

What Do Students and Engineers Have to Say about Communicative Competence in Technical Oral Presentations?

Bhattacharyya, E.^{1*} and Zainal, A. Z.²

¹Department of Management and Humanities, Universiti Teknologi PETRONAS, 32610 Seri Iskandar, Perak Darul Ridzuan, Malaysia

²English Department, University of Malaya, Lembah Pantai, 50603 Kuala Lumpur, Malaysia

ABSTRACT

This article reports how the notion of communicative competence was perceived by engineering students and engineers during 16 final year technical oral presentation sessions. Six sub-sets associated to linguistic and rhetorical competence such as brevity and terminology; confident, interactive and argumentative language; visual language; humour; formality, and exchange of questions are deemed necessary. There is, however, notable diversity in the participants' perception of the said notion. Engineers stressed contextualised real-world application presentation, while students were drawn toward academically inclined structured content based type of presentation. Implications of the study for English Language teaching in the ESL context are discussed.

Keywords: Communicative Competence, Technical Oral Presentation, Linguistic and Rhetorical Competence, Oral Immediacy Competence

INTRODUCTION

The teaching of English for Specific Purposes (ESP) as an area of teaching English Language communication courses such as Technical English seeks to ensure that students are able to function

effectively in their target environment (Chambers, 1980; Dudley-Evans, & St. John, 1998; Basturkmen, 2010; Bruce, 2011). However, in the course of teaching such courses in institutions such as that of an engineering university, the issue of concern centres over the linguistic disparity between the academy and the workplace on the portability or transferability of ESP education (Bhatia, 2004; Artemeva, 2009; Bhatia, & Bremner, 2012). This implies that different communities of practice

ARTICLE INFO

Article history:

Received: 24 February 2015

Accepted: 21 August 2015

E-mail addresses:

ena_bhattacharyya@petronas.com.my (Bhattacharyya, E.),

azlinzainal@um.edu.my (Zainal, A. Z.)

* Corresponding author

such as the academic practitioners of the community and workplace professionals (like engineers in the industry) relate to different views and experiences as a result of legitimate peripheral practice (Lave & Wenger, 1991). One way of addressing this linguistic disparity and concern in ESP education lies in a study on the perception of student speaking activities in the target genres as used by expert users of the genres.

At present, there is limited literature on genre, linguistic and rhetorical competence features in the context of oral communicative events such as design presentations (Dannels, 2009; Morton, 2009). Lack of knowledge of such features will contribute to the apparent academia-industry practitioner gap on communication skills requirement expected of prospective graduates (Norback & Hardin, 2005). An insight into such features in technical oral presentations contributes to the apparent disparity in specific genre required for such communicative events for effective workplace participation (Hyland, 2002, 2005). This study aims to explore the notion of communicative competence as perceived by different stakeholders, namely, engineers and students in the context of technical oral presentation, which is noted as a significant oral communicative event at the workplace setting (Bhattacharyya, 2011).

Communicative competence and specific genre used in English for Specific Purposes (ESP) type of presentations are crucial for effective global workplace participation (Carter, 2013). Such competence is fundamental in enhancing

the communication of scientific and technical ideas. The impact of a successful presentation is resounded by a speaker's clarity in the delivery of a message (Carter, 2013). Linguistic competence refers to the "way language is used in variance in real communication" either in oral or written communication (Gatehouse, 2001). In this context, linguistic competence encompasses linguistic accuracy and linguistic appropriacy (Telebaković, 2009). According to Telebaković (2009), linguistic accuracy refers to the correct use of language expressions and involves the control of vocabulary, grammar, pronunciation, spelling and punctuation (Telebaković, 2009). Linguistic appropriacy, however, refers to the use of language adequate to context, function or intention/purpose, vocabulary and text structures (Telebaković, 2009).

Rhetorical competence to Dannels (2009) includes reference to rhetorical explanatory and rhetorical personalised style. In relation to rhetorical explanatory competence, the rhetorical features incorporate reference to use of interpretive lens rather than through the use of descriptive language. This form of rhetorical input includes the use of justification, interpretation, application and evaluation skills (Dannels, 2009). To Dannels (2009), successful presentations indicate the use of clear explanation and rationale, together with scientific evidence to ascertain decision making processes conducted during the investigation. In rhetorical personalised language, there is

personal reference to engage the audience through the use of personal language, motivational language and translational language to indicate personal motivation in a discussion. Personal language is where there is reference to examples, illustrations, justified evidence and appeals that personally inspire or influence students and audience alike. Successful presentations make mention of the personal ownership of decision making conducted during the duration of the project. In other words, students account for decision making processes and exhibit personal ownership of such processes during the presentation session of the project. Rhetorical competence implies ability to create “audience awareness, sense of purpose, organization, use of visuals, professional appearance, and style” in oral presentations (Ford, 2004).

Dannels (2009) states that rhetorical competence encompasses a student’s ability to be “rhetorically explanatory, rhetorically personalized, orally immediate, orally professional and structurally holistic” when delivering a presentation. This integrates interactivity and necessary interaction between the presenter and audience. Thus, linguistic (linguistic and structural) and rhetorical (interactive) elements are crucial communicative competence sub-sets in technical oral presentation. However, although these competencies are deemed essential genre and rhetorical features necessary to enhance interactivity and engagement in the context of technical oral presentations, such competency markers

have not been thoroughly investigated in the language and communication and ESP related studies. There is lack of consensual definition over what elements constitute the notion of linguistic and rhetorical competence (Morton, 2009).

