

## **ORAL COMMUNICATION ABILITY IN ENGLISH: AN ESSENTIAL SKILL FOR ENGINEERING GRADUATES**

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**Abstract:** Good communication skills are essential to a person's job performance. Employers are now emphasizing that success as an engineer requires more than simply strong technical capabilities; communication is among the skills that are also needed. In this era of globalisation, English has become one of the most important languages of communication. Thus, it is very important that future engineers be able to communicate well in English. Self-efficacy refers to an individual's belief that he or she is capable of performing a task (Robbins & Judge, 2007). A strong sense of self-efficacy enhances one's accomplishments and personal well-being in many ways (Bandura, 1986). Since communication is an important skill sought after by employers, it is vital to know the self-efficacy of future engineering graduates in order to ensure that they will step into the real world adequately prepared. This article discusses the perceived self-efficacy of 169 senior-year engineering students regarding their ability to communicate in English. A set of questionnaires designed to assess students' levels of self-efficacy was administered. Factor analysis results reveal three underlying constructs for self-efficacy: aptitude, attitude and aspirations. Overall the findings show that senior engineering students possess high self-efficacy beliefs in all three constructs studied. The implications of the findings to theory and practice are discussed.

**Keywords:** communication skills, self-efficacy, engineering students, aptitude, attitude, aspiration

**Abstrak:** Kemahiran berkomunikasi yang baik adalah sangat penting bagi pengendalian tugas seseorang. Majikan kini memberi penekanan bahawa kejayaan sebagai seorang jurutera bukan hanya bergantung kepada kemahiran teknikal yang mantap tetapi juga mempunyai kemahiran berkomunikasi yang baik. Salah satu bahasa yang penting dalam era globalisasi ini adalah bahasa Inggeris. Oleh itu, adalah amat penting bagi bakal jurutera untuk berkomunikasi dengan baik dalam bahasa Inggeris. Efikasi-kendiri merujuk kepada kepercayaan seseorang terhadap kebolehannya dalam menjalankan sesuatu tugas. Mempunyai efikasi yang tinggi boleh mempertingkatkan pencapaian dan keperibadian seseorang dalam pelbagai cara. Oleh kerana berkomunikasi adalah satu kemahiran yang penting dan dicari oleh majikan, adalah penting untuk mengetahui persepsi efikasi-kendiri bagi bakal graduan untuk memastikan bahawa mereka akan

masuk ke dunia pekerjaan dengan mempunyai kemahiran yang diperlukan. Artikel ini membincangkan efikasi-kendiri 169 pelajar kejuruteraan tahun akhir dalam kebolehan mereka berkomunikasi di dalam Bahasa Inggeris. Soal selidik telah digunakan untuk memungut data. Keputusan analisa faktor menunjukkan terdapat tiga konstruk yang merupakan asas kepada persepsi pelajar iaitu aptitud, sikap dan aspirasi. Kajian ini juga mengkaji hubung kait antara ketiga-tiga konstruk. Dapatan keseluruhan menunjukkan bahawa para pelajar ini mempunyai efikasi-kendiri yang tinggi bagi kesemua konstruk. Implikasi dapatan kajian kepada teori dan praktis juga akan dibincangkan.

**Kata kunci:** kemahiran berkomunikasi, efikasi-kendiri, pelajar kejuruteraan, aptitud, sikap, aspirasi

## INTRODUCTION

Companies today operate in a highly competitive environment. In selecting new employees, companies strive to hire the right employees with the right skills. In order to stay ahead of competitors, companies today are more inclined to value people who possess a variety of skills and personal qualities, in addition to technical know-how for the job. Studies suggest that 75% of long term job success depends on soft skills and only 25% on technical knowledge (Prabhakar, 2004). As such in the job market today, people with high self-efficacy in their ability to perform the tasks required and communicate effectively are highly sought after by employers.

Communication skills are amongst the most sought after skills by many employers (Zedeck & Goldstein, 2000). For example, employers have begun to assess communication skills during interviews. Low confidence level and inability to speak well in English can hinder one's chances of being hired as an employee in a company (Zeigler, 2007). In order to gain an edge over other applicants in the job market, graduates are left with no choice but to exhibit their potential through adding value to their hard skills with soft skills.

