ORAL PRESENTATION AND COMMUNICATION SKILLS IN WORKPLACE ENVIRONMENT AMONG ENGINEERS AND ENGINEERING STUDENTS IN PAKISTAN

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ABSTRACT

This study aims to determine the significance of oral communication for engineers at workplace and oral presentation barriers that hindered oral presentation performance of engineers and engineering students. Employers value effective oral communication and presentation skills of engineers at workplace. However, it remains unclear which barriers hinder oral presentation performance of engineers and engineering students. A mixed method research was employed to collect data from engineers and engineering students using questionnaire survey, recording of oral presentations and semi structured interviews from 2 engineering organizations and 3 engineering universities of Pakistan. A total of 30 engineers and 287 engineering students participated on the quantitative part of the study. Besides that, on the qualitative part 6 engineers and 25 engineering students participated in oral presentations. Among oral presentation participants, 2 engineers and 7 engineering students were interviewed to gain in depth information on significance of oral communication for engineers at workplace and barriers that hindered oral presentation performance of engineers and engineering students. Oral presentations were video recorded and semi structured interviews were taped. Questionnaire data were analysed using Statistical package for Social Sciences (SPSS, 15.0) to draw percentages for variables included in the questionnaire pertaining to significance of oral communication at workplace and oral presentation barriers that hindered oral presentation performance of engineers and engineering students. Qualitative data of recorded oral presentations and semi structured interviews were analysed using oral presentation assessment rubric and data reduction, data display, and conclusion drawing and verification and content analysis approach. Meanwhile, data from oral presentation assessment rubrics were quantified and analyzed using quantitative approach to draw descriptive statistics based on frequencies and percentages on oral presentation barriers of engineers and engineering students and communication strategies that they employed to overcome communication deficiencies during oral presentations. Findings indicate that oral communication plays a paramount role for engineers at workplace and oral presentation barriers for instance, poor oral communication skill, poor knowledge, low self confidence, stress and nervousness and low motivation hindered oral presentation performance of engineers and engineering students. The findings of this study can be used as a guideline to overcome oral presentation barriers of engineers and engineering students in order to prepare them to be productive engineers and to increase productivity in the workplace.

ABSTRAK

Kajian ini bertujuan untuk menentukan kepentingan komunikasi lisan di tempat kerja dalam kalangan jurutera dan halangan yang menghalang prestasi pembentangan lisan yang berkesan dalam kalangan jurutera dan pelajar kejuruteraan. Majikan menghargai komunikasi lisan yang berkesan dan kemahiran pembentangan dalam kalangan jurutera di tempat kerja. Walau bagaimanapun, masih tidak jelas halangan yang menghalang prestasi pembentangan lisan yang berkesan dalam kalangan jurutera dan pelajar kejuruteraan. Kaedah penyelidikan bercampur digunakan untuk mengutip data daripada jurutera dan pelajar kejuruteraan dalam bentuk tinjauan soal selidik, rakaman pembentangan lisan dan temubual separa berstruktur daripada dua organisasi kejuruteraan dan tiga universiti kejuruteraan di Pakistan. Sejumlah 30 orang jurutera dan 287 orang pelajar kejuruteraan terlibat dalam kajian kuantitatif. Dalam kajian kualitatif, seramai 6 orang jurutera dan 25 orang pelajar kejuruteraan terlibat dalam pembentangan lisan. Dalam kalangan peserta pembentangan lisan, 2 orang jurutera dan 7 orang pelajar kejuruteraan ditemu bual untuk mendapatkan maklumat mendalam kepentingan komunikasi lisan dalam kalangan jurutera di tempat kerja dan halangan yang menghalang prestasi pembentangan lisan dalam kalangan jurutera dan pelajar kejuruteraan. Pembentangan lisan dirakam secara video dan temuduga separa berstruktur dirakam secara audio. Data soal selidik dianalisis dengan menggunakan Pakej Statistik untuk Sains Sosial (SPSS, 15.0) untuk menilai peratusan pembolehubah kepentingan komunikasi lisan dalam kalangan jurutera di tempat kerja dan halangan yang menghalang prestasi pembentangan lisan dalam kalangan jurutera dan pelajar kejuruteraan. Data kualitatif berbentuk rakaman pembentangan lisan dan temu bual separa berstruktur dianalisis menggunakan pendekatan rubrik penilaian pembentangan lisan dan pengurangan data, paparan data, dan pembinaan kesimpulan dan pengesahan, dan analisis kandungan. Sementara itu data daripada pentaksiran rubrik pembentangan lisan dinilai dan dianalisis menggunakan pendekatan kuantitatif untuk mendapatkan statistik diskritif berasaskan frekuensi dan peratus halangan pembentangan lisan dalam kalangan jurutera dan pelajar kejuruteraan dan strategi komunikasi yang digunakan untuk mengatasi kelemahan kemahiran komunikasi semasa pembentangan lisan. Dapatan kajian menunjukkan bahawa komunikasi lisan dan pembentangan secara lisan memainkan peranan penting di tempat kerja dalam kalangan jurutera dan halangan pembentangan secara lisan contohnya, kemahiran komunikasi lisan yang lemah, kurang ilmu pengetahuan, keyakinan diri yang rendah, tekanan dan gemuruh dan juga motivasi yang rendah menghalang prestasi pembentangan yang berkesan. Dapatan kajian ini boleh digunakan sebagai panduan untuk mengatasi halangan pembentangan lisan dalam kalangan jurutera dan pelajar kejuruteraan. Keupayaan mengatasi halangan pembentangan lisan akan membolehkan mereka menjadi jurutera yang produktif dan akhirnya dapat meningkatkan produktiviti di tempat kerja.