This study differs from existing studies as it seeks to identify essential communicative competence features from a linguistic and rhetorical dimension in technical oral presentations from the stakeholders’ perspective. Such insight enables stakeholders (like students and professional engineers) to attain their own goals in their respective discourse community. This study builds on previous studies by exploring how engineering students and professional engineers perceive the sub-set of communicative competence, i.e. linguistic and rhetorical competence in oral communicative events such as technical oral presentations.

LITERATURE REVIEW

Presentations represent one of the many oral communicative events and job specifications expected of prospective engineers (Bhattacharyya, Shahrina Mohd Nordin, & Rohani Salleh, 2009). Technical oral presentations denote one of the many workplace technical oral communication activities conducted by engineering professionals (Bhattacharyya *et al.*, 2009). Tenopir and King (2004) affirmed the importance of oral communication activities in relation to the job specification of engineers. Presentations denote one of the many professional oral communicative

events where professional engineers are known to spend almost 60% of their time in the business of oral communication (Tenopir & King, 2004; Tilli & Trevelyan, 2008). Engineers are expected to be familiar with both written and oral presentations as they work with clients and teams from a borderless environment. In such workplace environment, it is essential that any form of miscommunication (written or oral) is avoided as any misconception about others' opinions and thoughts may lead to project delays (Venkatesan & Ravenell, 2011).

TECHNICAL ORAL PRESENTATION

Technical and Scientific Communication, a study within a specific discipline, derived from English for Specific Purpose (ESP) pedagogy, focuses more toward the communicative needs and practices of social groups (Hyland, 2007). This means to say that language teaching and research is centred on the use of specific language taught in authentic context and in real-world scientific and technical knowledge rather than in teaching grammar or language structures (Dudley-Evans & St John, 1998). Technical and Scientific Communication can be defined "as a process of data gathering, organising, presenting and refining information" (Collier & Toomey, 1997, p. 1). Technical communication refers to "scientific, engineering, technological, business, regulatory, legal, managerial, or social scientific information" (DiSanza & Legge, 2002, p. 198). In this study, technical oral

presentation denotes a formal presentation of technical information with elements of persuasion and objectivity conveyed to a varied audience from technical and non-technical background (Collier & Toomey, 1997). Technical oral presentations have been selected as this type of oral communicative event is considered part of an engineers' workplace requirement (Tenopir & King, 2004). In fact, engineers are said to spend 60% of their time on oral communicative events which include their participation in technical oral presentations (Tenopir & King, 2004; Tilli & Trevelyan, 2008; Bhattacharyya, 2011).

RESEARCH STUDIES ON THE GENRE OF PRESENTATIONS

Several studies have been carried out on the use of genre in presentations. Earlier competency studies conducted focused only on introduction sections in scientific conference presentations with particular focus on specific genre such as personal pronouns and use of self-mention (Elizabeth Rowley-Jolivet & Carter-Thomas, 2005). A later study on medical discourse focused on the use of "if-conditionals" (Carter-Thomas & Rowley-Jolivet, 2008). In this sense, the focus is specific toward one type of linguistic device prevalent in scientific or medical setting.

Darling's (2005) study focused on mechanical engineering community engaged in communication across curriculum (CXC) public presentations. The study concluded by suggesting possible change agents of focus on the

product in scientific and technical courses (like engineering) rather than on speakers in such CXC programmes. Thus, Darling's (2005) study focused only on content or disciplinary competence and was limited to only one engineering programme.

Other studies have focused on different ESP contexts such as healthcare settings (Schryer, Lingard, & Spafford, 2005), architectural presentations (Morton 2009) and mechanical engineering presentations (Dannels, 2009). Some of these studies highlight the rhetorical competence in different language specific settings. Mortons' study accentuated the genre and rhetorical language used in ESP architecture presentations (Morton, 2009). The findings from these studies indicate that students are still confused with the choice and use of ESP genre set within an ESP environment. Students are often left perplexed over the type of genres (academic or professional) to be used in oral presentations (Dannels, 2002; Artemewa, 2008).

Dannels (2009) reiterates the importance of relational genre knowledge in mechanical engineering presentations. She stresses on the importance of the use of "rhetorical strategies, oral styles and organisational structures" to ensure successful presentation with focus on only one engineering program (Dannels, 2009, p. 399). The findings from these studies indicate that many of such linguistic competency studies were ESP context driven but conducted in either native speaker or EFL environment. The findings suggest that limited research is

conducted in the ESL context. Moreover, it is also argued that research in spoken genre remains an under-researched area in comparison to written discourse (Rowley-Jolivet & Carter-Thomas, 2005).

In the Malaysian context, previous studies on oral communicative competence include a quantitative study carried out by Hafizoah Kassim and Fatimah Ali (2010), which investigated the concept of communicative competence from the perspective of employers. Hafizoah's study (2010) investigated the issue of communicative competence solely from the perspective of the employers and did not specify the required genre necessary in oral communication skills requirement.

