abilities in the following three important areas: "communication and interpersonal skills", "decision making and problem solving skills" and "thinking skills". With regard to communication and interpersonal skills, Malaysian employers were not satisfied with graduates' persuasive skills and their ability in explaining and projecting their ideas and opinions clearly. The employers also highlighted that the graduates were found to possess low self-confidence in conveying information and they also faced difficulties in giving proper and clear instructions. In short, the employees' command in oral and written communication did not meet the employers' expectations.

Rahmah Ismail, Ishak Yusoff and Lai (2011) who carried out a study with the services sectors of the Malaysian public sector, local private sector and multinational organizations discovered that Malaysian employers look forward to recruit holistic graduates who are not only knowledgeable in their field of studies, but also possess soft skills such as good interpersonal and communication skills, proficient in both Malay and English languages as well as creative in decision making and problem solving. Even though Malaysian employers rated graduates' work performance as quite satisfying, the local graduates were still found to be deficient in English communication skills and knowledge in their field of studies.

From the literature, it is evident that effective oral communication skills are highly demanded by employers in Malaysia, including engineering employers. Therefore, one of the challenges for higher education institutions in Malaysia is to produce high quality graduates who are highly competent in oral communication skills. The present study seeks to investigate the oral communication skills among tertiary students, particularly in delivering technical oral presentations in the context of engineering education.

1.1 Oral Communication in English

The ability to speak fluently and competently in a target language has been regarded as important for English as second language (ESL hereafter) learners in achieving success in both their academic as well as their professional lives. Research on oral communication in ESL speaking classrooms has been extensive. Many research studies on oral communication in ESL classrooms focus on public speaking in basic communication courses. These studies explore public speaking teaching techniques (Yu-Chih, 2008), examine ways to cope with speech anxiety (Finn, Sawyer & Schrodt, 2009; Kostić-Bobanović & Bobanović, 2007; Woodrow, 2006; Elliot & Chong, 2004) and investigate factors that contribute to speech anxiety (Elliot and Chong, 2004; Cebreros, 2003; Horwitz, Horwitz & Cope, 1986). Some research studies also centred on oral presentation skills but most focused on analysing the oral presentation skills that were needed to be mastered by ESL speakers to meet workplace demands (Kim, 2006; Palmer & Slavin, 2003; Crosling & Ward, 2002; Leong, 2001). More recently, research has shifted to the investigation of oral performance of ESL speakers in formal settings such as academic and seminar presentations (Chou, 2011; Morton, 2009). However, not many researchers have conducted thorough investigations on English for Specific Purposes (ESP

hereafter) oral presentations in English among engineering students in relation to affective factors.

1.2 Speaking Skills in the ESL classroom

Speaking in a second language (L2) involves “the development of a particular type of communication skill” (Bygate, 2001, p. 14). The oral communication skill is defined as “communicating orally in a manner which is clear, fluent and to the point, and which holds the audience attention, both in groups and one-to-one situations” (Hairuzila Idrus & Rohani Salleh, 2008, p. 62). Crosling and Ward (2002) view oral communication as an essential and influential skill in the workplace as it is in daily life. They further claim that “the success of oral communication depends on the parties sharing background knowledge and assumptions and miscommunication can result if there is a mismatch” (p.45).

Speaking is probably the most difficult skill to master because the speaker must be able to manage his/ her speech fluency and accuracy simultaneously. Furthermore, speaking skills are also affected by context which makes it somewhat more "unpredictable" (Bygate, 2001, p. 16) than written interaction. In the ESL classroom, learners are exposed to various speaking tasks to practise both macro-skills, such as turn-taking and micro-skills, for instance pronunciation and vocabulary. These classroom tasks are based on various teaching approaches and theories that constitute characteristics of speech and oral discourse. Therefore, ESL students would be exposed to many speaking activities which involve group and individual oral performance such as group and individual oral presentations. In some situations, more advanced ESL learners are encouraged to take Advanced Oral English courses such as Public Speaking courses. In these courses, students would be

exposed to different types of public speaking genres such as informative, persuasive and argumentative speeches.