In the accreditation guidelines put forth by the Board of Engineers, Malaysia (BEM), which monitors the engineering curriculum in Malaysia, the ability to communicate effectively is considered one of the attributes required for engineering graduates (Megat Johari et al., 2002). Through a survey of major engineering firms in Malaysia, Lee (2003) reveals that employers prefer to hire new graduates that not only possess technical competencies but also possess the non-technical skills required for project management. He lists interpersonal communication as one of the six most sought after skill-attributes by employers.

Fatimah, Noor Raha and Hafizoah (2006) emphasizes oral presentation as an important leverage to professional opportunities in an engineer's career. This new phenomenon of seeking engineering professionals with soft skills has increasingly diminished the conventional belief that an engineer's employability is due solely to his hard skills. This question is important because the skills that are considered to increase a graduate's employability are often downplayed by training programs in favour of technical knowledge (Ziegler, 2007). According to Ziegler, this attitude and practice engenders beliefs and attitudes that "soft skills" are secondary or even unimportant.

Globalisation has led to a job market that is more competitive than ever. Employers are becoming more selective just as the business environment is becoming more challenging. Producing employable graduates is an important agenda for any higher learning institutions. This is because graduates are often believed to be less prepared than industry employers expect them to be (May & Strong, 2006) and lack critical soft skills necessary in today's workplace (Hissey, 2002). Lack of communication skills has been attributed as among the factors that lead to unemployable graduates (Khoo, 2001; Zeigler, 2007). In Malaysia, the number of graduates entering the labour force increases each year.

### **Self-efficacy in Communication in English**

English has been widely accepted as the most widespread language used in the world as it is the prime means for communication globally (Kitao & Kitao, 1996). English can often serve as the global language between two people from two different cultures, neither of whom speak English as their native tongue. It is therefore very important for university students to learn English and be able to master the language; this skill could help them greatly in securing and keeping a job, especially with multinational companies. Multinational companies utilise English as the medium of communication among the workers. Consequently, if students would like to be a part of globalisation, they must be able to communicate well in English.

As a university that emphasises technical courses, a main concern of Universiti Teknologi PETRONAS (UTP) is whether students who are currently pursuing their engineering studies are on the right direction and possess the right attitude. Having graduates who possess high confidence level in their ability to communicate well in English is crucial to contribute to their employability.

One way to predict an individual's level of ability in performing a certain task is through gauging their level of perceived self-efficacy. Perceived self-efficacy refers to "a judgment of one's ability to organise and execute given types of performances" (Bandura, 1997: 21). The concept of self-efficacy plays a significant role in predicting human performance in several areas of human effort (Mikulecky, Lloyd & Huang, 1996). Self-efficacy expectations are the beliefs about one's ability to perform a given task or behaviour successfully. Bandura (1986) indicates that "the influence of perceived self-efficacy on performance increases as component skills are mastered because perceived self-efficacy directly mediates the integration and application of existing skills".

Several research studies have determined that self-perception of the origins of success plays a role in human performance. Chan and Abdullah (2004) found that self-efficacy was one of the elements that could shape a writer's ability to write effectively. In an investigation of the relationship between graduate pre-service teachers' language learning strategies and language self-efficacy, Wong (2005) found that pre-service teachers with high self-efficacy used more language learning strategies than pre-service teachers with low self-efficacy. Huang and Chang (1996) conducted a study on the relationship between self-efficacy and achievement for four ESL students. They discovered that the subjects' achievement significantly corresponded to their perceptions of their own ability. Rahil et al. (2006) revealed that secondary school students' achievement in English language improves when the students have high self-efficacy in the language. Klassen (2002) reviewed and summarised several research studies that examined the writing self-efficacy beliefs of young adolescents; he discovered that self-efficacy plays a primary role in predicting students' writing behaviour.

The literature highlights that self-efficacy correlates with one's achievement or performance, which parallels a study conducted by Bandura (1997). Individuals with high self-efficacy perform higher than those with low self-efficacy; this substantiates the idea that self-efficacy affects one's achievement and performance.