Thus, the present study is appropriate as it seeks to explore the said notion within an ESL setting which if left untapped will continue to contribute to the existing communication skills divide among the academia and industry practitioners on communicative competency requirement in language and communication courses such as technical oral presentation. Limited input on required linguistic and rhetorical competency requirement in technical oral presentations will inadvertently have pedagogical implications in the curriculum design and teaching of technical oral presentation skills in an ESL context. A lack of insight may inadvertently impinge on manpower planning and human capital necessary for nation policy economic development purposes (Ministry of Higher Education, 2007; STAR, 2009).

COMMUNICATIVE COMPETENCE AND COMPETENCY STUDIES

Various models of communicative competence have been proposed (Hymes, 1972; Canale & Swain, 1980; Canale, 1983; Celce-Murcia, 1985; Bachman, 1990; Bachman & Palmer, 1996; Celce-Murcia, 2007). This study, however, adopted Celce-Murcia's (2007) model. Celce-Murcia's (2007) communicative competence model is chosen as the theoretical framework that underpins this study. In the perspective of this study, the concept of communicative competence in technical oral presentation is initially examined with the five subsets of competences propagated in Celce-Murcia's (2007) model of communicative competence which stipulates five vital linguistic and rhetorical devices necessary to achieve a unified coherent text, namely,

- i) socio-cultural competence,
- ii) discourse competence,
- iii) linguistic competence,
- iv) interactional or actional competence, and
- v) strategic competence.

This model was chosen as it addresses the vital features expected of an oral communicative event such as technical oral presentations. The said model was chosen as it accentuates the importance of knowledge, skills, interactivity, as well as proper use of language expressions necessary and expected of a presenter when engaged and speaking within a particular socio-cultural setting. The findings of this study will elaborate on the

linguistic and rhetorical competence due to limited literature available on this aspect of communicative competence in oral communication literature.

According to Celce-Murcia's (2007) model, socio-cultural competence is associated to the presenters' pragmatic knowledge, i.e. how to express communication within a socio-cultural context and knowledge on language variations in such contexts (Celce-Murcia, 2007). Discourse competence, on the other hand, refers to the selection, sequencing and arrangement of words, structures and utterances to achieve a unified spoken message. In addition, linguistic competence is associated with four types of knowledge, namely, phonological, lexical, morphological and syntactic knowledge of sentence structures and other aspects of syntax in language use (Celce-Murcia, 2007). Interactional competence includes actional competence, where evidence of knowledge on interactions such as information exchanges, interpersonal exchanges, expressions of feelings and opinions, problems and future scenarios are expressed (Celce-Murcia, 2007). To Celce-Murcia, strategic competence incorporates specific behaviours or thought processes that students use to enhance their own second language learning. Language strategies include cognitive (logical analysis), meta-cognitive (self-evaluation) and memory related strategies (Celce-Murcia, 2007). Communication strategies include achievement, stalling, self-monitoring, interacting and social strategies to enhance communicative competence of a presenter.

Thus, according to Celce-Murcia's model of communicative competence, the said notion encapsulates competency in both the linguistic skill, i.e. language proficiency, as well as the verbal and non-verbal behaviours that accentuate the presenter's competence in delivering a technical oral presentation. The said investigation was conducted with the aim of contributing to the notion of communicative competence of technical oral presentations as perceived by the students and professional engineers who are both end users of the said event in academic, professional and workplace settings. The aim of this study is to identify sub-sets of linguistic and rhetorical competence which will then add to Celce-Murcia's communicative competence model (2007).

From the ESP pedagogy, the notion of communicative competence is associated to the use of language and its genre in specific context. Technical oral presentations delivered in such scientific and technical setting is not an exception. Genre competency studies are essential as other studies like Morton's (2009) research stressed on genre specificity to create interactivity in presentations. Genre specificity implies the use of specific technical or scientific terminology typically used by presenters and understood by the audience. The familiarity in reference to a certain technical or scientific genre would create that interaction with the audience. Audience who are not familiar with a certain technical term may not be able to comprehend the content or

message by the presenter. The need for specific genre is similarly echoed in Hyland's 2007 study which stressed the need for educators to relook at tailoring language and communication courses to equip learners with essential ESP genre and discourse used in specific disciplines (Hyland, 2007; Bhattacharyya, 2014). To Morton, this aspect of language specificity is essential as it creates that "magic" or interactivity wanting in presentations (Morton, 2009). Morton & O'Brien's (2005) study only focused on design studio presentations, while Morton's 2009 study did not address the specific genre necessary for communicative competence in presentations. Thus, the said study is essential to investigate the students' and engineers perceptions on specific language use wanting in technical oral presentations.

The present study differs from the existing studies in terms of context and focus. It aims to compare students and engineers' perceptions of communicative competence, i.e. linguistic and rhetorical competence required in technical oral presentation as grounded in the situated learning theory (Lave & Wenger, 1991). This study provides a qualitative perspective of varied stakeholders from different communities of practice (i.e., students and practitioners, i.e. professional engineers) involved in professional oral communication focusing on technical oral presentations across all engineering programmes conducted at a university. An insight into the views of the students and professional engineers comments from

the linguistic and rhetorical perspective aim to identify the necessary features that accentuate the oral communicative competence in technical oral presentation communicative event. Although the context is set in an academic setting, the technical oral presentation mirrors the elements and setting of an oral communicative event at the workplace, as participants involved in such technical oral presentation sessions comprise of members from varied background and experience (such as engineering lecturers from the academic community and professional engineers from the professional engineering community).