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LIST OF ABBREVIATIONS

CS	-	Communication Strategies
Engr.	-	Engineer
Engg. Std	-	Engineering Student
L1	-	First Language
L2	-	Second Language

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CHAPTER 1

INTRODUCTION

1.0 Introduction

Globalization has brought dramatic changes in the workplace especially in the field of engineering. It demands engineering graduates to acquire diverse skills to be fit in this competitive work environment of organizations. The job market for engineers has become international (McGraw, 2004) due to globalization, industrialization and opening up of new business markets all over the world. Thus, engineering graduates have to communicate with diverse people from public and private organizations to promote business of organizations. Engineering graduates need to acquire effective oral communication and presentation skills, because organizations conduct business at international level (Lehman and DuFrene, 2008) these days. The most significant development in engineering is corporate of economies over last decade (Doerry and Bero, 2003) thus, engineering organizations demand effective oral communication and presentation skills of engineering graduates to increase its workplace productivity. Additionally, engineering graduates should never forget that people have increased interest in engineering products due to global changes. Thus, they frequently visit markets to look for new variety of things. In this perspective, engineering organizations look for engineering graduates who possess effective oral communication and presentation skills to persuade clients and customers to buy their company made products.

The skills that engineers need today are entirely different from past decade engineers (Jones, Butcher and Prey, 2005) in terms of skills required today. Industry requires both technical and non technical skills of engineering graduates to perform workplace jobs efficiently. Thus, engineering graduates need to acquire broad array of skills to perform workplace jobs effectively to satisfy needs of their customers and increase productivity of organizations. Communication skills such as oral communication and presentation skills play paramount role for engineers at workplace (Emanuel, 2005). These skills assist engineering graduates to perform workplace jobs effectively and thereby excel in job promotion ladder at workplace.

McGraw (2004) noted that it has become difficult for engineering graduates to work abroad, because modern engineering organizations demand technical and non technical skills of engineering graduates such as oral communication and presentation skills. The ability to communicate effectively with colleagues, customers and employers are the required skills for engineers at workplace (Nguyen, 1998). Allan and Chisholm (2008) stated that skill is an ability to survive in modern work environment of organizations. Industry recognises communication such as oral communication and presentation skills as important skills for engineering graduates (Aziz et al., 2005). Engineering graduates who possess effective oral communication and presentation skills bring various financial benefits for organizations. Conversely, engineering graduates equipped with poor oral communication and presentation skills harm interests of organizations as well as employers.

Communication skills such as oral communication and presentation skills are significant skills for engineers (Patil et al., 2008) because engineers with effective oral communication and presentation skills easily succeed to promote business of organizations at global level. Engineering graduates with poor oral communication and presentation skills no longer stay in one organization because employers never become satisfied from them and fire them from jobs. An engineer is hired for technical skills, fired for poor people skills and promoted for leadership and management skills (Russell et al., 1996).

The rapid skill changes at workplace have forced employers to assess skill deficiencies (Levenson, 2004) of engineering graduates. Thus, they demand from engineering graduates to demonstrate oral presentations during job employment interviews. Oral communication and presentation skills play the role of deciding factor for employers to hire engineering graduates for workplace jobs (Caruso, 1998). Modern graduates possess poor communication skills (McDonald, 2007), because they are provided poor oral communication and oral presentation skill trainings during study time. Thus, academic institutions have always been criticised for their failure to prepare students for the workplace (Burk, 2001). Engineering universities of Pakistan mainly focus on technical skills of engineering students ignoring the fact that oral communication and oral presentation skills play paramount role for engineers at workplace. This tends to be surprising although the trend for hiring engineering graduates at workplace has rapidly changed but the need to develop oral presentation skills of engineering students has not increased with that pace. Thus, engineering graduates' perform poor oral presentations during job employment interviews and following job employment at workplace.

Engineering universities give little importance to oral communication skills of engineering students compared to technical and mathematical skills (Winsor, 1996). It is never sufficient to prepare engineering students in the fundamentals of math, science and engineering (Warnick et al., 2008) in this modern age of industrialization. Industry values effective communication skills such as oral communication and presentation skills of graduates (Pittenger et al., 2004; Wardrope, 2002) but engineering universities of Pakistan focus on technical skills of engineering students. Thus, there is a skills gap between the acquired skills and the required skills of engineering graduates, and a disparity exists between the skills taught at universities and the skills required in modern industry (Andrews et al., 2005).