Oral presentation, which is a subset of the public speaking genre (Storts, 2008) is normally taught to ESL students at tertiary level. Levin and Topping (2006) define oral presentation as "a talk or speech given by a presenter (sometimes more than one) to an audience or two or more people" (p.4). Irvine (2009) then, extended Levin and Topping's oral presentation definition by specifying the characteristic of the oral presentation that it is "a planned and rehearsed talk or speech that is not committed to memory or read directly from script" (p.11). Based on the two definitions of oral presentation, it is important to note that in delivering an oral presentation, one has the opportunities to plan and practice the talk before presenting it to a set of audience. Woodrow and Chapman (2002) suggested that delivering oral presentations is an integral skill for English for Academic Purposes (EAP) students to master. Research also found that oral presentations reflect "intellectual values and academic skills" (Morita, 2000, p. 287).

Learners must employ certain strategies such as rhetorical strategy (such as narrative style), generic structure and linguistic forms to deliver successful academic oral presentations or discipline-specific oral presentations which are normally seen as part of an assessment (Swales et al., 2001). Formal oral presentations are among marketable skills which are important for both educational and professional success (Al-Issa & Al-Qubtan, 2010; Kim, 2006).

1.3 Teaching Speaking Skills for Specific Purposes

Many research studies have been conducted to analyse industries' needs of oral communication competency among graduates from professional fields such as

engineering, ICT, business architecture, accounting and economics (Kassim & Ali, 2010; Kerby & Romine, 2009; Kaur & Lee, 2003; Crosling & Ward, 2002; Sageev & Romanowski, 2001; Leong, 2001). While research states that possessing effective oral communication skills empower graduates to be recruited in that they would be able to complete work-related tasks competently and effectively, it also enhances the opportunities for better job promotion (Kassim & Ali, 2010; Crosling & Ward, 2002). However, there is a mismatch between graduates' oral communicative abilities and the industry's high demand and expectations from the graduates (Rosli Talif & Rohimmi Noor, 2009; Venkatraman & Prema, 2007, Tengku Sri Mahaleel Tengku Ariff, 2002). This calls for more research studies on language use in specific disciplines to provide students with specific oral communication skills relevant to the needs of the students and the workplace.

The fact that English is the preferred language for communication in many workplaces such as in Malaysia (Phang, 2006; Ting, 2002), it boosts massive development in ESP research studies. Dudley-Evans and St John (1998, p. 3) posited that "ESP is designed to meet specified needs of the learner, related in content to particular disciplines and centred on language appropriate to those activities in syntax, lexis, discourse, semantics and so on, and analysis of the discourse". Further, Rosli Talif and Rohimmi Noor (2009, p. 67) are of the opinion that ESP involves "the notion of discourse community which implies specific use of language in specific contexts". Many ESP research studies on communicative events which are frequently conducted in industries focus on language use which is genre-specific. This is in line with preparing students for the workplace. In ESP speaking instructions, ESP practitioners may choose activities from a broad range of speaking tasks. To practice the target language, students can participate in large and small

group discussions, get involved in debates and cooperate in completing class projects.

To have a successful communicative event, both speaking and listening skills are needed. For various purposes, spoken interactions which comprise more than one party essentially require active listening and effective questioning skills. Unlike written work which is written or printed on papers, spoken interactions' tangibility can be gained through recordings, either audio or video recording. Dudley-Evans and St John (1998) believe that the use of positive feedback (based on recording) may enhance learning and thus raise learners' confidence level. They further posited that confidence is a significant factor for many language learners in terms of speaking and they state that classroom feedback should be appropriately given to maintain and increase confidence of the learners. Reformulation (which is similar to the process of drafting in writing stages), is also seen to be effective for spoken language. Dudley-Evans and St John (1998) suggest that at the reformulation stage, learners are given a chance to speak, obtain feedback with reformulation and then re-draft by repeating the interaction.

Oral presentation or speaking monologue is a feature of English for Occupational Purposes (which is a division of ESP) found in courses for professionals such as engineers and doctors (Dudley-Evans & St John, 1998). This establishes the fact that oral presentation is one of the highly engaged communicative events in both industries and hospitals. The teaching of oral presentation skills generally focuses on structuring, visuals, voice and advance signaling and language. Structuring a presentation is important so as to show the flow of the presentations, the start, the middle and the end. This helps listeners to follow the presentations well. Visuals are another key feature that should be taught in oral presentation skills. One

of the major differences in general and technical oral presentations as suggested by DiSanza and Legge (2009) is the use of visuals in presentations. In the engineering field for instance, appropriate visuals such as figures and charts are mandatory to assist explanation of a complicated process in an oral presentation. The old saying “A picture is worth a thousand words” illustrates the magic and wonders that visuals can add to presentations.