METHODOLOGY

This study (part of a larger study) represents a qualitative examination of the final year engineering students and engineers' perceptions of linguistic and rhetorical competence required in technical oral presentations. More specifically, it aims to answer the following research question:

- 1) What are the similarities and differences among selected stakeholders' (engineering students and professional engineers) perceptions of communicative competence, i.e. linguistic competence and rhetorical competence in technical oral presentation?

The units of analysis in this study are the interview sessions conducted among the students and professional engineers

who are involved in the technical oral presentation sessions. Feedback from the interview sessions seeks to investigate what students and professional engineers perceive about communicative competence in technical oral presentations. The technical oral presentations refer to technical project presentations delivered by the engineering students who are in the final year of the engineering degree programme. In this context, the students and professional engineers are both involved in the technical oral presentations. The students are the presenters who present the outcome of their study in an oral presentation mode. The study is presented to a panel of evaluators. The evaluators comprise of the professional engineers who have been selected by the university to evaluate the oral presentation of the students. Thus, both students and professional engineers share common knowledge on the oral communicative event, i.e. the technical oral presentation. A description is provided on the participants involved in the study and its procedure for collecting and processing the data findings.

PARTICIPANTS

Data for this study were collected from twenty-six students and twelve engineers. The student participants were selected from a cohort of 275 students who were involved in the four-year engineering programme at the Technical Engineering University (a pseudonym, hereafter TEU for short), a private technological university in the state of Perak Darul

Ridzuan, Malaysia. Identifiers are used to refer to students, for example “MIESCS25” which have been coded as “Male, Indian, Engineering Student, Case Study 25”. These students were from various engineering programmes such as Mechanical, Chemical, Civil and Electronics and Electrical. At the time of data collection, these were the only engineering courses offered at TEU. These

students were selected as they fulfilled the researcher criteria which include being final year engineering students and students who were involved in presenting technical oral presentations. Out of the twenty-six, seventeen were male while the rest were female participants. Table 1 indicates the student programme background and gender involved in the research.

TABLE 1
Information on the participation of students as per programme

Students/ Program ME*	Bachelor of Engineering Programme			Total	
	CHE*	CVE*	EE*		
Male	4	2	7	4	17
Gender Female	0	0	3	6	9
Total	4	2	10	10	26

*ME–Mechanical Engineering Programme; CHE – Chemical Engineering Programme; CVE – Civil Engineering Programme; EE – Electrical and Electronics Engineering Programme

The above Table 1 indicates the information on students’ participation as per programme. The said participants indicated their willingness to be part of the study. The participants were in the know that they had the option to opt out from the study at any moment if they decided to do so. In cases where clarification was required for certain feedback, follow up interviews were carried out with selected participants.

As for the professional engineers, this pool of participants was selected by the University Project Panel Committee to take the task as external examiners for the students’ project presentations. These

engineers are required to have more than 5 years of working experience. The professional engineers are henceforth referred to as engineers. A list of pool of engineers was made available by the project coordinator to the researcher. Emails were sent to the 66 engineers and 12 responded agreeing to be part of the qualitative study. The engineers were selected as they fulfilled the researcher criteria of having more than five years of working experience and were involved as evaluators in the evaluation of the students’ technical oral presentation in the university. Table 2 shows the demographics of the engineers’ background.

TABLE 2
Information on the engineers' professional background

Engineers' Designation	Field Of Specialisation				Total
	ME*	CHE*	CVE*	EE*	
Manager	1	1	/	/	2
Principal Engineer	/	/	/	1	1
Senior Manager or Consultant/Senior Engineer/ Process Technologist	3	2	1	1	7
Chairman	/	/	1	/	1
Managing Director	1	/	/	/	1
Total	5	3	2	2	12

*ME–Mechanical Engineering Programme; CHE – Chemical Engineering Programme; CVE – Civil Engineering Programme; EE – Electrical and Electronics Engineering Programme

Table 2 above indicates that the engineers involved in the study are from diverse professional backgrounds and held different positions in the national oil company. All engineers had more than 5 years of working experience and held managerial or consultancy positions in the company. These engineers were ranked from middle to senior management positions. In addition, all of the engineers had experience in evaluating the students' technical oral presentations. Given the rank, diversity in work experiences and field of specialisation, the researcher anticipated that the engineers would be able to provide relevant comments on communicative competence requirements expected out of students' technical oral presentation.

DATA COLLECTION

The data from the student participants and engineers were collected at TEU from April to August 2008 based on the students' final year engineering project presentation students. It was obligatory that the said

students present the findings of the study during the second semester of the final year degree programme. It is during this oral presentation session that engineers are engaged as part of the panel of evaluators for the technical oral presentations.

The duration of the interview sessions ranged from forty minutes to an hour, depending on the participants' feedback. All the participants were informed that the interview sessions would be tape-recorded for transcription purposes. Interview sessions were located at office rooms or scheduled venues at the research site.

For the convenience and ease of understanding during the interview sessions, all the participants were required to comment on six domains of inquiry, such as: (a) definition of technical oral presentation; (b) technical oral presentation experiences; (c) presenter skills and attributes; (d) communicative competence requirements (language, content and rhetorical skills); (e) challenges in enhancing communicative competence,

and (f) improvements to enable students to be actively engaged in oral communicative events. These domains would provide qualitative data related to what students and engineers had to say about communicative competence, i.e. linguistic and rhetorical competence in technical oral presentations. Within Celce-Murcia's communicative competence model (2007), Dannels' (2009) framework of oral immediacy was utilised to identify the necessary linguistic and rhetorical sub-sets of communicative competence in presentations.