In reviewing the literature, it seems that while many studies have been conducted on self-efficacy in secondary- and foreign-language learning settings, research on self-efficacy with regard to speaking ability in second-language learning, especially in Malaysia, is still lacking. Hairuzila and Subarna (2007) have begun to fill this gap with their study on the self-efficacy of pre-university ESL students at a private university. This study found that the students had high levels of self-efficacy regarding their ability to speak in English. The study also reveals that

those who more confident in their ability performed better than those with low self-efficacy.

However, much still needs to be researched to further understand self-efficacy with regard to students' speaking ability. The purpose of this study was to look further into this area. This paper therefore investigates the self-efficacy levels of senior-year engineering students at the UTP regarding their ability to communicate in English. By examining perceived self-efficacy from the students' lens, their confidence level to face future employment with regards to oral English communication can be better understood. The findings may assist the university in determining the extent to which its programmes are adequately preparing graduates for the job market.

## **METHODOLOGY**

### **Sampling**

The participants for this study were 169 senior-year engineering students at UTP. Of these students, 86 (50.9%) were male and 83 (49.1%) were female. To ensure that the respondents were all ESL students, only local students were selected for this study. The medium of instruction at the university is English. In Malaysia, English is a second language, but is very important especially for students at the tertiary level. The students in this study were enrolled in various engineering disciplines offered by the university. They were chosen to be the subjects of this study for three main reasons. First, these students were in their senior-year and therefore joining the workforce soon. Second, these students had the experience of working in an organisation for eight months through the industrial internship programme. The third reason was their lengthy exposure to English as a medium of instruction at UTP; as compared to junior students, they had more experience learning engineering subjects in English. The authors believe that through these experiences, these students could provide more justified responses to the questionnaires.

A 32-item survey questionnaire adapted from Bandura (1990) and Mikulecky, lloyd and Huang (1996) was designed and administered to the study sample to assess the self-efficacy perceptions of the students. The respondents indicated their degree of agreement or disagreement to each statement on a 5-point Likert scale that ranged from strongly agree (1) to strongly disagree (5). The sample

item for this is, "I would like to be a fluent speaker of English so that I will be more confident of myself."

### **Data Analysis**

In order to determine the construct of the self-efficacy scale, a factor analysis with varimax rotation was conducted on the inter-item correlations to identify any underlying constructs measured by the variables. Kaiser's criterion for important factors, significance test on factor loading and the interpretability of the extracted constructs was used. Cronbach's alpha formula was applied to estimate the internal consistency of the dimensions in order to measure the reliability of the variables (Hair et al., 1998).

After rotation, an item was included only if it had a factor loading at or above .45 and did not load highly on more than one factor (Cattell & Vogelmann, 1977; Comrey & Lee, 1992). According to Hair et al. (1998) factor loadings of .45 and above are significant for a sample size of 150 to 199. Therefore the factor loading of .45 was used based on the sample size of 169. Nine items failed to meet these criteria, and therefore were not considered in the final analyses.

The first construct contained 14 items that primarily addressed students' perceived ability to speak in English. This construct is labelled aptitude and measured traits such as ability to participate in discussions conducted fully in English, ability to communicate with lecturers and international students and ability to speak in English with peers. The second construct to emerge contained six items that addressed students' perceptions of activities that require them to speak in English. Labelled attitude, this construct measured activities such as oral presentation and in-class discussions, which are all done in English at this university. The third construct, labelled aspiration, was created with loadings from three items. These items measured traits like students' aspirations with respect to speaking in English. Pearson correlations were used in order to determine the relationship between the three constructs.

### **Reliability of the Scales**

An internal consistency validation was conducted on the three constructs extracted using Principle Component Analysis. Cronbach's alpha was used to measure the reliability coefficient in order to assess the consistency of the entire scale. Hair et al. (1998) state that the generally agreed upon lower limit for Cronbach's alpha is .70. Using this criterion, the first construct (Aptitude) was

found to be reliable, with an alpha level of .94. The second construct (Attitude) was also found to be a reliable construct, with an alpha level of .89. Lastly, the third construct (Aspiration) was found to be reliable, with an alpha level of .79. The overall alpha level for all three constructs was .94. As such, the scale and each of the three constructs are considered highly reliable.