Industries are the biggest employers of engineering graduates (Todd, Sorenson, and Magleby, 1993) therefore; engineering universities should respond to the voice of industry and prepare graduates according to the skills required in modern industry. Industry needs a balance between technical and non technical skills of

engineering graduates. Technical competency may be paramount for engineers at entry level but effective communication such as oral communication and presentation skills dominate mid career of an engineer (Thesis, 1996). Thus, engineering graduates have to keep a balance between technical and non technical skills to perform workplace jobs effectively at workplace.

Engineering graduates of Pakistan possess poor oral presentation skills due to poor oral communication and presentation skill trainings provided to them during study time. Moreover, the academic programs offered by engineering universities mainly focus on technical skills of engineering students resultantly; engineering graduates possess poor oral presentation skills when they join the workplace. Due to poor oral presentation skill they tend to fail to obtain better job opportunities in local as well as global organizations. Poor oral presentation skill of engineering graduates tends to be one of the reasons for unemployment in engineering profession of Pakistan. Graduates poor workplace skills lead to unemployment (Voorhees and Harvey, 2005) in any profession. Many studies show concern over graduates' lack of communication skills (Bernama, 2010; Tay, 2008) such as oral communication and presentation skills. The current academic programs offered by engineering institutions of Pakistan do not properly train engineering graduates for workplace jobs (National Employment Policy of Pakistan, 2007). Thus, it is the responsibility of engineering universities to properly train engineering students for workplace jobs. As a result, they shall be able to join global organizations and would contribute towards economic stability of the country.

This study investigated significance of oral communication for engineers at workplace and barriers that hindered oral presentation performance of engineers and engineering students. Engineering students have to join workplace thus; they need to acquire those skills and knowledge that assist them to perform workplace jobs effectively and efficiently. This study would contribute to the existing knowledge on significance of oral communication for engineers at workplace and barriers that hinder oral presentation performance of engineers and engineering students. Thus, this researcher solicited viewpoints of engineers from workplace and engineering students from engineering universities of Pakistan.

1.1 Background of the Study

Oral communication and presentation skills have been recognized significant skills (Aly and Islam, 2005; Darling and Dannels, 2003) for engineering graduates at workplace. Engineering organizations heavily rely on effective oral communication and presentation skills of engineering graduates. In the absence of these skills organizations usually fail to achieve its targets. It is a general perception at workplace that engineering graduates equipped with effective oral communication and presentation skills perform better jobs and increase productivity of organizations. Thus, engineers need to possess effective oral communication and presentation skills to communicate with clients and customers to sell company products (Malone et al., 2004). Marketing has become an important aspect of modern workplace and employers look for engineering graduates who possess effective oral presentation skills to promote business of organizations.

Oral presentation is one of the seven most important oral communication skills required by entry-level employees (Campbell et al., 2001) at workplace. In a university setting, "most courses provide feedback on relatively few oral presentations" (Campbell et al., 2001: 24) due to curriculum or time constraints. Resultantly, oral presentations deemed appropriate by employers are often overlooked by communication teachers in engineering classrooms. Thus, engineering Accreditation Bodies such as Pakistan Engineering Council (PEC) should force engineering universities to prepare engineering students in non technical skills such as oral communication and oral presentation skills to prepare them better engineers for the workplace.

The ability of engineering graduates has always been questioned by engineering professionals (Jamaluddin, 2008) at various levels. Moreover, employers also show concern that they do not find graduates with effective oral presentation skills. The quality of engineers especially from Asian countries was perceived to be of poor standard in the United States of America (Jamaluddin, 2008). The engineers from Asian countries cannot be hired for outsourced jobs due to poor communication (Davidson, 2008) such as oral presentation skills. Engineering

graduates with poor oral presentation skills harm interests of organizations. The American industries in 1990 showed the concern that engineering graduates are being churned out from engineering universities (Jamaluddin, 2008) without the skills required in modern industry. Thus, American accreditation bodies monitoring engineering programs in the United States of America introduced a law demanding engineering universities to provide formal instruction in communication skills.

Employers emphasise graduates effective oral communication and presentation skills (Aziz, 1998). On the other hand, engineering students never like oral communication such as oral presentations due to fear, anxiety and nervousness (Merrier and Dirks, 1997). Academies have been criticized for their failure to train engineering students for workplace jobs (Burk, 2001). Industry demands from engineering graduates to be equipped with skills and knowledge needed for workplace jobs (Davis et al., 2003). If industry is not satisfied from engineering graduates in terms of oral communication and oral presentation skills this means there is a skills gap between industry and engineering universities.

Industries are the biggest employers of engineering graduates (Todd et al., 1993) therefore; engineering universities of Pakistan should never forget the demand of modern industry and prepare engineering students in oral presentations. If engineering universities fail to meet the demand of modern industry this means there is skills deficiency in engineering programs offered by engineering universities of Pakistan. Thus, they add oral communication and presentation skills in engineering degree programs. Engineering professionals showed concern that focusing on non technical skills of engineering students would reduce their technical ability, but research has shown that non technical skills increase technical ability of engineering students (Lattuca et al., 2006). Thus, engineering universities of Pakistan should focus on oral presentation skills of engineering students to prepare them productive for organizations. Engineering students usually disregard the importance of oral communication and oral presentation skills during study time but these skills assist them to perform workplace jobs effectively at workplace following graduation.