The six sub-sets associated with linguistic and rhetorical competence include use of: i) brevity and terminology, ii) confident, interactive and argumentative language, iii) visual language, iv) humour, v) formality, and vi) exchange of questions. These sub-sets were coded according to Dannels' (2009) framework of oral immediacy competence in design presentations. The said sub-sets enhance "connectedness" and "relatedness" with one's listeners with the audience (Rowley-Jolivet & Carter-Thomas, 2005). The notion of communicative competence thrives on the engagement and interaction between presenter and audience. As such, these linguistic and rhetorical features are pertinent communicative competence features which aim to engage and create connectedness with the audience present in an oral communicative event. Thus, feedback provided by the students and engineers from the linguistic and rhetorical features is intended to create that connection between the presenter and the audience.

Qualitative feedback from all 26 students and 12 engineers were transcribed and quantitatively analysed by the use of Qualitative Software Research or QSR NVivo 11, a software programme to analyse qualitative data. The study adopted Creswell's (2003) generic process of data analysis design for analysing qualitative data that include six main steps like "organizing and preparing the data; reading through all data; coding; narrating descriptions and themes; and interpreting data" (Creswell, 2003, pp. 191-195).

The study investigated the perceptions of selected students and engineers on the use of such linguistic and rhetorical devices in enhancing communicative competence in technical oral presentation sessions. Students and engineers were required to provide their feedback on the importance or the lack of emphasis accorded to genre or language specific features and rhetorical features utilised to enhance communicative competence in technical oral presentation sessions which mirror workplace oral communicative events.

RESULTS

The following section details the results as perceived by students and engineers on the use of linguistic and rhetorical features, such as: i) brevity and terminology, ii) confident, interactive and argumentative language, iii) visual language, iv) humour, v) formality, and vi) exchange of questions, in technical oral presentations. Qualitative analysis indicates that engineers have accorded 75% level of importance, while students

emphasised 61.5% to the said construct. This level of importance was attained by the number of references accorded by the said participants on the various sub-sets of communicative competence. In this particular sub-set, 9 out of 12 engineers and 16 out of 26 students responded on the importance of the said construct.

BREVITY AND SPECIFIC TECHNICAL TERMINOLOGY

9 engineers and 16 students agreed that brevity is an important significant feature in technical communication for professionals and engineers. As mentioned by Sharma (2007), “round about sentences and expressions” are avoided in scientific and technical presentations. A technical student has to be “brief, to the point, cogent and relevant”(Sharma, 2007, p. 15). Thus, this means that a technical writer must avoid circumlocution and verbosity. In the context of technical oral presentation, both engineers and students concur that the notion of communicative competence is depicted when there is brevity in a presentation. Brevity is supported through the use of visual aids to assist audience understanding.

Specific technical features are also agreed by the students. MCESCS14 makes a point that students need to be well-versed with language of the workplace. This is evident in the excerpt 1 by MIESCS25 (Male, Indian Engineering Student, Case Study 25) in the following excerpt 1.

Excerpt 1 MIESCS25

“...the most important element in technical oral presentation would be the *flow, overall flow, the targeted audience; if we are presenting to a technical audience background or a new crowd, we need to explain using certain technical language, technical terms* depends whether audience has *similar background, as people with different background, we need to explain more...the language is less technical or less specific to our field...we can use simple language...*”

The above excerpt 1 indicates that the crux of professional communication lies in the use of appropriate language and technical features in an explanation of a presentation. Students need to choose the appropriate register and language specific terminology for audience’s understanding of the message relayed in a presentation. Engineers also accorded similar emphasis on brevity and terminology, as seen in the following excerpt 2 by MMEEPTCS4 (Male, Malay, External Examiner, Process Technologist, Case Study 4).

Excerpt 2 MMEEPTCS4

“...should focus on *specific application* in the construction industry, get *to the point* of the experiment and focus...”

In the above feedback, it can be ascertained that both students and engineers emphasise the importance to inculcate discourse and linguistic competence, as illustrated in Celce-Murcia’s (2007) model of communicative competence. Both

students and engineers comprehend the significance of sequencing the sentences to ensure the existence of a flow of ideas and yet ensure that syntactic structural content is exhibited in brief and concise sentences. This finding contributes to the notion of communicative competence on the choice and use of language features within the linguistic dimension. These linguistic features are essential elements that contribute to engagement with the audience as the message is well understood by the audience. Brevity and technical terminology are essential linguistic features that contribute to Celce-Murcia's model of communicative competence. Thus, it is essential that educators ensure that students practice using brief, concise and precise sentences during a presentation.

CONFIDENT, INTERACTIVE AND ARGUMENTATIVE LANGUAGE

9 out of the 12 engineers also noted the importance of use of confident language. Confident language is projected by a students' ability to provide succinct and thorough methodological clarification without much uncertainty. Students, however, did not imitate this category in their responses. This perspective is articulated in excerpt 3 by MMEEMCS1 (Male, Malay, External Examiner, Manager, Case Study 1).