Other important elements are voice works such as pronunciation and intonation are also important elements and they should be given emphasis in the teaching of oral presentations. Speakers must be highly sensitive of how words are correctly pronounced because mispronouncing certain words may affect meaning and thus hinder listeners’ comprehension and intelligibility. Furthermore, having good pronunciation increases speaker’s language production and fluency (Harmer, 2007). Pausing and silence also, have their own specific roles and they impact on the audience’ attention and level of comprehension. Another important feature is advanced signaling or signposts, which function as indicators for specific argument or information in the presentation. Feedback is also integral in the teaching of oral presentations as it provides a means to give suggestions, ask for clarification and to agree or disagree with the language, content and structure of the presentations. Oral presentation activities in a classroom are believed to give students opportunities "to practice meaningful oral English" (Al-Issa & Al-Qubtan, 2010, p. 229).

Therefore, the present study aims to investigate the challenges that engineering students face in delivering technical oral presentations in English in their engineering classrooms.

1.4 Oral Communication Skills in Engineering Education

Oral communication is one of the key competencies identified and emphasized by educators and practitioners as being important in engineering education (Kaewpet & Sukamolson, 2011; Requena-Carrión & Alonso-Atienza, 2010). It is clearly stated by international engineering accreditation bodies such as in the Accreditation Board of Engineering and Technology's (ABET) requirements that engineering graduates must be competent in soft skills such as communication skills besides other hard skills. In fact, ABET instructs engineering faculties to offer effective instructions in both oral and written communication skills (Felder et al., 2000). Similarly, effective communication capability, such as giving clear oral instructions and making effective oral and written presentations are also emphasized as one of the core competencies to be mastered by all Malaysian engineering graduates (Engineering Accreditation Council, 2007).

Such a requirement was made based on nature of engineers work in industry. Sageev and Romanowski (2001) found that “an astonishing” 64% of engineers’ overall work time is spent on some form of communication: 32% on writing, 22% on oral discussions and 10% on oral presentations. Even though the time spent on oral presentation in the workplace is small, many respondents cannot deny the fact that oral presentation is important in technical communication curriculum. One engineer in their study emphasized that “...a strong presentation can ‘sell’ conceptual products to upper management” and another of his colleagues stressed that “a bad presenter is career-limited” (p. 688). Tenopir and King (2004) reported that the amount of time engineers spent communicating information outputs in terms of technical information or general ideas at work orally is more than in written form. Increasingly, engineers are required to communicate as managers in order to work with other departments to

develop products, collaborate with individuals in other countries in multinational firms, explain design changes to nontechnical hourly workers and convince sponsors and clients of the importance of their research. Generally, the oral communication forms that take place in the engineering workplace ranges from providing consultations to delivering oral presentations.

Dannels (2001, p. 148) views oral communication as “a competency that is closely connected with disciplinary content, identity and epistemology”. Oral presentations which are part of oral communication skills have also been part of formal and informal activities and assessments in engineering classrooms in tertiary settings (Dannels, 2002). However, oral communication instruction has often been disintegrated from actual learning of disciplinary content (Dannels, 2001). As a result, many students face difficulty in presenting their engineering content orally. In many situations, engineering students in universities take public speaking classes organized by Language or Communication Departments to improve their oral communication skills. The skills emphasized and taught in these courses could be different from essential features and competencies needed in the engineering discipline.

Dannels (2002) found out that translation is the key speaking competency in the engineering context. To have effective presentations with engineering-based audience, engineering students must be able to translate their disciplinary content knowledge into visuals and numerical forms. Meanwhile, if the audience comprises laypeople, simple and persuasive presentations must be delivered. Such issues highlight the importance of collaboration between the engineering faculty and the language and communication department to develop these specific competencies among engineering students (Kedrowicz, Watanabe, Hall & Furse, 2006). With

prompt and specific feedback on strengths and weaknesses provided to the language and communication department, necessary improvements and revisions on the content of oral communication courses can be carried out.