Communication teachers should motivate engineering students to take part in oral presentations to overcome oral presentation barriers during study time. Academicians should help organizations to decrease training costs for developing communication skills of students (Krapels and Davis, 2000). Moreover, engineering accreditation bodies should force engineering universities to add oral presentation skill courses in engineering curriculum to train engineering students in oral presentation skills. Katz (1993) surveyed engineers to identify required workplace communication skills during first year of job for engineering graduates. The results of the survey indicated that oral communication skills are the required skills for engineers at workplace. Oral communication skills at workplace include oral presentation skill, meeting skill, discussion skill, conversation skill and project participation skill. Oral presentation is an important skill for engineers at workplace because engineers have to perform oral presentations to keep abreast upper management of the organization well informed about work progress and barriers that confront productivity of organizations (Kakepoto Inayatullah et al., 2012).

Freihat Saleh et al. (2012) conducted a study on "The Picture of Workplace Oral Communication Skills for ESP Jordanian Business Graduate Employees". The results of the study indicated that 84% respondents agreed that oral communication is a part of modern workplace communication. Kakepoto Inayatullah et al. (2012) conducted a study on "The Picture of Modern Workplace Environment and Oral Communication Skills of Engineering Students of Pakistan". The results of the study indicated that oral communication and oral presentation plays important role for engineers at workplace and barriers such as lack of confidence, lack of knowledge, lack of environment and lack of English language hindered effective oral presentation performance of engineering students. Another study conducted by Kakepoto Inayatullah et al. (2012) on "New Trends in Modern Industry and Oral Presentation Barriers of Engineers of Pakistan" revealed that barriers for instance poor oral communication skill, low self confidence, stress and nervousness and low motivation hindered oral presentation performance of engineers in engineering workplace of Pakistan. Moreover, a study conducted by same authors on "Global Influences on Modern Industry and Oral Presentation Barriers of Engineering Students of Pakistan" showed that poor oral communication skill, low self

confidence, stress and nervousness and low motivation hindered oral presentation performance of engineering students.

Engineering universities of Pakistan tend to focus grammatical competence of engineering students. This is because they consider that grammatical competence is an important skill for engineering graduates and it would assist them to perform workplace jobs effectively. On the other hand, due to global changes engineering graduates of Pakistan need to possess strategic competence that would assist them to perform workplace jobs effectively at workplace. Sattar Ansa et al. (2011) conducted a study on "The linguistic needs of Textile Engineering Students: A case study of National Textile University" Pakistan. The results of the study revealed that engineering students wanted to learn English for business purpose and they preferred to learn English focusing on communication strategies compared to grammar translation methods. Moreover, the results of the study further indicated that English language teachers were in favour of teaching grammar rules to engineering students. Kakepoto Inayatullah et al. (2013) conducted a study on "Workplace Communication: Oral Communicative Competence of Engineers in Engineering Workplace of Pakistan". The results of the study revealed that engineers' employed poor communication strategies to overcome communication deficiencies during oral presentations. Moreover, same authors conducted a study on "Technical Oral Presentation: Analysing Communicative Competence of Engineering Students of Pakistan for Workplace Environment". The results of the study indicated that engineering students also used poor communication strategies to overcome communication deficiencies during oral presentations. In view of this, engineering students of Pakistan need to practice oral presentations to overcome barriers that hinder their oral presentation performance. Thus, they would perform better jobs at workplace following graduation at workplace.

1.2 Statement of the Problem

The rapid changes occurring around the globe demand engineering graduates to acquire diverse skills to be fit in this competitive work environment of organizations. There has been significant research on communication apprehension but very few studies have been conducted to investigate barriers that hinder oral presentation performance of engineers and engineering students. Oral presentation skills are considered significant skills (Aly and Islam, 2005; Darling and Dannels, 2003) for engineers and engineering students. Engineers have to perform oral presentations at workplace to keep management of the organization well informed about work progress and barriers that impact on productivity of organizations. Oral presentations are considered one of the best career enhancers (Polack-Wahl, 2000) thus, employers focus on oral presentation skills of engineering graduates during job employment interviews.

Communication studies emphasize communication skills of engineers (Patil et al., 2008; Schnell, 2006) and the need for developing oral presentation skills of engineers and engineering students is increasing rapidly in this fast growing age of industrialization. Modern graduates lack in communication skills such as oral presentations (Shaw, 2008) thus, employers find it difficult to hire engineering graduates for workplace jobs. Employers consider oral communication such as oral presentation tasks most difficult for graduates (Reinsch and Shelby, 1997) at workplace. This study aims at investigating whether engineers and engineering students of Pakistan have acquired appropriate oral presentation skills to perform workplace jobs efficiently at workplace. It is envisaged that the insights provided by engineers would assist engineering students to acquire specific oral communication skills and to overcome barriers that hinder their oral presentation performance.