Excerpt 3 MMEEMCS1

"...One is confident and you can see the *confidence how they already speak*

about it; and *you can see crystal clear the problem; how they explain step by step* about it; they must able to *interpret to all clearly*, and I can *understand the problem when he explains it to me very clearly...*"

The above excerpt 3 indicates that a student's project familiarity with the project allows one to deliver confidently in a presentation. Such use of confident language engages and creates oral immediacy with the audience as the audience attention is directed at what is stated by the student. The linguistic expertise through mastery of subject matter, ease of interaction and composed argumentative ability are other essential features that contribute to the notion of communicative competence in technical oral presentations. This finding is essential as it amplifies other necessary linguistic elements vital to the existing model of communicative competence. There is, however, no mention on the need to use professional language such as reference to words like "Chairman" to create the artificial professional environment.

VISUAL LANGUAGE

In terms of visual language, 61.5% or 16 out of the 26 students expressed the need to use visual language during presentations. None of the engineers commented on this aspect in their responses. MIESCS25 (Male, Indian, Engineering Student, Case Study 25) affirms the sentiment in the following excerpt 4.

Excerpt 4 MIESCS25

“...I was trying to prove that we can use *oil palm leaf* as the source of energy if we go through a process of gasification...”

The student identified the need to use visual language such as “oil palm leaf energy” to explain the technical concept of “gasification”. Such examples facilitate the audience appreciation of a technical jargon. Such visualisation permits the audience to be familiar with unfamiliar abstract concepts (Rowley-Jolivet, 2004). Students are expected to add finer details to explain a technical concept.

HUMOUR

Humour (if used appropriately) creates rapport with the audience (Lannon & Gurak, 2011). 61.5% or 16 out of the 26 students concurred on the importance of humour. This sentiment is uttered by FCESCS19 (Female, Chinese, Engineering Student, Case Study 19) in the excerpt 5.

Excerpt 5 FCESCS19

“... *people with humor* in whatever they talk; able to *engage the audience* ...is very important in their talk...”

Excerpt 5 above indicates the students’ awareness to include humour as part of oral immediacy competence. However, the said category is not reflected in the response provided by the engineers.

LEVEL OF FORMALITY

Oral immediacy is classified by the level of formality required in a presentation. This concern is commented by the students but is not reflected among the engineers. Such language style sets the mood for the presentation. 61.5% students concurred on the importance, as expressed in excerpt 6 by FIESCS16 (Female, Indian, Engineering Student, Case Study 16).

Excerpt 6 FIESCS16

“...*wasn’t too sure on how formal the presentation slides should be*. Because in course, we were *taught to be professional* but *some seniors told us the external prefer it to be more laid back, more pictures*, so that was a bit like ‘*Which should I do?...*’”

Excerpt 6 shows the need to ascertain the level of formality required prior a final presentation. It is essential that students are clarified on the formality to craft the language required. Such reference indicates the mood set for the presentation.

EXCHANGE OF QUESTIONS

The exchange of queries and input between the student and audience denotes interaction, justification, clarification and deliberation of ideas. 75% or 9 out of the 12 engineers support this category. Students, however, did not indicate any comments on this aspect. MMEEPTCS4 (Male, Malay, External Examiner, Process Technologist, Case Study 4) expressed the viewpoint in excerpt 7.

Excerpt 7 MMEEPTCS4

“...when the listeners are listening and they have the interest in the subject; then you can *expect some form of questioning; so that could be an indication that the presentation is effective...*”

The excerpt indicates that oral immediacy competence occurs when a presentation is marked by a series of questions and answers between the student and audience. Verbal exchange is noted as one of the key elements of any speaking event (Hymes, 1972). Thus, questioning is perceived as a linguistic strategy to create oral immediacy between the student and audience. The literature also emphasises the importance of such feature to create audience interaction in presentation sessions (Dannels, 2009).

DISCUSSION

In relation to oral immediacy competence, different stakeholders accord importance to different sub-sets associated to the construct. In terms of brevity and terminology, both lecturers and students expressed their agreement on the importance and its inclusion as said sub-sets of oral immediacy competence. As for the use of confident, interactive and argumentative language, engineers expressed their emphasis for such linguistic expression in presentations. On the contrary, students, however, stressed on the importance of visual language. Unlike engineers, students stressed the need to include humour to create engagement with the audience. Thus, in relation to

Celce-Murcia's notion of communicative competence, the findings from this study indicate that different communities of practice (i.e., students or professional engineers) indicate preference for certain features when presenting technical oral presentations.

Engineers differ in that these professionals are more concerned with the analytical interpretation of data results. The results on the use of confident, interactive and argumentative language differ from the findings in the existing literature such as Dannels' (2009) study which highlights the importance of using professional language in a technical or scientific presentation. However, the results in this context indicate that students stressed on the use of confident, interactive and argumentative language to validate a certain query or decision making during the duration of the project.

Reference to this form of genre illustrates the presenter's critical thinking ability, confidence and sense of ownership toward the project (Dannels, 2009; Venkatesan & Ravenell, 2011). Venkatsen and Ravenell (2011) mentioned that engineers think in a structured fashion as sequential flow of ideas enables the audience to understand the thoughts and flow of ideas in a discussion or presentation. Thus, linguistic features on the use of clear and concise language indicating clear sequence and flow of ideas are essential in the notion of communicative competence in technical oral presentations. Whitcomb and Whitcomb (2013) made reference to the need for presenter's to accentuate a sense of ownership through

the use of “personal pronouns” which must be a feature emphasised by educators in the language and communication classrooms. The importance of such features is in line with Celce-Murcia’s (2007) strategic competence. The inclusion will enhance the communicative competence of a presenter from a linguistic dimension.