## **FINDINGS AND DISCUSSION**

The mean of the items related to the respective constructs identified through varimax rotation were calculated. For this study, the basis of the discussion is the judgment on the mean scores, whereby a mean of 2.99 and below signifies higher self-efficacy, while a mean of 3.01 and above signifies lower self-efficacy. Participants' self-efficacy scores were obtained through calculating the mean score for the items in the scale (Wong, 2005).

### **Aptitude**

Aptitude, as described by Dweck and Leggett (1988) refers to one's belief about the nature of ability and the role it plays in achievement. However accounting for the items representing the construct in the present study, it seems more appropriate to describe aptitude as students' beliefs about the nature of their ability and effort taken to speak in English. According to Schunk (1995: 297), "learning is possible to the limit set by ability"; thus, students would try their best to obtain positive judgments of their ability from others and try to avoid negative judgments. Schunk also posits that no matter how students view ability, all students aim to increase their competency; thus, they would persist and expand their effort because they believe that effort enhances ability.

Table 1 shows the mean scores and standard deviations for items from the aptitude construct. With a total mean score of 2.34, the students, in general, could be considered as having considerably high self-efficacy levels regarding their ability to speak in English. Looking at each item's mean score, however, seems to indicate that students have slightly higher self-efficacy in their effort to use English language in their communication. Students appear to believe that they do not have much problem speaking English and are highly motivated to speak in the language.

**Table 1.** Mean scores and standard deviations for aptitude construct

Items	Mean	SD
1. I do a good job of participating in class discussion conducted fully in English.	2.34	0.75
2. I am good at learning speaking skills.	2.35	0.77
3. I have no problem learning speaking skills.	1.95	0.77
4. I do not have any problem speaking in English when I should.	2.02	0.75
5. I always think I am good at speaking in English.	2.58	0.88
6. I feel confident about my ability to speak clearly.	2.35	0.86
7. I can motivate myself to speak in English.	1.92	0.82
8. I can speak fully in English well with my Malay lecturers.	2.96	0.89
9. I am good at communicating with the international students and lecturers.	2.84	0.94
10. I can learn and use new English words in my conversation easily.	2.38	0.83
11. My speaking ability does not worry me.	2.51	0.99
12. I am able to keep speaking in English even when my friends tease me.	2.45	0.96
13. When I decide to say something in English, I go ahead and do it.	1.99	0.82
14. It is not difficult for me to concentrate while speaking in English with others.	2.16	0.93
Total mean score	2.34	0.86

**Note:** Scale: 1–5, ranging from (1) strongly agree to (5) strongly disagree. The higher the score, the lower the *self-efficacy* level.

Two possible explanations for the findings are proposed. First, the findings may be due to the duration of the students' exposure to usage of the English language. The sample had been using English as the medium of instruction in their studies for four to five years. Second, the students also had experienced communicating in English with their colleagues while undergoing their industrial internship at various organisations. During the internship, they had the opportunity to observe more experienced employees perform tasks through oral communication in addition to the opportunity to communicate in English themselves (Hairuzila & Rohani, 2008). As interns, their prior experience communicating in the workplace was limited; thus, they were inclined to use others with more experience as their model. Observing models can powerfully influence students' self-efficacy beliefs (Pajares, Johnson & Usher, 2007).

### Attitude

Attitude refers to students' attitudes toward the activities conducted to enhance their ability in oral communication. This includes group discussions as well as



oral presentations. Bandura (1986) points out that self-efficacy could influence choice of and interest in these activities. Table 2 shows the mean scores and standard deviations for the attitude construct.

As shown, the students in this study have high perceived self-efficacy (total mean score = 2.30) in oral communication activities such as group discussions and individual and group oral presentations. These findings suggest that students enjoy participating in group discussions, doing individual oral presentations and doing group oral presentations.

**Table 2.** Mean scores and standard deviations for attitude construct

Items	Mean	SD
1. I enjoy having group discussions in class when they are done fully in English.	2.32	0.88
2. I do not find oral presentations hard to do.	2.32	0.88
3. I enjoy communicating with others in English.	2.11	0.93
4. I enjoy speaking in English with anybody.	2.20	0.93
5. Doing individual oral presentations in class is enjoyable.	2.54	1.02
6. Doing group oral presentations in class is enjoyable.	2.31	0.95
Total mean score	2.30	0.93

**Note:** Scale: 1–5, ranging from (1) strongly agree to (5) strongly disagree. The higher the score, the lower the self-efficacy level.