1.5 Anxiety in Oral Presentations

Public speaking or oral presentations are found to be one of the most anxiety provoking situations for many students, including engineering students (Kovač & Sirković, 2012; Al-Issa & Al-Qubtan, 2010; Bankowski, 2010; Tong, 2009; Rojo-Laurilla, 2007; Kavaliauskienė, 2006; Woodrow, 2006; King, 2002). There are two types of anxiety: facilitating anxiety and debilitating anxiety. While facilitating anxiety helps students increase their efforts (MacIntyre, 2002) to develop strategies to reduce anxiety through thorough preparation (in the context of delivering oral presentations), debilitating anxiety (the more common interpretation of anxiety) produces negative effects which are detrimental to one's oral performance ability (MacIntyre & Gardner, 1989). Through proper identification of students' problems in becoming effective speakers such as levels of anxiety and factors that lead to anxiety, findings may help both the engineering faculty and the language and communication department to improve the syllabus of oral communication courses. Indeed, such awareness in assessing problems such as anxiety among students and development efforts from both within and across academic disciplines and departments may enhance cooperation and result in effective instructions and thus produce more competitive engineers for today's global job market.

Therefore, this study seeks to investigate technical oral presentation anxiety in English in the context of engineering education at the tertiary level. This study will further extend the body of knowledge on technical oral presentations by employing

both quantitative and qualitative methods in exploring the affective factors of anxiety that appear to affect chemical engineering students' performances in carrying out technical oral presentations in English. This study also considers the perspectives of various stakeholders in better understanding the issue.

1.6 Profile of Universiti Malaysia Pahang

Universiti Malaysia Pahang (UMP hereafter), where the study was conducted is situated in Gambang, Kuantan, Pahang on the East Coast of Peninsular Malaysia. UMP is currently operating in the following two main campuses: Gambang Campus situated in Kuantan and Pekan Campus situated in Pekan, Pahang. The emphasis on engineering and technology is represented by the university's motto "*Engineering, Technology and Creativity*" and manifested through the university's curriculum. Being a technical university, the niche areas of the university are:

- chemical engineering and industrial biotechnology
- automotive engineering and manufacturing

Established in 2002 as University College of Engineering and Technology Malaysia (KUKTEM), it was later renamed Universiti Malaysia Pahang in 2007. UMP offers a variety of engineering and technology related diploma, undergraduate and postgraduate courses namely in the areas of Chemical Engineering and Natural Resources, Mechanical Engineering, Electronic and Electrical Engineering, Civil Engineering and Earth Resources, Computer Science and Software Engineering, Technology Management and Science Industry. On UMP's establishment in 2002, it started with five engineering faculties and four academic centres. To date, in 2012, as a rapid developing university, UMP has a total of eight faculties which offer various engineering and technology related courses, eleven academic and non-

academic centres which provide services and training to all UMP staff and students and three centres of excellence that conduct advanced research in specific engineering field. Presently, the university has more than 7000 students enrolled in various courses and in different modes. Table 1.1 below explicates the faculties and centres in UMP:

Table 1.1: List of Faculties and Centres in Universiti Malaysia Pahang

FACULTIES	CENTRES	EXCELLENCE CENTRES
Faculty of Chemical and Natural Resources Engineering	Centre for Modern Languages and Human Sciences	Centre for Earth Resources Research and Management
Faculty of Mechanical Engineering	Centre for Continuing Education and Professional Development	Automotive Engineering Centre
Faculty of Civil Engineering and Earth Resources	Centre for Academic Innovation and Competitiveness	Centre of Excellence for Advanced Research in Fluid Flow
Faculty of Electrical and Electronic Engineering	Academic Management Division	
Faculty of Computer Science and Software Engineering	Institute of Postgraduate Studies	
Faculty of Sciences and Industrial Technology	Islamic and Human Development Centre	
Faculty of Manufacturing Engineering	Corporate Development and Quality Management Centre	
Faculty of Technology	ICT Centre	
	Sports Centre	
	Entrepreneur Centre	
	Medical Centre	

As the first public technical university in the east coast of Malaysia, UMP has been receiving many study applications from school leavers, diploma holders and

degree holders especially from the east coast states of Kelantan, Terengganu and Pahang as well as from other states in Peninsular Malaysia.