Students voiced emphasis on the importance of formality in technical oral presentations. This has immediate effect on the type of diction chosen to benefit the audience present. For engineers, presentations centres on clarification and explanation of data findings to the audience. There is, however, no mention on the use of professional language with reference to specialised terms such as “*Chairman*” by the students or engineers. All stakeholders show agreement that such genre needs not be used in the presentation sessions.

In terms of the use of visual language in technical oral presentations, the results confer with other studies. Lannon and Gurak (2011) suggested that analogies are useful in cases that involve translating “something abstract, complex or unfamiliar to something broadly familiar with the audience” (Lannon & Gurak, 2011, p. 234). These analogies create oral immediacy with the audience. Analogies provide a clear picture of an otherwise technical concept. It creates that oral immediacy and rapport, which is a feature of linguistic and strategic competence in the model of communicative competence (Celce-Murcia, 2007).

As for the use of humour in technical oral presentations, the result differs from

the literature in that there is indication on the inclusion of humour. This feature is not part of Celce-Murcia’s (2007) model but has been argued as an essential element in public speaking to enhance audience interaction and rapport (Koch, 2010). It is evident that engineers are inclined toward contextual application and interpretative skills of students who should be expressive, verbal, interpretive and analytical in presentation sessions. In this sense, students must possess a good understanding of technical and non-technical presentation genre to relate to varied audience background. In terms of the level of formality, students expressed concern over the said competency requirement as such clarification would influence the language crafted in the presentation. The findings relate more to oral immediacy as mentioned by Dannels (2009). Students placed greater emphasis on use of academic language such as language choice, style and use of humour in technical oral presentations.

CONCLUSION

Students and engineers are in agreement over the types of sub-sets that determine the notion of communicative competency. The diversity in students’ and professionals’ responses on certain sub-sets of oral immediacy features suggests apparent differences in the way different focal groups perceive the said notion. In addition, the findings contribute to the enhancement of Celce-Murcia’s (2007) communicative competence model from

the linguistic and rhetorical dimension. In terms of pedagogical implications for ESP language and communication courses, language and communication input experienced by the engineering students can promote transferable skills and linguistic competence to narrow the gap between the academy and the workplace. Another is that specificity should be treated as an important principle in the teaching of ESP language and communication English. Human interaction is situated (Dias *et al.*, 1999), with reference to time, place, role-relationship and activity (Gu, 2002), and therefore, the interaction must be handled in a specific manner (Zhang, 2013). The third pedagogical implication is that ESP technical oral presentation linguistic features must be taught in a professional and contextual way. This study indicates that the production of a professionally acceptable speech requires enacting the relevant professional role by displaying the formal, process, rhetorical, and subject-matter dimensions of linguistic competency features. This insight may be translated into a few guidelines for teaching ESP in technical oral presentations. Synergy is required between academia and industry practitioners to lessen the apparent divide on communication skills requirement at the workplace.

ACKNOWLEDGEMENTS

We would like to thank the management of the research university for funding the project and all the participants who volunteered in the study.

REFERENCES

- Artemeva, N. (2009). Stories of becoming: A study of novice engineers learning genres of their profession. In C. Bazerman, A. Bonini, & D. Figueiredo (Eds.), *Genre in a changing world* (pp. 158–178). Fort Collins, Colorado: The WAC Clearinghouse/West Lafayette, Indiana: Parlor Press. Retrieved September 14, 2010, from <http://wac.colostate.edu/books/genre>.
- Bachman, L. F. (1990). *Fundamental considerations in language testing*. Oxford: Oxford University Press.
- Bachman, L. F., & Palmer, A. S. (1996). *Language testing in practice: Designing and developing useful language tests*. Oxford: Oxford University Press
- Basturkmen, H. (2010). *Developing courses in English for specific purposes*. Basingstoke: Palgrave Macmillan.
- Bhatia, V. K. (2004). *Worlds of written discourse: A genre-based view*. London: Continuum.
- Bhatia, V. K., & Bremner, S. (2012). English for business communication. *Language Teaching*, 45(04), 410–445.
- Bhattacharyya, E. (2014). Communicative Competence in Technical Oral Presentation: Perspective of ESL Educators and Professional Engineers. *Pertanika Journal of Social Sciences & Humanities*, 22(S), 1-16.
- Bhattacharyya, E. (2011). Communicative competence in technical oral presentation in engineering education: Stakeholder perceptions in a Malaysian context. *Journal of Applied Sciences*, 11(8), 1291-1296.
- Bhattacharyya, E., Nordin, S. M., & Salleh, R. (2009). *Internship students' workplace communication skills: Workplace practices and university preparation*. Paper presented at the CIEC Conference, Florida, Orlando, USA.