Technical skills alone are never sufficient for engineering graduates (Scott and Yeats, 2002) to perform workplace jobs effectively at workplace. Despite importance of oral presentation for engineers at workplace it has received very little attention in communication research. Oral presentation barriers exist in communication literature but very limited research has been done so far to explore

barriers that hinder oral presentation performance of engineers and engineering students. Communication researchers have usually focused on barriers relating to communication apprehension (Faris et al., 1999) such as communication anxiety, stage fright, social anxiety, performance anxiety, unwillingness to communicate, reticence, shyness, confusion, fear, and audience sensitivity. However, communication apprehension is not a single factor that hinders oral presentation performance of engineers and engineering students but many other factors such as poor oral communication skill, poor knowledge, low self confidence, stress and nervousness and low motivation can hinder oral presentation performance of engineers and engineering students.

Communication literature evidences role of communication such as oral presentations on employee job performance (Larkin and Larkin, 1994) and workplace productivity of organizations. Thus, it was important to explore barriers that hindered oral presentation performance of engineers and engineering students. By exploring oral presentation barriers of engineers and engineering students they can be prepared productive for organizations. In addition, this study would contribute to fill skills gap between industry and engineering universities of Pakistan. Moreover, it would provide guidance to engineering students to understand significance of oral communication for engineers at workplace and to overcome oral presentation barriers before they join workplace. This study addressed oral presentation barriers of engineers and engineering students that hindered their oral presentation performance. Thus, it would assist them to understand significance of oral communication for engineers at workplace and to overcome barriers that hinder their oral presentation performance to perform workplace jobs efficiently and thereby excel in job promotion ladder at workplace.

1.3 Research Objectives

The purpose of this study was to determine significance of oral communication for engineers at workplace and to explore barriers that hindered oral

presentation performance of engineers and engineering students. The following objectives comprise the core objectives of the study:

1. To determine the significance of oral communication for engineers at workplace.

2. To determine oral presentation barriers that hinder oral presentation performance of engineers.

3. To explore oral presentation barriers that hinder oral presentation performance of engineering students.

4. To examine how oral presentation barriers affect oral presentation performance of engineering students.

1.4 Research Questions

The following research questions comprise the core of this investigation:

1. What is the significance of oral communication for engineers at workplace?

2. What are oral presentation barriers that hinder oral presentation performance of engineers?

3. What are oral presentation barriers that hinder oral presentation performance of engineering students?

4. How do oral presentation barriers affect oral presentation performance of engineering students?

1.5 Definition of Terms

In the context of this study, there are several distinct terms and concepts that are important and they are defined as under:

Oral Communication

Oral communication is the use of spoken language that involves exchange of ideas, thoughts, and feelings between and among employees at workplace. This definition is similar to the definition by Nyugen (1998) the ability to communicate orally with peers, the employer and a client is the desirable skill and attribute of an engineer.

Oral Presentation

Oral presentation is an oral communication activity that engineers and engineering students perform in academic and non academic settings such as workplace. This definition is similar to this that indicates that engineers have to perform oral presentations to keep abreast upper management of organization well informed about work progress and problems that confront organizations and impact on workplace productivity (Kakepoto Inayatullah et al., 2012).

Oral Presentation barrier

Oral presentation barrier is an obstacle that hinders oral presentation performance of engineers and engineering students in academic and non academic settings such as workplace and engineering universities. This definition is similar

with a statement that engineers face communication problems in giving presentations, conferences and seminars (Kedrowicz, 2006; Orr et al., 2005; Freeman, 2003; King, 2002; Polack-Wahl, 2000).

Communication Strategies

Communication strategies are the conscious and sub conscious use of verbal and vocal communication strategies to compensate for communication deficiencies or enhance communication efficiency (Canale, 1983).

Workplace Environment

A workplace is a place where different people work together on different positions to achieve a unified goal. This definition is similar to a definition of workplace such as the office, factory, or place where one works (Webster's New World College Dictionary, 1996, p. 1539).

1.6 Scope of the Study

Numerous criteria were observed to limit the scope of this study. This research was limited to 2 workplace engineering organizations and 3 engineering universities located in the province of (Sindh) Pakistan. The selected workplace organizations were power generation and power supply engineering organisations. Since the focus of this study was to explore the significance of oral communication for engineers at workplace and oral presentation barriers that hindered oral presentation performance of engineers and engineering students thus, data were collected from engineers and engineering students from workplace and engineering universities of Pakistan.

Engineers with minimum 5 years work experience were surveyed. The rationale for selection of engineers with 5 years' work experience was based on the understanding that experienced engineers would be better able to provide feedback on the significance of oral communication for engineers at workplace and barriers that hindered their oral presentation performance. On the other front, only final year engineering students were surveyed from engineering universities. The rationale for selection of only final year engineering students was based on the phenomenon that after one semester these engineering students would join workplace. Thus, it was necessary to assess barriers that hindered their oral presentation performance because the same barriers shall affect their job performance at workplace.

The types of data gathered for this study were based on qualitative and quantitative data. Engineers and engineering students' oral presentations and interview transcripts were primary used as qualitative data to determine the significance of oral communication for engineers at workplace and barriers that hindered their oral presentation performance. On the other hand, quantitative data obtained from questionnaire survey were used as secondary data to verify the significance of oral communication for engineers at workplace and barriers that hindered oral presentation performance of engineers and engineering students.