Several factors may have contributed to the findings. It is likely that students have been exposed to a lot of in-class discussions as they are in their final year of their engineering programmes. It is also very likely that they are often required to provide explanations regarding their work or project to the lecturers and other students through oral presentations. Another possible explanation may be due to the fact that these students have undergone 8-month industrial internship training. Therefore, they have been exposed to the environment and interpersonal communication in the workplace. These factors may contribute to their having high self-efficacy regarding these particular activities.

In looking at the individual items, the present study also suggests that the students have higher self-efficacy in group activities as compared to individual activities. This interesting finding lends support to Slavin's (1990: 234) statement that "group interdependence and cooperative activities build greater learner confidence...continuing need to demonstrate success". This is further supported by Crandall (1999: 234–235),

Peer support can be powerful motivator for shy, insecure or even uninterested students. In cooperative groups, individuals know that they can get feedback and assistance in making their contributions as clear, relevant and appropriate as possible. This, in turn, can motivate them to continue to try, especially where peers encourage and support their contributions.

In addition to how activities can enhance one's self-efficacy, results from this study also show that the significance of activities to the students could also enhance their self-efficacy. The students likely realised during their industrial internship experience that group discussions and oral presentations are important workplace discourse skills that must be mastered by all employees.

### **Aspiration**

Aspiration refers to a desire to become someone who could communicate well in English. Schunk (1985) points out that self-set goals also promote self-efficacy. Students have expectations on the outcome of their desired effort and actions, which is referred to as outcome expectations (Bandura, 1986). From a motivational perspective, outcome expectations are important because students think about potential outcomes of various actions and act in ways they believe will attain the outcomes they value (Pintrich & Schunk, 2002).

Table 3 shows the mean scores and standard deviations for items from the aspiration construct. The total mean score of 1.80 indicates that the students seem to possess very high perceived self-efficacy in their aspiration to become good communicators in English. They have set a goal to achieve. As indicated in item 3, they *would like to speak good English just like other students who are good speakers and aim to be much better at speaking in English by next year*. The mean score for this item was 1.87, which also indicates very high self-efficacy. Students probably believe that aspiring to enhance their capability to communicate in English should help them achieve the outcome and become the person they desire to be. This somehow indicates that they might have set a goal to become better at communicating in English than what they are now.

**Table 3.** Mean scores and standard deviations for aspiration construct

Items	Mean	SD
1. One of my main goals is to be much better at speaking in English by next year.	1.87	0.89
2. Speaking well in English is one of my main goals in life.	1.99	1.07
3. I would like to speak good English just like other students who are good speakers.	1.53	0.79
Total score	1.80	0.92

**Note:** Scale: 1–5, ranging from (1) strongly agree to (5) strongly disagree. The higher the score, the lower the self-efficacy level.

Goal setting has also been identified as one of the most effective methods of changing behaviour for the better in the workplace (Locke & Latham, 1990; Skinner, 2002). The goal-performance relationship has been shown to be the strongest in the presence of goal commitment (Locke & Latham, 1990). Since the students in this study are already familiar with setting their own goals while they are still studying, they should be able to set their own goals when they start to work in the near future. This shows that they are already beginning in the right direction.

### Relationships between the Constructs

This study also looked into the relationships between the three self-efficacy constructs. The results of the correlation analysis carried out are as shown in Table 4.

**Table 4.** Correlations between attitude, aptitude and aspiration

	Aptitude	Attitude	Aspiration
Aptitude	–	0.64**	0.24**
Attitude		–	0.39**
Aspiration			–

**Note:** \*\* Correlation is significant at the 0.01 level (2-tailed)

As shown in Table 4, there were positive and significant relationships between Attitude, Aptitude and Aspiration ( $r = 0.24$  to  $r = 0.6$ ,  $p < 0.01$ ). The results indicate that the three constructs are interrelated; level of self-efficacy in one construct is related to level of self-efficacy in the other two constructs. This shows that in determining students' self-efficacy, the constructs should be seen in unison because each construct relies on the others. The positive and significant

correlations among the constructs indicates that high self-efficacy in aptitude domain relates to positive attitudes which are both related to positive effects in better oral communication skills guided by one's aspirations. This may imply that a student who is aware and confident of his/her ability (aptitude) to communicate orally may be more motivated to be involved in social discourse (attitude) in language communities that allow that student to gain more experience and to gain the motivation to improve to reach the best level (aspiration).