- Bruce, I. (2011). *Theory and concepts of English for academic purposes*. Basingstoke: Palgrave Macmillan.
- Carter-Thomas, S., & Rowley-Jolivet, E. (2008). If-conditionals in medical discourse: From theory to disciplinary practice. *Journal of English for Academic Purposes*, 7(3), 191-205.
- Carter, M. (2013). 15 - *The Use of Slides in Oral Presentations Designing Science Presentations* (pp. 191-201). San Diego: Academic Press.
- Celce-Murcia, M. (2007). Rethinking the role of communicative competence in language teaching. In E. A. Soler, & P. S. Jordà (Eds.), *Intercultural Language Use and Language Learning* (pp. 41-57). Dordrecht, The Netherlands: Springer.
- Collier, J. H., & Toomey, D. M. (1997). *Scientific and technical communication: Theory, practice, and policy* (Digital Edition). Retrieved from <http://www.faculty.english.vt.edu/Collier/stc/>
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd Ed.). Thousand Oaks, CA: Sage.
- Dannels, D. P. (2009). Features of success in engineering design presentations: A call for rhetorical knowledge. *Journal of Business and Technical Communication*, 23(4), 399-427.
- Darling, A. L. (2005). Public presentations in mechanical engineering and the discourse of technology. *Communication Education*, 54(1), 20-33.
- DiSanza, J. R., & Legge, N. J. (2002). *Business and professional communication: Plans, processes, and performance* (2nd Ed.). Boston, MA: Allyn and Bacon.
- Dudley-Evans, T., & St John, M. J. (1998). *Developments in English for specific purposes: A multi-disciplinary approach*. Cambridge University Press.
- Ford, J. D. (2004). Knowledge Transfer across Disciplines: Tracking Rhetorical Strategies From a Technical Communication Classroom to an Engineering Classroom. *IEEE Transactions on Professional Communication*, 47(4), 301-315.
- Gatehouse, K. (2001). Key issues in English for Specific Purposes (ESP) curriculum development. *The Internet TESL Journal*, 7(10), 1-11.
- Hyland, K. (2002). Specificity revisited: How far should we go now? *English for Specific Purposes*, 21(4), 385-395.
- Hyland, K. (2005). Stance and engagement: A model of interaction in academic discourse. *Discourse Studies*, 7(2), 173-192. doi: 10.1177/1461445605050365.
- Hyland, K. (2007). English for Specific Purposes. In *International handbook of English language teaching*, (pp. 391-402). Springer US.
- Hymes, D. (1972). On communicative competence. In J. B. Pride & J. Holmes (Eds.), *Harmondsworth*. Middlesex, England: Penguin Books.
- Lannon, J. M., & Gurak, L. J. (2011). *Technical Communication* (12th Ed.). Boston: Longman.
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, UK: Cambridge University Press.
- Ministry of Higher Education. (2007). *Triggering Higher Education Transformation, National Higher Education Action Plan 2007-2010*. Kuala Lumpur: Retrieved from http://www.mohe.gov.my/transmansi/images/1_bi.pdf.
- Morton, J. (2009). Genre and disciplinary competence: A case study of contextualisation in an academic speech genre. *English for Specific Purposes*, 28(4), 217-229.
- Morton, J., & O'Brien, D. (2005). Selling your design: Oral communication pedagogy in design education. *Communication Education*, 54(1), 6-19.

- Norback, J. S., & Hardin, J. R. (2005). Integrating workforce communication into senior design tutorial. *IEEE Transactions on Professional Communication*, 48(4), 413 -426. doi: IEEE DOI 10.1109/TPC.2005.859717.
- Rowley-Jolivet, E. (2004). Different Visions, Different Visuals: a Social Semiotic Analysis of Field-Specific Visual Composition in Scientific Conference Presentations. *Visual Communication*, 3(2), 145-175 doi: 10.1177/147035704043038.
- Rowley-Jolivet, E., & Carter-Thomas, S. (2005). The rhetoric of conference presentation introductions: Context, argument and interaction. *International Journal of Applied Linguistics*, 15(1), 45 -70.
- Schryer, C. F., Lingard, L., & Spafford, M. M. (2005). Techne or Artful Science and the Genre of Case Presentations in Healthcare Settings. *Communication Monographs*, 72(2), 234-260.
- Sharma, S. D. (2007). *Textbook of scientific and technical communication writing for engineers and professionals*. Retrieved from <http://www.ebookdb.org/reading/54G3GE38247A1C1217G0G269Textbook-of-Scientific-and-Technical-Communication-Writing-for-Engineers-and-Professionals>
- STAR. (2009, January 31). Govt concerned about finding jobs for 18,000 grads. *The STAR online*. Retrieved from <http://thestar.com.my/news/story.asp?file=/2009/1/31/nation/3162420&sec=nation>
- Tilli, S., & Trevelyan, J. P. (2008, 20-22 June). *Longitudinal study of Australian engineering graduates: Preliminary results*. Paper presented at the American Society for Engineering Education Annual Conference (ASEE), Pittsburgh, USA.
- Telebaković, G. D. (2009). Assessing university level ESP students. *Serbia ELTA Newsletter* (April Academic), 1-7. doi: http://www.britishcouncil.org/vi/serbia-elta-newsletter-2009-april-academic_corner
- Tenopir, C., & King, D.W. (2004). *Communication patterns of engineers*. River Street, Hoboken, New Jersey: Wiley-IEEE Press.
- Venkatesan, P., & Ravenell, R. (2011). What is the most important skill/quality in the engineering workplace? [The way I see it]. *Potentials, IEEE Xplore*, 30(3), 6-8.
- Zhang, Z. (2013), Business English students learning to write for international business: What do international business practitioners have to say about their texts? *English for Specific Purposes*, 32(3), 144-156.