Participants of this study were engineers and engineering students. Thirty (30) engineers and two hundred eighty seven (287) engineering students participated in questionnaire survey from workplace and engineering universities. On the other hand, six (6) engineers and twenty five (25) engineering students participated in oral presentations from workplace and engineering universities. Additionally, among engineers and engineering students who participated in oral presentations two (2) engineers and seven (7) engineering students participated in semi structured interviews. Oral presentations were video recorded and semi structured interviews audio recorded to capture actual barriers of engineers and engineering students that hindered their oral presentation performance.

Purposive sampling method was used since respondents were drawn on specific criteria of engineers with minimum 5 years work experience and only final

year engineering students. Mixed methods research design based on QUAL+quan methods were used to determine the significance of oral communication for engineers at workplace and to explore barriers that hindered oral presentation performance of engineers and engineering students.

1.7 Significance of the Study

Studying the significance of oral communication for engineers at workplace and barriers that hindered oral presentation performance of engineers and engineering students would help to generate new ways to prepare better engineers for the workplace. Several studies have been conducted relating to communication apprehension for instance communication anxiety, stage fright, social anxiety, performance anxiety, unwillingness to communicate, reticence, shyness, confusion, fear, and audience sensitivity but very few of them have focused on barriers that hinder oral presentation performance of engineers and engineering students. Besides oral presentation barriers this study also investigated communication strategies that engineers and engineering students employed to overcome communication deficiencies during oral presentations.

In this perspective, the findings of this study would contribute to the existing body of communication literature relating to significance of oral communication for engineers at workplace and oral presentation barriers that hindered oral presentation performance of engineers and engineering students. Additionally, the findings would benefit engineering universities, technical colleges, engineering organizations and management training institutions to develop oral communication and oral presentation skills of engineering students, engineering graduates' engineers *and* graduates of other non engineering disciplines such as business and marketing since these disciplines involve oral communication and oral presentation with clients and customers.

Moreover, the findings of this study would be useful for syllabus designers to incorporate oral communication and oral presentation topics in engineering communication skills curriculum to prepare better engineers for the workplace. Furthermore, the findings of this study would benefit communication teachers to focus on oral presentation barriers of engineering students during study time to prepare them better engineers for global organizations.

Additionally, the findings of this study would provide a landscape to increase communication between industry and engineering universities of Pakistan. It would assist to prepare better engineers for the workforce. Moreover, the findings of this study would benefit employers to arrange non technical skill trainings for engineers at workplace to increase workplace productivity of organizations because communication has become an important aspect of any successful organization.

1.8 Theoretical and Conceptual Framework

This study employed three communication theories as theoretical framework for instance Communicative Competence Theory (Canale and Swain 1980), Communication Apprehension Theory (McCroskey, 1977) and Uncertainty Reduction Theory (Berger and Calabrese, 1975). The construct of these communication theories provided better insights to determine significance of oral communication for engineers at workplace and to explore oral presentation barriers that hindered oral presentation performance of engineers and engineering students of Pakistan.

Communicative Competence*:* Communicative competence as defined by Canale and Swain (1980, 1983) contain four aspects of competence such as grammatical competence, sociolinguistic competence, discourse competence and strategic competence. Grammatical competence is the knowledge of grammatical rules, vocabulary, spelling, and pronunciation and it focuses on the knowledge and skills necessary to understand and express the meaning of utterances. Sociolinguistic

competence is the mastery of appropriate language use in different social contexts with emphasis on appropriateness of meaning and forms. Moreover, in this competence speaker knows to express meaning in terms of the person being addressed, setting and the overall purpose of communication. Discourse competence is the ability to combine language structures into different types of cohesive and coherent texts such as letters, political speeches, poetry and academic essays. Strategic competence is the knowledge of verbal and nonverbal communication strategies that speakers employ to overcome communication deficiencies during oral presentations. It is the result of inadequate competence in communication and includes various communication strategies such as message abandonment, message reduction, message replacement, circumlocution, use of all purpose words, restructuring, code switching, self repair, self rephrasing, self repetition and use of fillers that assist speakers to overcome communication deficiencies during oral presentations.

Engineers and engineering students by practising certain grammatical rules would never be able to perform communicative tasks effectively in academic and non academic settings. They have to perform various communication tasks at workplace ranging from oral presentations, meetings, discussions, conversations and negotiations. Researchers argue that effective communicators should never be limited to correct grammatical utterances, because many speakers possess poor grammar skills but are better communicators (Gee, 2008). The link between communication strategies and strategic competence was first introduced by Canale and Swain (1980). These researchers defined strategic competence as comprising of "...verbal and nonverbal strategies that may be called into action to compensate for breakdowns in communication due to performance variables or to insufficient competence" (Canale and Swain, 1980: 30). Thus, communication strategies would assist engineers and engineering students to overcome communication deficiencies during oral presentations. In view of this, this study focused on strategic competence of engineers and engineering students to explore communication strategies that they employ to overcome communication deficiencies during oral presentations.