1.6.1 The Centre for Modern Languages and Human Sciences (CMLHS)

The CMLHS has been given the responsibility to develop students' English proficiency. The English for Specific Purposes ESP courses offered by CMLHS are specifically designed to cater to the English language needs of engineering students to function adequately in their academic studies and their future field of work in engineering industries. Table 1.2 below illustrates the structure of ESP courses offered by CMLHS:

Table1.2: Structure of ESP courses in CMLHS

Diploma	Bachelor Degree
Level One: English for General Communication	Level One: Technical English
Level Two: English for Technical Communication	Level Two: Technical Writing
Level Three: English for Workplace Communication	Level Three: Academic Report Writing
	Elective courses:
	Introduction to Public Speaking
	Effective Reading
	Expository Writing
	Project-based Proposal Writing

1.6.2 The Faculty of Chemical and Natural Resources Engineering (Context of the study)

The Faculty of Chemical and Natural Resources Engineering (FCNRE hereafter) is among the first faculties to be established in UMP in 2002. The faculty offers courses ranging from Diploma to PhD level. The duration for Diploma and Bachelor programmes is three and four years respectively. Three Bachelor programmes are offered, namely Bachelor in Chemical Engineering, Bachelor in

Chemical Engineering (Gas Technology) and Bachelor in Chemical Engineering (Biotechnology). At present, there are more than 1500 students enrolled in all the programmes offered.

1.6.3 The Undergraduate Research Project (URP)

The Undergraduate Research Project (URP) is a compulsory course for all final year undergraduate engineering students to register, complete and pass in order for them to graduate. In this course, the students are required to carry out and complete laboratory work or an experimental project under the supervision of a faculty member.

The URP course has two levels to be taken in two semesters. The first level (URPI), which is usually offered in the sixth semester of the Bachelor programme requires the students to write and present a proposal on the project and complete Chapter One (Introduction), Chapter Two (Review of related literature) and Chapter Three (Methodology) of their written report. In the second level (URPII), the students are required to complete and submit their written report and present their research findings before expert-field evaluators in Week 14 of the seventh semester. To aid the presentation, Power Point slides which contain all relevant and important data of the project need to be prepared. Each student is given twenty minutes to present their significant findings and another ten minutes for a question and answer session. During the URPI and URPII oral presentations, expert-field evaluators are appointed to assess the presentation which carries 20 % of the total URP marks. Similar to the weightage given to proposal presentations in URPI, the final oral presentation assessment in URPII also carries 20% of the total URPII marks (please refer to Table 3.3 for the breakdown of marks for URPI and URPII). The high

weightage given to the presentation indicates the importance of oral presentations in engineering education specifically and in the engineering field as a whole.

Previous studies have reported the benefits of carefully crafted URP or capstone course for engineering students (Malinowski & Noble, 2009; Mohd. Sam, Abu Bakar & Kassim, 2004). This course provides students with work experience while still in an academic setting. It undoubtedly promotes independent learning among the students because students need to conduct and complete the project individually. In addition, the URP course also inculcates soft skills elements such as the practice of good communication skills among students and the application of effective presentation skills in their oral presentations.

1.7 Statement of the Problem

Possessing effective communication skills has been proven to be of advantage for individuals in both academic and professional settings (Chan, 2011; Barrow et al., 2010; Emanuel, 2005; Campbell et al., 2001). In the engineering field for example, all engineering graduates are expected to be highly competent in written and spoken communications. Criteria for being effective communicators have been highlighted in the engineering education curriculum learning outcomes listed by engineering accreditation bodies such as the Washington Accord, the Accreditation Board of Engineering and Technology (ABET) (2010) and the Malaysian Engineering Accreditation Council (Board of Engineers Malaysia, 2007). This corresponds with engineering professional work demands whereby most of their time is spent on written and oral communication (Kassim & Ali, 2009; Tenopir & King, 2004; Dannels, 2003; Dannels et al., 2003; Zolkepli Buang et al., 2003; Sageev & Romanowski, 2001). For instance, in their everyday tasks, practising engineers are

required to communicate ideas and concepts to a group of people through formal and informal oral presentations (Tenopir & King, 2004; Darling & Dannels, 2003; Crosling & Ward, 2002).

In engineering education, oral presentations form an integral part of assessment and evaluation practices and will continue to be an essential part of oral communication at the workplace for engineers. As the expert of communication across the curriculum (CXC), Dannels (2002) states that “the teaching and learning of oral presentations were completely connected to the norms, values and ideologies of the engineering discipline” (p. 265). Furthermore, industry expectations dictate that oral presentations become part of engineering curriculum to produce high-skilled professional engineers who are also effective presenters. Such expectations mark the importance of developing students’ level of self confidence in various communication settings, especially in oral presentation contexts.