## **RESEARCH CONTRIBUTIONS AND IMPLICATIONS**

The present study has contributed towards the development of self-efficacy as a multi-dimensional rather than uni-dimensional construct. This study has demonstrated that self-efficacy consists of three constructs: aptitude, attitude and aspiration. Individually, the constructs revealed high self-efficacy among the students on their oral communication skills in English. However, the authors strongly believe that the constructs should not be seen as complementary to each other. No construct individually is adequate to determine students' self-efficacy. Instead, the constructs are interrelated and should be viewed holistically in assessing self-efficacy in oral communication ability.

The present study has also contributed towards identifying reliable measures of self-efficacy as it relates to communication skills. By investigating the three constructs of self-efficacy concurrently, this study provides a richer and comprehensive framework towards a better understanding of the aspects studied. This scale can serve as a useful basis for future researchers who are interested in examining the aspects studied.

Findings from this study could also implicate the teaching of oral communication to students. Language instructors should realise that in order to enhance students' self-efficacy level in communicating in English, all three elements (attitude, aptitude and aspiration) must be taken into consideration. Language and communication courses need to integrate each element in teaching and assessing students. This is vital because students with high self-efficacy in communicating in English may be better prepared to enter the job market in today's highly competitive job market.

## **CONCLUSION**

In general, the findings of the study indicate that the 169 senior-year students in the sample possess high self-efficacy beliefs in all three constructs, which means they have high confidence in their ability to communicate in English. Since communication skills play a vital role in the workplace, the findings of this study provide an indication that the students may step into the working world adequately prepared. This factor likely contributes to the high employability rate of UTP graduates. According to statistics from the university's Office of Student Support Services, more than 95% of the graduates from 2001–2007 were employed within nine months of graduating from the university. The remaining 5% decided to pursue their studies at a higher level.

This high employability rate is largely due to graduates' conformity to the requirements of the present employers of almost every engineering sector now seeking future employees. Employers are currently seeking employees with added value on top of the prerequisite relevant technical knowledge and skills, including oral communication ability (Gewertz, 2007; Shuman, 2005; Zedeck & Goldstein, 2000). This new phenomenon is mostly driven by the effects of technology advancement, especially in the IT industry, and by globalisation which has dramatically changed the course of business transactions, communication, job specifications, and much more. A prospective employee who possesses high communication ability would be a valuable asset to a corporation as he/she would be able to create and maintain healthy relationships among workers which lead to higher productivity or help project the corporation locally and globally. An engineer who only confines himself to a specific working area fiddling with machines has becoming a thing of the past. Thus, the purpose of this study was to investigate senior-year engineering students' levels of self-efficacy in their oral communication ability in English and whether they have what it takes to meet the requirements of the workforce.

The findings indicated that students have high self-efficacy in their oral communication ability in all three proposed constructs: aptitude, attitude and aspiration. Judgment of the students' high self-efficacy is based on both the average of the total scale as well as the average of the individual constructs. The authors believe that students' self-efficacy related to aptitude, attitude and aspiration should be high, because all the constructs rely on each other. In other words, students' positive aptitude would result in positive attitude towards improving their oral communication ability and aspirations to reach the desired effect. It is thought that students' self-efficacy plays an important

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role in predicting their effort and performance in oral communication in the workplace (Mikulecky et al., 1996). In fact, self-efficacy levels may determine whether students would be successful in effective communication or performing an important task in their future occupational scope. Moreover, self-efficacy beliefs are vital in determining whether students persist in oral communication discipline, which is important because they are more likely to have future high-paying careers in engineering and technological sectors if they do so.

Because high oral communication ability enhances one's chances of securing a job, students' self-efficacy in this ability should not be undermined. Stakeholders of learning institutions should make efforts to identify students who have low self-efficacy and help them to improve. Failing to underscore this aspect may cause students to lose vital chances to secure a job regardless of their technical qualifications.

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