Communication Apprehension: The theory of communication apprehension has been used for hundreds of communication studies to measure communication apprehension prevailing among individuals and its effect on academic success and employee job performance at workplace. McCroskey (1977: 78) is a prominent researcher in the field of communication research. He defined it as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons". It includes four types of apprehension such as trait-like apprehension, generalized-context apprehension, person-group apprehension and situational apprehension (McCroskey et al., 1986). Trait apprehension is enduring orientation based on personality and is consistent across variety of variables (McCroskey et al., 1986) such as context, audience and time (Richmond et al., 1985). Generalized apprehension is similar to trait-like apprehension because an enduring personality orientation is basis for both types of apprehension. The level of apprehension in generalized-context usually differs from one context to another. For example, a person can be highly apprehensive in public speaking but less apprehensive in conversations, meetings and discussions. Person group apprehension is related with individual reactions to communication with given individual or people across time. This type of fear occurs communicating with boss, teacher, or colleagues and it is relatively normal to be apprehensive communicating with a person or group of people. Situational apprehension exists at very end of communication apprehension and it is experienced communicating with an individual or group of audience in a single situation.

Communication apprehension is present everywhere such as classrooms and the workplace. Communication apprehension affects job performance of engineers at workplace and apprehensive employees obtain poor promotions at workplace (Richmond et al., 1995). Employees with communication apprehension are less productive, and cost more expenditure for organizations (Richmond, 2009). On the other hand, Communicative apprehensive students avoid taking part in oral communication activities (McCroskey et al., 1978) such as oral presentations. They face fear and anxiety, low self confidence and stress and nervousness during oral communication and oral presentations (McCroskey et al., 1978). This study

employed communication apprehension theory to explore barriers that hindered oral presentation performance of engineers and engineering students.

Uncertainty Reduction Theory: Uncertainty Reduction Theory (URT) was originally developed for interpersonal interaction (Berger and Calabrese, 1975) and it increases communication between employees at workplace. The central purpose of uncertainty reduction theory is to reduce uncertainty through knowledge sharing in academic and non academic settings such as engineering universities and the workplace. Uncertainty can cause stress and anxiety that can result in poor communicative competence (West and Turner, 2000) of engineers and engineering students. These authors further indicated that low levels of uncertainty and anxiety increase verbal communication among employees. Thus, a low anxious engineer would perform better job and would contribute towards increased workplace productivity of organization.

Uncertainty Reduction Theory (URT) is based on several axioms and these axioms show relationship between uncertainty and communication. For example, the more a person gathers information, the less uncertain he would feel, and when communication between strangers increases, nonverbal expressions of interest increase (Berger and Calabrese, 1975). Thus, communication is a foundation to decrease uncertainty and anxiety prevailing among engineers and engineering students. Moreover, uncertainty reduction theory would guide engineering students to understand the nature of workplace jobs, because the central motive of communication is to reduce uncertainty (Berger et al., 1975). Thus, an uncertain engineering graduate would perform better jobs at workplace. Motivation is an important aspect of interpersonal communication (Heath and Bryant, 2000) and employees with motivation tend to be less anxious and perform better jobs at workplace. Motivation impacts organizations either in increase or decrease of profits (Manolopoulos, 2008) and low motivated employees tend to be less productive for organizations (Shahzad et al., 2008). Motivated and uncertain engineers develop better work relationship with people from other organizations and bring various projects for organizations. Thus, employers reward such engineers with better job promotions. Employees with strong relationships are rewarded with awards (Myers

and Johnson, 2004) and uncertainty is a barrier for engineers to keep better relations with people from within and outside organizations. Thus, low motivated employees are never productive for organizations. Thus, the insights gained from this theory would assist to explore motivation of engineers and engineering students from workplace and engineering universities of Pakistan. No doubt, motivation is closely associated with academic success of engineering students and engineers job performance at workplace.

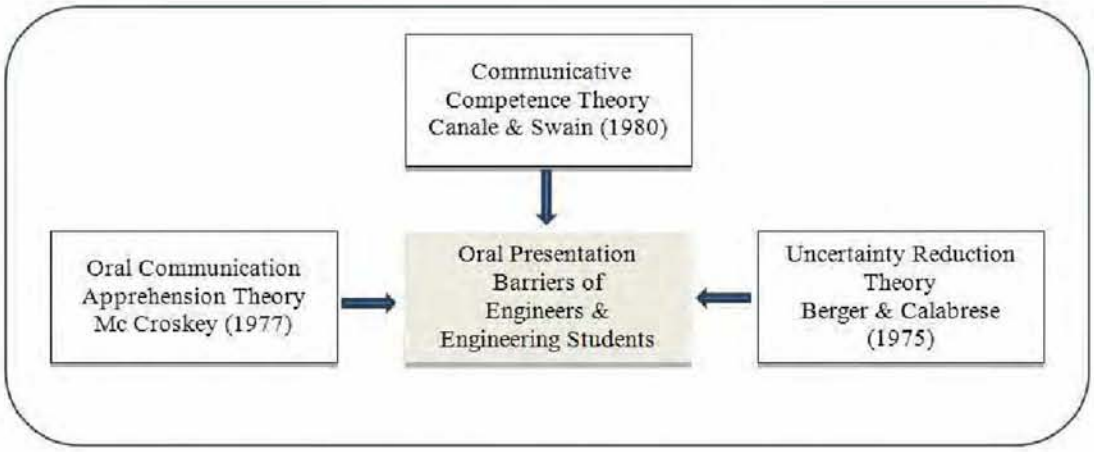

Figure 1.1: Theoretical Framework for the Study

Figure 1.1 shows theoretical framework framed for this study. It indicates that in order to overcome oral presentation barriers of engineers and engineering students' three communication theories for instance communicative competence theory, communication apprehension theory and uncertainty reduction theory were employed. In fact, the insights gained from these communication theories would assist to overcome oral presentation barriers of engineers and engineering students of Pakistan. Figure 2.2 discusses the conceptual framework framed for this study.