Nevertheless, Malaysian learners of English in the engineering field were observed to have difficulties and show signs of anxiety when delivering technical oral presentations. Preliminary interviews (regarding engineering students’ technical oral presentations) were conducted in September 2009 with three engineering lecturers in Universiti Malaysia Pahang (UMP) in Kuantan, Pahang. During the interviews, one of the lecturers highlighted that majority of the students “showed high levels of anxiety during presentations”. High anxiety levels experienced by these students caused them to “read from slides” and some students manifested some speech anxiety attributes such as nervous gestures during oral presentations. The lecturers also asserted that “some of the students have problems speaking in English; therefore they have problems in conveying ideas effectively”. The lecturers cited the following factors as being contributory towards their students’ levels of anxieties in

delivering oral presentations: a limited range of English vocabulary, inadequate knowledge of their presentation topic, lack of confidence to speak in English and an inadequate rapport with the audience.

The decline of English language standards among Malaysian students has attracted many researchers to embark on this area of second language learning. One area which has become the concern of many researchers is anxiety in learning English, particularly with regards to anxiety in speaking English among Malaysian tertiary students (Prima Vitasari et. al, 2010; Shafiq Hizwari et. al, 2008; Rachel Tan, 2008; Noor Hashima Abdul Aziz & Arshad Abdul Samad, 2005). According to these research studies, feelings of anxiety experienced by Malaysian students in learning English language were found to have an effect on students' academic achievement and performance. Although the research studies have provided evidence of anxiety in ESL learning situations and speaking English, studies conducted were limited to English language classroom settings and general public speaking events. However, these studies have not been able to explain the experience of anxiety in learning engineering subjects such as chemical engineering subjects in English and particularly anxiety in delivering technical oral presentations in English. According to Dannels et al. (2003), a study on learning challenges faced by engineering students in this "important yet difficult issue involved in learning to communicate in spoken form, with a group or to an audience in engineering context" (p. 56) should receive due attention. Furthermore, Bodie (2010), Tong (2009) and Ercan et al. (2008) also suggested the need to conduct further investigation on causes of anxiety and students' attitude towards ESP oral presentations.

According to Mariana Yusoff (2008, 2010), research related to technical oral presentations in English by Malaysian learners within the engineering discipline is

scarce. She conducted a study on students' communication competence in relation to oral presentations delivered during their Industrial Training Programme. Even though the students faced difficulties in conveying information to audience due to their low English proficiency, their high motivation enhanced their self-esteem and helped to improve their presentation performance. While Mariana Yusoff investigated communication competence relating to oral presentation, Battacharyya and Sargunan (2009) and Battacharyya (2011) focused on the evaluation and assessment aspect of it. They gathered stakeholders' perceptions of effective communication skills and presenter attributes requirements for technical oral presentations. Their study found that the three attributes that enhance the effectiveness and delivery of a presentation are high self-confidence, methodology competence and visual presentation.

Considering the gap in research on technical oral presentations in Malaysia, a study related to affective challenges and physiological states of engineering students in facing technical oral presentations must be addressed in depth. This study intends to be more comprehensive in nature as it considers the perceptions of three different stakeholders: the experiences of the engineering students in delivering the technical oral presentations, engineering course lecturers and industry personnel. Hence, this study is an attempt to bridge the gap in the literature on technical oral presentations. The results of this study may provide useful insights for engineering students, engineering and language educators and curriculum designers.

1.8 Objectives of the Study

This research aims to achieve the following objectives:

1. To examine the extent to which UMP engineering students experience technical oral presentation anxiety in English.
2. To determine oral communication apprehension levels in English among UMP engineering students.
3. To investigate the relationship between students' technical oral presentation anxiety levels and their technical oral presentation grade.
4. To analyze the factors that contribute to students' apprehension in delivering technical oral presentations in English.
5. To examine the perceptions of the panel of evaluators about students' technical oral presentation anxiety in English.

1.9 Research Questions

The research aims at answering the following questions:

1. To what extent do UMP engineering students experience technical oral presentation anxiety in English?
2. What are the oral communication apprehension levels in English among UMP engineering students?
3. What is the relationship between students' technical oral presentation anxiety levels and their technical oral presentation grade?
4. What are the factors that contribute to students' apprehension in delivering technical oral presentations in English?
5. What are the perceptions of the panel of evaluators about students' technical oral presentation anxiety in English?