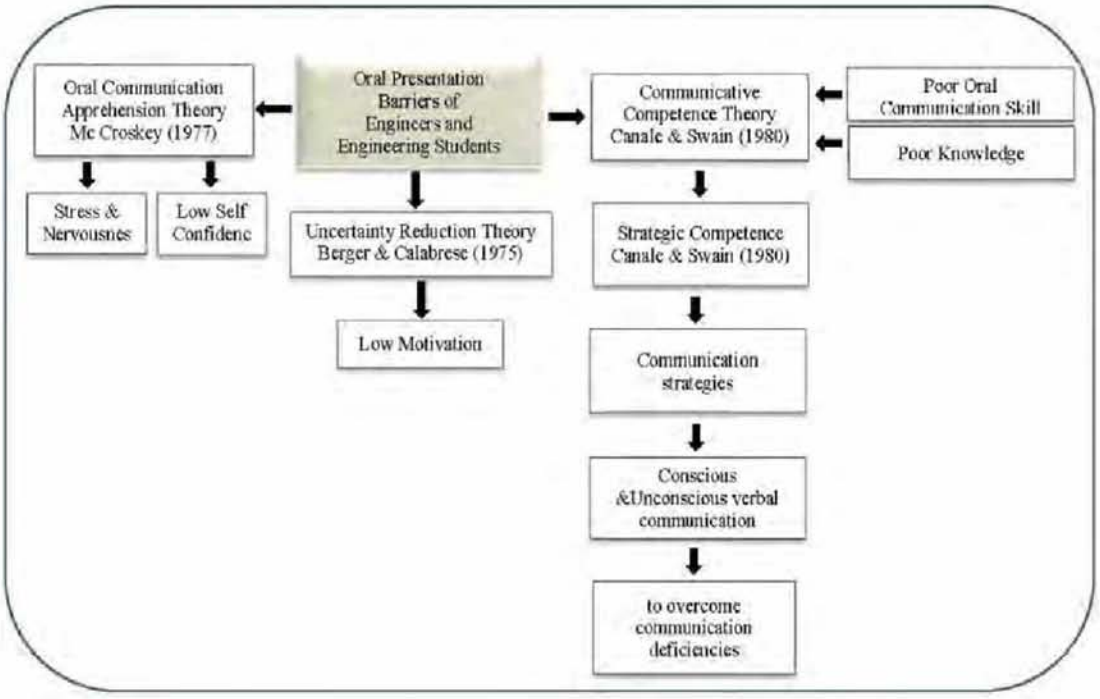

Figure1.2: Conceptual Framework of the Study

Figure 1.2 indicates that in order to overcome communication barriers of engineers and engineering students' three communication theories were employed. They were 'communication competence theory' (Canale and Swain, 1980), 'communication apprehension theory' (McCroskey, 1977) and 'uncertainty reduction theory' (Berger and Calabrese, 1975). Five variables for example poor oral communication skill, poor knowledge, low self confidence, stress and nervousness and low motivation as barriers were investigated from engineers and engineering students. Poor oral communication skill and poor knowledge were drawn from 'communication competence theory', low self confidence and stress and nervousness were drawn from 'communication apprehension theory', and low motivation was selected from 'uncertain reduction theory'. Besides oral presentation barriers, communication strategies that engineers and engineering students employed to overcome communication deficiencies during oral presentations were also investigated. Thus, Canale and Swain (1980) strategic competence model was used to explore communication strategies of engineers and engineering students.

1.9 Conclusion

This chapter provided information about introduction, background of the study, statement problem, scope and significance of the study. The introduction section introduced significance of oral communication for engineers at workplace due to increasing role of globalization and industrialization in modern industry. Thus, engineering graduates need to acquire effective oral communication and presentation skills to promote business of organizations at national and international level. Background of the study indicated that oral communication and oral presentation plays paramount role for engineers at workplace and it is not without difficulties for engineers and engineering students. Thus, engineering students of Pakistan need to practice oral presentations to overcome barriers that hinder their oral presentation performance before they join workplace. Statement of the problem indicated that technical competency alone is never sufficient for engineering graduates to perform workplace jobs effectively therefore; engineers and engineering students need to acquire technical and non technical skills such as oral presentation skills if they want to obtain a job at workplace and thereby excel in job career at workplace. The significance of study indicated that findings of this research would benefit engineering students, engineers, engineering graduates, industry, engineering universities, technical colleges, curriculum designers and management training institutions to arrange oral communication and oral presentation skill trainings for graduates from engineering and non engineering disciplines. Additionally, the findings of this study would increase collaboration between industry and engineering universities of Pakistan to prepare productive future engineers for the workplace.

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